Large Filing Separator Sheet

Case Number: 10-2661-GA-BLN

File Date: 11/16/20019

Section: 1 of 2

Number of Pages: 123

Description of Document: Letter of Notification

FILE

RECEIVED-DOCKETING DIV

2010 NOV 16 AM 10: 39

PUCO

Dominion
East Ohio

Letter of Notification
For
PIR-006 Mohican Phase I Transmission Pipeline Replacement (L#234)

Ohio Power Siting Board
Case No. 10-2661-GA-BLN

Submitted by

Dominion East Ohio Gas Company – November 16, 2010

This is to certify that the images appearing are an accurate and complete reproduction of a case file document delivered in the regular course of business
Technician Ann Date Processed 11/16/10

4122757v1

The following information is being provided in accordance with the procedures delineated in Ohio Administrative Code Section 4906-11-01: Letter of Notification Requirements of the Rules and Regulation of the Ohio Power Siting Board.

4906-11-01(B) GENERAL INFORMATION

4906-11-01(B)(1)

Name and Reference Number

The proposed project is the Dominion East Ohio Gas Transmission Line #234 Pipeline Replacement. The project will be referenced with DEOG as PIR-006, Mohican Phase I, and Project #6T07051208.

Brief Description of Project

Dominion East Ohio Gas (DEO) is planning to replace approximately 10,700 feet of Mohican Line #234. This pipeline replacement involves the replacement of existing 16-inch and 20-inch transmission natural gas pipeline that traverses Summit County in a northeast to southwest direction, within the cities Akron and Norton. The replacement of existing transmission line will not be continuous. This project shall consist of four (4) replacement sections. The pipe replacement shall begin at Barnes Road Station (Section 1), east of Collier Road and south of Knox Road (Akron, OH), with work ending within immediate vicinity of DEO regulator station. Pipe replacement shall resume south of Wadsworth Road/Wooster Avenue across from Warren Avenue (Section 2), and proceed in southwest direction before suspending near existing gravel pit location. Work shall resume south of intersection of Summit Road and McCoy Road (Section 3), and continue

southwesterly, crossing Wolf Creek, and suspending north of the I-76 Bridge. Pipe replacement shall then resume south of I-76 and west of Barber Road (Section 4), and continue southwest to its termination at DEO Wilbur Station, located south of Wilbur Avenue, and west of Tallwood Drive (Norton, OH). Residential areas comprise significant portion of Mohican Phase I work area. The remaining project area consists of expansive areas of undeveloped land. Several wetland areas occur within this undeveloped area.

The existing 16-inch and 20-inch bare steel pipeline shall be replaced with a single twenty-inch transmission pressure steel pipeline. The new pipeline will be coated and cathodically protected with anodes. The twenty-inch pipe replacement shall be placed in the location of existing 16-inch and 20-inch lines after their removal. Pipe replacement shall be installed within existing 60 foot permanent easement. All pipeline replacement will be restricted to easement limits. Existing public roadways, private roadways, and pipeline ROW will provide required equipment access. The existing transmission pipeline being replaced, was installed in 1948 (62 years ago), with a MAOP of 437 pounds per square inch – gas (psig).

A project overview map is included in Attachment A.

Why the Project Meets the Requirements for a Letter of Notification

This project qualifies as a Letter of Notification because it fits the criteria of OAC 4906-1-01, Appendix B (4), "Gas transmission lines greater than one mile which meet all the following criteria: (a) The facility proposed for construction must be located wholly within an existing or planned natural gas distribution area. (b) The company must wholly

own or solely operate the facility after completion of construction. (c) The primary purpose of the facility proposed for construction will be direct distribution of gas to consumers."

This replacement project meets the criteria of Appendix B (3) because (i) the new line will replace an existing line; and (ii) the new line will be greater than one mile but not greater than five mines in length [pipe replacement will be approximately 1.95 miles in length]. The corridor for pipe replacement was granted to DEO by permanent right-of-way agreement from individual property owners. Existing easement will not need to be widened. Existing pipeline shall be removed, and new pipeline placed in same location, within this easement. New pipeline shall have equivalent rating and operating characteristics of existing line.

4906-11-01(B)(2) Need for the Proposed Pipeline Replacement

The objective of this replacement project is to continue to provide adequate gas supply to the Akron operating area of approximately 267,000 customers. This pipeline (L#234) also serves as back-up to production gas entering Mohican system in the summer, and storage withdrawal in the winter. The proposed replacement of the 16-inch and 20-inch portion of Line #234, shall result in the replacement of 62 year old bare steel pipe. The safety benefits resulting from installation of new cathodically protected (coated) steel pipeline, reduce future pipe leaks and/or integrity risks within the system.

4906-11-01(B)(3) Location of the Project

Attachment A illustrates the location of existing transmission pipeline (L#234). The new twenty-inch replacement pipeline segments shall be installed within existing 60 foot DEO

easement. New pipeline will be installed in four (4) sections between Barnes Road Station and Wilbur Station.

4906-11-01(B)(4) Alternatives Considered

Alternative replacement options were considered, but limited by design criteria and operational constraints. DEO Gas Control was consulted regarding the takedown of this line (Mohican L#234). This line serves as back up for production gas in the summer. Pipeline can only be shut down for limited time. DEO's Bare Steel Pipe Replacement initiative requires that pipe segment replacement must be based on pipe viability, operational constraints, location, and potential impacts to property owners, and natural resources.

The following factors provided confirmation that replacement option selected was correct:

1. Existing DEO right-of-way agreement in place—the existing right-of-way (ROW) corridor is sufficient for both the removal of existing 16-inch and 20-inch pipelines, and the installation of new twenty-inch pipeline.
2. Locating new pipeline within existing 60 foot easement, eliminates the need for DEO to obtain additional easements. Existing easement provides the best and obvious replacement option. Any other alternative would have to be established on land that had not previously been used for a pipeline. Potential distress and inconvenience to landowners from whom DEO would be obtaining easements, would be avoided

3. This line segment as a scope of work was chosen because the current segment does not have corrosion protective coating.
4. Operational Constraints—Replacement location allows temporary shutdown of transmission within time frame determined by Gas Control.

4906-11-01(B)(5) Anticipated Construction Schedule and Proposed In-Service Date

The engineering design of the Project has been completed. Construction on the project has been tentatively scheduled for the middle of December 2010. The new line is expected to be in service by April 1, 2011 at the latest.

Copies of proposed construction plans are included in Attachment B.

4906-11-01(B)(6) Project Area Map and Directions

As defined on construction plans, entire length of the proposed route will be located within DEO easement. Travel to the site from Columbus can be accomplished by taking Interstate Route 71 north toward Cleveland (approximately 100 miles). From I-71 north, merge onto I-76E/US-224E via Exit 209A (approximately 16 miles). Take the Barber Road exit, Exit 16. Turn LEFT onto Barber Road. Travel one mile, turn RIGHT onto Wadsworth Road. Travel one mile down Wadsworth until its intersection with Collier Road. Turn LEFT on Collier Road. Proceed NORTH on Collier Road for approximately 0.25 miles to the Barnes Road Station driveway located on the right side of the street. Pipe alignment staking will be provided.

4906-11-01(B)(7) Property Owner List

A list of property owners, all of whom have granted easements to DEO are appended as Attachment C. There are no additional properties for which easements have not been obtained.

4906-11-01(C) TECHNICAL FEATURES OF THE PROJECT

4906-11-01(C)(1) Operating Characteristics, Required Structures, and Right-of-Way and/or Land Requirements

Pipeline MAOP:

The replaced pipeline will maintain the MAOP of the existing pipeline which has an MAOP of 437 psig.

Pipe Material:

Existing 16-inch and 20-inch bare steel pipeline will be replaced with 20-inch, .375w, X42, Fusion Bond Epoxy coated pipe.

Structures:

No additional structures will be required for the replaced pipeline.

Right-of-Way (ROW) and/or Land Requirement:

Pipe replacement shall take place within the existing 60-foot DEO easement. New pipeline shall be installed in the same location as existing pipeline.

4906-11-01(C)(2) Electric and Magnetic Fields

This project involves the replacement of a natural gas pipeline; therefore, this section is not applicable.

4906-11-01(C)(3) Estimated Capital Costs

The capital cost of this project is estimated to be approximately $2,000,000.

4906-11-01(D) SOCIOECONOMIC DATA

4906-11-01(D)(1) Land Use

The proposed project is located in the cities of Akron and Norton, Ohio, in Summit County, Ohio. The entire length of the proposed route will be located within DEO easement. Land use within 100-feet of the proposed route is dominated by residential areas.

4906-11-01(D)(2) Agricultural Land

According to the Summit County Auditor's Office, all of the adjacent parcels are governed by Ohio Revised Code Chapter 929 pertaining to the agricultural district program. There is only one agricultural parcel in the vicinity of the project.

4906-11-01(D)(3) Cultural Resources

Environment and Archaeology, LLC, an environmental and engineering firm, was contracted by DEO to conduct a Phase I cultural resources survey of the proposed Mohican Transmission L#234 pipeline replacement project. The Area of Potential Effect (APE) for this project consisted of land directly impacted by construction activity, equipment access and storage within DEO easement. The entire length of proposed replacement was subjected to Phase I archaeological survey and pedestrian

reconnaissance. Since proposed project only involves the installation of new pipeline, with no additional permanent above ground facilities, there will be no adverse effect on the view shed other than temporary effects during construction.

The Phase I field survey was conducted in January of 2009. Given the degree of testing within the proposed project area, the survey was adequate to identify the presence of archaeological resources within the area, had they been present. It was the opinion of Environment and Archaeology, LLC that the proposed project area does not maintain any potential for the presence of intact cultural resources. No further archaeological work is recommended for project area. No further consultation under Section 106 of National Historic Preservation Act is recommended for this project.

The survey did not encounter any cultural resources that were potentially eligible to the NRHP. The research potential for the sites identified was considered negligible.

A copy of an abstract of the study is found as Attachment D (the entire study was provided to the Board staff).

4906-11-01(D)(4) Documentation of Letter of Notification Transmittal to Public Officials and Public Information Program

DEO representatives have informally contacted the affected public officials. In addition Letters of Notification, a sample of which is found in Attachment E, are being provided concurrently to the following officials of Summit County:

County Officials

Summit County Council
c/o Russell M. Pry, Executive
Ohio Building, 8th Floor
175 South Main Street
Akron, OH 44308

Alan Brubaker, P.E., P.S.
Summit County Engineer
538 E. South Street
Akron, OH 44311

Connie Krauss
Director of Community & Development
175 South Main Street
Akron, OH 44308

Cindy Fink, Chairman
Summit County Soil & Water Conservation District
2525 State Road
Cuyahoga Falls, OH 44223

City Officials

David White, P.E. Municipal Engineer
Russ Arters, Building Superintendent
City of Norton
4060 Columbia Woods Drive
Norton, OH 44203

Mayor Davild L. Koontz
City O Norton
4060 Columbia Woods Drive
Norton, OH 44203

Richard Ryland
City Administrator
4060 Columbia Woods Drive
Norton, OH 44203

Planning & Community Development Department
City Administration Building
4060 Columbia Woods Drive
Norton, OH 44203

Mayor Donald L. Plusquellic
Suite 200 Municipal Building
166 South High Street
Akron, Ohio 44308

John O. Moore
Director of Planning & Urban Development
166 South High Street, 4th Floor
Akron, OH 44308

Ralph Coletta, P.E.
City Engineer
Akron Engineering Bureau
166 South High Street
Akron, Ohio 44308

Public Information Program

Given the entire length of this route will remain with DEO easement, DEO believes that no public information program, materials, or meetings are necessary for the siting of this proposed facility.

4906-11-01(D)(5) Current and Pending Litigation

There is no current or pending litigation involving the replacement of the existing line.

4906-11-01(D)(6) Local, State and Federal Permits and Requirements

Though not specifically required by regulations, DEO will have an environmental specialist on site during construction activities.

A construction storm water pollution prevention plan has been prepared for the project and is appended as Attachment F. The plan will be included in the package submitted for competitive bids from contractors. DEO has submitted a Notice of Intent to the Ohio Environmental Protection Agency. It has sent copies of the plan to the Summit County Soil and Water Conservation District and has received comments from the district. Additionally, DEO has submitted an Earth Disturbing permit application and will conduct a pre-construction meeting, if necessary, with the Summit County Soil and Water Conservation District. Plans have been submitted to the cities of Akron and Norton for construction permitting. There is no other known local, state, or, except for the United States Army Corps Engineers Preconstruction Notice (which has been made), federal requirements that must be met prior to commencement of construction on the proposed pipeline replacement project.

4906-11-01(E) ENVIRONMENTAL DATA

4906-11-01(E)(1) Species of Concern

The ecological field survey was conducted primarily for identification of habitat for endangered, threatened, and rare species documented for Stark County, Ohio by the US Fish and Wildlife Service (USFWS) and the following Divisions within the Ohio Department of Natural Resources: Division of Natural Areas and Preserves (ODNR-DNAP), the Division of Wildlife (ODNR-DOW), the Division of Real Estate and Land Management (ODNR-DRELM).

Ohio Department of Natural Resources – Division of Natural Areas and Preserves (ODNR-DNAP): In a letter response by Brian Mitch (see Attachment G), the ODNR-DNAP, and Natural Heritage Database contains records of rare species near the proposed project. The map and list attached to the letter displays the locations of the records.

There are no state nature preserves, state parks, wildlife areas, or scenic rivers in the vicinity of the site.

Ohio Department of Natural Resources - Inter-disciplinary Departmental Review, Division of Wildlife and Division of Real Estate Land Management (ODNR-DOW and ODNR-DRELM): In a letter response by Brian Mitch (see Attachment F), the ODNR-DOW reported the following:

The project is within the range of the Indiana bat (Myotis sodalist), a state and federally endangered species. The following species of trees have relatively hig value as potential Indiana bat roost trees" Shagbark hickory, Shellbark hickory, Bitternut hickory, Black ash, Green ash, White ash, Shingle oak, Northern red oak, Slippery elm, American elm, Eastern cottonwood, Silver maple, Sassafras, Post oak, and White oak. Indiana bat

habitat consists of suitable trees that include dead and dying trees of the species listed above. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1; if suitable trees must be cut during the summer months of April 2 to September 29, a net survey must be conducted in May or June prior to cutting. If no tree removal is proposed, the project is not likely to impact this species.

The project is within the range of the bald eagle, a state threatened species. The location of bald eagle activity frequently changes. Therefore, closer to actual date of construction, the applicant must obtain an update status of bald eagle activity in the area.

The project is within the range of the elfin skimmer, a state endangered dragonfly, the racket-tailed emerald, a state endangered dragonfly, the chalk-fronted corporal, a state endangered dragonfly. Due to the mobility of these species, the project is not likely to impact these species.

The project is within the range of the black bear, a state endangered species, and the bobcat, a state endangered species. Due to the mobility of these species, the project is not likely to have an impact on these species.

The project is within the range of the golden-winged warbler, a state endangered bird. Due to the habitat provided by the project area, the DOW believes the project is not likely to impact this species.

The Natural Heritage Database has records near the project area for the spotted turtle, a state threatened species, ant the Virginia rail, a state species of concern. Due to the status of these species and the date of the records, the DOW believes the project is not likely to impact these species.

4906-11-01(E)(2) Areas of Ecological Concern

Delineated Wetlands

The wetland delineation was conducted using the procedure outlined in the routine onsite determination method of the *USACE 1987 Manual*. Additionally, the wetlands were evaluated utilizing the Ohio Environmental Protection Agency (OEPA) ORAM v5.0 qualitative evaluation method for categorizing wetlands.

Environment & Archaeology, LLC conducted a wetland and water resources delineation field investigation at the Study Area December 17 and 18, 2008. This investigation identified eight (8) stream crossing sites of eight (8) different stream channels, and seven (7) wetland crossing sites of 6 different wetland features along the survey area.

Completed USACE and ORAM forms for each delineated wetland within 100-feet of the proposed route along with wetland locations were provided in the project wetland delineation, stream assessment, and threatened and endangered species habitat study report.

For all wetlands to be crossed by construction, DEO will follow the Company's established best management practices for these activities.

A copy of the Environment & Archeology, LLC report is found as Attachment H.

Ohio Department of Natural Areas (ODNR) Geological Survey

There are no known mines within the limits of this project, it should be noted that there are some within the vicinity. It is estimated that the mines located only represent about 67% of the abandoned underground mines in the state.

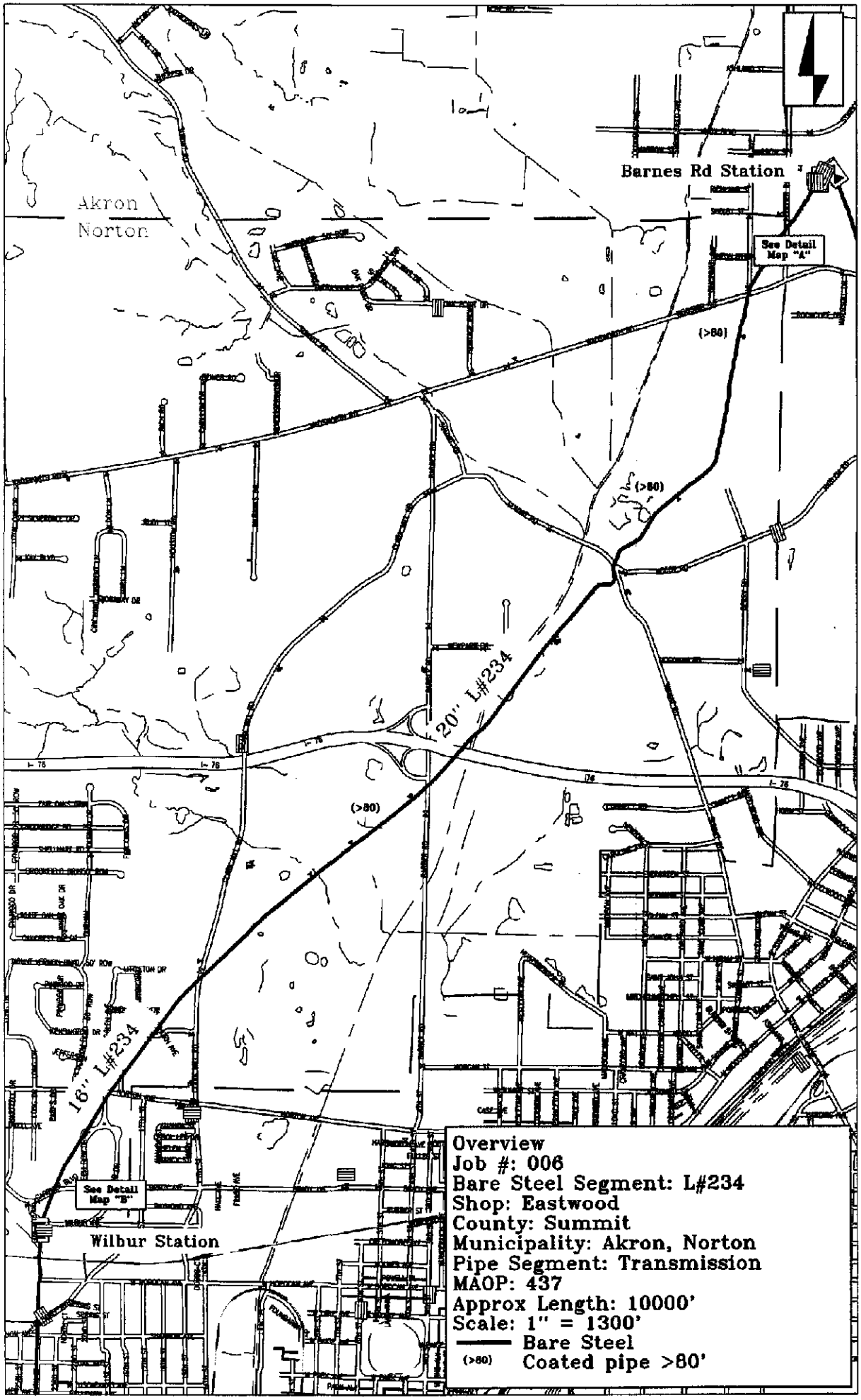
Geological survey did not find any other geology-related concerns within project area.

4906-11-01(E)(3) Any Known Unusual Conditions Resulting in Significant Environmental, Social, Health, or Safety Impacts

DEO's consultants, Environment & Archeology, LLC and the US Fish and Wildlife Service confirmed that there are no known unusual conditions resulting in significant environmental, social, health, or safety impacts.

ATTACHMENT A

PROJECT OVERVIEW MAP


Barnes Rd Station
Akron
Norton
See Detail Map "A"
(>80)
(>80)
(>80)
20" L#234
18" L#234
See Detail Map "B"
Wilbur Station
Overview
Job #: 006
Bare Steel Segment: L#234
Shop: Eastwood
County: Summit
Municipality: Akron, Norton
Pipe Segment: Transmission
MAOP: 437
Approx Length: 10000'
Scale: 1" = 1300'
Bare Steel
(>80) Coated pipe >80'

ATTACHMENT B

CONSTRUCTION PLAN

GENERAL NOTES

Insert notes from the General Notes word document located in the Resources directory

MAINTENANCE OF TRAFFIC

ALL TRAFFIC SIGNS, BARRICADES, DEVICES, AND TRAFFIC CONTROL PERSONNEL, FOR THE SAFETY AND CONTROL OF PEDESTRIAN AND VEHICLE TRAFFIC, FOR THE WORK AREA SHALL BE FURNISHED, AND BE THE RESPONSIBILITY OF THE DEO CONTRACTOR, AT ALL TIMES.

ALL ABOVE STATED ITEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF:
THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS , INCLUDING BUT NOT EXCLUSIVE OF O.R.C 614.02, 614.03

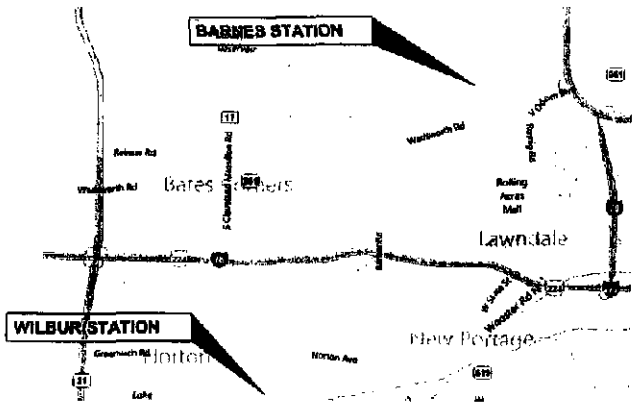
GENERAL LEGEND

EXISTING LOW PRESSURE GAS LINE	LP
EXISTING MEDIUM PRESSURE GAS LINE	MP
EXISTING INTERMEDIATE PRESSURE GAS LINE	IP
EXISTING HIGH PRESSURE GAS LINE	HP
EXISTING TRANSMISSION LINE	TPL
EXISTING PRODUCTION GAS LINE	PROD
EXISTING STORAGE LINE	STOR
EXISTING UNDERGROUND CABLE	UC
EXISTING UNDERGROUND TELEPHONE	UT
EXISTING UNDERGROUND ELECTRIC	UE
EXISTING UNDERGROUND FIBER OPTICS	UFO
EXISTING SANITARY SEWER	SS
EXISTING STORM SEWER	SD
EXISTING WATERMAIN	WM
RIGHT OF WAY	R/W
CENTER LINE	
EXISTING ROAD PAVEMENT	
EXISTING WALK/DRIVE	

Dominion®

PIR-006

MOHICAN TRANSMISSION LINE#234 PH I
WILBUR STATON TO BARNES STATION
P#69905
ASSOCIATED WMIS #s
6T07051208



LOCATION MAP

NORTH

INDEX OF SHEETS

TITLE SHEET	1
NOTES	2
PLAN SHEET	3-14
RESTORATION	15
SIDE GATE TIE-IN DETAIL	16
WILBUR STATION DETAIL	17
BARNES STATION DETAIL	18
TEST POINT DETAILS	19

CONTACTS

PLANNING:

ENVIRONMENTAL:

LAND:

GAS MEASUREMENT & REGULATION:

TAPPING & STOPPING:

CONSTRUCTION & MAINTENANCE:

DIVISION:

CONTRACTOR INSPECTION:

SURVEY:

PROJECT MANAGER:
MIKE ANTONIUS - 330-664-2461

MUNICIPALITIES:
CITY/VILLAGE/TWP CONTACT & NUMBER

DESIGNER:
YOUR NAME / NUMBER HERE

IN CASE OF EMERGENCY CALL 9-1-1 FIRST:
DOMINION DISPATCH 216-736-6860
DOMINION CUSTOMER SERVICE 800-362-7557

DOMINION CUSTOMER SERVICE:

THE OWNER DOES NOT WARRANT THE ACCURACY, SUFFICIENCY, OR COMPLETENESS OF THIS DRAWING OR MAP FOR ANY PURPOSE, AND RELIANCE HEREON AND USE HEREOF IS AT THE RISK OF THE USER, WHO AGREES TO HOLD HARMLESS AND INDEMNIFY THE OWNER AGAINST ANY AND ALL LIABILITY IN CONNECTION WITH ITS USE.

MUNICIPALITY: Norton City Norton CSD	
TAX DIST: OH14773	COUNTY:
INV. DIV.	ZIP CODE:
OPERATING AREA:	COORD:
PCB ZONE:	PIPELINE SYSTEM ID: 2340
CLASS LOCATION: 3	DESIGN CLASS LOCATION: 3
TEST MEDIUM: HYDRO	XRAY: YES
TEST PRESSURE:	SEGMENT MAOP: 437 PSI
TEST DURATION:	SYSTEM MAOP: 437 PSI

PIR-006 MOHICAN L#234

DATE: UPDATE

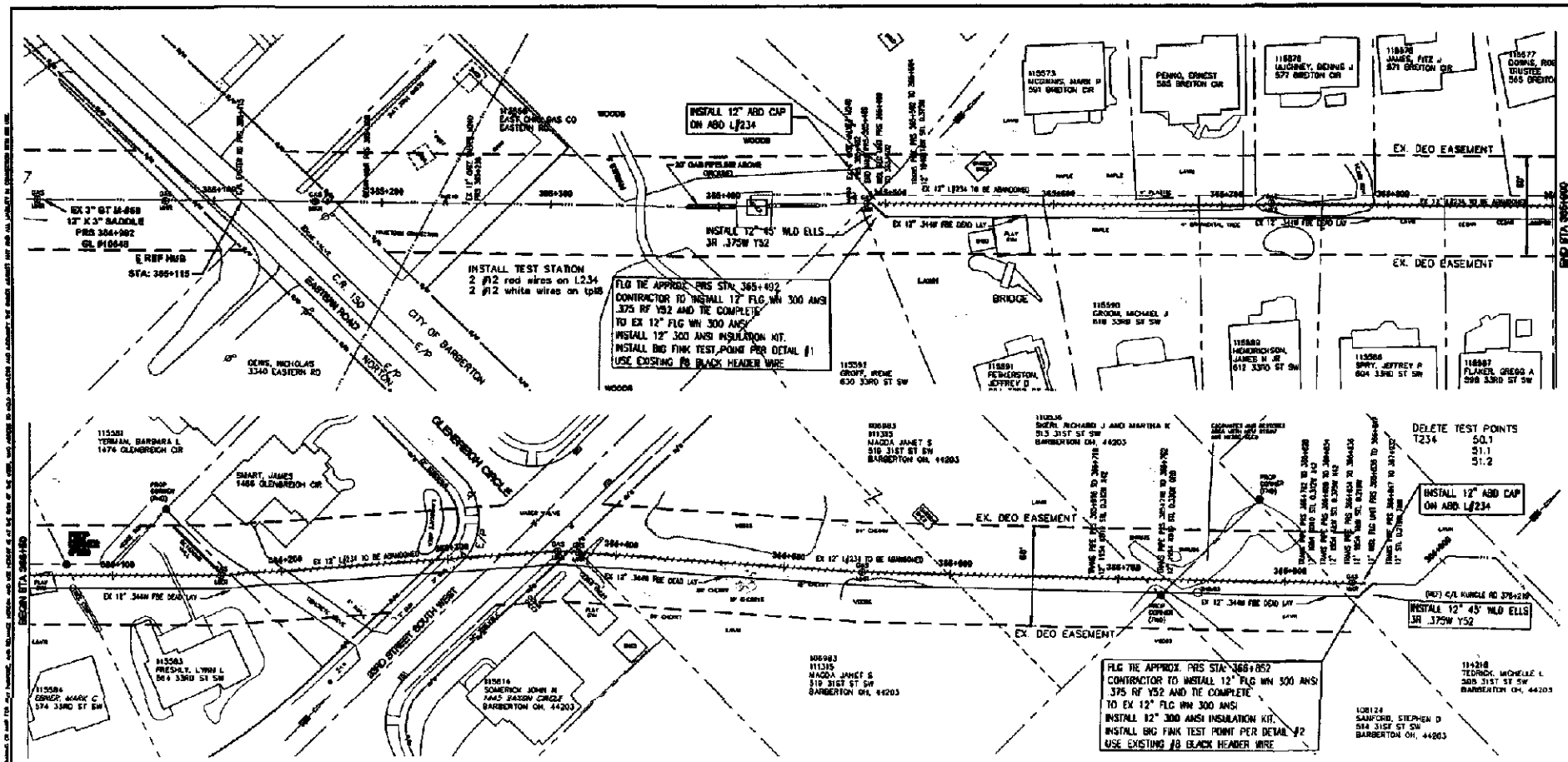
TS 19

DRAWER 1

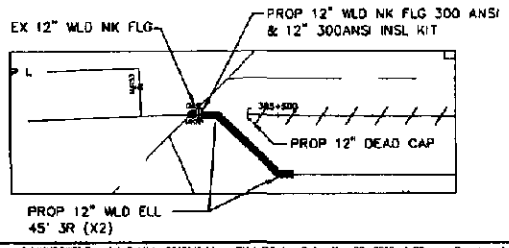
DRAWING 6

PROJECT NO. 69905

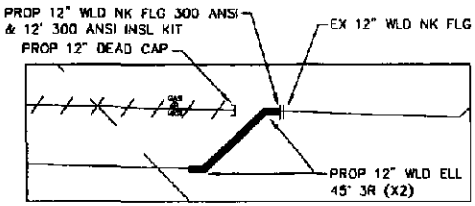
Source Dwg: C:\WINDOWS\Temp\AcPublish_2816\Mohican PH I 015.dwg Date: Nov 08, 2010; 1:00pm Owner: shell10



EASTERN RD DETAIL #1 SCALE 1"=8'



KUNGLE RD DETAIL #2 SCALE 1"=8'



SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. ALL WALK, DRIVES, & PAVEMENT TO BE RESTORED PER THE GOVERNING MUNICIPALITY REQUIREMENTS AND DETAILS SHOWN ON SUBSEQUENT SHEETS.

DRAWING SCALE

Dominion

PIR-006 MOHICAN L#234

DATE: UPDATE

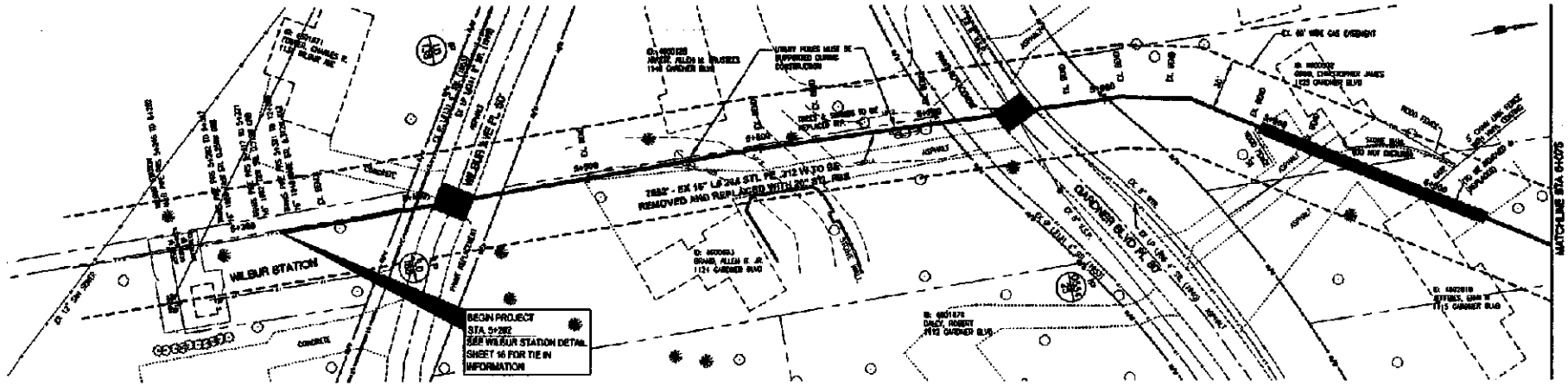
2 / 19

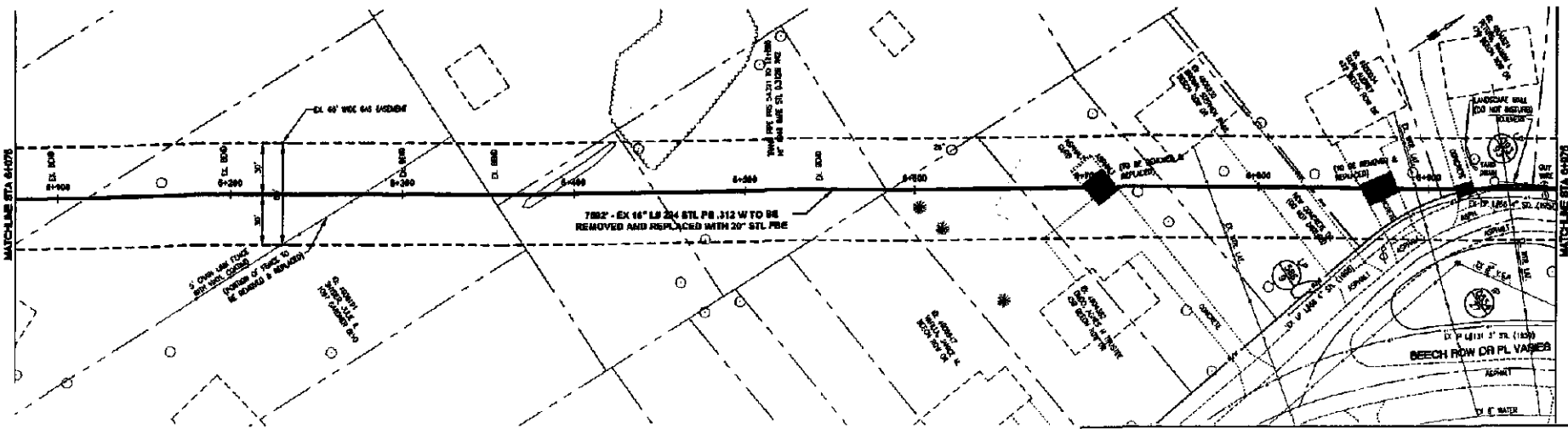
DRAWER #

DRAWING #

PROJECT NO. 69905

Source Dwg. C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I R5.dwg Date: Nov 08, 2010: 1:00pm Owner: shad10





—PAVEMENT/SURFACE REPLACEMENT

SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. ALL WALK, DRIVES, & PAVEMENT TO BE RESTORED PER THE GOVERNING MUNICIPALITY REQUIREMENTS AND DETAILS SHOWN ON SUBSEQUENT SHEETS.
4. ANY TREES, BUSHES, SHRUBS, ETC. DISTURBED DURING CONSTRUCTION MUST BE REPLACED IN KIND BY CONTRACTOR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, STORAGE AND RE-INSTALLATION OF ANY FENCE DISTURBED DURING CONSTRUCTION.
6. ALL PAVEMENT, CURB, WALK ETC. TO BE REMOVED SHALL BE SAW CUT FULL DEPTH AT NEAREST CONSTRUCTION JOINT.

DRAWING SCALE

Dominion

PIR-006 MOHICAN L#234

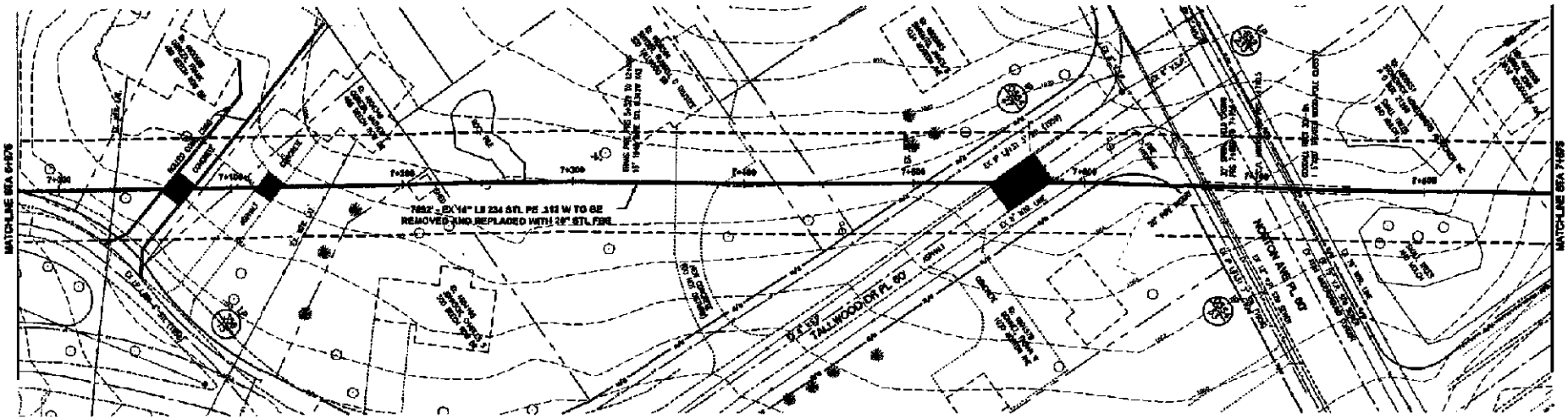
DATE:
UPDATE

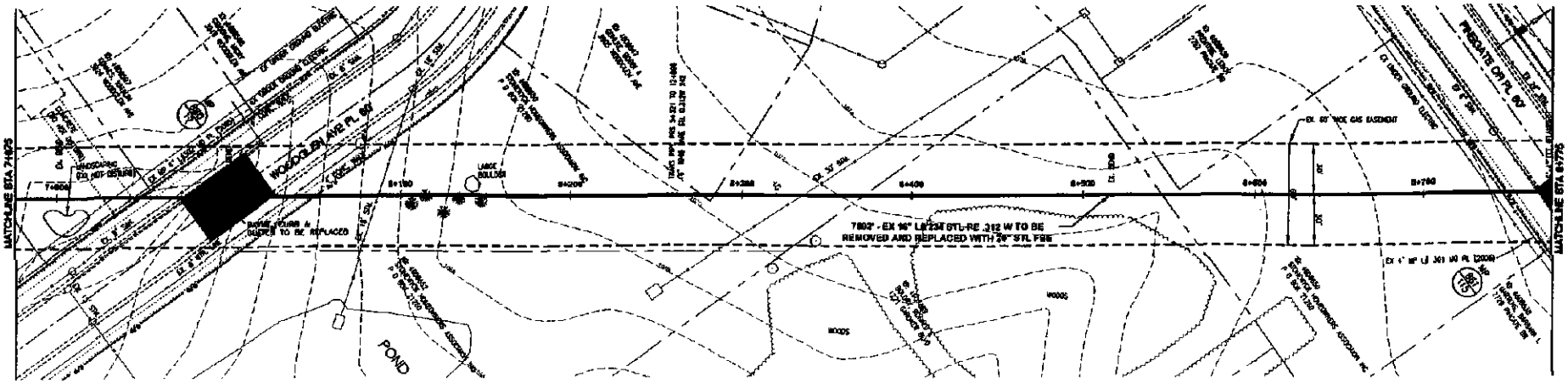
3
19

DRAWING #

PROJECT #
09905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I GS.dwg Date: Nov 08, 2010: 1:01pm Owner: sbell10





—PAVEMENT/SURFACE REPLACEMENT

SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT ITME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. ALL WALK, DRIVES, & PAVEMENT TO BE RESTORED PER THE GOVERNING MUNICIPALITY REQUIREMENTS AND DETAILS SHOWN ON SUBSEQUENT SHEETS.
4. ANY TREES, BUSHES, SHRUBS, ETC. DISTURBED DURING CONSTRUCTION MUST BE REPLACED IN KIND BY CONTRACTOR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, STORAGE AND RE-INSTALLATION OF ANY FENCE DISTURBED DURING CONSTRUCTION.
6. ALL PAVEMENT, CURB, WALK ETC. TO BE REMOVED SHALL BE SAW CUT FULL DEPTH AT NEAREST CONSTRUCTION JOINT.

DRAWING SCALE

Dominion

PIR-006 MOHICAN L#234

DATE UPDATE

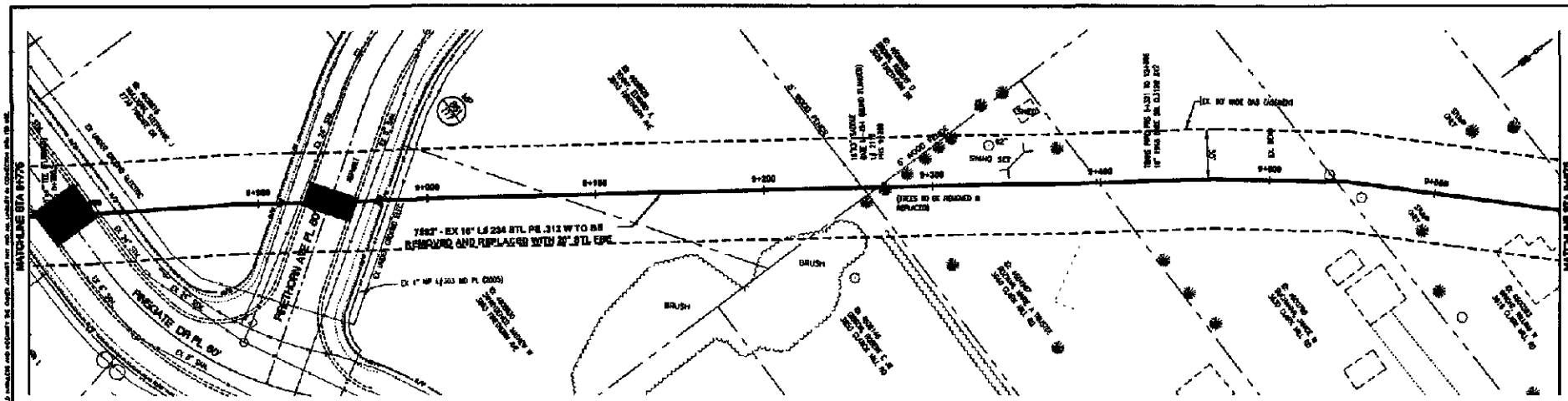
4 / 19

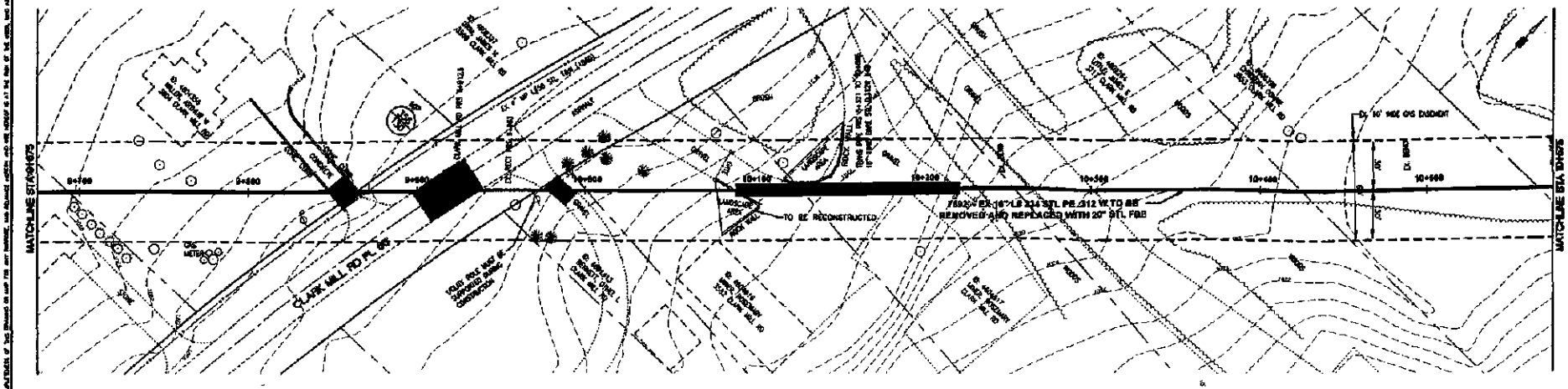
DRAWING #

DRAWING #

PROJECT NO#: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH 4 CIS.dwg Date: Nov 09, 2010 1:01pm Owner: shell10





-PAVEMENT/SURFACE REPLACEMENT

SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. ALL WALK, DRIVES, & PAVEMENT TO BE RESTORED PER THE GOVERNING MUNICIPALITY REQUIREMENTS AND DETAILS SHOWN ON SUBSEQUENT SHEETS.
4. ANY TREES, BUSHES, SHRUBS, ETC. DISTURBED DURING CONSTRUCTION MUST BE REPLACED IN KIND BY CONTRACTOR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, STORAGE AND RE-INSTALLATION OF ANY FENCE DISTURBED DURING CONSTRUCTION.
6. ALL PAVEMENT, CURB, WALK ETC. TO BE REMOVED SHALL BE SAW CUT FULL DEPTH AT NEAREST CONSTRUCTION JOINT.

DRAWING SCALE

Dewberry

PIR-006 MOHICAN L#234

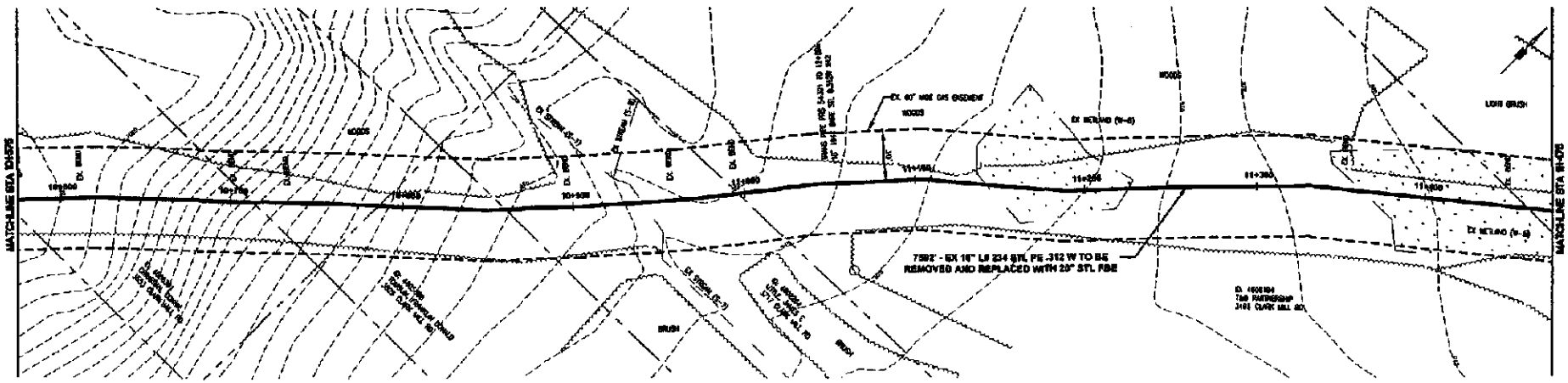
DATE: UPDATE

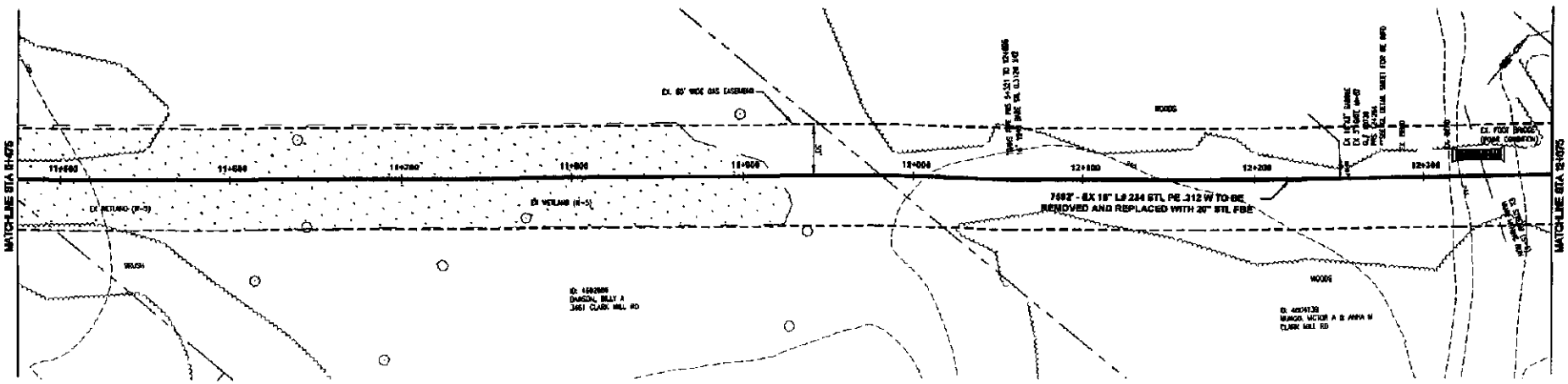
5 / 19

DRAWING #

PROJECT NO. 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2816\Mohican PH I 06.dwg Date: Nov 08, 2010: 1:01pm Owner: shell0





SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF WETLANDS/ STREAM LOCATIONS IN ACCORDANCE WITH PROJECT SWPPP.

DRAWING SCALE

Dominion

PIR-006 MOHICAN L#234

DATE: UPDATE

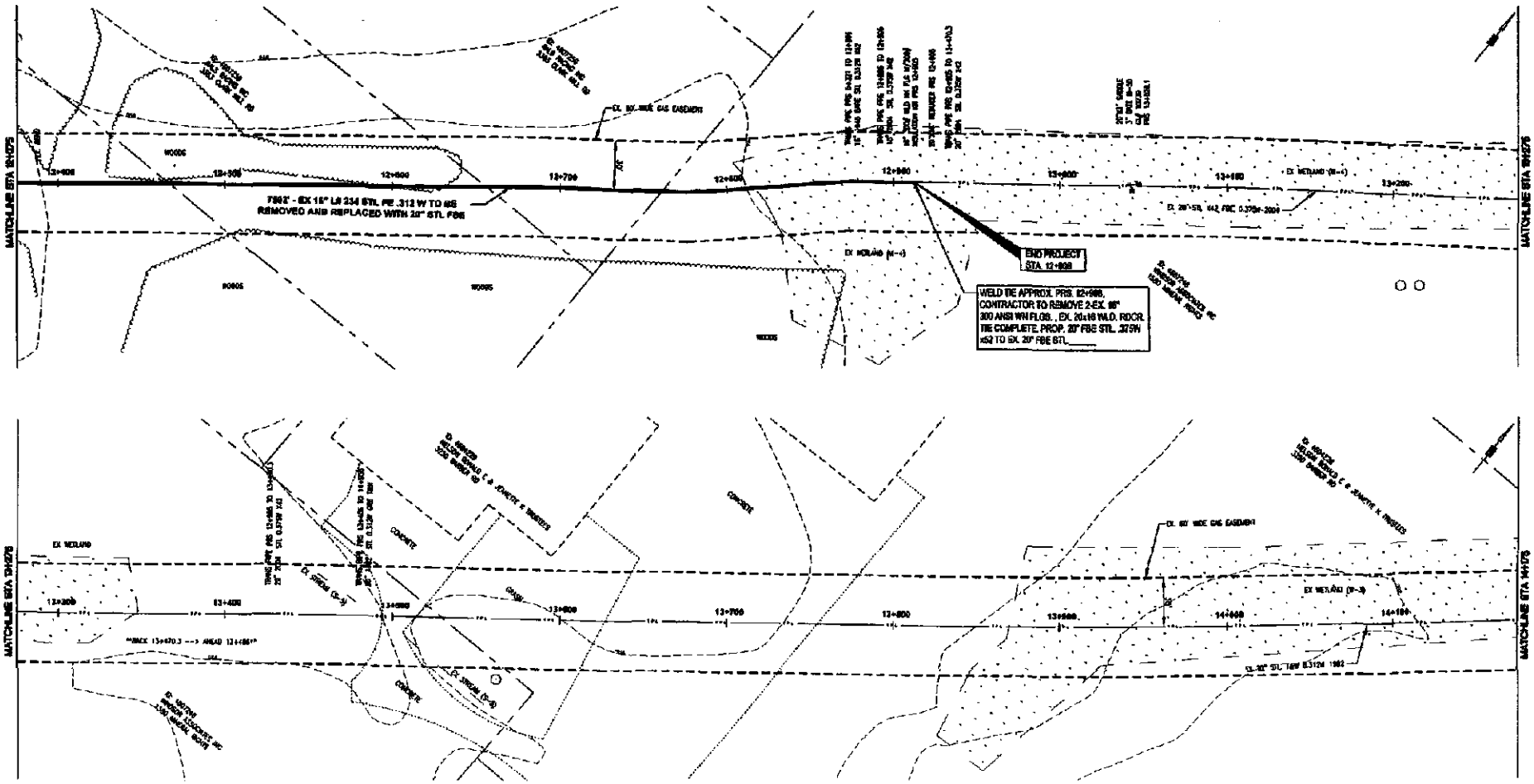
6 / 19

DRAWER #

DRAWING #

PROJECT ID#: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2016\Mohican PH I QS.dwg Date: Nov 08, 2016 1:01pm Owner: shell10



SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF WETLANDS/ STREAM LOCATIONS IN ACCORDANCE WITH PROJECT SWPPP.

DRAWING SCALE

Dominion®

PIR-006 MOHICAN L#234

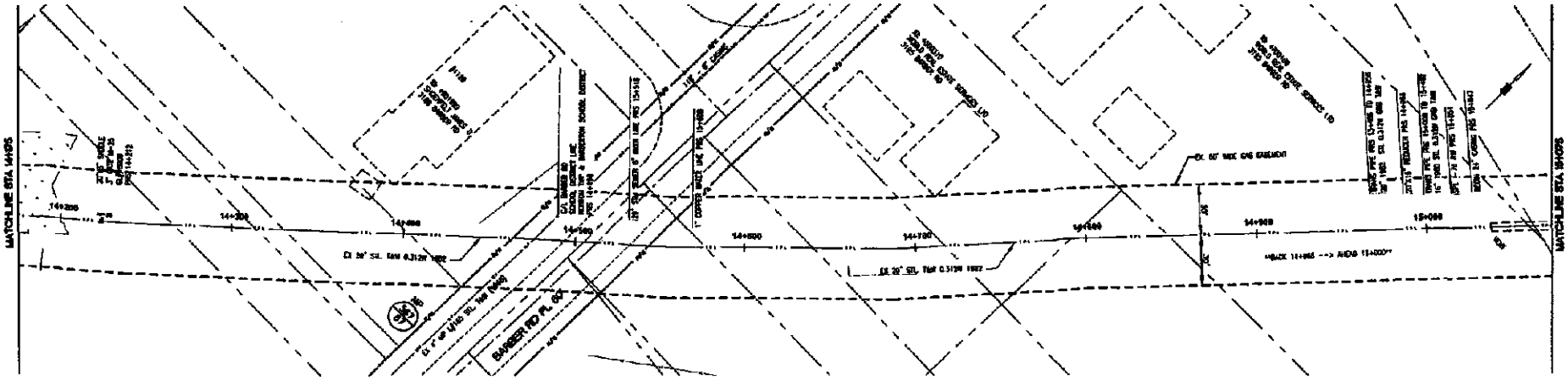
DATE: UPDATE

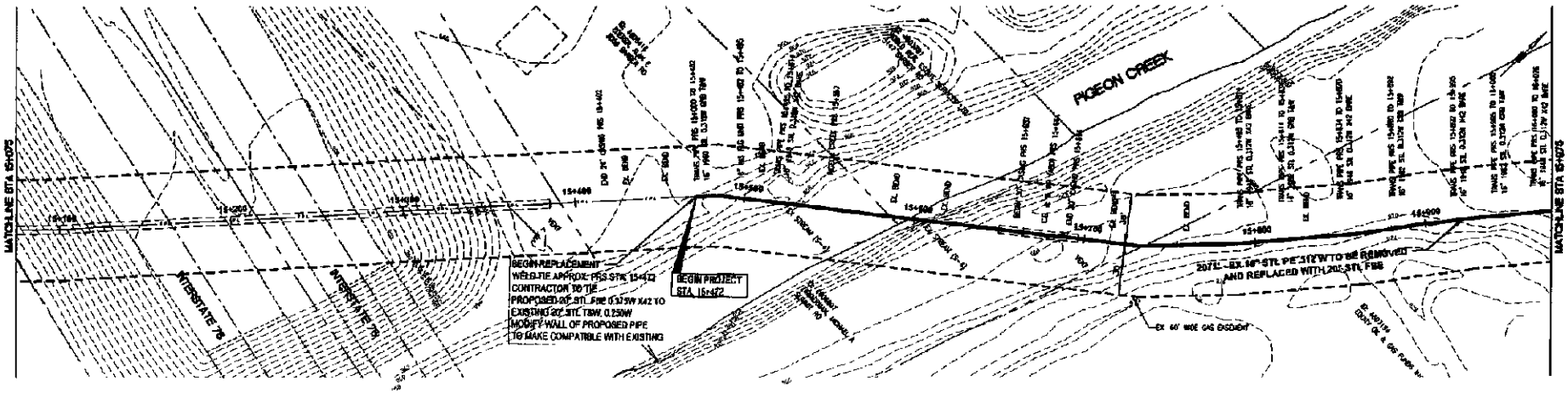
7 / 19

DRAWING #

PROJECT ID#: 69905

Source Dwg: C:\MADOWS\Temp\AcPublish_2616\Mohican PH 1 CIS.dwg Date: Nov 08, 2010 1:01pm Owner: sbe810





SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF WETLANDS/ STREAM LOCATIONS IN ACCORDANCE WITH PROJECT SWPPP.

DRAWING SCALE

Dominion®

PIR-006 MOHICAN L#234

DATE UPDATE

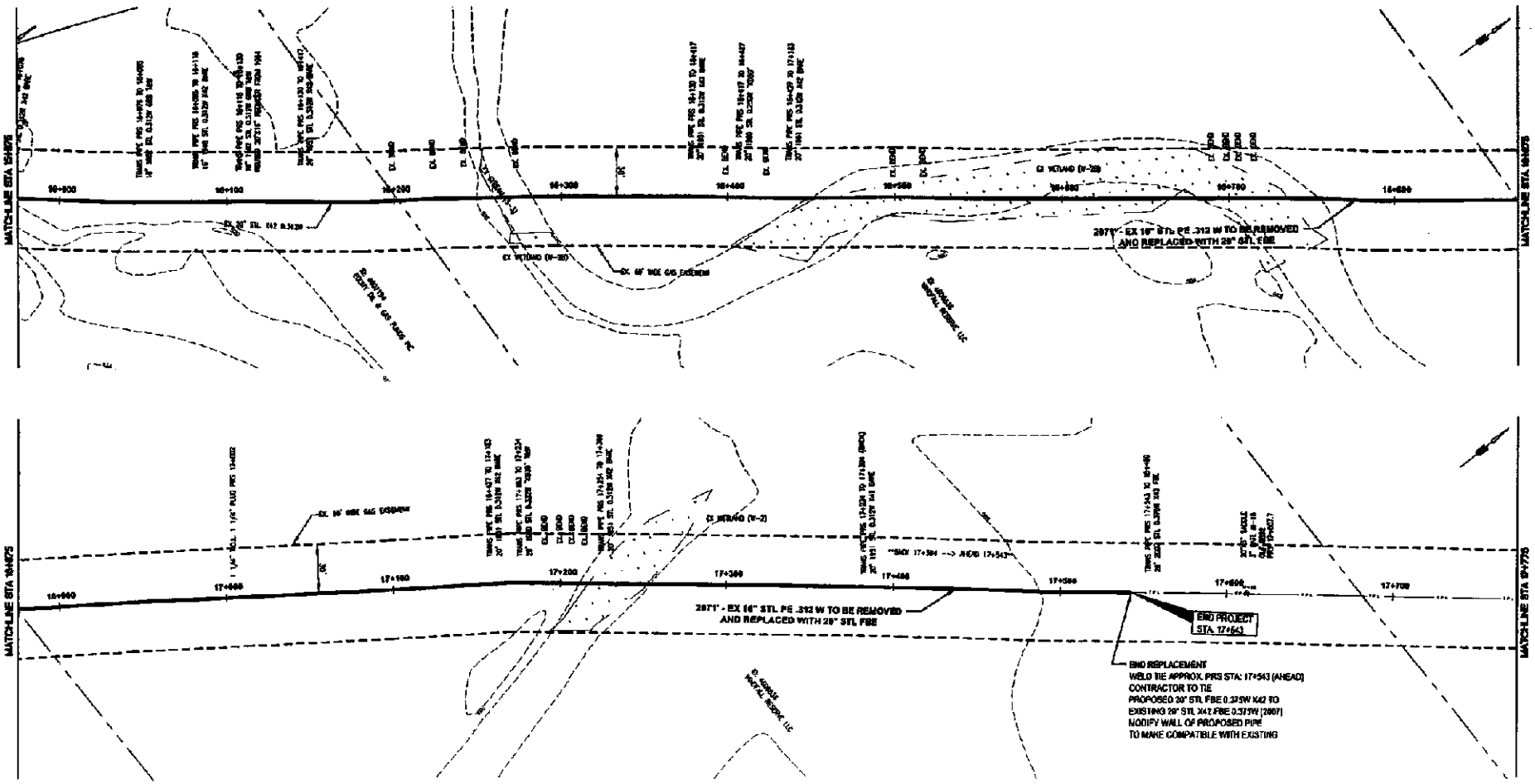
8 / 19

DRAWER #

DRAWING #

PROJECT #: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I GIS.dwg Date: Nov 08, 2006 1:01pm Owner: shell10



SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF WETLANDS/ STREAM LOCATIONS IN ACCORDANCE WITH PROJECT SWPPP.

DRAWING SCALE

Dominion®

PIR-006 MOHICAN L#234

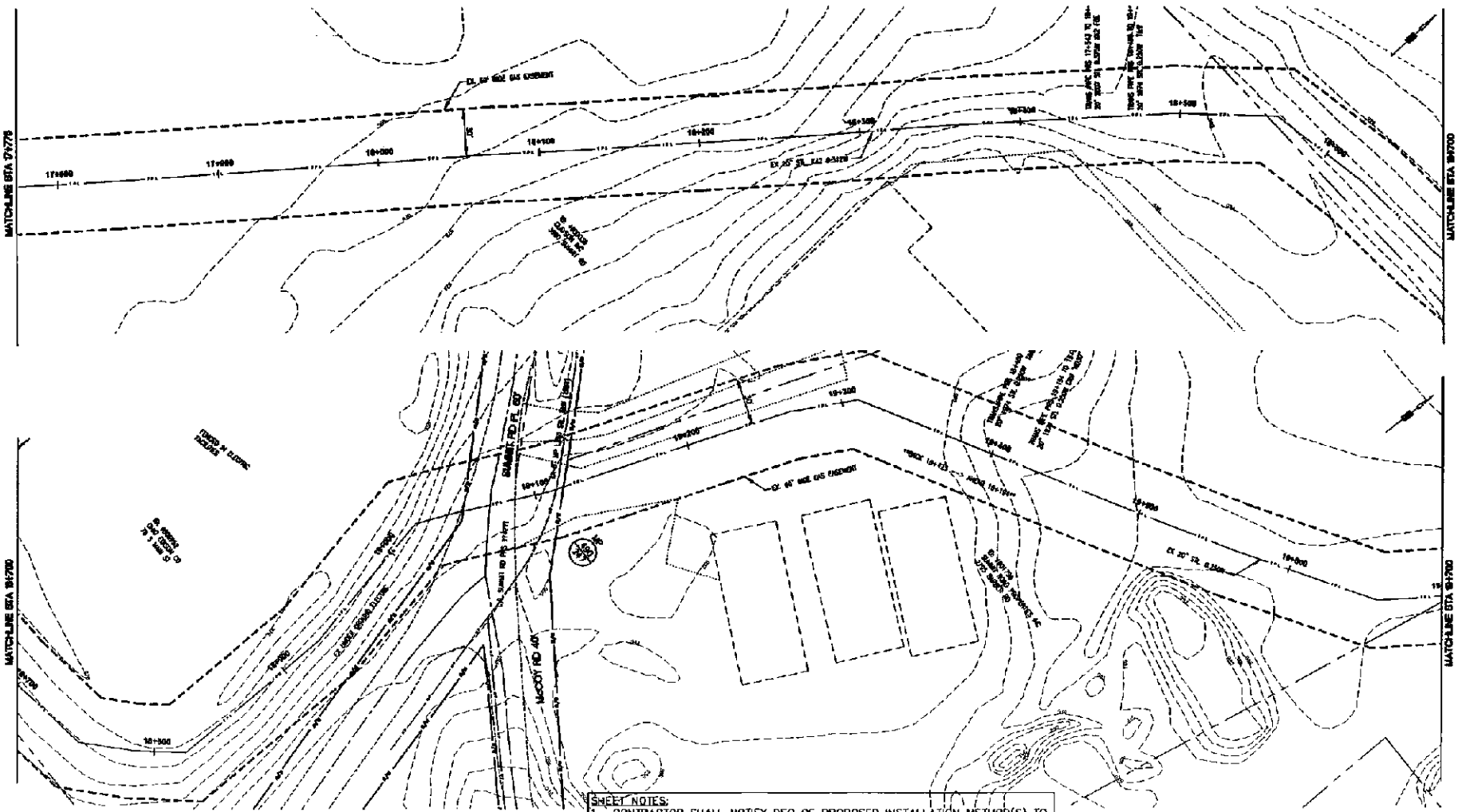
DATE: UPDATE

9 / 19

DRAWER 8

PROJECT NO. 69905

Source Dwg. C:\WINDOWS\Temp\AcPublish_2616\Mohican PH II 05.dwg Date: Nov 08, 2010: 1:01pm Owner: shell10



SHEET NOTES:

1. CONTRACTOR SHALL NOTIFY DEO OF PROPOSED INSTALLATION METHOD(S) TO ENSURE APPROPRIATE ORDERING OF MATERIALS.
2. PROPOSED STEEL PIPE SHALL BE AS FOLLOWS:
   a) 20": 20" O.D. 0.375 WALL X42 FBE PE STEEL
   b) COATED W/ POWERCRETE FOR ANY TYPE OF BORE.
   c) INSTALLED AT A MINIMUM DEPTH OF 3'-0" FROM THE EXISTING GRADE OR ROAD CROWN, WHICHEVER IS GREATER.
3. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
4. ALL WALK, DRIVES, & PAVEMENT TO BE RESTORED PER THE GOVERNING MUNICIPALITY REQUIREMENTS AND DETAILS SHOWN ON SUBSEQUENT SHEETS.

DRAWING SCALE

Dominion®

PIR-006 MOHICAN L#234

DATE: UPDATE

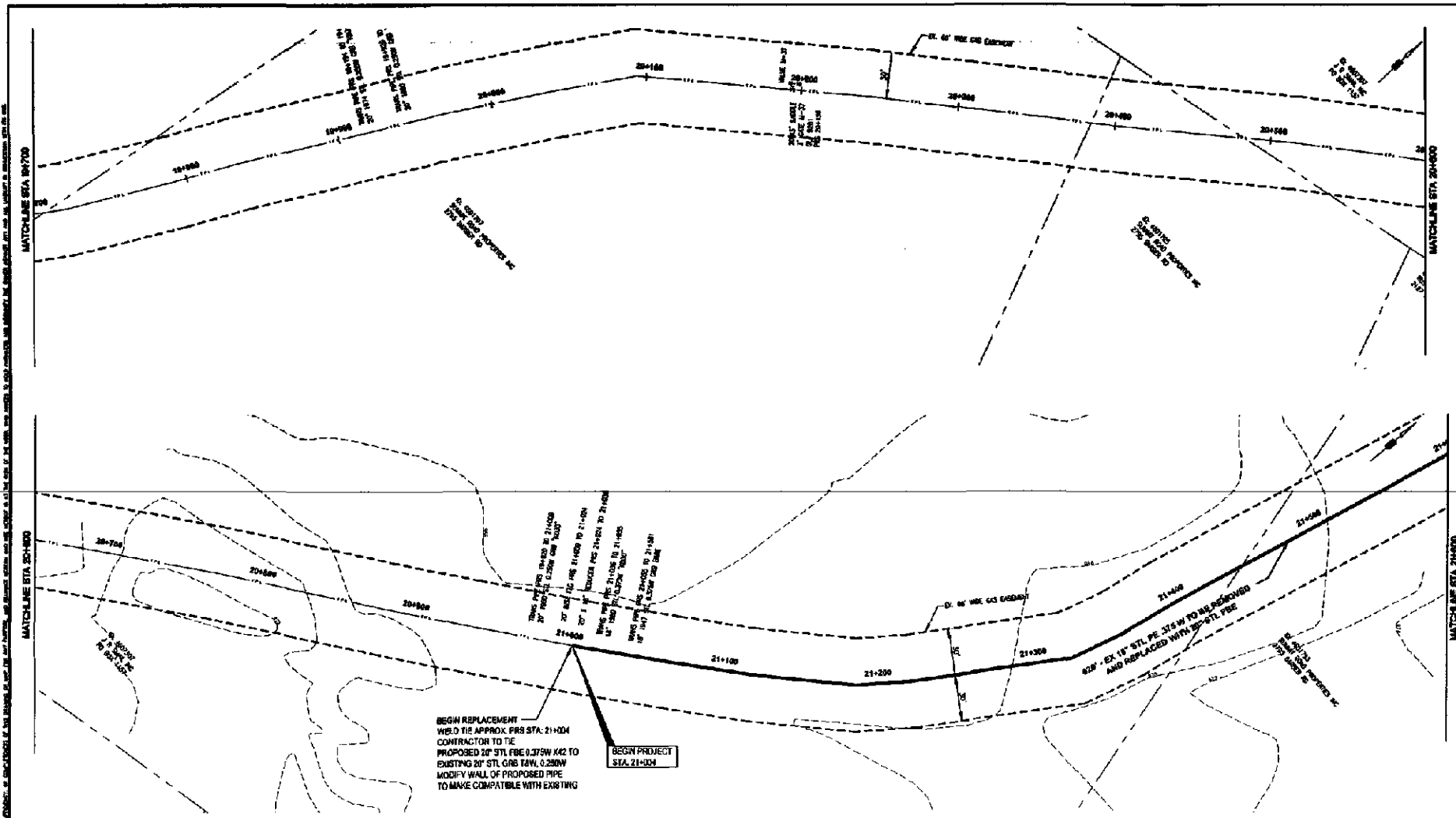
10 / 19

DRAWER #

DRAWING #

PROJECT #: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2648\Mohican PH I 06.dwg Date: Nov 08, 2010 1:02pm Owner: shell10



SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF WETLANDS/ STREAM LOCATIONS IN ACCORDANCE WITH PROJECT SWPPP.

DRAWING SCALE

Dominion®

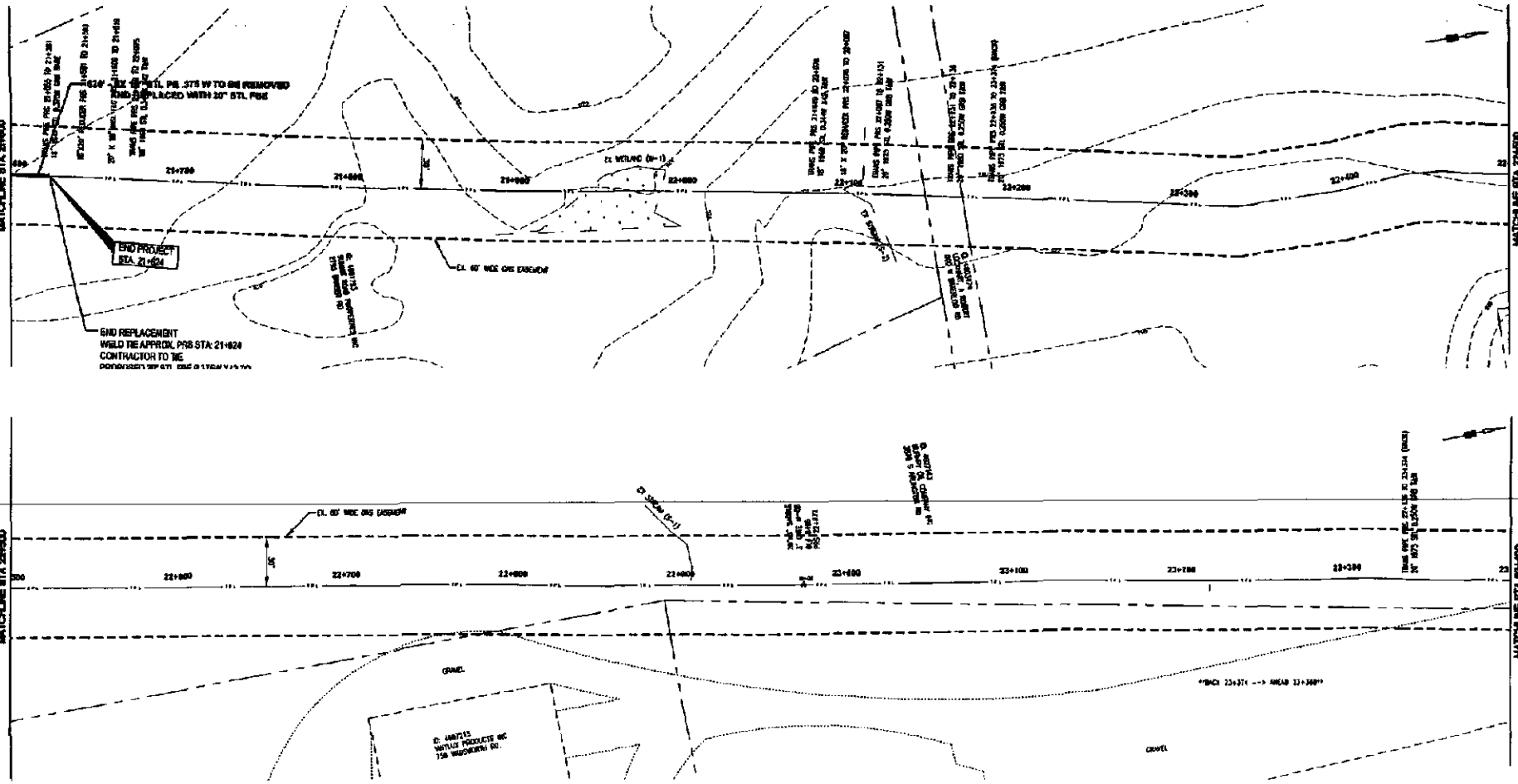
PIR-006 MOHICAN L#234

DATE: UPDATE

11 / 19

PROJECT NO: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I OIS.dwg Date: Nov 06, 2010 1:02pm Owner: shell0



SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF WETLANDS/ STREAM LOCATIONS IN ACCORDANCE WITH PROJECT SWPPP.

DRAWING SCALE

Dewberry

PIR-006 MOHICAN L#234

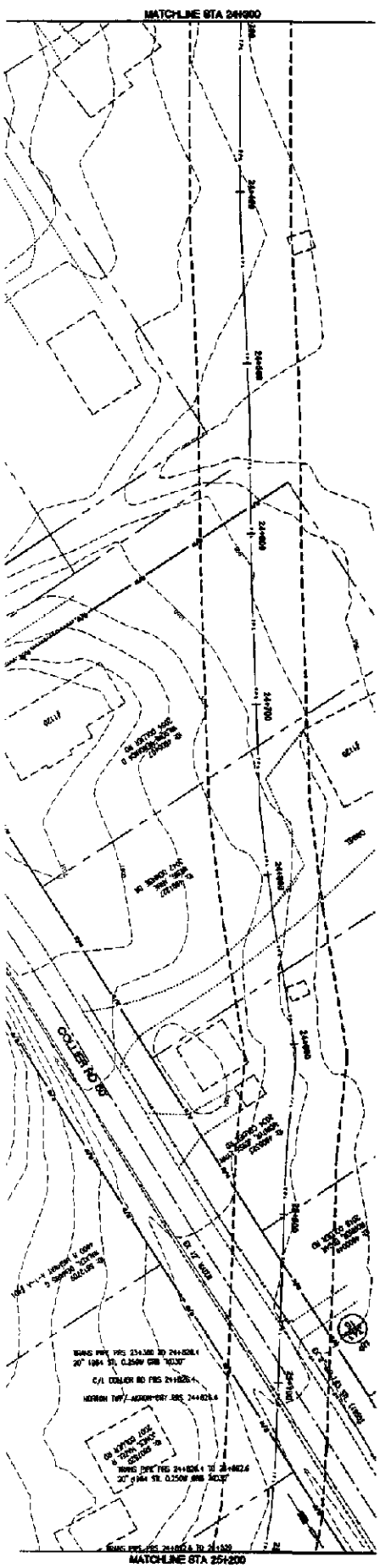
DATE: UPDATE

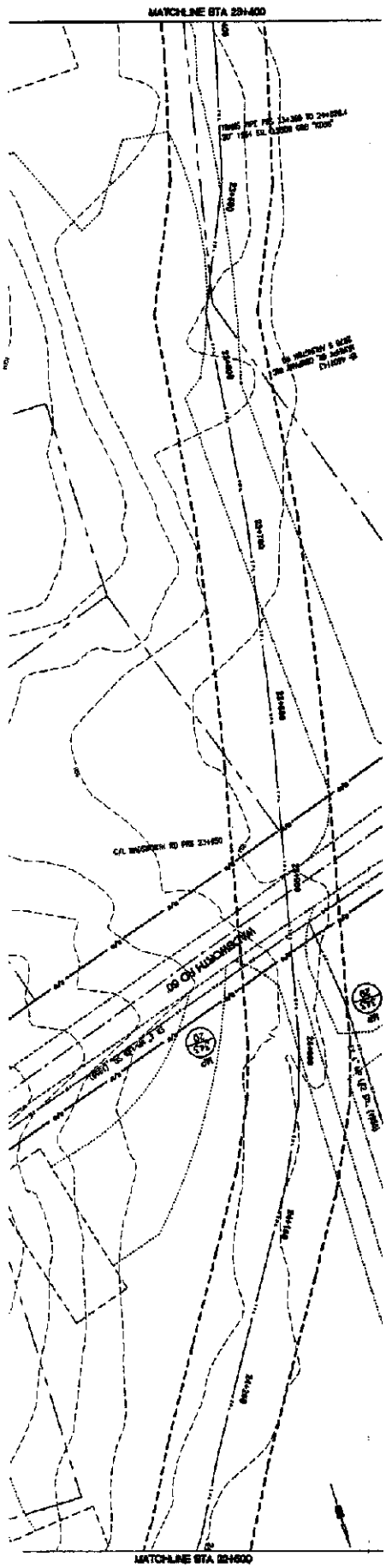
12 / 19

DRAWING #

PROJECT ID#
69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I QS.dwg Date: Nov 08, 2010; 1:02pm Owner: sheil0





PROJECT NO. 59905

DRAWING # 12

DRAWER # 19

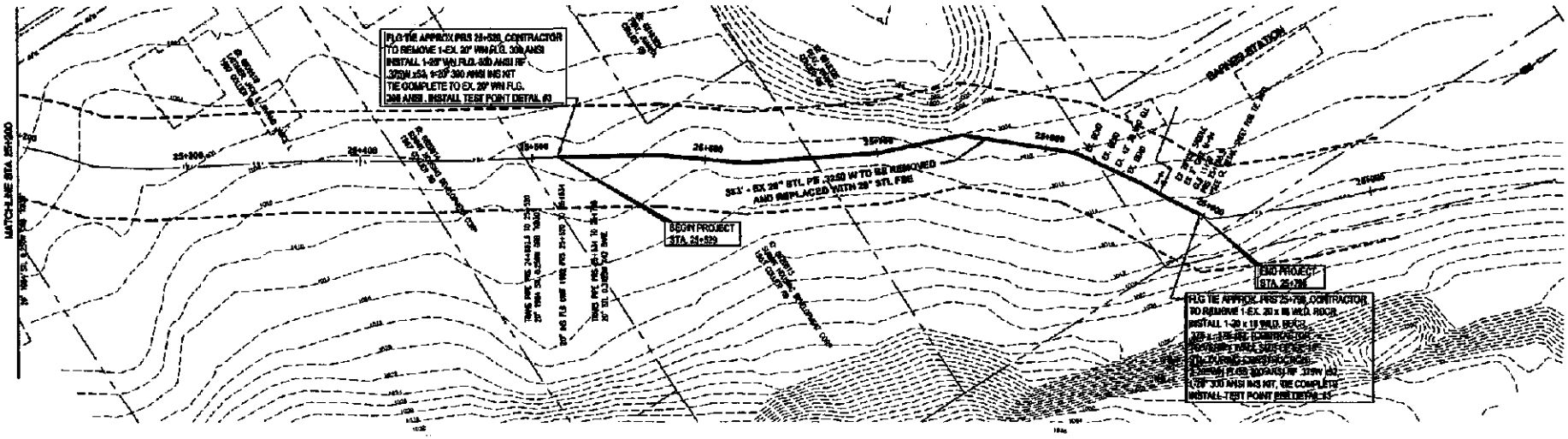
DATE UPDATED

PIR-006 MOHICAN L#234

Dominion®

REV.	DESCRIPTION	DATE	BY

DRAWING SCALE



SHEET NOTES:

1. SEEDING AND MULCHING SHALL BE APPLIED TO ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION IN ACCORDANCE WITH ODOT TIME 659.
2. EXISTING UTILITY LOCATIONS AND DEPTHS, INCLUDING SERVICES, AS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO ANY CONSTRUCTION OPERATIONS TO ENSURE PROPER CLEARANCES.
3. ALL WALK, DRIVES, & PAVEMENT TO BE RESTORED PER THE GOVERNING MUNICIPALITY REQUIREMENTS AND DETAILS SHOWN ON SUBSEQUENT SHEETS.
4. ANY TREES, BUSHES, SHRUBS, ETC. DISTURBED DURING CONSTRUCTION MUST BE REPLACED IN KIND BY CONTRACTOR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, STORAGE AND RE-INSTALLATION OF ANY FENCE DISTURBED DURING CONSTRUCTION.
6. ALL PAVEMENT, CURB, WALK ETC. TO BE REMOVED SHALL BE SAW CUT FULL DEPTH AT NEAREST CONSTRUCTION JOINT.

DRAWING SCALE

Dewberry

PIR-006 MOHICAN L#234

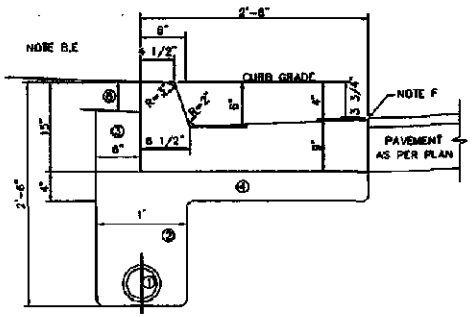
DATE UPDATE 14 19

DRAWER #

DRAWING #

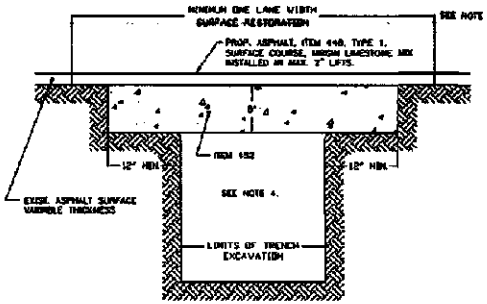
PROJECT NO. 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2016\Mohican PH I GIS.dwg Date: Nov 08, 2016, 1:02pm Owner: shell10



COMBINATION CURB AND GUTTER

SEE NOTES BELOW



ASPHALT OVERLAY PAVEMENT DETAIL

NOTES:

1. THE COST OF ALL RESTORATION SHALL BE INCLUDED IN THE PRICE BID FOR THE ITEM WHICH MADE NECESSARY THE RESTORATION, IN ACCORDANCE WITH 551.10 AND 104.07 UNLESS OTHERWISE PROVIDED FOR BY THE PLANS OR SPECIFICATIONS.
2. IF THE TRENCH WIDTH ENCOMPASSES TWO TRAVELED LANES THEN BOTH LANE SURFACES SHALL BE RESTORED.
3. THE TOP OF THE NEW CONCRETE BASE SHALL NOT BE CONSTRUCTED HIGHER THAN THE EXISTING ASPHALT BASE.
4. BACKFILL MEETING THE REQUIREMENTS OF 551.09.
5. LIMITS MAY BEGIN AT FACE OF CURB OR EDGE OF CURB AND GUTTER.
6. WHEN A TRENCH CROSSES THE ROADWAY PERPENDICULARLY, THE PAVEMENT BASE SHALL EXTEND A MINIMUM OF 12" OUTSIDE OF THE TRENCH LIMITS AND THE ASPHALT SURFACE SHALL EXTEND A MINIMUM OF 12" OUTSIDE OF THE PAVEMENT BASE LIMITS

REFERENCE

1. 4" PIPE UNDERDRAIN, ITEM 564
2. No. 8 DURABLE NATURAL AGGREGATES. COST INCLUDED IN PRICE OF UNDERDRAIN.
3. GRANULAR BACKFILL MATERIAL AS PER 203.02 TO BOTTOM OF 6", COST INCLUDED IN THE PRICE OF CURB.
4. SUBBASE IN ACCORDANCE WITH 310, COST INCLUDED IN PRICE OF CURB.
5. AREA OF EXISTING PAVEMENT TO BE REMOVED AND NEW INTEGRAL BASE TO BE CONSTRUCTED IN PRICE OF CURB

   FOR EXISTING BRICK PAVEMENT, UNRAVEL AND THOROUGHLY CLEAN AROUND BRICKS.

   FOR EXISTING CONCRETE PAVEMENT OR BASE, AND ASPHALT SURFACE, SAWCUT AT LIMITS OF REMOVAL.

   REMOVE ALL LOOSE MATERIAL FROM AREA OF NEW CONCRETE.
6. MAY BE 4" OR 6" WALK, BRICK, TOPSOIL, APRON.

SPECIAL NOTES

A. PLACE 1/4" CONTRACTION JOINTS AT 10' INTERVALS, BY DIVIDER PLATES OR BY SAWCUT.

B. PLACE 1/4" CONTRACTION JOINTS AT INTERVALS OF NOT LESS THAN 10' UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

C. JOINTS IN INTEGRAL CURB SHALL BE OF THE SAME TYPE AND AT THE SAME SPACING AS JOINTS IN THE PAVEMENT.

D. BOTTOM OF SAW KERF SHALL BE SLOPED TOWARD THE PAVEMENT, AND CUT 2" DEEP FOR COMBINATION CURB & GUTTER AND 4" DEEP FOR 6"x18" CURB. SAWING SHALL BE COMPLETED AS SOON AS CONDITIONS ALLOW.

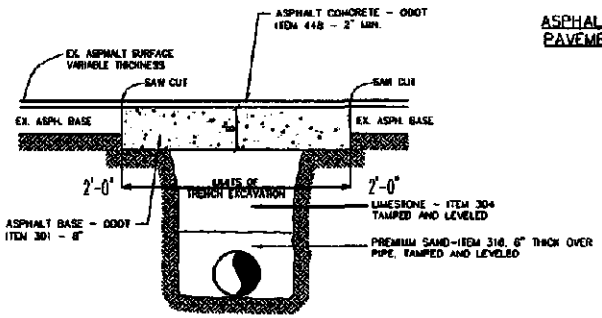
E. PLACE 1/2" EXPANSION JOINTS AT P.C.'s, P.T.'s, INLET APPROACHES (EXCEPT 1' IN CONC. PVMT.) AND MAX. 300' INTERVALS.

F. APPLY SEALER IN ACCORDANCE WITH 451.14.

G. ON FOUR LANE AND WIDER PAVEMENTS WITH CONCRETE BASE, PLACE 1" PREMOLDED EXPANSION MATERIAL.

H. FACE OF CURB SHALL BE BROOM FINISHED FOR A MINIMUM OF 7 1/4" FROM THE TOP OF CURB.

I. FOR SPECIAL CURB CUT REQUIREMENTS AT CURB RAMPS, SEE DWG No. BP-5.0



ASPHALT PAVEMENT DETAIL

N.T.S

GENERAL NOTES

INTERNAL VIBRATORS SHALL BE USED IN ALL CURB.

UNLESS OTHERWISE SPECIFIED ALL EDGES SHALL BE FINISHED TO A 1/4" RADIUS.

APPROVED FLEXIBLE STEEL OR WOOD FORMS SHALL BE USED FOR CIRCULAR CURB RADIUS OF 100' OR LESS.

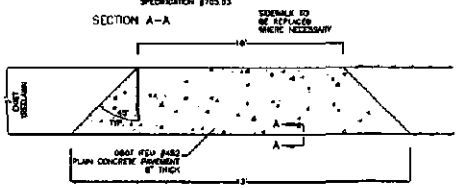
ALL CONCRETE FOR CURBS SHALL BE CLASS C, UNIFORM IN SURFACE TEXTURE AS FINISHED WITH LONGITUDINAL LIGHT BROOMING.

CURING SHALL BE IN ACCORDANCE WITH 451.11 OR 455.03(a).

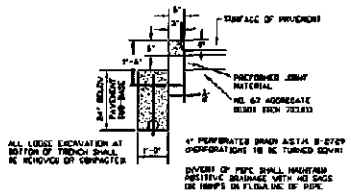
COLD WEATHER PROTECTION SHALL BE PER 451.07.

DRIVE APRON REPLACEMENT DETAIL

SECTION A-A

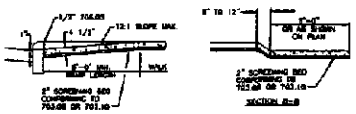


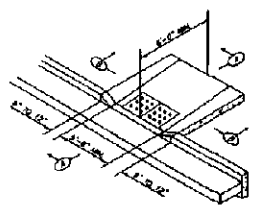
DRIVE APRON DETAIL



TYPE 5 CURB W/UNDERDRAIN DETAIL

N.T.S

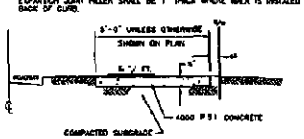




CURB RAMP W/ PLANES TYPE 2 DETAIL

NOTE:

1. SAW (NOS) DETECTABLE WARNING PLATES (24"x21") SHALL BE INSTALLED PER CITY OF DANVER MODIFIED STANDARDS.
2. SAW CUT AND REMOVE EXISTING CURB TO FULL DEPTH, AND REPLACE CURB AS SHOWN ADJACENT TO EXISTING CURBS. ALL WORK SHALL CONFORM TO ODOT 608, EXCEPT AS MODIFIED BY THE MUNICIPAL SPECIFICATIONS.



TYPICAL SIDEWALK DETAIL

NO SCALE

PIR-006 MOHICAN L#234

DATE: UPDATED 15 19

DRAWING SCALE

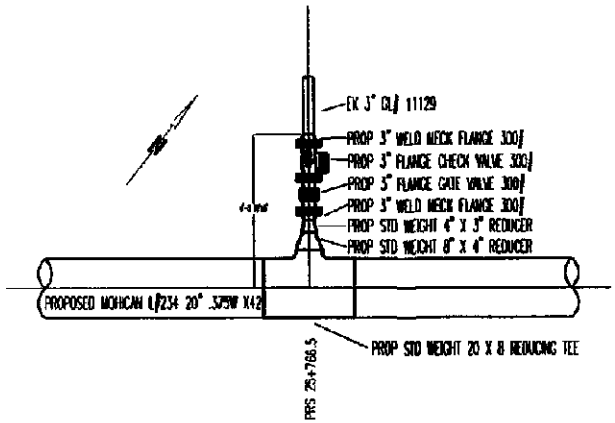
DRAWN BY

DRAWING #

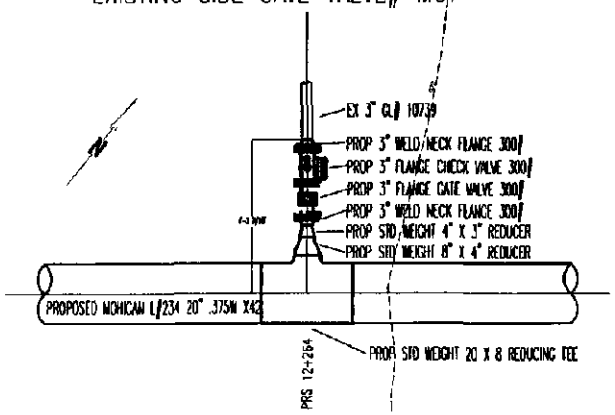
PROJECT NO. 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2816\Mohican PH 1 GIS.dwg Date: Nov 08, 2010, 1:02pm Owner: shell10

GATHERING LINE # 11129 TIE-IN DETAIL
EXISTING SIDE GATE VALVE# M94



GATHERING LINE # 10739 TIE-IN DETAIL
EXISTING SIDE GATE VALVE# M67



DRAWING SCALE

PIR-006 MOHICAN L#234

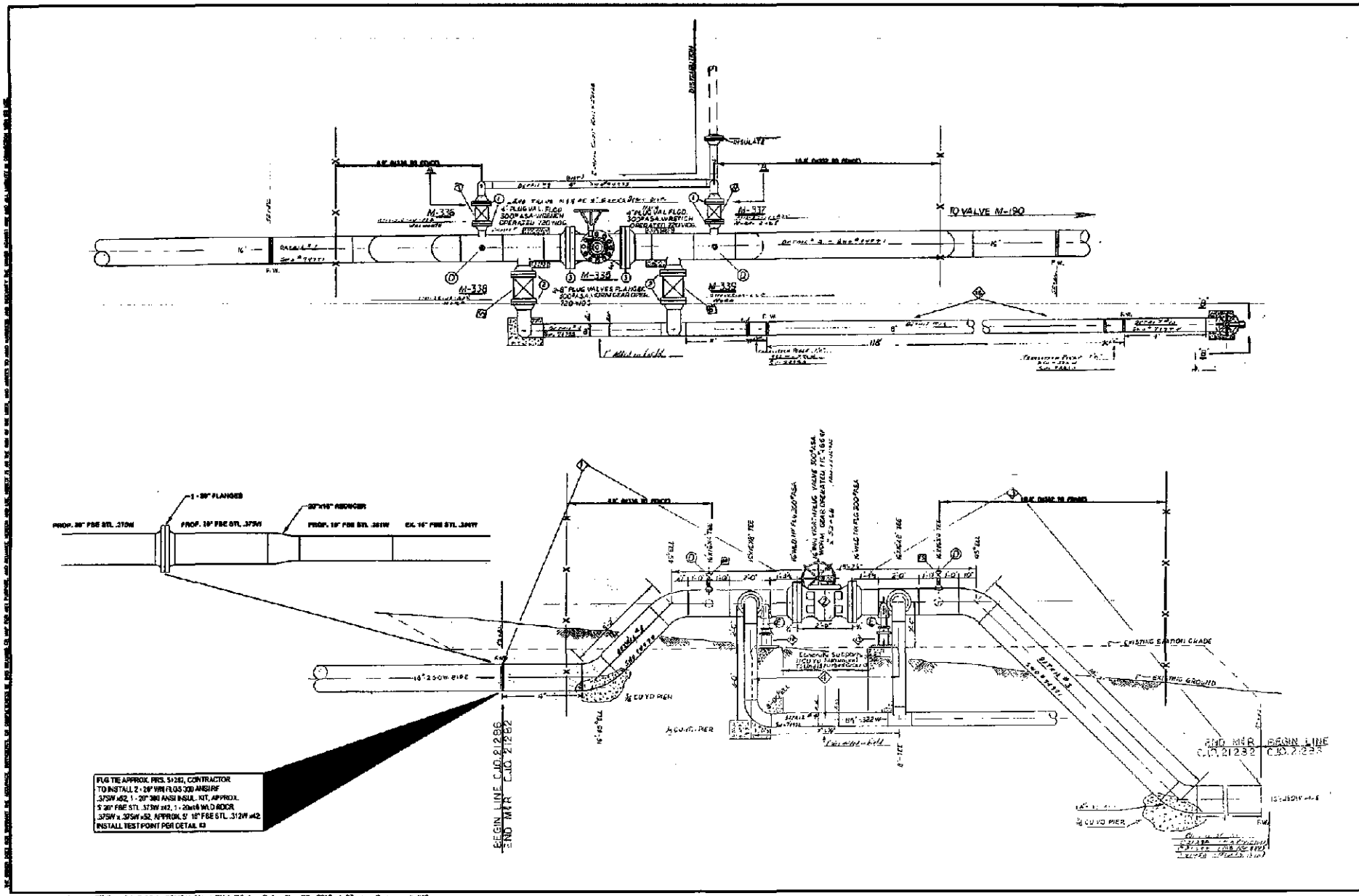
DATE: UPDATE

16
18

DRAWING #

PROJECT NO: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I 015.dwg Date: Nov 08, 2010 1:02pm Owner: shell16



DRAWING SCALE

Dominion

PIR-006 MOHICAN L#234

DATE UPDATE

17
19

DRAWER #

DRAWING #

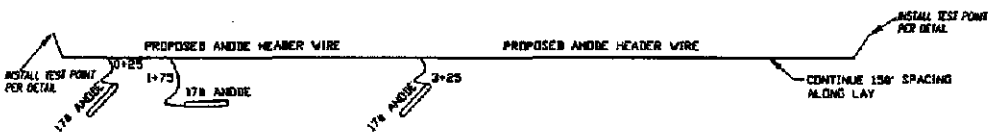
PROJECT #: 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2616\Mohican PH I G3.dwg Date: Nov 08, 2010; 1:03pm Owner: shell10

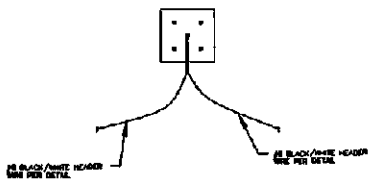
PIR-006 MOHICAN L#234

Dominion

DRAWING SCALE

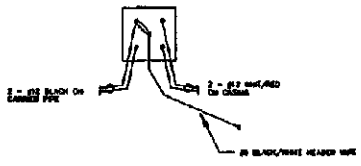


ABOVE GROUND HEADER CONNECTION BETWEEN TEST POINTS



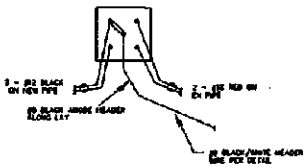
DETAIL 1

TEST POINT AT CASING DETAIL



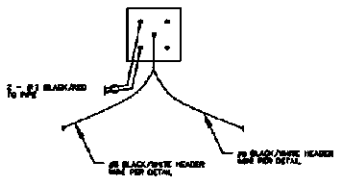
DETAIL 2

INSULATED TEST POINT DETAIL



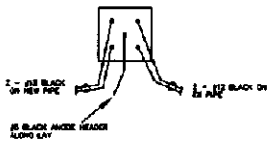
DETAIL 3

POINT ON PIPE TEST POINT

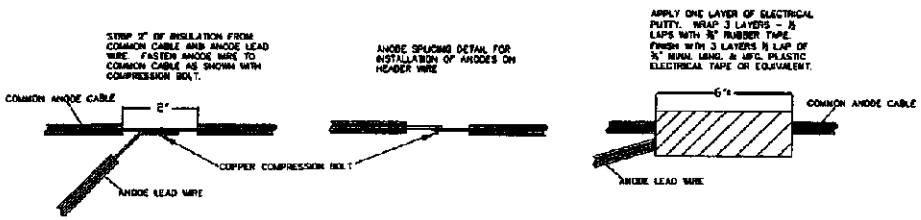


DETAIL 4

TEST POINT AT ROAD BORE DETAIL



DETAIL 5



PIR 006 MOHICAN CORROSION DETAIL

CORROSION NOTES

1. CONTRACTOR TO REMOVE AND DISPOSE OF TWO RECTIFIER POLES, WELLERSVILLE STATION AND APPLECREEK RD. NOTIFY DAVE CUTLIP (330-323-0064) TWO WEEKS IN ADVANCE FOR ELECTRIC SHUT-OFF AND RECTIFIER REMOVAL.

2. 17# ANODES TO BE INSTALLED ON #8 HEADER WIRE SPACED EVERY 150'. USE 1000' ROLLS OF WIRE TO MINIMIZE NUMBER OF SPLICES.

3. NO ANODE TO BE INSTALLED WITHIN 25' OF ANY TEST POINT.

4. YELLOW BIG FINK TEST STATIONS TO BE USED. MAXIMUM OF 2500' BETWEEN TEST POINTS PERMITTED.

5. FOR ALL TEST POINTS INSTALLED DURING CONSTRUCTION, DEO INSPECTOR MUST ACHIEVE A MINIMUM PIPE-TO-SOIL READING OF -.850 VOLTS. IN THE EVENT THE MINIMUM REQUIRED READING CANNOT BE ACHIEVED, DEO INSPECTOR WILL CONTACT DEO CORROSION TO TROUBLESHOOT. INSTALLATION OF ANY TEST POINT THAT FAILS TO ACHIEVE A MINIMUM READING WILL NOT BE CONSIDERED COMPLETE UNTIL DEO CORROSION PERSONNEL HAVE DETERMINED THE CAUSE. CONTRACTOR SHALL NOT RECEIVE ADDITIONAL COMPENSATION UNDER THIS PROVISION.

NOTES:

17# ANODES TO BE INSTALLED ON HEADER CABLE

LAY #8 BLACK OR WHITE ANODE HEADER ALONG LAY. ALTERNATE COLOR AT HEADER CONNECTIONS. USE 1000' SPOOLS.

ANODES TO BE SPACED EVERY 150'.

EVERY 1000' RUN HEADER WIRE INTO BOX AT TOP OF LINE MARKER.

INSTALL TEST POINT PER DETAIL AT TOP OF LINE MARKER EVERY 2000'

DRAWING SCALE

Dominion®

PIR-006 MOHICAN L#234

DATE UPDATE 19 19

DRAWER #

DRAWING #

PROJECT NO. 69905

Source Dwg: C:\WINDOWS\Temp\AcPublish_2636\Mohican PM 1 GIS.dwg Date: Nov 08, 2010: 1:03pm Owner: shm110

ATTACHMENT C

LIST OF PROPERTY OWNERS

006 L#234 Mohican Transmission - Phase 1

Parcel #	Current Property Owner	Mailing Address	City	State	Zip		R/W #	Extra Line	R/W Width	Comments
4606940	East Ohio Gas Co	501 Martindale St. #500	Pittsburgh	PA	15212					
4600801	Christopher James & Leslie Ann Oddo	1125 Gardner Blvd.	Barberton	OH	44203					
4602009	Judith R. Fulmer	85 W Mohawk Dr.	Malvern	OH	44644					
4600693	Allen R. & Beulah Z. Brand Jr.	1124 Gardber Blvd.	Barberton	OH	44203					
4607524	Bertha F. Gissinger	1667 Union St.	Barberton	OH	44203					
4606188	Julie A. Snyder	1097 Gardner Blvd.	Barberton	OH	44203					
4604381	Agnes J. Ondo, Trustee	458 Beech Row Dr.	Barberton	OH	44203					
4605947	Vivian L. Durbin	3144 Weber Dr.	Barberton	OH	44203					
4606230	Stephen R. & Ruth A. Brown	468 Beech Row Dr.	Barberton	OH	44203					
4600034	Audrey Silin	472 Beech Rd.	Barberton	OH	44203					
4600556	Frank & Marcie J. Obreza	480 Beech Row	Barberton	OH	44203					
4604521	Ramon L. Peters, Trustee	476 Beech Row	Barberton	OH	44203					
4604169	Charles E. & Barbara A. Johnson	500 Beech Row	Barberton	OH	44203					
4604349	Matthew F. Obreza	486 Beech Row Dr.	Barberton	OH	44203					
4608564	Russell C. & Connie L. Snyder, Trustee	530 Tallwood Dr.	Barberton	OH	44203					
4608563	James B. & Camille J. Barbuto	1034 Norton Avenue	Barberton	OH	44203					
4601578	Fabian W. & Connie M. Donnet	1020 Norton Avenue	Barberton	OH	44203					
4608596	John & Michelle D. Mirka	1296 Ledgestone Dr.	Wadsworth Dr	OH	44281					
4608652, 4608650, 4608651	Stonewyck Homeowners Association, Inc.	REM Commerical PO Box 21260	Canton	OH	44718					
4607369	Ronald E. & Elaine C. Boldry	1221 Gardber Blvd.	Barberton	OH	44203					
4608647	Bobbi A. Gohlke	3905 Woodglen Ave.	Barberton	OH	44203					
4608615	Christopher D. & Dawn D. Gable	2745 Pinegate Dr.	Barberton	OH	44203					
4608616	Stephanie Jo Mulligan	2733 Pinegate Dr.	Barberton	OH	44203					
4608630	Matthew W. & Peggy N. Swyrydenko	3663 Firethorn Ave.	Barberton	OH	44203					
4608629	Edward A. & Amy L. Tenney	3643 Firethorn Ave.	Barberton	OH	44203					
4608628	Robert D. & Jean M. Brown	3629 Firethorn Ave.	Barberton	OH	44203					

4604987	Marie A. Rozman, Trustee	3640 Clark Mill Rd.	Barberton	OH	44203					
4602146	Robert E. Gibson, Jr.	3650 Clark Mill Rd.	Barberton	OH	44203					
4600768	Janice M. Buchanan	3630 Clark Mill Rd.	Barberton	OH	44203					
4600393	William W. & Yun S. Wright	3616 Clark Mill Rd.	Barberton	OH	44203					
4604356	Arthur W. & Anne L. Miller	3604 Clark Mill Rd.	Barberton	OH	44203					
4601413, 4601414	Othel L. Bennett	1278 Stratford St.	Barberton	OH	44203					
4604616	Rosemary Miner	317 County Rd. 1352	Vinemont	AL	35179					
4602264	James E. Little	3717 Clark Mill Rd.	Barberton	OH	44203					
4606390	Dennis W. & Valerie Harper	3553 Clark Mill Rd.	Barberton	OH	44203					
4602143	Terry Wayne Weathers	3519 Clark Mill Rd.	Barberton	OH	44203					
4605888	Franklin Donald Tomblin	3529 Clark Mill Rd.	Barberton	OH	44203					
4606391	Dennis W. & Valerie Harper	3553 Clark Mill Rd.	Barberton	OH	44203					
4608194	T & B Partnership	1288 Gardner Blvd.	Barberton	OH	44203					
4607258	David & Pamela Bilinovich	PO Box 94	Barberton	OH	44203					
4607259	Rals Racing Inc.	3363 Clark Mill Rd.	Barberton	OH	44203					
4602806	Billy A. & Dixie L. Dawson	3461 Clark Mill Rd.	Barberton	OH	44203					
4604139	Victor A. & Anna M. Mungo	2710 Broad Blvd.	Cuyahoga Falls	OH	44223					
4607248	Windsor Associates Inc.	2855 W. Market St. #216	Akron	Oh	44333					
4608597	Lemon & Lemon	1201 S. Main St.	N. Canton	OH	44720					
4600128	Allen H. & Phyllis Arkett, Trustees	1140 Gardner Blvd.	Barberton	OH	44203					
4606416	Edwood Development Co.	34 Merz Blvd., Suite A	Akron	OH	44333					
4603791	World Real Estate Services LLC	3147 Barber Road	Barberton	OH	44203					
4606636	Windfall Reserve LLC	P.O. Box 5472	Akron	OH	44334					
4601788	Summit Road Properties, Inc.	2795 Barber Rd.	Barberton	OH	44203					
4607008	Kenneth & Ken Greenbank	4132 Summit Rd.	Barberton	OH	44203					

ATTACHMENT D

ABSTRACT OF CULTURAL RESOURCES STUDY

Project E&A-1240E

January 2009

PHASE I CULTURAL RESOURCES SURVEY
EAST OHIO GAS COMPANY (EOG)
MOHICAN TRANSMISSION PHASE I L #234 (6T07051208)
PIPELINE INFRASTRUCTURE REPLACEMENT (PIR) PROJECT,
THE CITIES OF NORTON AND AKRON,
SUMMIT COUNTY, OHIO

Prepared For:

Dominion Resources Services, Inc.
320 Springside Drive, Suite 320
Akron, OH 44333
Attn: Terry L. Glidden

Lead Agency:
United States Army Corp of Engineers

Prepared By:

Environment and Archaeology, LLC
7736 Highway 42, Suite D3/D5
Florence, Kentucky 41042

Andrea Crider, M.A.
Principal Investigator

Courtney Stoll, M.A.
Primary Author

ABSTRACT

East Ohio Gas Company (EOG) is proposing construction activities regarding a natural gas pipeline replacement segment (Mohican Transmission Phase I) that is part of the EOG Pipeline Infrastructure Replacement (PIR) Project. A section of transmission line L#234 has been proposed for replacement in Summit County, Ohio. The section to be replaced in Summit County measures approximately 10,380 feet (3,164 meters) in length. The area surveyed was approximately 17,285 ft (5,268 meters) in length, which includes the segments to be replaced. L#234 is contained within a permanent easement width of 60 feet (18 meters) and all pipeline replacement activities will be restricted to the 60-foot (18-meter) easement limits. The survey conducted cleared a total corridor of 100 feet (30 meters) in width. The total area evaluated for this project was approximately 39.3 acres (15.9 hectares).

The proposed Mohican Transmission Phase I project area was located within urban-industrial, residential, scrub shrub, wooded, open field, and wetland areas. The project area within Summit County, Ohio lies within the Glaciated Allegheny Plateau Physiographic Province within the Akron-Canton Interlobate Plateau Section. The project area lies within the Tuscarawas River watershed, a part of the larger Muskingum River watershed, which is a part of the Ohio River watershed. The minor drainage in the project area is the Tuscarawas River, and the major drainage is the Muskingum River.

This report provides details of the Phase I archaeology survey of the proposed pipeline replacement. Approximately 16,860 feet (97.5%) of the project area was significantly disturbed from past pipeline, urban-industrial, and residential construction, in addition to slope and wetland areas that could not be tested. The majority of these areas were shovel tested to confirm the presence of disturbance. Those areas that were obviously disturbed (e.g. within a road) or could not be shovel tested due to slope or water, were subjected to a surface inspection. Portions of the remaining areas (approx. 425 feet) did not show clear signs of prior disturbance and excavation did not reveal any disturbance. No architectural structures were located in the proposed study corridor. No additional architectural resources survey work is recommended for this project since it consists solely of the replacement of existing pipeline and no new facilities will be constructed which might alter the existing viewshed.

No prehistoric or historic cultural material was recovered during the course of this field survey. Based on the absence of cultural resources within the survey area, it is unlikely that further archaeological studies would result in the collection of meaningful data relating to the history or prehistory of the project area. No further consultation under Section 106 of the National Historic Preservation Act is recommended for this project.

SUMMARY AND RECOMMENDATIONS

Environment and Archaeology, LLC completed a Phase I cultural resources survey for East Ohio Gas Company for the Mohican Transmission L#234 Pipeline Infrastructure Replacement Project in Summit County, Ohio in January 2009. No cultural resources were identified during the Phase I Survey and extensive disturbance was documented in all but approximately 425 feet of the 17,285-foot project area. No architectural structures were located in the proposed study corridor. No additional architectural resources survey work is recommended for this project since it consists solely of the replacement of existing pipeline and no new facilities will be constructed which might alter the existing viewshed.

Given the degree of testing within the proposed project area, the survey was adequate to identify the presence of archaeological resources within the area, had they been present. Therefore, it is the opinion of *Environment and Archaeology, LLC* that the proposed project area does not maintain any potential for the presence of intact cultural resources and no further archaeological work is recommended for the proposed project area. As such, no further consultation under Section 106 of the National Historic Preservation Act is recommended for this project.

ATTACHMENT E

MODEL NOTIFICATION LETTER TO PUBLIC OFFICIALS

Bricker & Eckler
ATTORNEYS AT LAW

COLUMBUS | CLEVELAND
CINCINNATI-DAYTON

BRICKER & ECKLER LLP
100 South Third Street
Columbus, Ohio 43215-4291
MAIN: 614.227.2300
FAX: 614.227.2390

www.bricker.com
info@bricker.com

Sally W. Bloomfield
614.227.2368
sbloomfield@bricker.com

November 16, 2010

NAME
TITLE
ADDRESS
CITY, STATE, ZIP

Re: Notification of Natural Gas Pipeline Replacement

Dear XXX,

Please be advised that Dominion East Ohio (DEO) is the owner of a natural gas pipeline, Mohican Line # 234. DEO has made plans to replace four segments of 16-inch and 20-inch portions of this existing natural gas pipeline. The portions to be replaced are approximately 10,000 feet in total and are located in the cities of Akron and Norton, Summit County Ohio. DEO anticipates construction to commence in December 2010 with completion being no later than April, 2011. Pipeline replacement will be entirely within the limits of Dominion's easement area. There is no anticipation of the replacement being located within road right-of-way.

If you have any questions concerning this pipeline replacement project, please contact Leighton McCoy (330) 664-2514.

Sincerely,

Sally W. Bloomfield

cc: Leighton C. McCoy, Project Manager

ATTACHMENT F

STORM WATER POLLUTION PREVENTION PLAN

EAST OHIO GAS COMPANY

OHIO
STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Pipeline Infrastructure Replacement Project
Multi-Year Program
Various Segments in Various Counties, OH

Name of Project/Replacement Segment: Mohican Transmission Phase I (L#234)

Planned Construction Start Date: ____Late 2010_____
Planned Construction Completion Date: _____ __Early 2011_____

Construction Supervisor: _____
Phone: _____

Project Manager (signature): _____
Construction Contractor (signature): _____
Environmental Inspector (signature): _____

Note:
This Plan Must Be Kept at the Construction Site During Working Hours

SWPPP Prepared: June 2010
Prepared by: East Ohio Gas Co. and EnviroScience, Inc., and Environment & Archaeology, LLC

SIGNATORY REQUIREMENTS
STORM WATER POLLUTION PREVENTION PLAN

COMPANY: The East Ohio Gas Compnay

LOCATION: 320 Springside Drive, Suite 320
Akron, Ohio 44333

CORPORATE APPROVAL

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE:_____

NAME: _____

TITLE: _____

STORM WATER POLLUTION PREVENTION PLAN

TABLE OF CONTENTS

SECTION — PAGE

1.0 PROJECT OVERVIEW 1
- 1.1 Introduction 1
- 1.2 Project Description 1
- 1.3 Description of Construction Activities and Areas Disturbed 1
- 1.4 New Impervious Areas and Runoff Coefficients 2
- 1.5 Delineation of Drainage Watersheds 2
- 1.6 Site Conditions 3
  - 1.6.1 Soils 3
  - 1.6.1 Prior Land Uses 3
  - 1.6.2 Surface Waters and Wetlands in Project Area 3
  - 1.6.3 Discharges to Municipal Separate Storm Sewer Systems 3
  - 1.6.4 Notes Addressing Site Mapping Requirements 4

2.0 CONSTRUCTION ACTIVITIES 5
- 2.1 Sequence of Construction Activities 5
- 2.2 Timing of Certain Construction Activities 6
  - 2.2.1 Temporary Stabilization/Sediment Control 6
  - 2.2.2 Permanent Stabilization 7
  - 2.2.3 Timing of Waterbody Crossings 7

3.0 EROSION AND SEDIMENTATION CONTROL 8
- 3.1 Inspection and Maintenance 8
- 3.2 Temporary Sediment Barriers 9
  - 3.2.1 General Right-of-Way Areas 9
  - 3.2.2 Hillside Pipeline Construction 9
  - 3.2.3 Soil Stockpiles 10
  - 3.2.4 Road Crossings 10
  - 3.2.5 Trench Dewatering 11
  - 3.2.6 Storm Drain Inlet Protection 11
  - 3.2.7 Rock Check Dam 11
  - 3.2.8 Filter Socks 12
- 3.3 Permanent Sediment Barriers 12
  - 3.3.1 Water Bars 12
  - 3.3.2 Trench Plugs 12
- 3.4 Waterbody Crossings 13
  - 3.4.1 Use of Sediment Barriers for Waterbody Crossings 14
  - 3.4.2 Open Cut Method 14
  - 3.4.3 Isolation Method 15
  - 3.4.4 Horizontal Directional Drill Method 15
- 3.5 Wetland Crossings 15
- 3.6 Post Construction Erosion Control Practices 16
  - 3.6.1 Seeding 16
  - 3.6.2 Fertilizing 17
  - 3.6.3 Post-Construction Monitoring 17
- 3.7 Hydrostatic Discharge 18

4.0 ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROL 19
4.1 Waste Disposal Containers 19
4.2 Construction Related Waste Materials Disposal 19
4.3 Handling Construction Chemicals 19
4.4 Construction and Demolition Debris (CD&D) Disposal 19
4.5 Equipment Fueling and Maintenance 19
4.6 Concrete Wash Water / Wash Outs 20
4.7 Contaminated Soils 20
4.8 Spill Reporting Requirements 20
4.9 Open Burning 20
4.10 Dust Control 20
4.11 Other Air Permitting Requirements 21
4.12 Process Waste Water / Leachate Management 21

LIST OF APPENDICES

APPENDIX

APPENDIX A ..... PROJECT/SEGMENT-SPECIFIC MAPS AND TABLES

A-1 ..... SITE LOCATON MAP
A-2 ..... SOILS MAP
A-3 ..... WATERBODY CROSSING TABLE
A-4 ..... WETLAND CROSSING TABLE
A-5 ..... WETLAND AND WATERBODY LOCATION MAP
A-6 ..... HDD FRAC-OUT CONTINGENCY PLAN

APPENDIX B ..... SURFACE WATER CROSSING DETAILS

DETAIL B-1 SURFACE WATER DIMENSIONAL DETAIL
DETAIL B-2 TYPICAL STREAM CROSSING WITH PUMPED BYPASS DETAIL
DETAIL B-3 TYPICAL FLUMED STREAM CROSSING DETAIL
DETAIL B-4 TYPICAL DIVERSION BARRIER STREAM CROSSING
DETAIL B-5 TYPICAL BORED STREAM CROSSING
DETAIL B-6 TYPICAL TIMBER MAT BRIDGE FOR STREAM CROSSINGS
DETAIL B-7 TYPICAL FLUMED EQUIPMENT CROSSING
DETAIL B-8 TYPICAL CONVENTIONAL WETLAND CROSSING
DETAIL B-9 TYPICAL PUSH PULL WETLAND CROSSING

APPENDIX C ..... SEDIMENT CONTROL DETAILS

DETAIL C-1 FILTER FABRIC FENCE DETAIL
DETAIL C-2 FILTER SOCK DETAIL
DETAIL C-3 PUMPED WATER FILTER BAG DETAIL
DETAIL C-4 WATERBAR INSTALLATION DETAIL
DETAIL C-5 TRENCH PLUG INSTALLATION DETAIL
DETAIL C-6 STREAM BANK RESTORATION DETAIL
DETAIL C-7 EROSION CONTROL MATTING DETAIL
DETAIL C-8 ROCK CONSTRUCTION ENTRANCE DETAIL
DETAIL C-9 GEOTEXTILE INLET PROTECTION DETAIL
DETAIL C-10 ROCK CHECK DAM DETAIL
DETAIL C-11 INSPECTION AND MAINTENANCE REPORT

APPENDIX D ..... SITE DRAWING CHECKLIST

D-1 SITE DRAWING CHECKLIST

STORM WATER POLLUTION PREVENTION PLAN

1.0 PROJECT OVERVIEW

1.1 Introduction

The contents of this document and the accompanying attachments comprise the Storm Water Pollution Prevention Plan (SWPPP) for a natural gas pipeline replacement project performed under East Ohio Gas Company's (EOG) Pipeline Infrastructure Replacement (PIR) Program. This Program's effort consists of replacing approximately 4,000 miles of discontinuous sections of steel pipeline with new pipeline and may continue for 20 years or more. This is a proactive, multi-year program for repairing and maintaining EOG-owned transmission, distribution, and storage pipelines throughout Ohio. The work to be conducted will focus on specific individual pipeline segments, selected for replacement during any given year based on several factors, including pipe viability, location, and potential impacts to protected natural resources.

The purpose of this SWPPP is to present procedures that will be followed during installation of this pipeline to minimize adverse environmental impacts from stormwater runoff and sediment pollution. This document was prepared in accordance with the requirements of the Ohio Environmental Protection Agency NPDES General Permit No. OHC000003 (published requirements effective April 2008 through April 20, 2013).

1.2 Project Description

The following segments are proposed for construction/replacement:

Mohican Transmission Phase I (L#234) – PIR 006 – Multiple sections of transmission line L#234 have been proposed for replacement. Approximately 1.9-mile (10,000-feet) of 16- and 20-inch diameter pipeline in Sherbondy and Norton Townships in Summit County, Ohio will be replaced. Seven streams and five wetlands will be crossed during pipeline installation activities. A total of approximately 14.2 acres of ground disturbance is anticipated within the 60 foot right-of-way. The pipeline sections are shown on United States Geological Survey (USGS) 7½ Minute Series Topographic Quadrangle Map excerpts included in **Appendix A-1**.

1.3 Description of Construction Activities and Areas Disturbed

Pipeline replacement will involve "lift-and-lay" construction (replacement in place) within existing pipeline easements and rights-of-way, except for wetland crossings and stream locations as specified within this plan. The construction contractor will employ the Open Cut Method at all wetland and stream locations with the exception of wetlands classified as Category 3 or palustrine forested. In these instances, the Horizontal Directional Drill method will be utilized. No Category 3 wetlands or palustrine forest impacts are associated with the PIR006 Project. . Site location maps showing the pipeline segment(s) to be replaced are provided in **Appendix A-1**.

All pipeline replacements and construction activities will occur on EOG existing right-of-way (ROW), with the exception of some additional temporary workspace located adjacent to EOG's ROW. The construction activities will require soil disturbance within a 60-foot-wide construction corridor to accommodate areas for the trench excavation, side-cast spoil, temporary storage of the new and removed pipe, and equipment/vehicular traffic. In addition, extra workspaces may be required outside but adjacent to this construction corridor in certain areas, to accommodate additional workspace needs associated with crossing features such as waterbodies, roads, and railroads. Similarly, extra workspaces may also be required for crossing certain features including agricultural areas (to allow space for topsoil segregation) and side slope areas (to allow grading for safety). Off-site areas have been designated for pipe, equipment, and materials storage. All work shall be performed within these authorized limits of disturbance.

Typically, the trench will be excavated to facilitate removal of the old pipeline and to allow 3 to 5 feet of cover over the new pipeline after installation and backfilling. The backfill material that will be returned to the trench will consist of the same material removed from the trench, to the extent practicable. Excess soil will be spread onsite, with the exception of agricultural land, in or near wetlands, floodplains, streams, drainage ways, or other environmentally sensitive areas. Following pipeline installation, all disturbed areas will be returned to their original slope and contour, stabilized, and seeded.

All vegetated areas that undergo project-related soil disturbance will be seeded and revegetated to provide a permanent herbaceous cover to stabilize the soils, and temporary erosion and sediment controls will be maintained until disturbed areas are stabilized.

1.4 New Impervious Areas and Runoff Coefficients

New impervious surfaces will not be created. The majority of areas that will be affected consist of existing, vegetated pipeline ROW. All areas disturbed by the project will be restored to their preconstruction material, condition, and contours.

Accordingly, post-construction runoff will remain essentially the same as pre-construction runoff. Therefore, the calculation of runoff coefficients for pre-construction vs. post-construction conditions is not warranted or applicable to this linear project.

1.5 Delineation of Drainage Watersheds

Delineation of drainage watersheds traversed is not warranted or applicable for this project because the temporary stormwater control measures that will be used during construction are adaptable to any size watershed based on field conditions and professional judgment. No permanent stormwater management systems will be developed in conjunction with this project. No permanent filling or relocation of wetlands or waterbodies is planned, and no permanent bridges or culverts are planned. Furthermore, there will be no permanent changes in grade, ground surface material, or waterway drainage or wetland contours, as all areas disturbed by the project will be restored to their preconstruction condition.

1.6 Site Conditions

1.6.1 Soils

The soils in the project area are depicted and described by name on maps in **Appendix A-2.**

Soils disturbed during trench excavation for the installation of the pipeline will be replaced within the trench once work activities are complete. Any excess spoil will be redistributed within the project area. All disturbed areas will then be re-vegetated and stabilized.

1.6.1 Prior Land Uses

The existing land use in the project area consists of existing, pipeline ROW where vegetation is maintained in an herbaceous or herbaceous scrub-shrub condition. These existing ROW areas are controlled by EOG via legal easements. Extra workspace areas are situated adjacent to the ROW and may consist of open, agricultural, forested, residential, or commercial/industrial areas. EOG negotiates with the landowners and compensates them as appropriate to gain permission to use these areas.

1.6.2 Surface Waters and Wetlands in Project Area

A waterbody crossing table listing all surface waters that will be traversed by the project is provided in **Appendix A-3**. Maps showing the locations of these surface waters are provided in **Appendix A-5**. Construction methods for crossing waterbodies are described in Section 2.2.1 of this plan. Typical drawings depicting the crossing methods are provided in **Appendix B**.

A wetland crossing table listing all wetlands that will be traversed by the project (including distance and acreage affected) is provided in **Appendix A-4**. Maps showing the locations of and aerial extent of these wetlands are provided in **Appendix A-5**. Construction methods for crossing wetlands are described in Section 2.2.2 of this plan. Typical drawings depicting the crossing methods are provided in **Appendix B.**

As a contingency for waterbody and wetland crossings that are bored, an HDD Frac-Out Contingency Plan is provided in **Appendix A-6.**

1.6.3 Discharges to Municipal Separate Storm Sewer Systems

During the course of this pipeline replacement program involving the replacement of approximately 4,000 miles of pipeline over the course of 20 to 25 years, it is possible that some segments of the project will be located within communities that have regulated municipal separate storm sewer systems (MS4s). However, no permanent stormwater management systems will be developed as part of this pipeline replacement project; all areas will be revegetated and restored to their preconstruction grade. In addition, diligent and proper implementation of this SWPPP should result in the control and retention of construction-related soils and sediments

onsite, without the need to use established municipal stormwater systems. Therefore, no discharges to MS4 systems are planned or anticipated.

1.6.4 Notes Addressing Site Mapping Requirements

The maps in Appendix A (including A-1, A-2, and A-5) and the narrative of this SWPPP include the required points of information as listed in Part III.G.1.n of the Ohio EPA General permit for Stormwater Discharges from Construction Activities. Specifically, the following information can be found in the following locations:

i. Location/limits of earth disturbing activity – **Appendix A-1** and narrative in SWPPP **Section 1.3**.
ii. Soil types – **Appendix A-2**.
iii. Existing and proposed contours – **Appendix A-1** (planned contours are same as existing). Delineation of drainage watersheds – (Not applicable, as explained in **Section 1.5**)
iv. Surface water locations including springs, wetlands, streams, lakes, water wells on or within 200 feet of site, including boundary locations of wetlands and streams – **Appendix A-5**.
v. Existing and planned locations of buildings, roads, parking facilities, utilities – **Appendix A-1 and Appendix A-5**.
vi. Locations of erosion and sedimentation control practices, including the areas likely to require temporary stabilization during the course of site development – Text descriptions in **Section 3.0** and typical figures in **Appendices B and C**.
vii. Sediment and stormwater management basins – Not applicable to project.
viii. Permanent stormwater management practices – Not applicable, all disturbed soils will be restored to preconstruction contours and permanently stabilized with vegetation.
ix. Areas for storage of waste / dumpsters – Not applicable to project. Waste generated during construction will be removed from construction site.
x. Locations of construction entrances for access – Construction access will be from locations where the pipeline ROW crosses public roads and via approved existing private access roads. These are shown on the site location maps in **Appendix A-1**.
xi. Locations of in-stream activities/stream crossings – Maps in **Appendix A-1** and **Appendix A-5**.

2.0 CONSTRUCTION ACTIVITIES

This section describes the environmental construction techniques that EOG and its contractors will use to perform the proposed pipeline replacement activities. Best Management Practices (BMPs) will be implemented throughout construction to minimize soil erosion and the transport of sediments from the construction area, and to protect surface waters and wetlands located in and adjacent to the project areas. Detail drawings of specific BMPs are included in Appendices B and C.

2.1 Sequence of Construction Activities

The following general construction sequence provides an overview of the construction process. Wherever practical, construction activities will occur simultaneously and some steps may not occur in the exact order in which they are listed below.

1) Survey and stake existing / proposed pipeline and limits of construction workspaces, as necessary.
2) Install entrance pads at all access points from paved roads, if necessary (see **Detail No. C-8**);
3) Flag/field mark wetland areas, as necessary;
4) Begin clearing and brushing of the ROW;
5) Install filter fence (**Detail No. C-1**), filter socks (**Detail No. C-2**), rock check dams (**Detail No. C-10**) and storm drain inlet protection (**Detail No. C-9**) in areas that are not anticipated to be disturbed by subsequent grading and installation of temporary equipment crossings;
6) Grade the workspace if necessary;
7) Install timber mats for access roads/equipment crossings at stream crossings (**Detail No. B-6 and B-7**);
8) Install timber mats for access roads/equipment stabilization at wetland crossings (**Detail No. B-8**);
9) Install all required filter fence (**Detail No. C-1**), filter socks (**Detail No. C-2**), rock check dams (**Detail No. C-10**) and storm drain inlet protection (**Detail No. C-9**);
10) Install temporary water bars/slope breakers (**Detail No. C-4**);
11) Excavate pipeline trench in upland areas;
12) Remove existing pipeline to be abandoned;
13) String new pipe along ROW;
14) Weld new pipe sections together;
15) Implement BMPs for trench dewatering (if required) (**Detail No. C-3**);
16) Lower pipeline into trench;
17) Install trench plugs (**Detail No. C-5**);
18) Backfill trench;

19) Restore grade to preconstruction contours and install permanent slope breakers where warranted (**Detail No. C-4**);
20) Install stream crossings (install sedimentation controls as necessary for retaining temporary spoil piles) and restore/stabilize stream banks (**Detail No. B-2, B-3, B-4, B-5 and C-6**);
21) Install wetland crossings (**Detail No. B-8 and B-9**);
22) Apply lime and fertilizer as needed. Seed and mulch to all disturbed upland areas, and only the specified wetland seed mix, if required, in wetlands;
23) Install erosion control blankets on steep slopes (**Detail No. C-7**);
24) Monitor adequacy of erosion control practices; and,
25) After permanent stabilization is achieved, remove temporary erosion and sediment controls.

Note: Steps 20 and 21 should be installed in the order that best suits site and scheduling conditions.

2.2 Timing of Certain Construction Activities

The special timing considerations that apply to construction activities and implementation of BMPs are described below.

2.2.1 Temporary Stabilization/Sediment Control

Sediment controls such as filter fabric fence (see **Detail No. C-1**) and filter socks (see **Detail No. C-2**) will be installed before initial ground disturbance, or immediately following ground disturbance if the nature of the disturbance (e.g., grading) would affect the stability of pre-installed sediment controls.

Disturbed areas must be stabilized (i.e., using vegetative or structural soil cover to control erosion, such as temporary or permanent seed & mulch) during construction as specified in Table 1.

Table 1. Temporary Stabilization Timeframes

Area Requiring Temporary Stabilization	Timeframe to Apply Erosion Controls
Disturbed areas within 50 ft of a Surface Water of the State and before final grade	Within 2 days of the most recent disturbance if the area will remain idle for > 21 days
For all construction areas, disturbed areas that will be idle for > 21 days but < 1 year, and not within 50 ft of a Surface Water of the State	Within 7 days of the most recent disturbance in the area
Disturbed areas that will be idle over the winter	Prior to onset of winter weather

2.2.2 Permanent Stabilization

Following completion of construction activities, disturbed areas must be permanently stabilized (i.e., seeded, mulched, and fertilized) as specified in Table 2.

Table 2. Permanent Stabilization Timeframes

Area Requiring Permanent Stabilization	Timeframe to Apply Erosion Controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet from a surface water of the State and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

2.2.3 Timing of Waterbody Crossings

In-stream work will be scheduled to avoid high stream flow conditions, such as immediately following heavy periods of rain, to achieve a dry or low flow condition. The total length of excavated trench open at the stream crossing at any one time will not be greater that the total length of pipeline that can be placed in the trench and backfilled in one working day. Equipment associated with isolation crossing methods (i.e., sand bag dams, flume pipe, pumps, etc) should not be left in the stream overnight. Every effort will be made to cross streams 10 feet in (bottom) width or less, including the trench backfilling, in one working day. Stream banks and the areas 50 feet from the top of each stream bank will be stabilized within 72 hours from the beginning of the stream crossing.

3.0 EROSION AND SEDIMENTATION CONTROL

Project construction activities (e.g., mowing/clearing, grading, trench excavation, spoil storage, backfilling, and restoration) will expose bare soils and increase the potential for erosion and sedimentation. Through adherence to this SWPPP, EOG's objective is to minimize the potential for soil erosion and sedimentation during construction, and to effectively restore and stabilize the ROW and other disturbed areas when construction is completed.

In general, the measures in this plan are designed to minimize erosion and sedimentation by:

- limiting construction work to only the approved areas;
- minimizing the quantity and duration of soil exposure;
- protecting critical areas during construction by reducing the velocity of and redirecting runoff;
- installing and maintaining erosion and sediment control measures in appropriate locations;
- conducting in-stream activities during low-flow periods to the extent practicable;
- limiting the duration of in-stream activities;
- using specialized construction and restoration techniques for wetland and waterbody crossings;
- implementing spill prevention and control measures;
- establishing vegetation as soon as possible following final grading; and,
- inspecting the ROW and other disturbed areas and maintaining erosion and sediment controls as necessary until final stabilization is achieved.

3.1 Inspection and Maintenance

A qualified environmental inspector will inspect all BMPs at least once every 7 days, *and* within 24 hours of a 0.5-inch or greater rainfall within a 24-hour period. The inspector will evaluate whether measures to prevent erosion are adequate and properly implemented or whether additional control measures are required. The inspector will identify and document specific areas that may be contributing to storm water discharges associated with construction activities; and recommend maintenance, supplementation, or replacement of BMPs. All temporary and permanent control practices will be maintained and repaired as needed. A sample inspection report form is shown in **Detail C-11**.

Specifically, disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants to enter a surface waterbody, wetland, or existing drainage system. Erosion and sediment control measures will be inspected to determine their effectiveness in retaining soils and sediments. Locations where vehicles enter or exit the site will be inspected to ensure soils are not tracked off-site onto public roadways. Problematic erosion areas will be corrected by EOG in a timely manner, or within 3 days in accordance with the NPDES General Permit.

The erosion and sediment control measures will continue to be monitored and maintained until all disturbed areas are stabilized.

The site log book and inspection report forms shall be maintained at the construction site during active construction and be made available to permitting authorities upon request. Prior to filing of the Notice of Termination or the end of permit term (such as during the first growing season following project completion), a project environmental inspector or other qualified professional will perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

3.2 Temporary Sediment Barriers

Temporary sediment barriers, such as filter fabric fences, filter socks, and waterbars, shall be placed to intercept runoff from the construction site to prevent silt from entering watercourses, municipal storm sewers, road surfaces, off-ROW areas, and other sensitive areas. This section addresses temporary sediment barriers for general ROW areas. The use of sediment barriers at waterbody and wetland crossings is addressed in **Sections 3.3 and 3.4**.

General notes on installation and maintenance of temporary sediment barriers in specific areas are provided in the following subsections, based on the features/areas involved. These areas include: general ROW areas, hillsides, soil stockpile areas, road crossings, and trench dewatering areas. Detail drawings are provided in **Appendices B and C.**

3.2.1 General Right-of-Way Areas

A perimeter sediment control device (i.e. filter fabric fence or filter sock) will be placed downgradient of pipeline construction activities and staging areas, where effective and required to protect adjacent undisturbed wetlands and other water resources, road surfaces, and residential properties from sediment transported by sheet flow runoff. Installation will be in accordance with the details depicted in **Detail C-1** "Filter Fabric Fence Detail" and **Detail C-2** "Filter Sock Detail". Sediment will be removed when accumulations reach 1/2 the above ground height of the fence. Perimeter sediment control devices that have been undermined or topped should be immediately repaired.

3.2.2 Hillside Pipeline Construction

For pipeline construction parallel to the gradient of a hill (uphill/downhill) areas, where the slope is greater than 1%, EOG will consider installing water bars or other suitable sediment barrier across the ROW if runoff has the potential to adversely affect a waterbody or adjacent property (see **Detail C-4**). Recommended spacing for water bars is listed in **Table 3**. They should be installed to effectively divert downhill runoff to well vegetated areas adjacent to the ROW,

thereby preventing the occurrence of concentrated and erosive flows directly down the disturbed hillside area.

Table 3. Recommended Spacing for Sediment Barriers/Water Bars On Hills

Percent Slope	Spacing (Feet)
1	400
2	250
5	135
10	80
15	60
20	45

For pipeline construction perpendicular to the gradient of a hill (sidehill areas), where the slope is greater than 1%, a perimeter sediment control device shall be installed to protect adjacent water resources, road surfaces, and residential properties from sediment transported by sheet flow runoff. Both ends of the barrier will be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

3.2.3 Soil Stockpiles

A perimeter sediment control device will be installed adjacent to spoil stockpiles to prevent sedimentation into streams and other surface waters. Refer to **Details C-1** and **C-2** for installation details.

Stockpiles will be placed at existing level grade with both ends of the barrier extending at least 8 feet up slope at 45 degrees to the main barrier alignment. Sediment will be removed when accumulations reach 1/3 the aboveground height of the barrier.

3.2.4 Road Crossings

The types and locations of control measures needed at roadway crossings will depend upon the slope of the land and the type of roadway drainage systems present at that location. Upslope runoff will be diverted around the work area by use of diversion channel or waterbars. For this project, it is not anticipated upslope diversion will be necessary since the terrain at the road crossings is flat. Sediment barriers will be located down slope of trench or boring pit storage piles. Such storage piles will not be located in any roadway swale or ditch. Runoff from existing roadway culverts, storm sewers, swales, and ditches will be safely conveyed over any open trench. When entering any construction area from paved roads, all sediment tracked onto the road will be cleaned as soon as practical. If excessive tracking occurs or equipment will access an area for extended periods (i.e. pipeyards or staging areas), a stabilized construction entrance constructed of rock, timber mats, or other suitable material will be installed. Refer to **Detail C-8** for an example of a rock construction entrance.

3.2.5 Trench Dewatering

Excessive water that accumulates in the trench will be pumped from the trench and filtered prior to discharging onto the ground along the ROW. Filter bags, designed to trap particles larger than 150 microns, will be used to remove sediment from the water. The filter bags will be located on a relatively flat (< 5% slope), well-vegetated area. If the dewatering location is within 50 feet of a stream or wetland, a barrier made of straw bales and geotextile, filter socks, or silt fence should be considered to pool the water and allow sediment to settle. The pump discharge hose will be inserted into the bags in the manner specified by the manufacturer and securely clamped. When the bag is filled to ½ its total capacity, it should be replaced with a new bag and properly disposed. If a well-vegetated area is not available, a geotextile underlayment will be placed under the area discharge area. Refer to **Detail C-3** for filter bag placement and use.

3.2.6 Storm Drain Inlet Protection

Storm drain inlet protection devices will be installed to remove sediment from storm water before it enters storm sewers or downstream areas. Inlet protection devices are sediment barriers that may be constructed of geotextile fabrics and other materials that are supported around or across the storm drain inlets. All storm drain inlet protection requires frequent maintenance and cleaning to maintain sufficient flow rates and prevent clogging. Geotextile inlet protection devices are commonly used for storm drain inlet protection and the installation details are shown in **Detail C-9.** Sediment should be removed from the Geotextile inlet protection when accumulations reach ½ the height of the trap. Sediment will be removed and placed in a location where it is stable and not subject to erosion and should never be washed into an inlet. Filter socks are also acceptable sediment trapping devices. Sediment should be removed from the filter socks when accumulations reach $^1/_3$ the height of the trap. Filter socks will be installed per manufacturer's recommendations.

3.2.7 Rock Check Dam

This practice is limited to use in small open channels where it is necessary to slow the velocity of flow in order to prevent erosion and allow for sedimentation. While this practice often traps some sediment, its trapping efficiency is extremely poor, thus, it should not be used as a primary sediment trapping device. Applications include temporary swales, which because of their short length of service, are not practical to receive a non-erosive lining or swales which need protection during the establishment of grass linings. Check dams can be small rock dams constructed in ditches, swales, grassed waterways or diversions. Installation details are shown in **Detail C-10.** Filter socks may be used as check dams by staking the socks perpendicular to the flow of the channel. Refer to **Detail C-2** for installation. If a channel is expected to have high flow, filter fabric may be placed in front of the check dam. Sediment shall be removed from behind the check dam once it accumulates to one-half the original height of the check dam.

Removal of the check dam can be performed by hand or mechanical means. Stone and sediment should be removed and the area graded and seeded.

3.2.8 Filter Socks

Filter socks may be used as perimeter sediment control devices and function by capturing sediment by ponding and filtering water through the device during rain events. Installation details are shown in **Detail C-2**. They may be a preferred alternative where equipment may drive near or over sediment barriers, as they are not as prone to complete failure as silt fence. Driving over filter socks is not recommended; however, if this occurs, the filter sock should be immediately inspected for damage. If needed, the sock should be repaired or replaced. The use of filter socks is applicable to slopes up to 2:1 (H:V), around inlets, and in other disturbed areas of construction sites requiring sediment control. Typically, filter socks can handle the same water flow or slightly more than silt fence. For most applications, standard silt fence is replaced with 12" diameter filter socks. When construction is completed on site, the filter socks may be cut open and the compost dispersed across upland ROW. The mesh netting material will be disposed of in a normal trash container or removed by the contractor.

3.3 Permanent Sediment Barriers

3.3.1 Water Bars

The installation of permanent sediment barriers, such as waterbars, will be considered at each slope greater than 1% grade, if in the judgment of EOG, potential runoff as the result of ROW clearing will adversely affect a water-body or adjacent property. Details and spacing requirements for waterbar installation are shown in **Detail C-4**.

3.3.2 Trench Plugs

Trench Plugs are required at each side of streams and wetlands crossings completed by trenching, regardless of trench slope. These requirements supplement EOG's general construction practice for the placement of plugs in trenches on steep slopes. Trench plugs will also be installed if it is determined that flooding at the low point elevation of a pipeline will adversely affect the adjacent property. Installation will be in accordance with the details depicted in **Detail C-5** and **Table 4** below.

Table 4. Required Spacing and Materials for Trench Plugs

Trench Slope (%)	Spacing (FT)	Plug Material
< 5	*	*
5 – 15	500	Sand or Earth** Filled Sacks
15 – 25	300	Sand or Earth** Filled Sacks
25 – 35	200	Sand or Earth** Filled Sacks
35 – 100	100	Sand or Earth** Filled Sacks
> 100	50	Cement Filled Bags (Wetted) or Mortared Stone

* Trench Plugs are required at each side of all stream, river or water-body crossings completed by trenching, regardless of trench slope. Otherwise not required.

** Topsoil may not be used to fill sacks.

3.4 Waterbody Crossings

Proposed stream-crossing techniques have been selected based on permitting, the technical feasibility of the method at each site, the sensitivity of the fisheries resource, and the ability of the technique to minimize the impact on local fish habitat and the potential for sediment release to downstream habitats. Contingency methods will be used if the preferred technique is assessed to be not practical or too high a risk at the time of construction as determined by stream flows and other on-site conditions.

Typically, minor streams, ≤ 10-feet wide at normal flow depth, will be crossed using "open cut" method. However, crossings of minor streams that are designated high quality fisheries or exceptional value streams shall use "isolation" methods that include using the flume pipe, the dam and pump, or the in-stream diversion method. Intermediate streams, > 10-feet and ≤ 100-feet wide, and major streams, > 100-feet in width, will be crossed using the wet trench method or by horizontal directional drilling.

Hazardous materials, chemicals, fuels, and lubricating oils will not be stored, and concrete coating activities will not be conducted, within 100 feet of any waterbody, wetland, or within any designated municipal watershed area (except at industrial locations designated for these purposes by an appropriate governmental authority). Refueling of construction equipment will be conducted at least 100 feet away from waterbodies and wetlands.

Refer to the appropriate sections below for a description of the crossing methods, and to **Details B-2, B-3, B-4 and B-5** for depictions of the waterbody crossing methods.

3.4.1 Use of Sediment Barriers for Waterbody Crossings

Prior to any construction activities within the stream channel, perimeter sediment control devices (i.e. filter fabric fence or filter socks) will be installed on both sides of the stream banks (see **Details C-1 and C-2**). The general locations where sediment barriers will be installed at waterbody crossings are shown on **Details B-2, B-3, and B-4** (for each applicable waterbody crossing technique).

Spoil piles from the tie-in and trench excavations will be placed behind the barriers to protect the stream from sediment buildup. Assembly areas, temporary equipment and non-hazardous material storage areas will be located a minimum of 50 feet back from the top of the stream bank.

Perimeter sediment control devices shall be installed parallel to the stream bank with both ends extending at least 8 feet upslope at 45 degrees to the main barrier alignment. Sediment shall be removed when accumulations reach ½ the above ground height of the device. Any section of the sediment barrier that has been undermined, topped or damaged will be immediately repaired. The barriers shall remain in place until final stabilization of the area.

3.4.2 Open Cut Method

Open cutting is the standard method for pipe installation in dry watercourses well removed from fish bearing reaches. The pipeline trench is excavated in the bed and banks of the flowing or dry watercourse channel and is backfilled after the pipe is lowered in. The bed and banks of the channel are re-contoured to their original condition and stabilized with seed and mulch. Erosion control matting and/or rip-rap may also be used to further stabilize the watercourse.

After installation of the perimeter sediment control device, excavation activities may commence. The trench will be excavated to the minimum width necessary to accommodate installation of the pipe. The trench will be monitored to ensure proper depth and width. In most instances, streambed substrate should be separated from the subsoil and backfilled last to minimize impact. Excavated material that will subsequently be used as backfill shall be immediately removed from the stream crossing and placed behind the sediment barriers on the stream bank. The pipeline will then be lowered into the trench and backfilled. Trench plugs will be installed at the top of the stream bank as shown in **Detail C-5.** The stream bank will then be stabilized with seed and mulch. Erosion control matting and/or rip-rap may also be applied to further stabilize the stream banks.

3.4.3 Isolation Method

The isolation method is one in which a trench is excavated in the bed and banks of a water body while the surface water in the water body flows uninterrupted and isolated from the excavation area. Isolation techniques include, but are not limited to, fluming, pumped by-pass, and in-channel diversion.

After placement of the perimeter sediment control device, installation of the dam and/or flume will commence. Refer to **Detail B-2** for pumped by-pass installation, **Detail B-3** for flume installation, and **Detail B-4** for in-stream channel diversion.

The structures for stream isolation methods will be installed and functioning prior to any trench excavation within the stream channel. The sand-filled bags will be stacked at least 12 inches above the level of the stream. The trench will be excavated to the minimum width necessary width to accommodate installation of the pipe. The trench will be monitored to ensure proper depth and width. Excavated material that will subsequently be used as backfill will be immediately removed from the stream crossing and placed behind the sediment barriers on the stream bank. The pipeline will then be lowered into the ditch and backfilled. (Pipe will be welded and bent prior to placement in the trench.) Trench plugs will be installed at the top of the streambank as shown in **Detail C-5.** The streambanks will be restored to original contour and stabilized with either riprap or erosion control matting (see **Detail C-6**). The sand bag dams will be removed following complete restoration of the stream channel and banks.

3.4.4 Horizontal Directional Drill Method

Horizontal directional drilling is the preferred crossing method for large river systems with significant fisheries values. However, the geometry and geology of the terrain needs to be appropriate to have a reasonable assurance of success. Due to the topography (steep slopes) and constraints to allow boring equipment to be situated in the ROW, this method may not be practical for all stream crossings.

After placement of filter fabric fence, the launching and receiving holes on both sides of the stream will be excavated. These excavations will be at least 10 feet or more from the stream bank (see **Detail B-5**). As a contingency for waterbody and wetland crossings, an HDD Frac-Out Contingency Plan is provided in **Appendix A-6.**

3.5 Wetland Crossings

Prior to construction, wetland areas will be identified and flagged within the ROW. Extra work and staging areas will be located at least 50 feet from the edge of the wetland, where possible. The width of the disturbance will be limited to the minimum necessary for the actual crossing. Movement of vehicles and equipment across the wetland will be minimized. Where equipment and vehicles must traverse saturated wetlands, the use of pads, mats, or other suitable methods will be used to minimize disturbance.

During trench excavation, the top 6 to 12 inches of topsoil (with the vegetative root mass) will be carefully removed from over the trenchline and stockpiled separately from the trench subsoil (unless standing water or saturated soils make this impracticable to effectively segregate). Topsoil piles should be differentiated from subsoil piles with flagging, ribbons or other effective devices. The pipeline will be installed and trench plugs will be placed as identified in this plan, to prevent the trench from draining the wetland or changing its hydrology. The trench will be backfilled with subsoil first and topsoil on top, and the preconstruction contours will be restored. Excess material, if any, will be removed from the wetland upon completion. Unless required by local agencies, seeding, mulching, and fertilization will not be done in wetlands. Restoration of the previously salvaged topsoil will allow the wetland vegetation indigenous to the wetland to revegetate naturally. Disturbed slopes adjacent to the wetland will be stabilized immediately upon pipeline installation.

Refer to the appropriate sections below for a description of the crossing methods, and to **Details B-8 and B-9** for depictions of the wetland crossing methods.

3.6 Post Construction Erosion Control Practices

Permanent or temporary soil stabilization shall be applied to disturbed areas within seven (7) days after final grade is reached on any portion of the pipeline. When seasonal conditions prohibit the application of temporary or permanent seeding, dormant seeding (applying seed at 1.5 times permanent seeding rate) or non-vegetative soil stabilization practices such as mulching and matting shall be used.

3.6.1 Seeding

Once backfilling operations are completed, the tie-in excavations will be returned to their original slope and contour. Wetlands will not be seeded, but will be allowed to revegetate naturally from the seed stock and roots retained in the salvaged topsoil. All disturbed areas will be seeded with plant species that have a high germination capacity. Seeding will be performed with broadcast seeding equipment followed by a mulch covering. The following application rates will be used:

Temporary Seeding

Seed	2 pounds per 1,000 square feet (85 pounds per acre) with a winter (annual) rye or wheat dominant mix
Mulch	2-3 bales per 1,000 square feet minimum

Permanent Seeding

Seed	3-5 pounds per 1,000 square feet (130 – 215 pounds per acre) with a Kentucky blue grass and fescue mixture incorporating a perennial rye or similar mix.
Mulch	2-3 bales per 1,000 square feet minimum

In critical areas (e.g. adjacent to or within 50 feet of streams, ponds, or wetlands) consideration will be given to providing a protective blanket for seeded areas. Mulch with netting or protective blankets will be considered for seeded areas on slopes steeper than 3:1. Refer to **Detail C-7** for proper installation of erosion control matting.

3.6.2 Fertilizing

Lime and fertilizer will be applied at recommended amounts, according to the following rates:

Lime	100 pounds per 1000 square feet (2 tons per acre) Agricultural Grade Limestone
Fertilizer	25 pounds per 1000 square feet (1000 pounds per acre) of a 10-10-10 mixture

3.6.3 Post-Construction Monitoring

At the end of construction/restoration activities, a project environmental inspector or other qualified professional will perform a final site erosion control inspection to identify any remaining punch-list items to be completed to ensure long-term soil stability. The project area will be monitored on a regular basis and any needed repairs made during the post-construction period. Temporary erosion and sediment control measures will not be removed until the disturbed area is stabilized. Remedial soil conditioning, fertilization, reseeding and mulching will be performed as needed.

Prior to filing of the Notice of Termination (within 45 days of confirming that final stabilization has been achieved), the qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary sediment and erosion controls (such as silt fence) not needed for long-term erosion control have been removed.

3.7 Hydrostatic Discharge

After installation, some pipelines require testing using hydrostatic pressure to ensure integrity of the welds and seams. The subsequent test water is typically discharged on-site or into a sanitary sewer. If discharge into surface waters of the state is expected, EOG will submit a Notice of Intent (NOI) to obtain coverage under General Permit Number OHH000001 from the Ohio EPA. State-designated exceptional value waters, waterbodies which provide habitat for threatened or endangered species, or waterbodies designated as public water supplies will not be used as receiving waters unless appropriate Federal, state and/or local permitting agencies have granted written permission. Discharges into sanitary sewers require approval from the applicable sewer district. Environmental personnel must be notified prior to the hydrostatic discharge release. Sampling required by the OEPA permit or sewer district will be performed by qualified personnel, typically the on-site environmental inspector.

BMPs outlined in the EOG Standard Erosion and Sediment Control Plan and OEPA permit must be used during the hydrostatic discharge. Examples of accepted BMPs include filter bags, filter socks, and dewatering pits made from straw bales lined with geotextile. Every effort will be made to discharge onto a large, well vegetated, non-sloping, upland area. The water will be regulated at the discharge point to prevent excessive flow and scouring. Initially, the release rate is not to exceed 350 gallons per minute; if the EI or other qualified environmental personnel deem that BMPs are functioning well enough to increase the velocity, flow can be raised to a maximum of 500 gallons per minute. Test water is typically obtained from a municipal water source and no chemicals or additives are to be used in the test water. If the discharge conditions require releasing water near a surface water of the state or if high levels of iron or total suspended solids are anticipated, BMPs such as slowing the velocity of the release and/or using treated filter socks to remove suspended solids and metals may be considered to stay in compliance with the NOI.

4.0 ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROL

Sediment is the primary pollutant of concern resulting from construction activities. However, other potential sources of pollution are also present during construction, such as petrochemicals, construction materials and wastes, and leftover hazardous and toxic substances, and require proper management and handling. Keeping these substances from polluting runoff can be accomplished to a large extent through good housekeeping and following the manufacturer's recommendation s for their use and disposal. The following guidance will help to prevent additional construction site pollutants from leaving the site.

4.1 Waste Disposal Containers

Waste disposal containers shall be provided for the proper collection of all waste materials including construction debris, sanitary garbage, petroleum products, and any hazardous materials to be used on-site. Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material.

4.2 Construction Related Waste Materials Disposal

No construction related waste materials are to be buried onsite. By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way that does not encroach upon natural wetlands, streams, or their floodplains. Filling of stream side areas is "fill" and may not result in the contamination of waters of the state.

4.3 Handling Construction Chemicals

Mixing, pumping, transferring, or other handling of construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any water source, ditch, or storm drain.

4.4 Construction and Demolition Debris (CD&D) Disposal

CD&D waste must be disposed of in accordance with ORC 3714 at an approved Ohio EPA CD&D Landfill. CD&D waste is defined as all materials attached to a structure which is being demolished.

4.5 Equipment Fueling and Maintenance

Equipment fueling and maintenance shall be performed way from watercourses, ditches, or storm drain inlets, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills.

4.6 Concrete Wash Water / Wash Outs

Concrete wash water shall not be allowed to flow to streams, ditches, storm drain inlets, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structure within 10 ft. of the sump shall be cut and plugged.

4.7 Contaminated Soils

If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc., are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at a licensed sanitary landfill, or other approved petroleum contaminated soil remediation facility (not a construction /demolition debris landfill). Storm water runoff associated with contaminated soils is not authorized under the Ohio EPA General Storm Water Permit associated with Construction Activities.

In the event that there area areas of contaminated soils encountered during construction, additional measures above and beyond the conditions of the Ohio EPA's General Storm Water Permit will be required. The soils shall be dug up and disposed of at a licensed facility (not a construction/demolition debris landfill). Depending on the extent of contamination, additional treatment and/or collection and disposal may be required. All storm water discharged associated with the contaminated soils must be authorized under an alternate NPDES permit.

4.8 Spill Reporting Requirements

Spills on pavement shall be absorbed with sawdust, kitty litter, or other absorbent materials and disposed of with the trash at a licensed sanitary landfill and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA (1-800-282-9378), the local fire department, and the Local Emergency Planning Committee within 30 min. of discovery of the release. All spills which result in contact with waters of the state must be reported to Ohio EPA's Hotline.

4.9 Open Burning

Open burning is not allowed within restricted areas such as within municipal corporation limits. No materials containing rubber, grease, asphalt, or petroleum products (such as tires, autoparts, plastic, or plastic coated wire) may be burned (see OAC 3745-19) at any location.

4.10 Dust Control

Dust control is required to prevent nuisance conditions. Dust controls must be used in accordance with the manufacturer's specifications and not be applied in a manner, which would result in a discharge to waters of the state. Isolation distances from bridges, catch basins, and other drainageways must be observed. Application (excluding water) may not occur when precipitation is imminent as noted in the short term forecast. Used oil may not be used as dust control.

4.11 Other Air Permitting Requirements

All contractors and subcontractors must be made aware that certain activities associated with construction will require air permits. Activities including but not limited to mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc., will require Ohio EPA Air Permits for installation and operation.

4.12 Process Waste Water / Leachate Management

Ohio EPA Construction General Permit only allows discharge of storm water and does not include other waste streams/discharges such as vehicle and or equipment washing, on-site leachate concrete washouts, which are all considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event leachate or septage is discharged, it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waster water. Sanitary waste collection facilities such as Port-a-Jons will be provided along the project route.

APPENDIX A

Project/Segment-Specific Maps & Tables

A-1: Site Location Map

A-2: Soils Map

A-3: Waterbody Crossing Table

A-4: Wetland Crossing Table

A-5: Wetland and Waterbody Location Map

A-6: HDD Frac-Out Contingency Plan

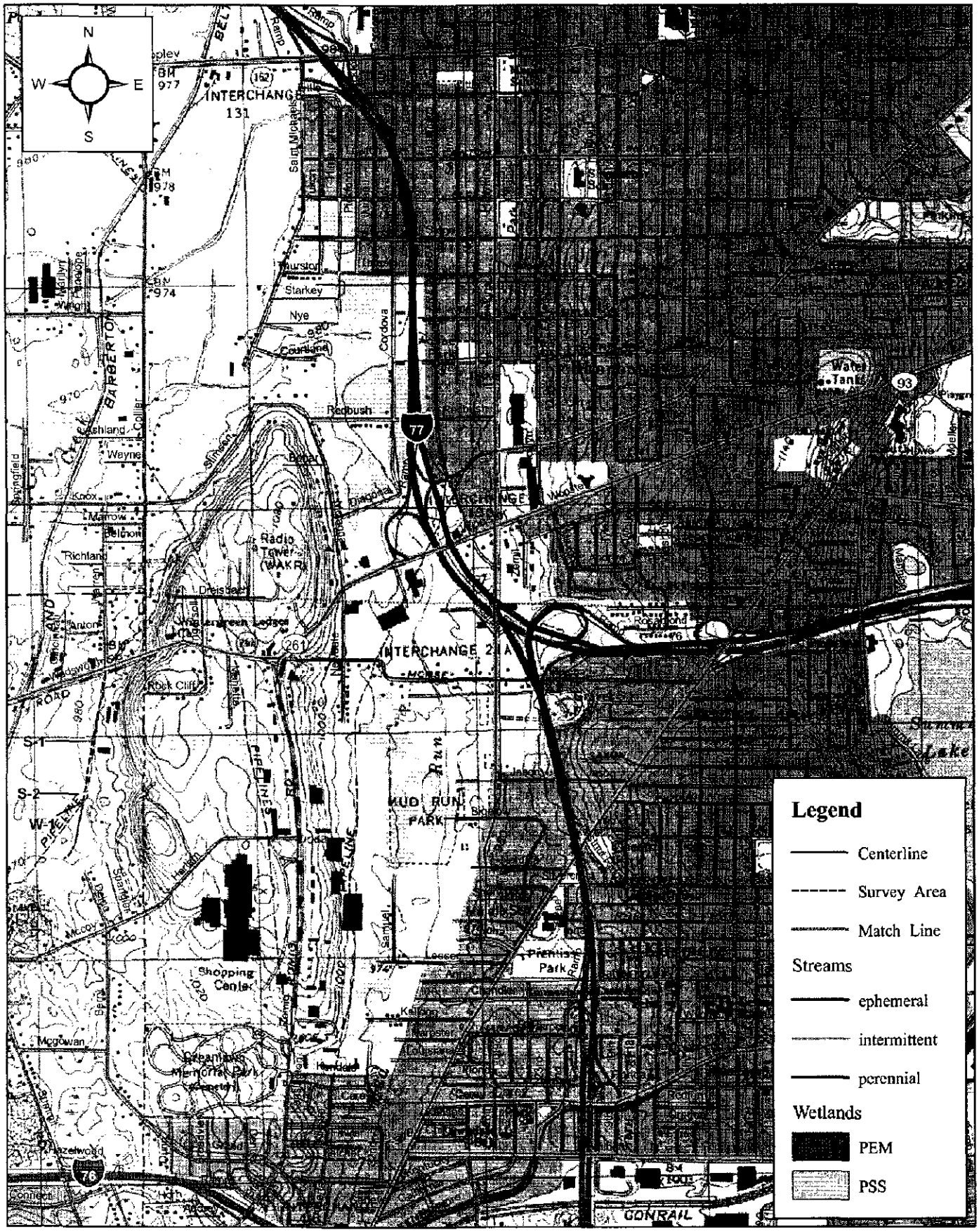


Figure 1a	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

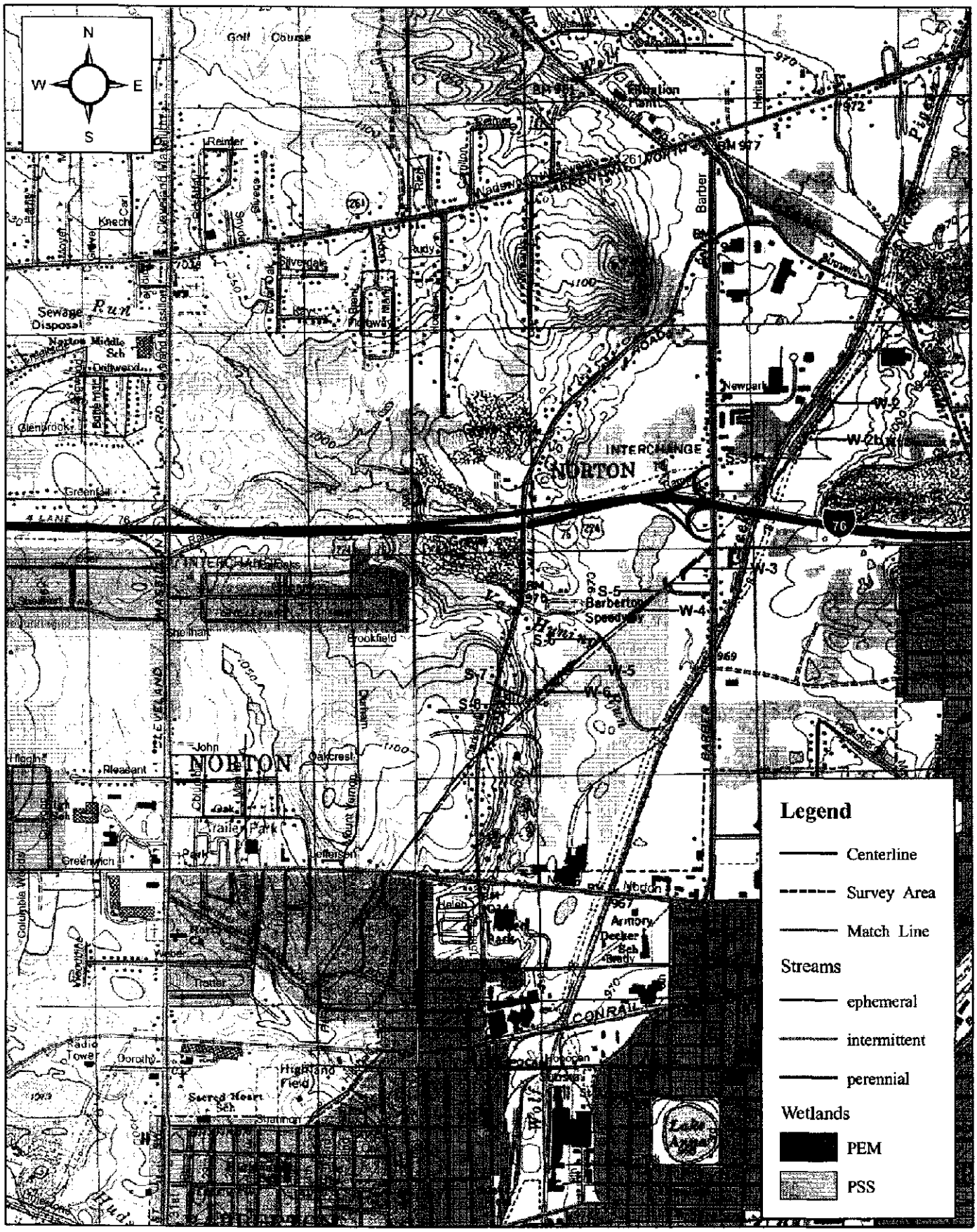


Figure 1b	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	USGS 7.5' Topographic Map Wadsworth and Akron West, Ohio Quadrangles 1:24,000 *Environment and Archaeology, LLC*

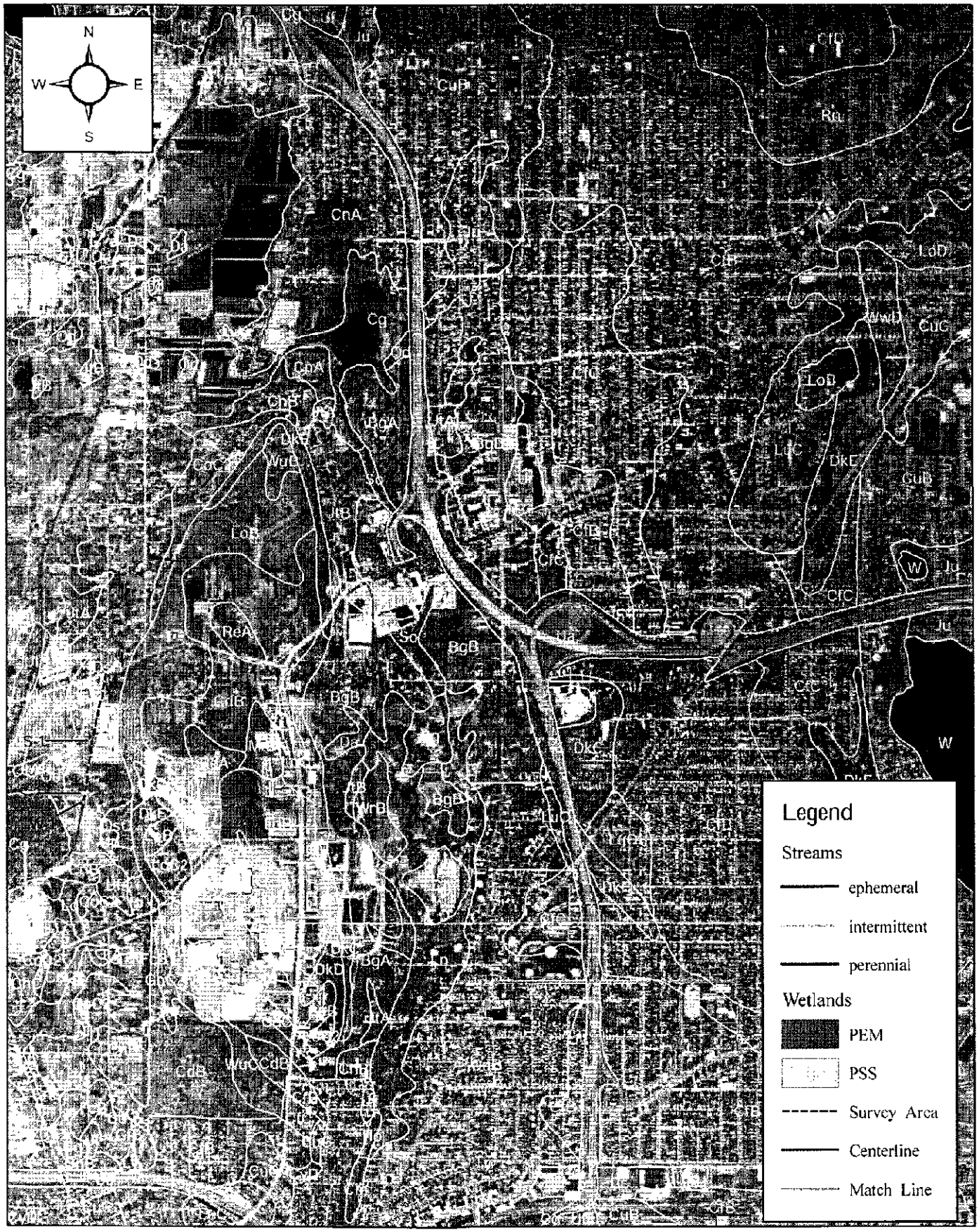


Figure 4a	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	2006 Aerial Map with USDA Soil Overlay 1:24,000 *Environment and Archaeology, LLC*

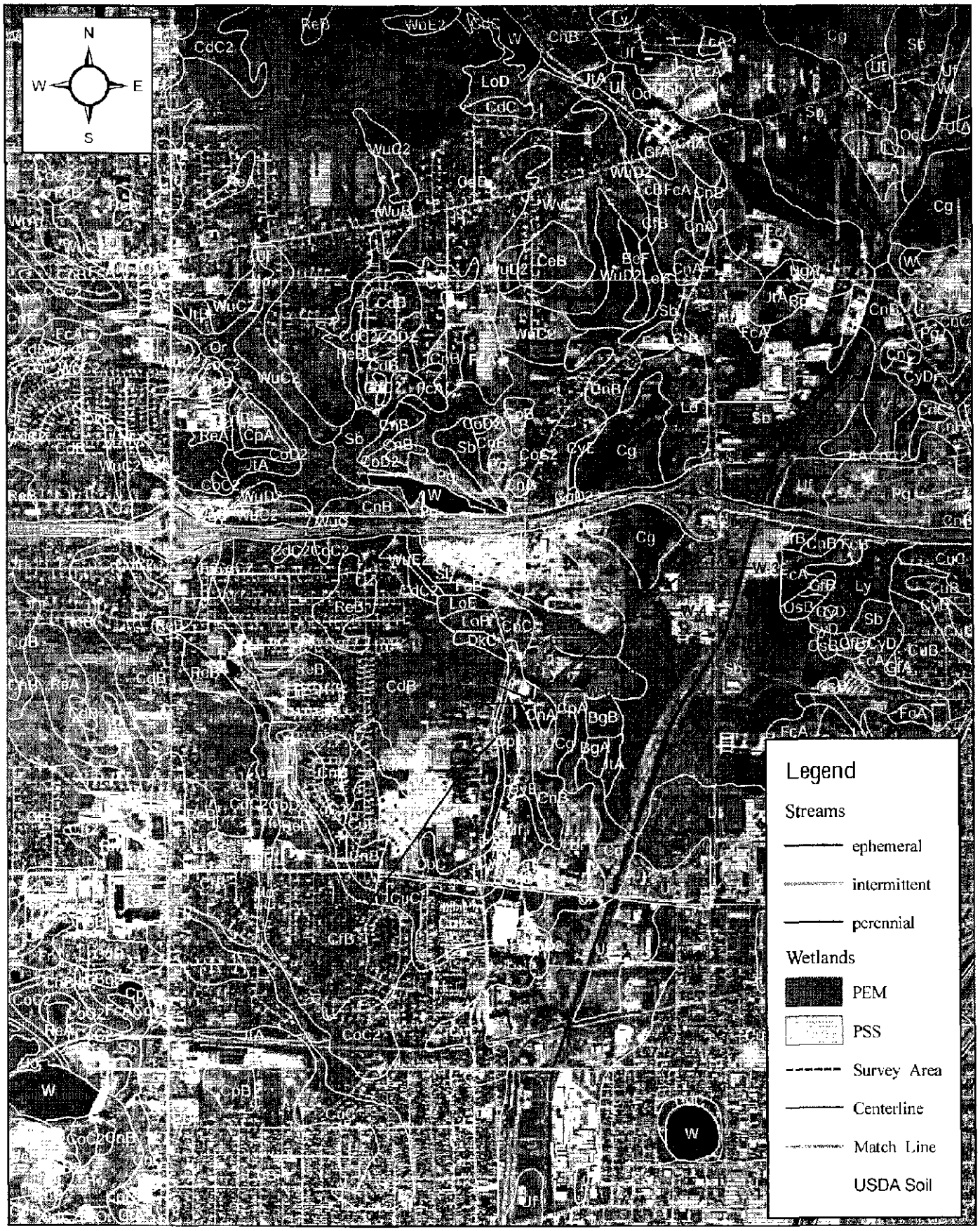


Figure 4b	East Ohio Gas Company Mohican Transmission Phase I Replacement Project Project Location Summit County, Ohio	2006 Aerial Map with USDA Soil Overlay 1:24,000 *Environment and Archaeology, LLC*

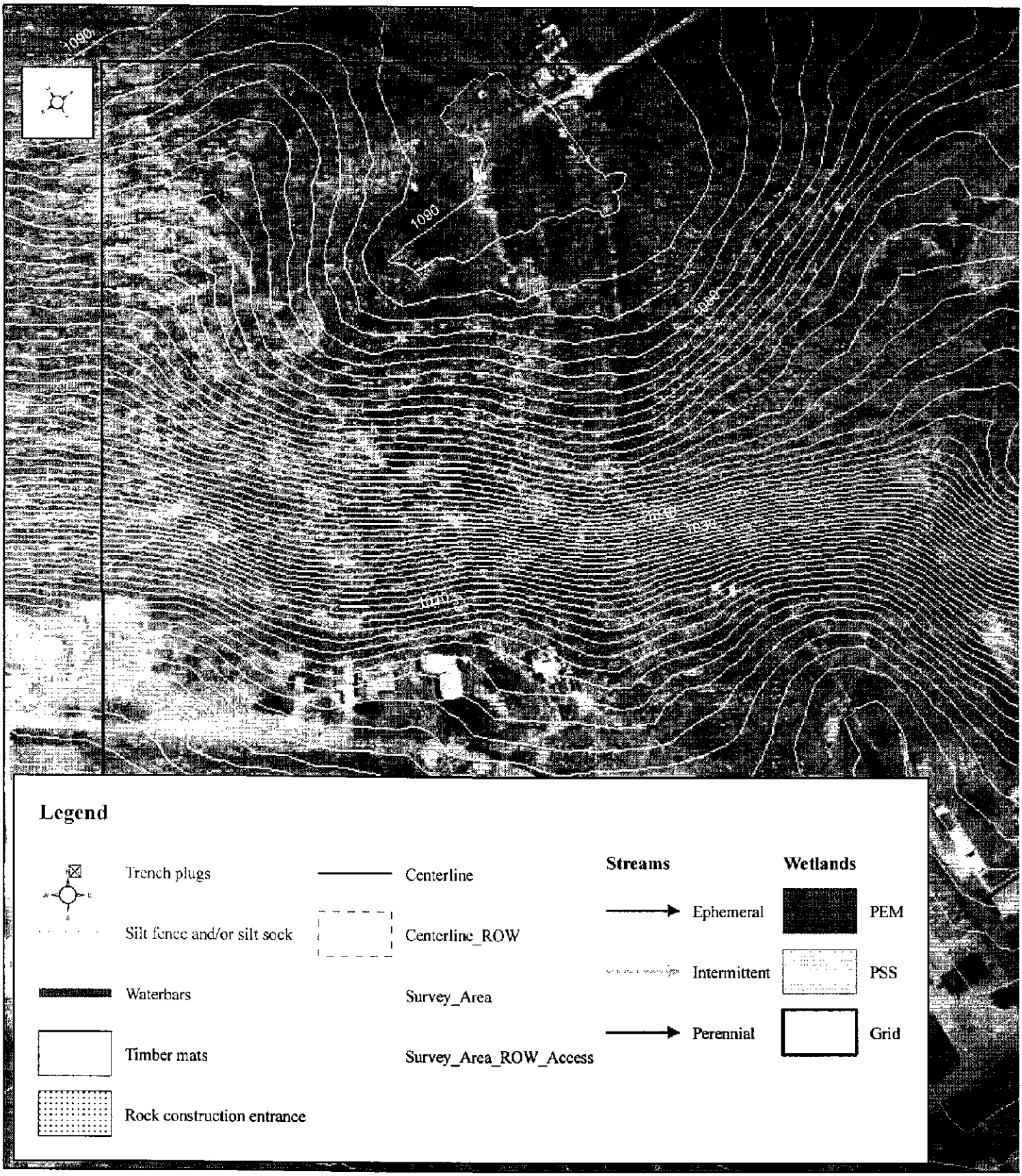


Figure 1	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

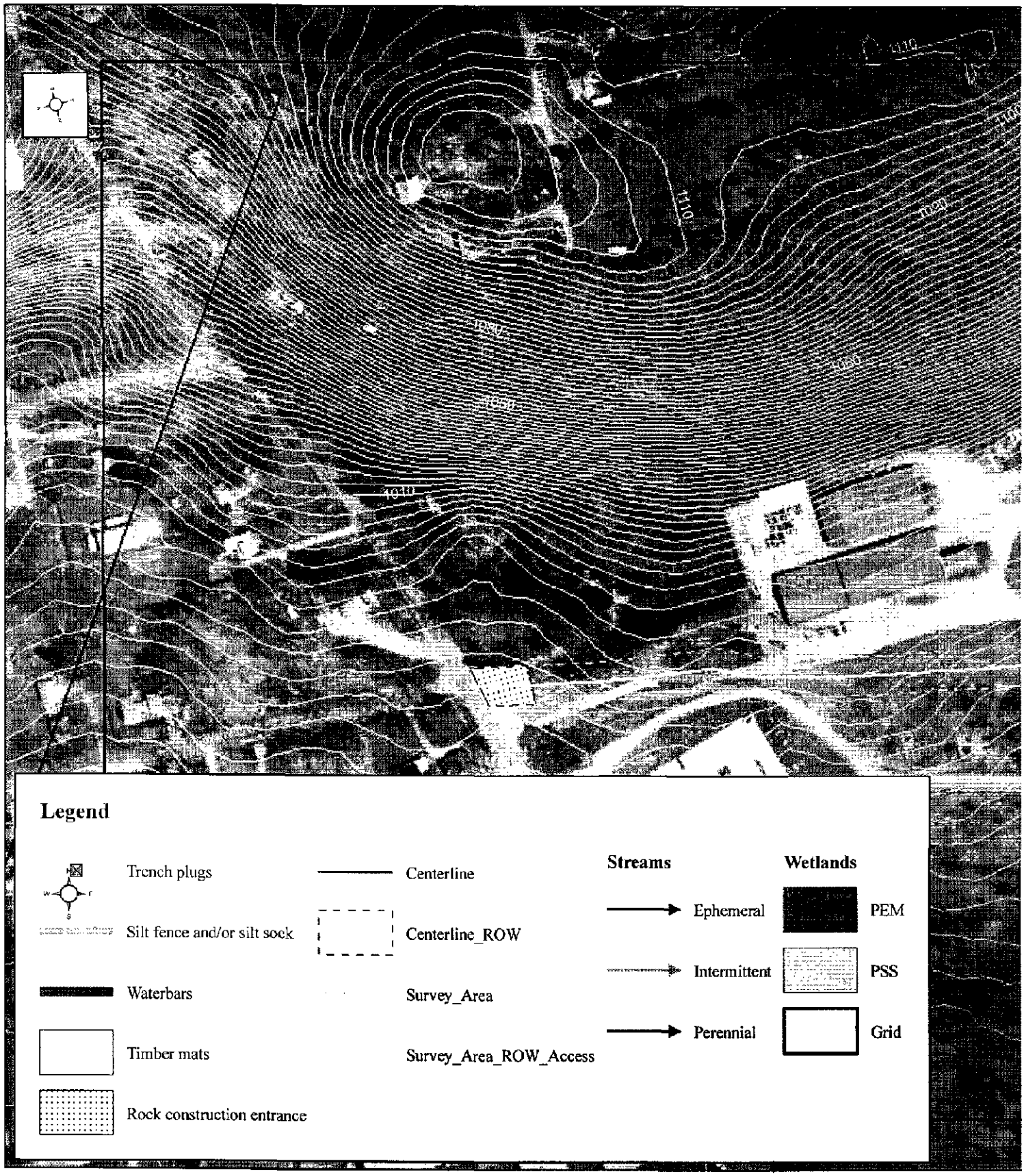


Figure 2	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

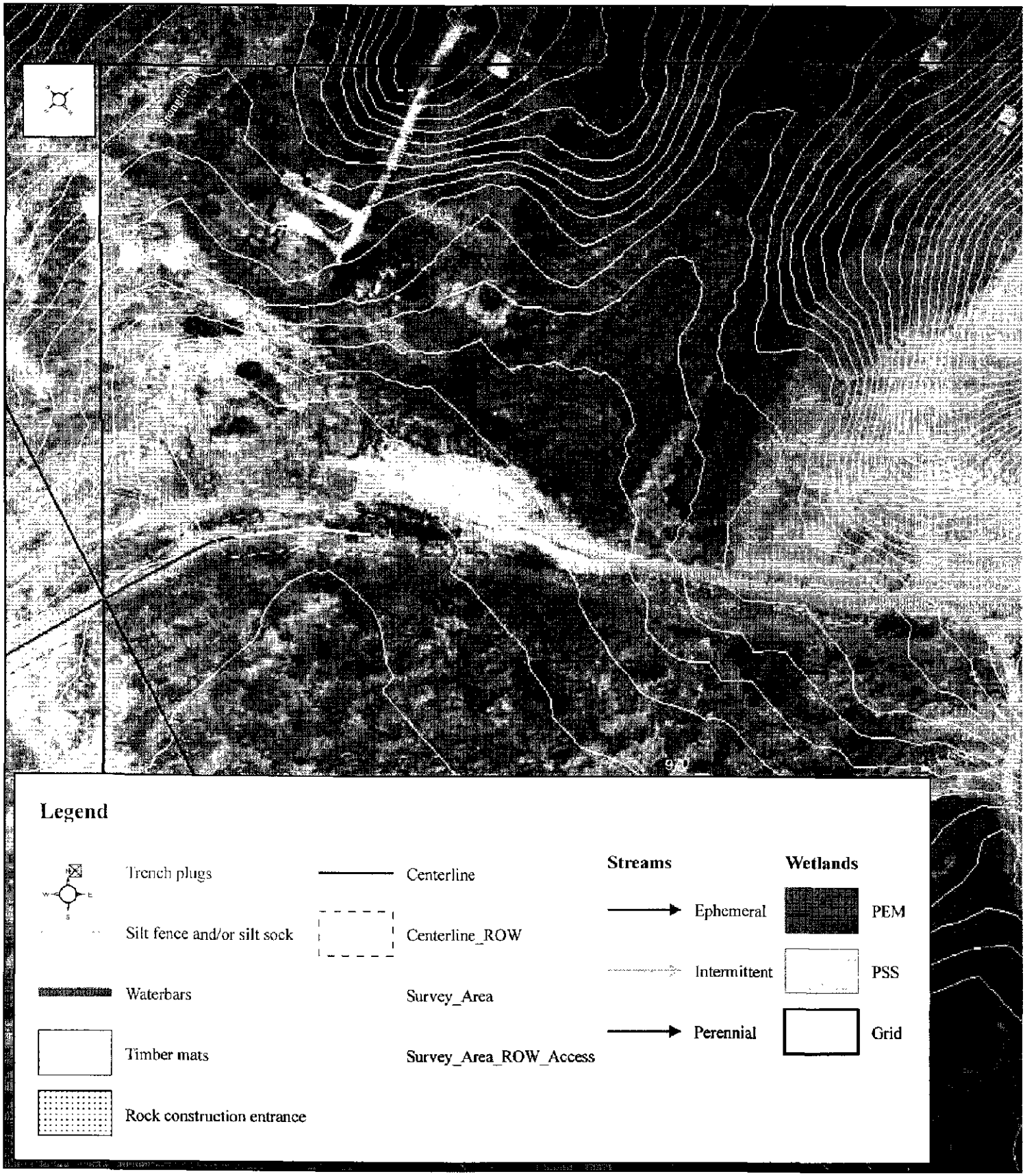


Figure 3	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

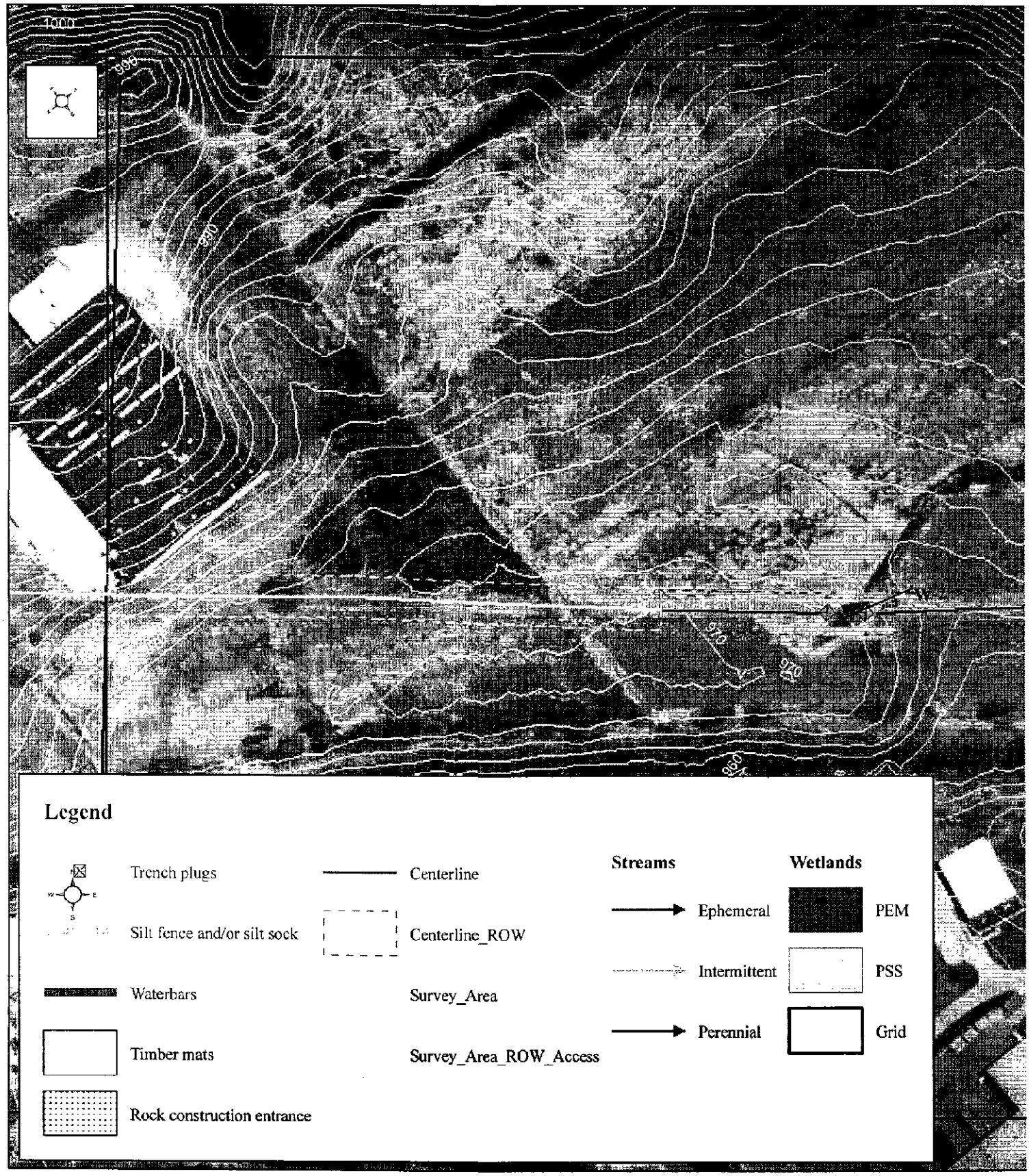


Figure 4	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

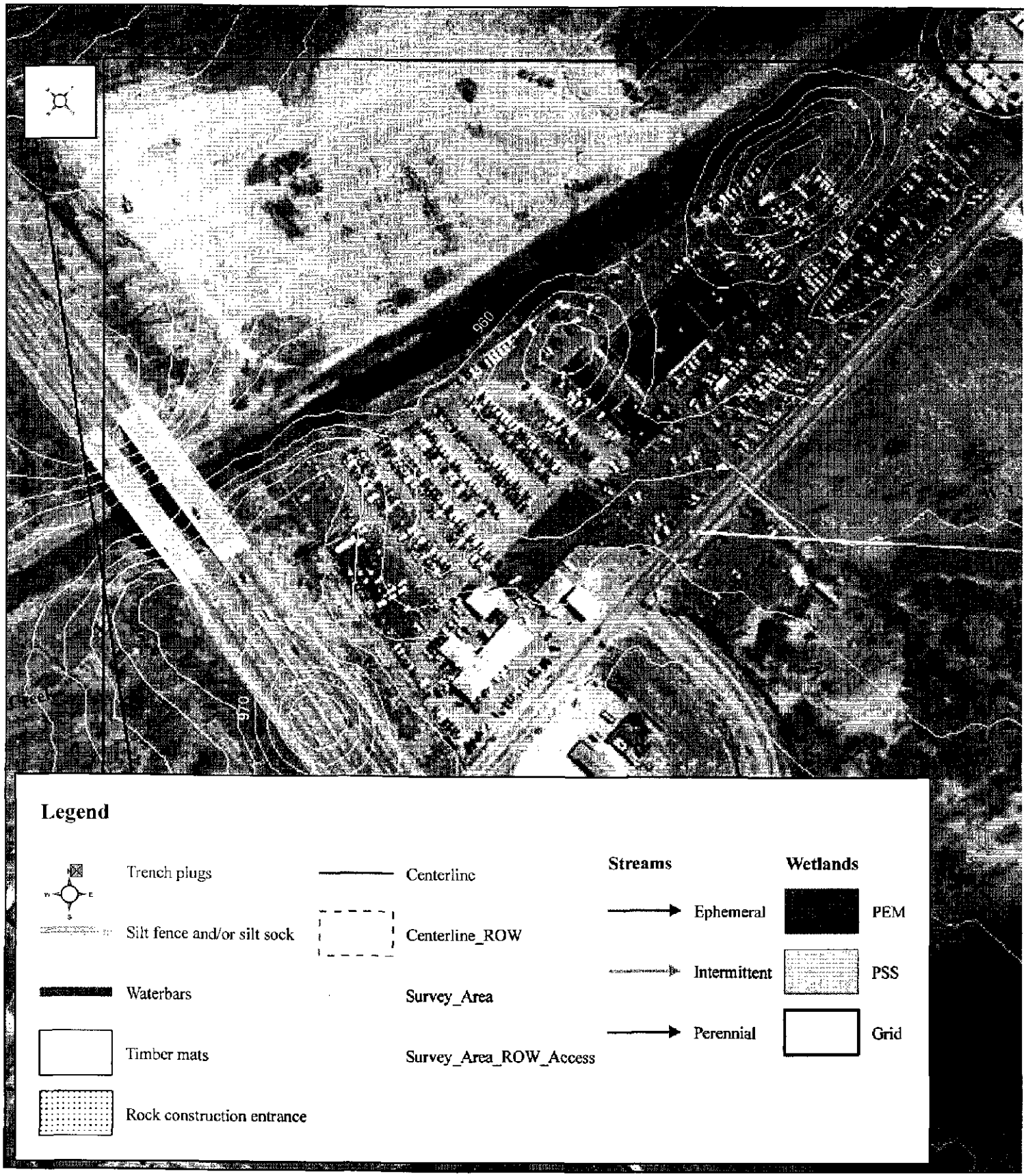


Figure 5	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

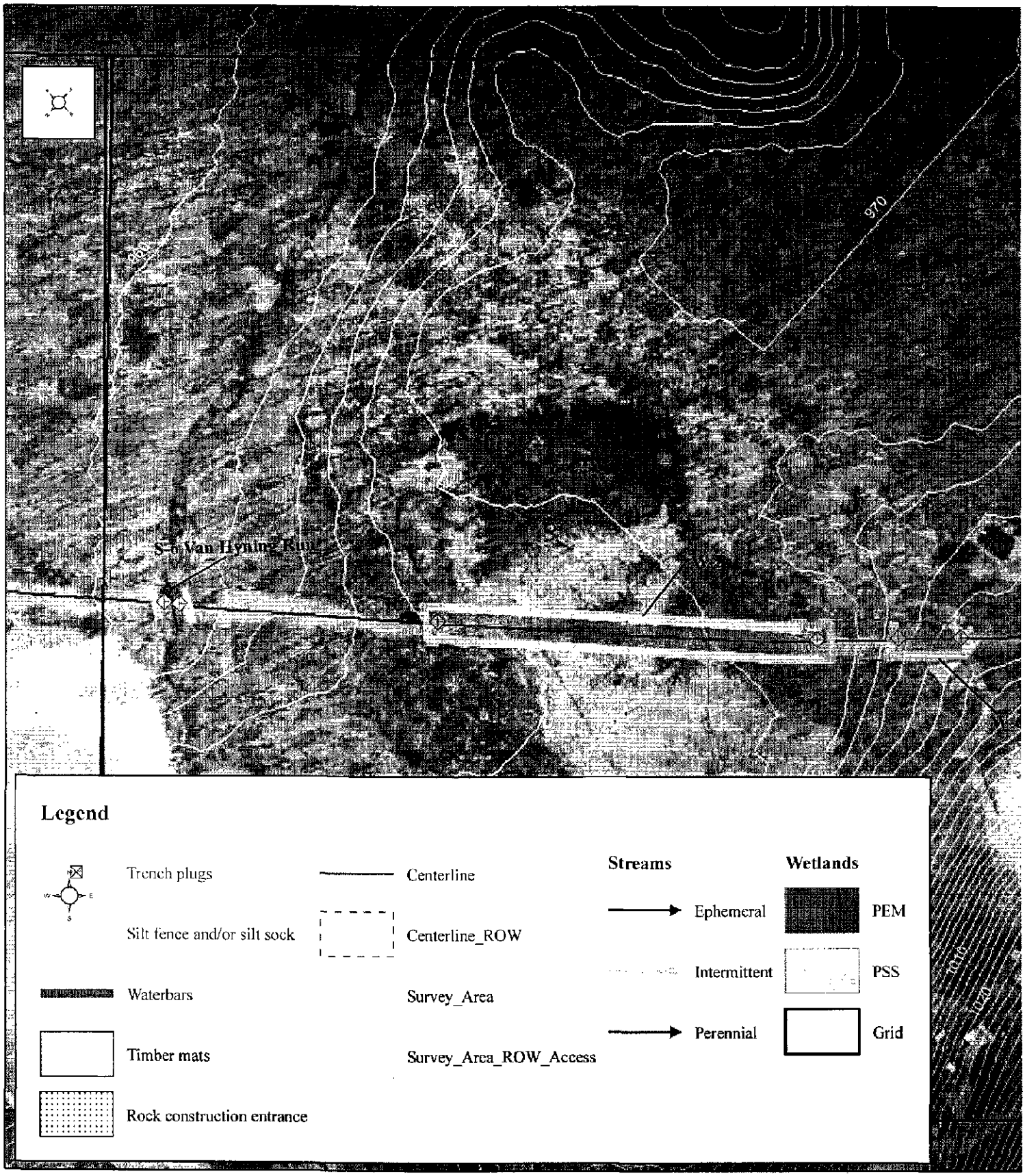


Figure 6	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

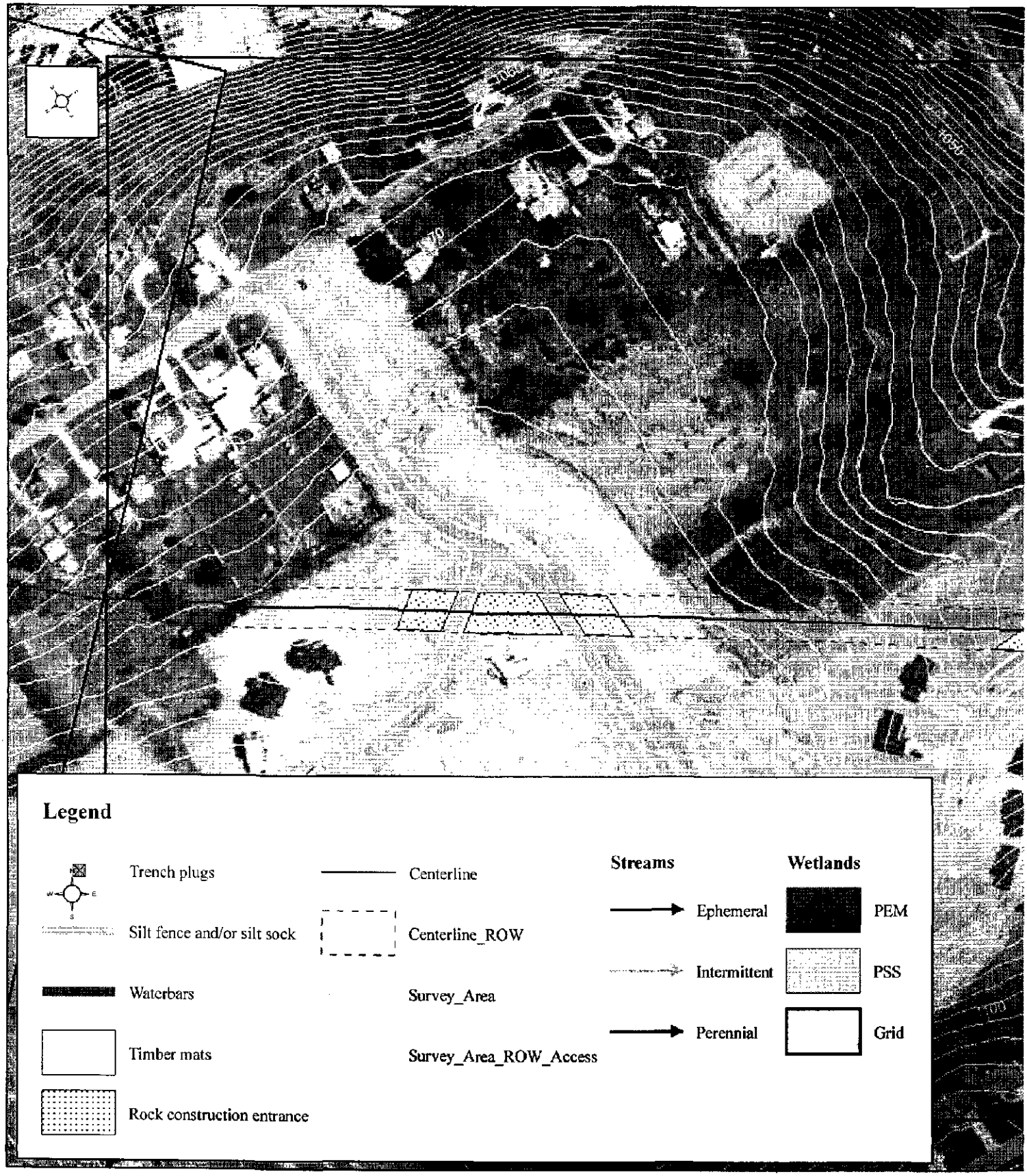


Figure 7	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

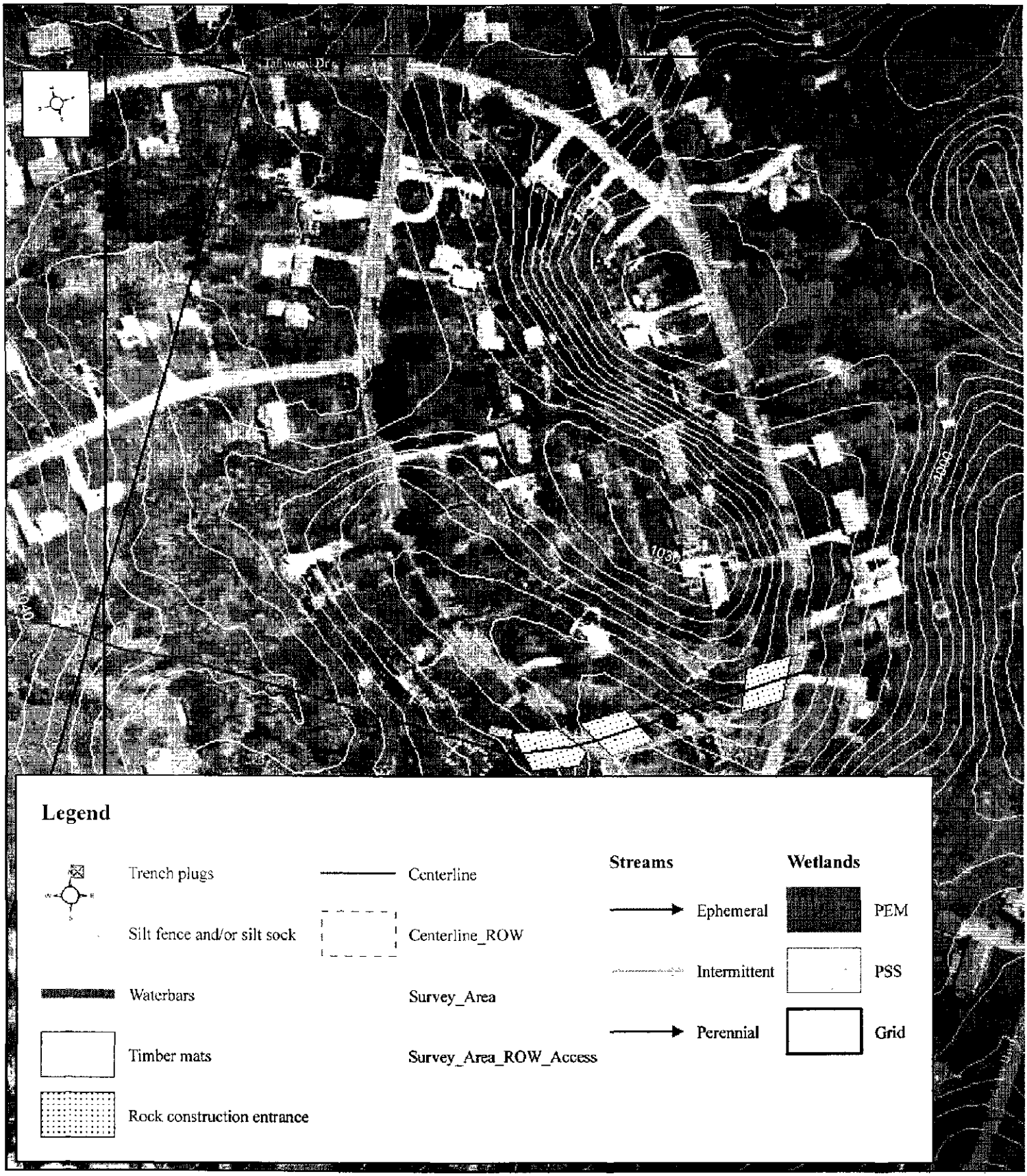


Figure 8	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

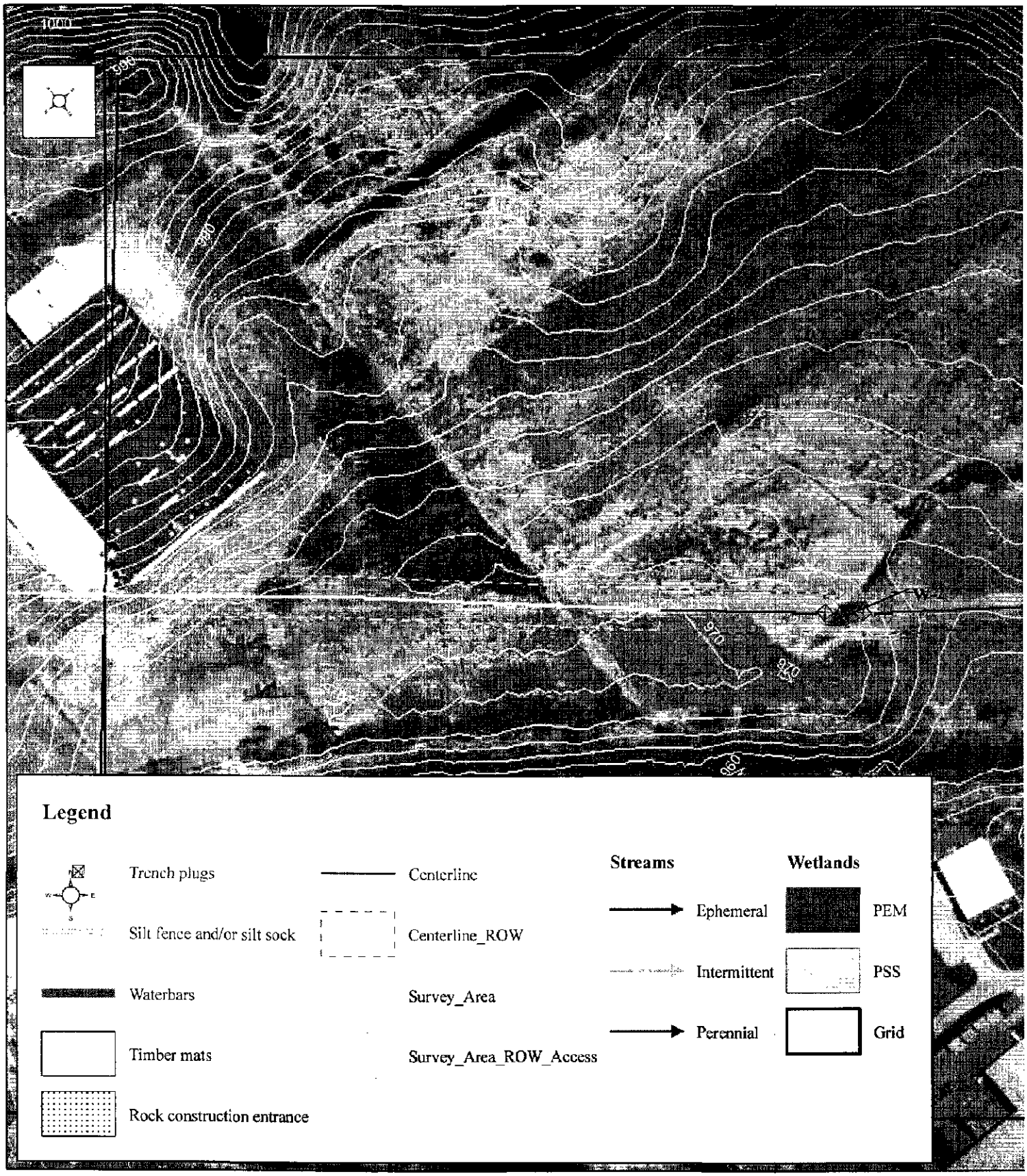


Figure 4	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

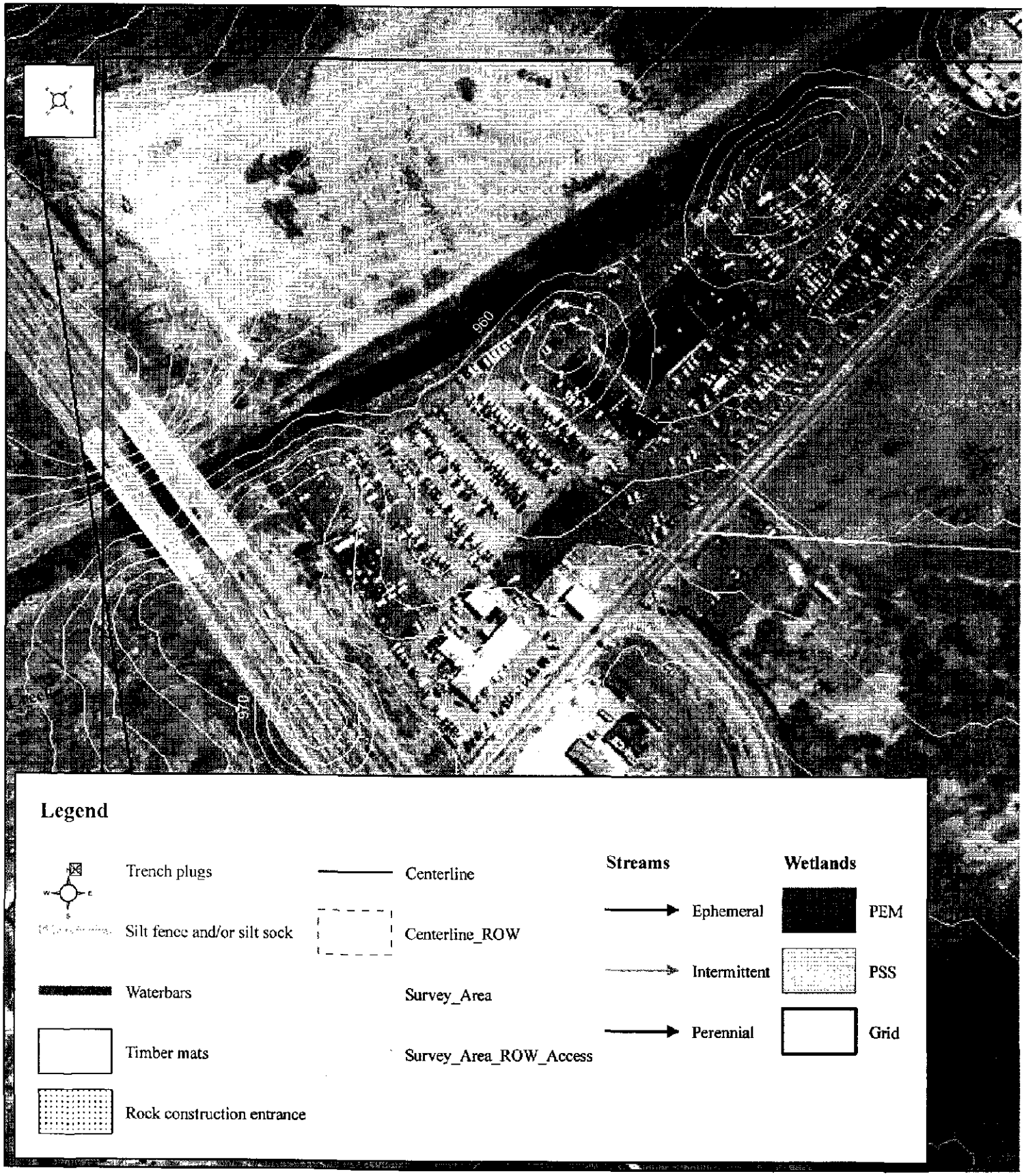


Figure 5	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

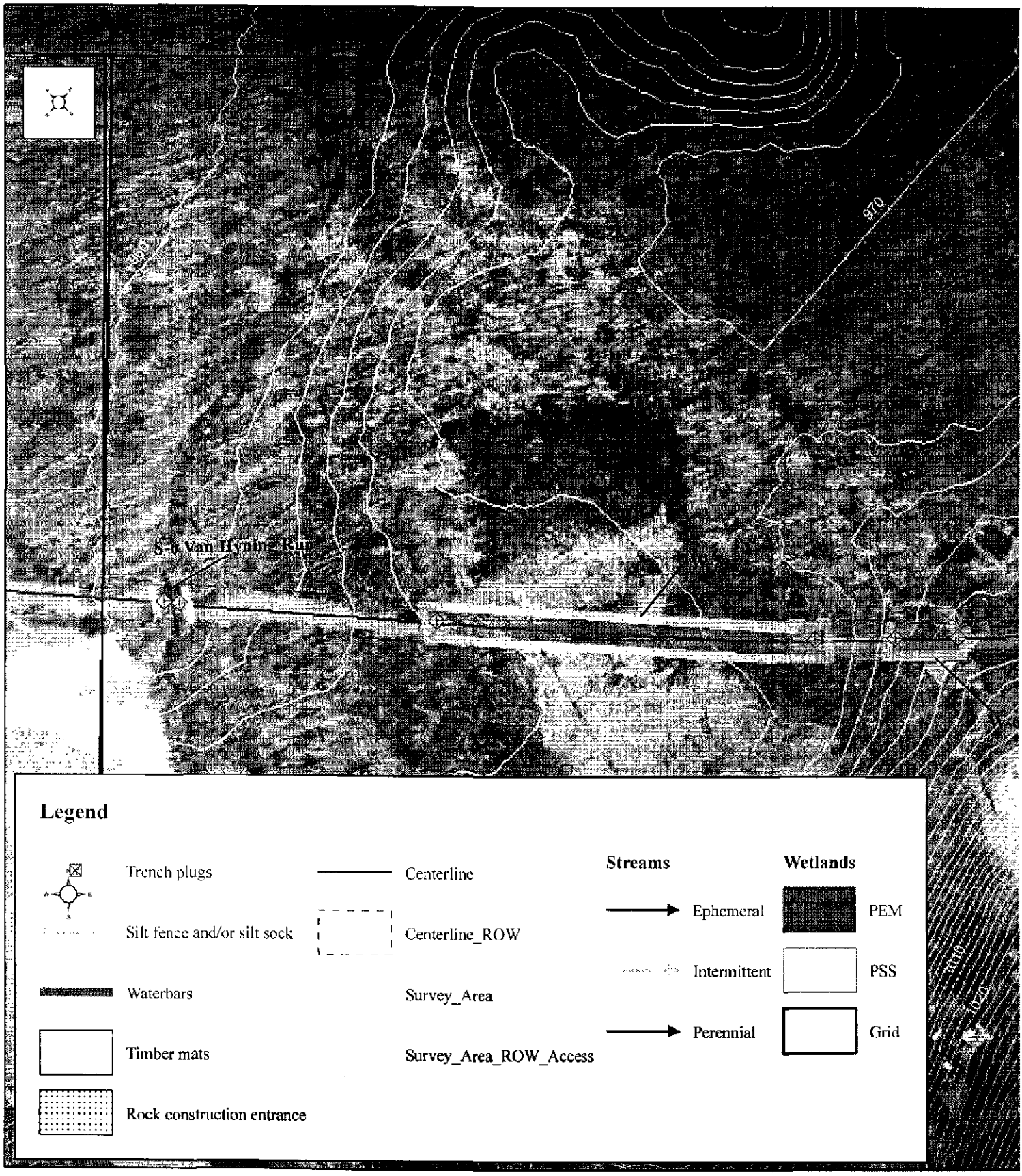


Figure 6	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

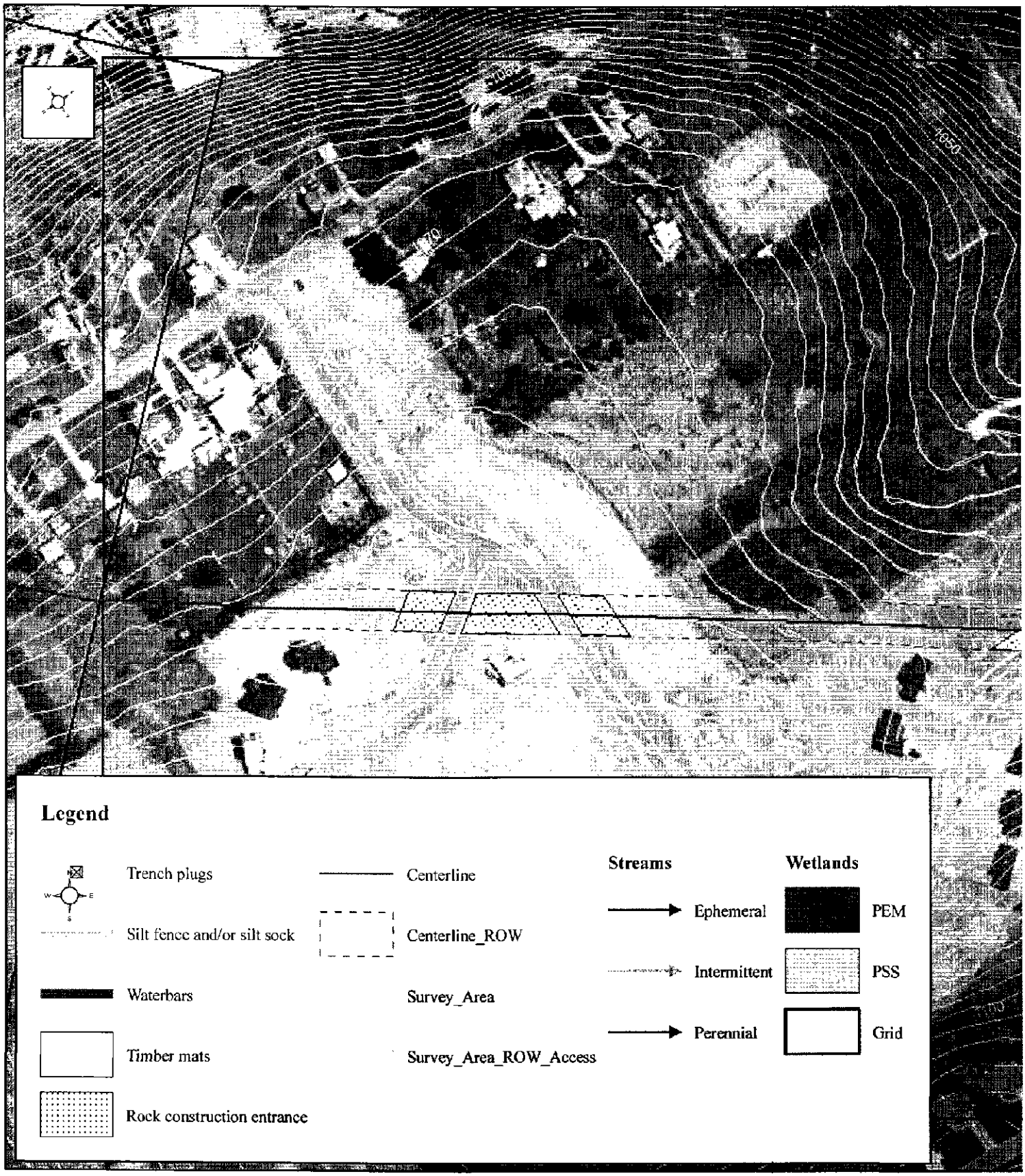


Figure 7	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

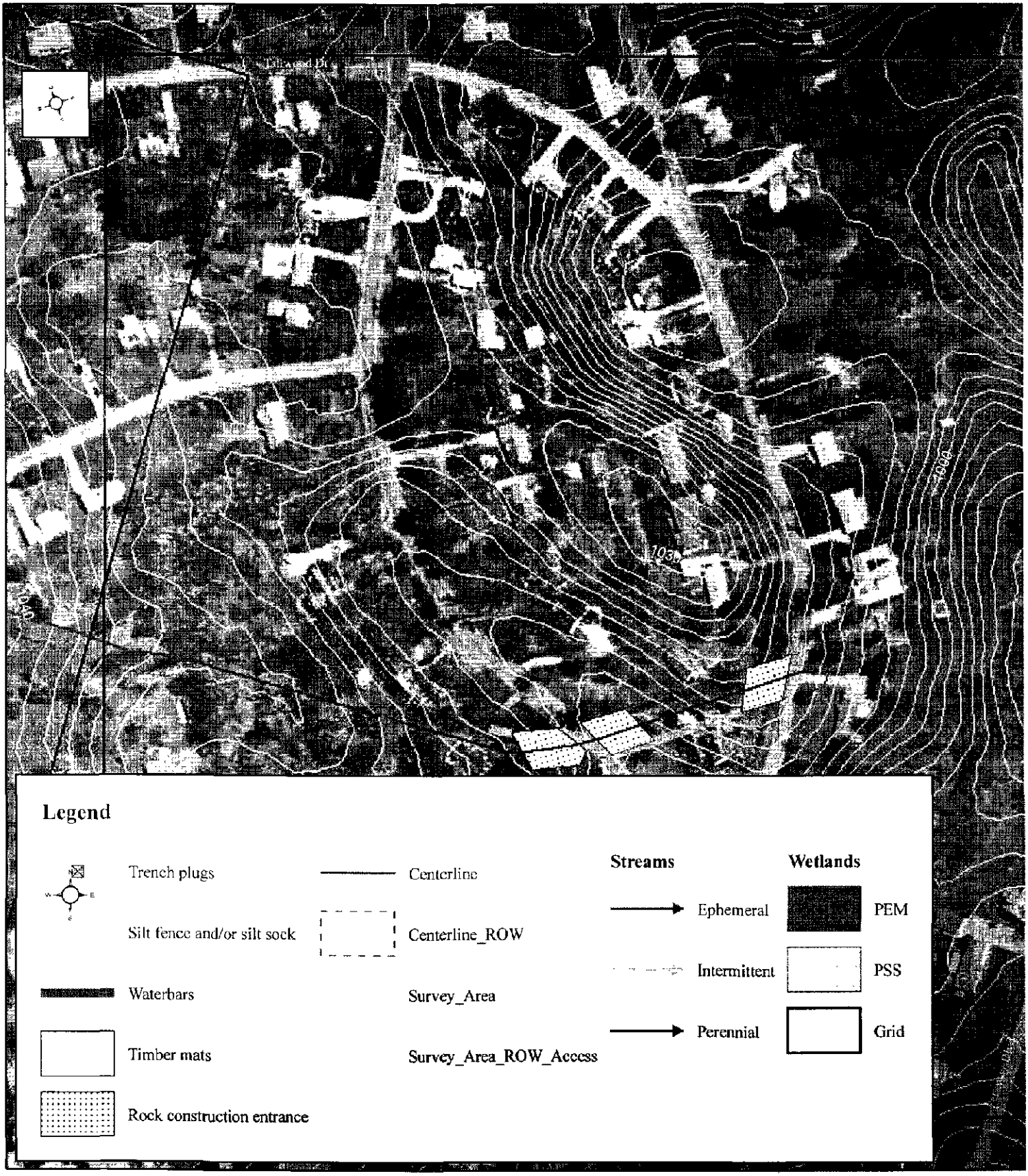


Figure 8	East Ohio Gas Mohican Phase I Transmiss Project Lo Summit Cou

HDD Frac-Out Contingency Plan

Introduction

Dominion's East Ohio Gas Company (EOG) utilizes horizontal directional drilling (HDD) to install pipeline crossings on construction projects, depending on site specific conditions. HDD is a widely used trenchless construction method which accomplishes the installation of pipelines and buried utilities with minimal disturbance to the surface or streams and wetlands. However, HDD is not totally without impact. The primary environmental impact associated with HDD revolves around the use of drilling fluids. The purpose of this document is to present EOG's plan for minimizing environmental impact associated with drilling fluids that inadvertently escape to the ground surface (known as a frac out). This document may require additional site specific information depending on the sensitivity of the project and requests from the permitting agencies.

Background

An awareness of the function and composition of HDD drilling fluids (also referred to drilling mud) is imperative in producing a permittable and constructable HDD crossing design. The principal functions of drilling fluid in HDD pipeline installation are listed below.

- **Transportation of Spoil.** Drilled spoil, consisting of excavated soil or rock cuttings, is suspended in the fluid and carried to the surface by the fluid stream flowing in the annulus between the bore hole and the pipe.

- **Cooling and Cleaning of Cutters.** Drilled spoils build-up on bit or reamer cutters is removed by high velocity fluid streams directed at the cutters. Cutters are also cooled by the fluid.

- **Reduction of Friction.** Friction between the pipe and the hole wall is reduced by the lubricating properties of the drilling fluid.

- **Hole Stabilization.** Stabilization of the drilled hole is accomplished by the drilling fluid building up a "wall cake" which seals pores and holds soil particles in place. This is critical in HDD pipeline installation as holes are often in soft soil formations and are uncased.

- **Transmission of Hydraulic Power.** Power required to turn a bit and mechanically drill a hole is transmitted to a downhole motor by the drilling fluid.

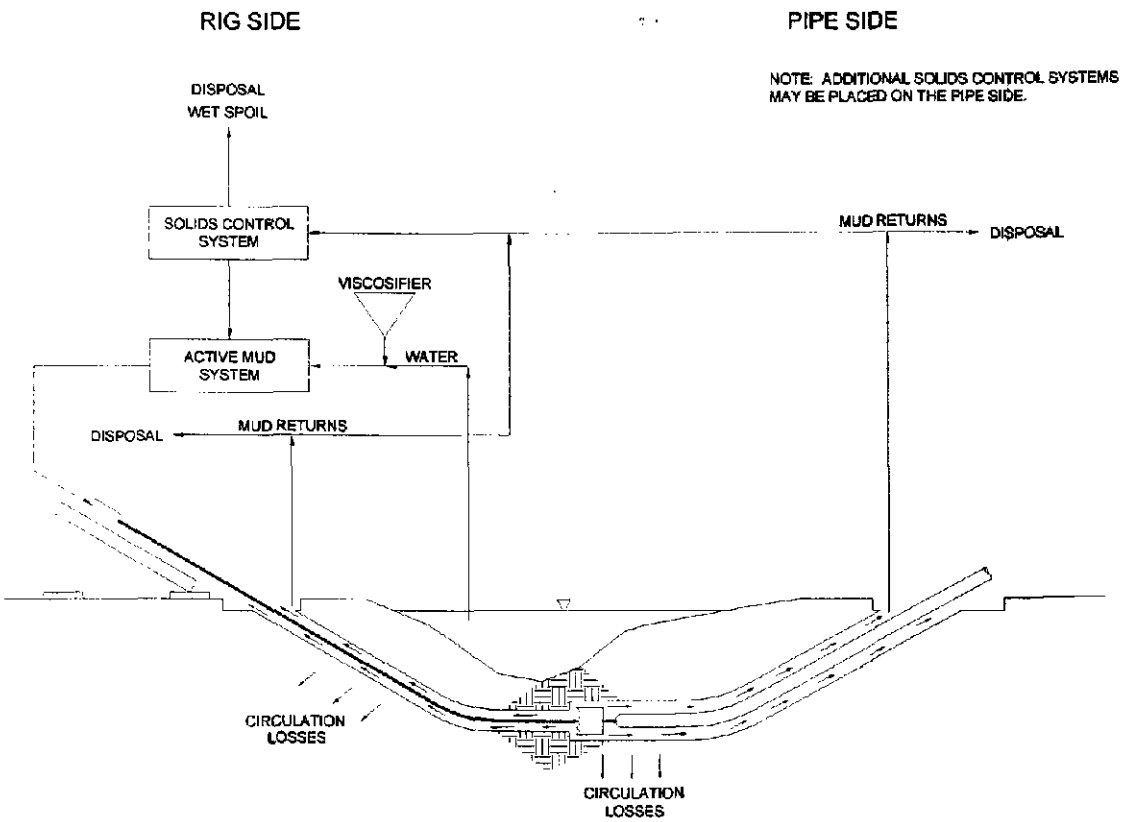
- **Hydraulic Excavation.** Soil is excavated by erosion from high velocity fluid streams directed from jet nozzles on bits or reaming tools.

- **Soil Modification.** Mixing of the drilling fluid with the soil along the drilled path facilitates installation of a pipeline by reducing the shear strength of the soil to a near fluid condition. The resulting soil mixture can then be displaced as a pipeline is pulled into it.

The major component of drilling fluid used in HDD pipeline installation is fresh water, typically obtained at the crossing location. In order for water to be fully functional, it is generally necessary to modify its properties by adding a viscosifier. The viscosifier used almost exclusively in HDD drilling fluids is a naturally-occurring bentonite clay, which is principally

sodium montmorillonite. It is not listed as a hazardous material/substance as defined by the U.S. Environmental Protection Agency's EPCRA or CERCLA regulatory criteria. If the product becomes a waste, it does not meet the criteria of a hazardous waste, as defined by USEPA (see attached MSDS).

All stages of HDD involve circulating drilling fluid from equipment on the surface, through a drill pipe, and back to the surface through a drilled annulus. Drilling fluid returns collected at the entry and exit points are stored in a steel tank and processed through a solids control system which removes spoil from the drilling fluid allowing the fluid to be reused. The cleaned fluid is trucked back to the entrance point for reuse. The basic method used by the solids control system is mechanical separation using shakers, desanders, and desilters. The excess spoil and drilling fluid are transported to, and disposed of, at an approved permitted solid waste landfill. A typical HDD drilling fluid flow circuit is illustrated schematically below.



Drilling fluid expended downhole will flow in the path of least resistance. In the drilled annulus, the path of least resistance may be an existing fracture or fissure in the soil or rock substrate. When this happens, circulation can be lost or reduced. This is a common occurrence in the HDD process, but does not prevent completion. However, the environment may be impacted if the fluid inadvertently returns to the surface at a location on a waterway's banks or within a waterway or wetland.

Frac out Minimization

The risk of a frac out can be mitigated through profile design and implementation of specific measures throughout the installation process.

The HDD profile is designed to minimize the potential for the release of drilling fluid in sensitive areas. Cohesive soils, such as clays, dense sands, and competent rock are considered ideal materials for containment of drilling fluids. Case by case analysis of the overburden will be conducted to determine the depth of the bore to provide a margin of safety against frac outs in a sensitive area. In non cohesive soils, such as gravel, a greater depth of cover will be used.

During the design phase, substrate test bores if required, should be a minimum of 20' from the HDD centerline where practical. The bore holes should be filled with concrete prior to the HDD process.

Key preventative measures implemented during installation are geared toward keeping the drill fluid contained in the borehole and preventing its escape to the surface. This is accomplished through monitoring and management of drill fluid pressures and drill fluid volumes. A key to containing and controlling an inadvertent return is early detection and quick response by the HDD crew.

Minimization of Environmental Impact

The most effective way to minimize environmental impact associated with HDD drilling fluids is to maintain fluid circulation to the extent practical. Maintenance of fluid circulation is the responsibility of EOG's HDD contractor. EOG's construction specifications defining this responsibility is presented below.

> CONTRACTOR shall employ his best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost, CONTRACTOR shall take steps to restore circulation.

However, it should be recognized that restoration of circulation may not be practical or possible, and that environmental impact will be minimized by completing construction as soon as possible. Therefore, absent a threat to public health and safety, drilling operations will continue in the event of lost circulation if deemed to reduce the duration of construction operations.

Drilling fluid is easily contained by standard erosion and sedimentation control measures. Within the boundaries of the worksite drilling fluid is controlled through the use of pits at the crossing entry and exit points and typical fluid handling equipment such as trash pumps.

The environmental impact of a release of drilling fluid into a water body is a temporary increase in local turbidity until the drilling fluid dissipates with the current and settles to the bottom. In the immediate vicinity of a release, benthic organisms may be smothered if sufficient quantities of bentonite settles upon them.

Response to Frac out

The HDD contractor shall immediately notify the lead Construction Inspector (CI) and Environmental Inspector (EI) of any sudden losses in returns or any inadvertent return to the surface. If a frac out is observed, the HDD contractor will take certain reasonable measures to

eliminate, reduce, or control the release. The actions to be taken will depend on the location and time of release, site specifc geologic conditions, and the volume of the release.

If a release occurs in an upland area, the HDD contractor will take appropriate reasonable actions to reduce, eliminate, or control the release. The actions may include:

- constructing a small pit or sandbag coffer around the release point, installing a section of silt fence and/or straw bales to trap as much sediment as possible, and placing a pump hose in the pit to pump the drilling fluid back to the bore site
- reducing drilling fluid pressures
- thickening drilling fluid mixture
- adding pre-approved loss circulation materials to the fluid mixture, such as wood fibers or shredded paper.

The HDD contractor in consultation with the CI and EI, will determine which methods are the most appropriate to eliminate, reduce or control the release. Prior to the end of the shift, the EI or CI will notify the local Dominion Environmental Department concerning the frac out event. Drilling fluid that is recovered will be recycled and reused to the extent that is practical. Waste drilling fluid will be disposed of in a permitted solid waste landfill.

If inadvertent surface returns occur on a stream's bank or within a stream or wetland, it will be the responsibility of the HDD contractor to contain and collect drilling fluid, and ultimately restore the disturbed area, as practical. Drilling operations will be temporarily suspended to allow contractor to set up a containment and collection system. EOG's construction specifications defining this responsibility are presented below.

> If inadvertent surface returns of drilling fluids occur, they shall be immediately contained with hand placed barriers (i.e. straw bales, sand bags, silt fences, etc.) and collected using pumps as practical. If the amount of the surface return is not great enough to allow practical collection, the affected area shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally. If the amount of the surface return exceeds that which can be contained with hand placed barriers, small collection sumps may be used. If the amount of the surface return exceeds that which can be contained and collected using small sumps, drilling operations shall be suspended until surface return volumes can be brought under control.

If the release occurs in a **wetland, or in close proximity to a stream**, where there is imminent danger of the drilling fluid flowing into the body of water, then drilling operations will cease until the HDD personnel, CI and EI, have had an opportunity to examine the site and evaluate the threat to the waterbody. Dominion's local Environmental Department needs to be contacted immediately, or as soon as practical. A plan for avoiding additional impacts, which may include some or all of the action items listed above, will be implemented. Efforts will be made to minimize ground disturbance in wetlands while accessing the frac out area by utilizing swamp mats and lightweight equipment, such as bobcats and pick-up trucks, and minimizing the travel into and out of the wetland. The cutting of shrubs and trees will be minimized, as much as practical, in order to reach the frac out area. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing additional impact to wetlands and streams. The release site(s) will be closely monitored for any additional frac out activity until the

HDD work in the area is completed. For longer stretches of ROW that are not within site of the HDD personnel, the pipeline right-of-way will be walked at least on an hourly basis.

If a release occurs in a **stream or river**, then drilling operations will cease until the HDD personnel, CI and EI have had an opportunity to examine the site and evaluate the threat to the waterbody. Dominion's local Environmental Department needs to be contacted immediately, or as soon as practical. A plan for avoiding additional impacts, which may include a pump or flume bypass with secondary secondary containment, in addition to all of the action items listed above will be implemented. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing further impacts to wetlands and streams. The release site(s) should continue to be closely monitored for any additional further frac out activity until the HDD work in the area is completed. For frac-out situations in stream and wetlands only, the Environmetal Inspector may conduct stream monitoring/sampling such as pH and turbidity, comparing upstream conditions with downstream conditions. Also, the stream will be walked to verify the extent of drilling fluid sediment dispersal and settling.

One **exception to ceasing drilling operations** until containment is developed would be a release of drilling fluids during the pipe pullback process. Ceasing operations would pose significant risk of causing the pull to be stuck and not able to resume.

Containment & Clean-up Material and Equipment

The HDD contractor will be required to have the necessary containment and clean-up equipment onsite and readily available to use. At a minimum, the following material and equipment should be on site and in ample supply depending on the extent of sensitive areas:

- Spill sorbent pads and booms
- Straw bales (certified weed-free)
- Wood stakes
- Sand bags
- Silt fence
- Plastic sheeting
- Corrugated plastic pipe
- Shovels
- Push brooms
- Centrifugal, trash and sump pumps
- Vacuum trucks
- Rubber tired or wide track back hoe
- Bobcat (if needed)
- Storage tanks (if needed)
- Floating turbidity curtain (may be considered for use on large streams)

If necessary, a 24 hour outside emergency reponse company may be called in for assistance.
Enviroserve – 1-800-642-1311

Agency Notifications

Typically, the local Dominion Environmental Department personnel supporting EOG will make the necessary calls to any regulatory agency.

- Ohio EPA spill hotline – 1-800-282-9378 (not considered a spill, but unpermitted discharge)
- ACOE – regional office working under (phone number will be provided per project location)
- Other agencies that may have to be notified dependent upon permit approvals and site conditions may include Ohio PSB, Ohio DNR and the USF&W Service.

Frac out site restoration

All areas impacted will be restored to pre-existing condition and contour. Impacted upland areas will be restored through normal right-of-way practices of seeding and mulching.

Restoration of wetlands will vary depending on its classification and the extent of disturbance to the upper soil layer and vegetation during the initial frac out response. Recommendations will be sought first from the respective District Corp office for restoration activities in any Category 3 wetland. Any Category 1and 2 wetland soils disturbed will have the wheel ruts leveled out with a small rubber tire piece of equipment. Residual frac mud will be washed off the vegetation as much as practical.

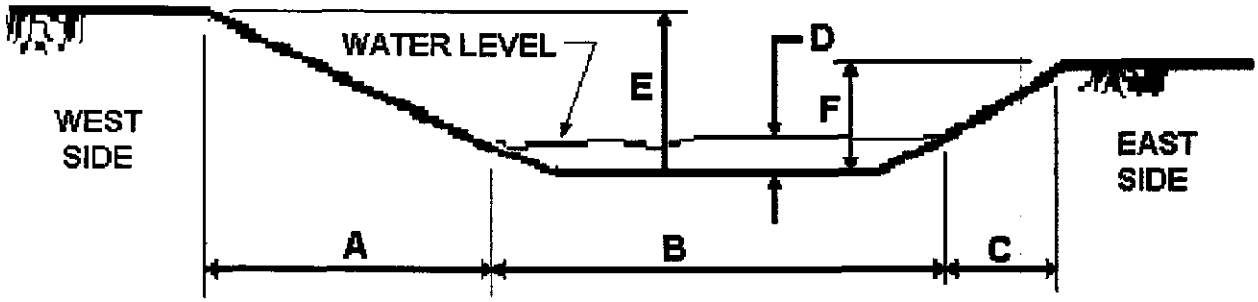
Restoration of stream beds will be dependent upon its classification. Recommendations will be sought first from the respective District Corp office for restoration activities in streams classified as Exceptional Warmwater Habitat, Seasonal Salmonid Stream or Coldwater Habitat. All other perennial, intermittent and ephemeral streams will be have as much residual frac out mud pumped out as is practical, so as not to disturb the original streambed. This may include a light wash of the streambed utilizing upstream water and collecting the wash water immediately downstream.

APPENDIX B

Surface Water Crossing Detail Drawings

DETAIL B-1

SURFACE WATER DIMENSION DETAILS



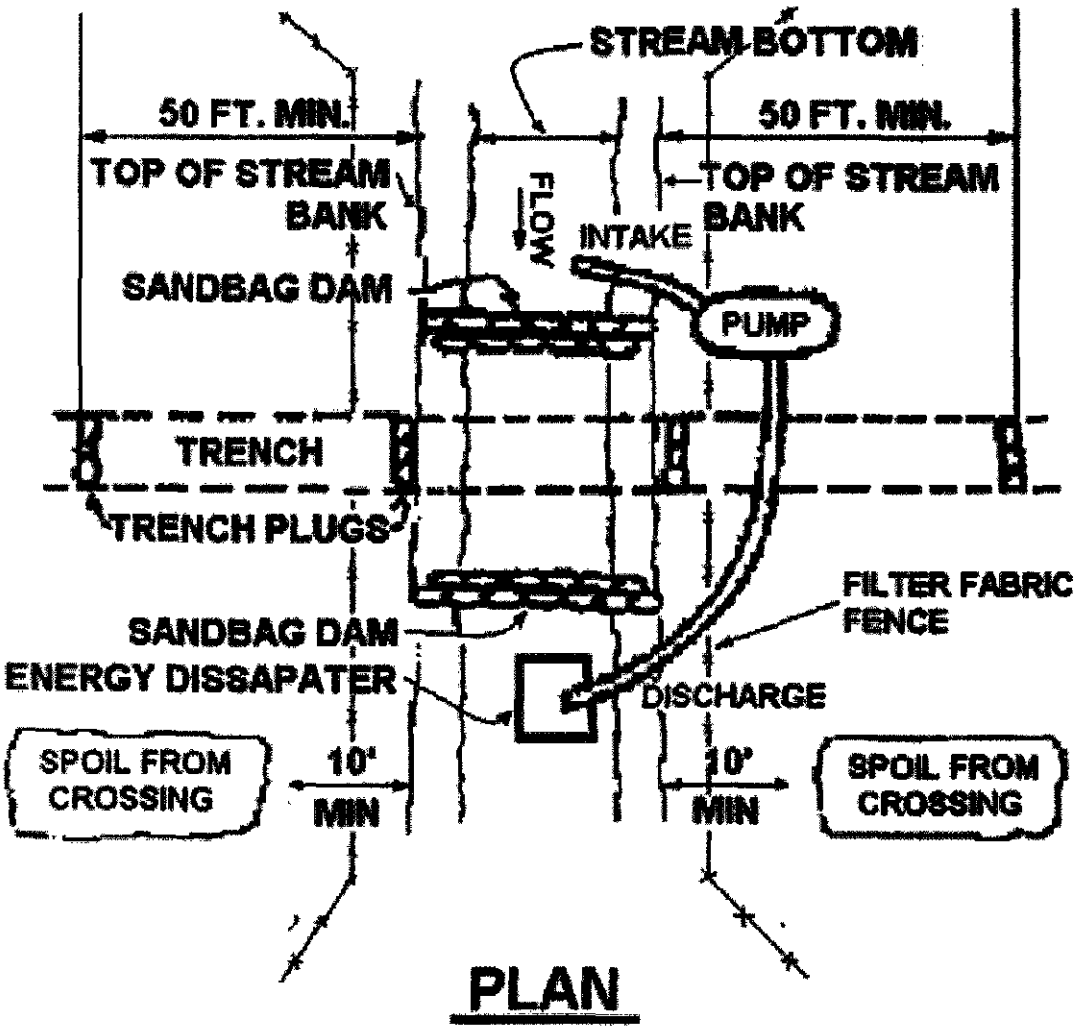
The following table is to be completed with information collected during civil surveys, if available:

CHANNEL CROSS-SECTION

Crossing Number	Name	A	B	C	D	E	F

DETAIL B-2

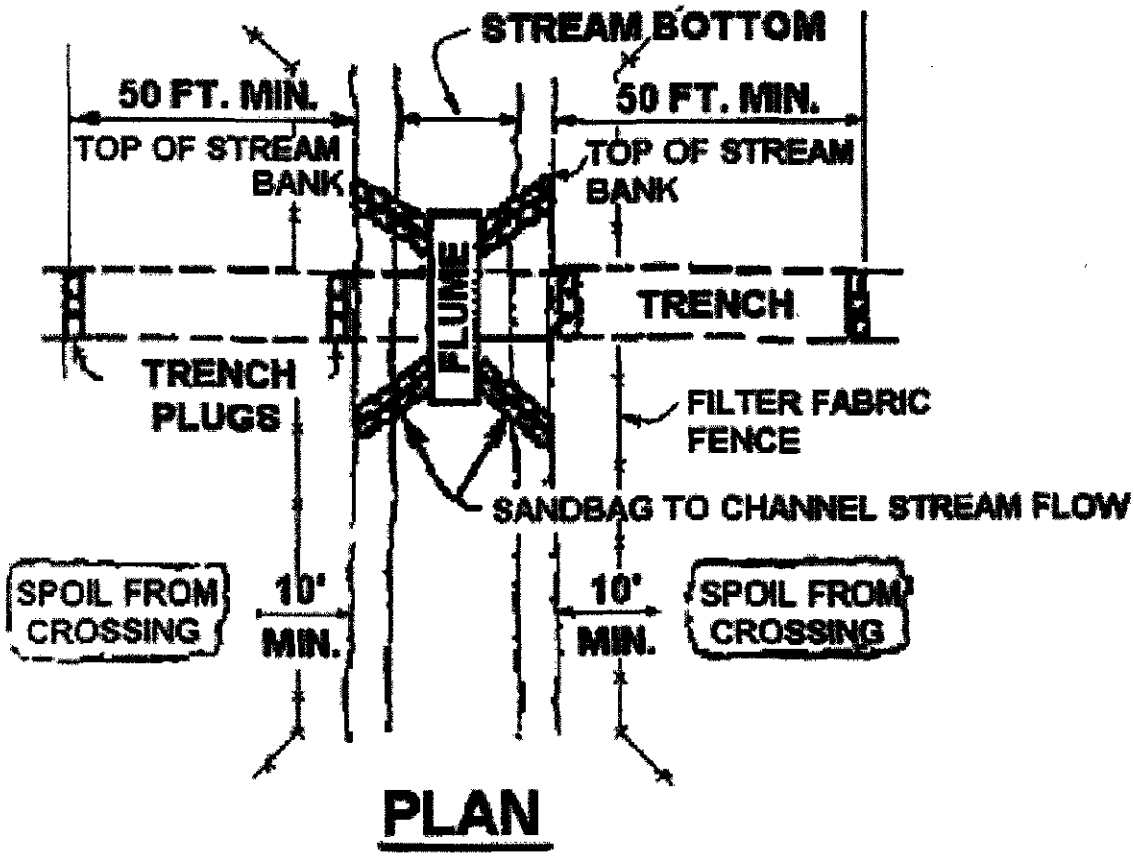
TYPICAL STREAM CROSSING WITH PUMPED BYPASS



Note: A secondary dam may be needed to completely dry the streambed. A sump pump pumping behind the primary dam can usually handle this task.

DETAIL B-3

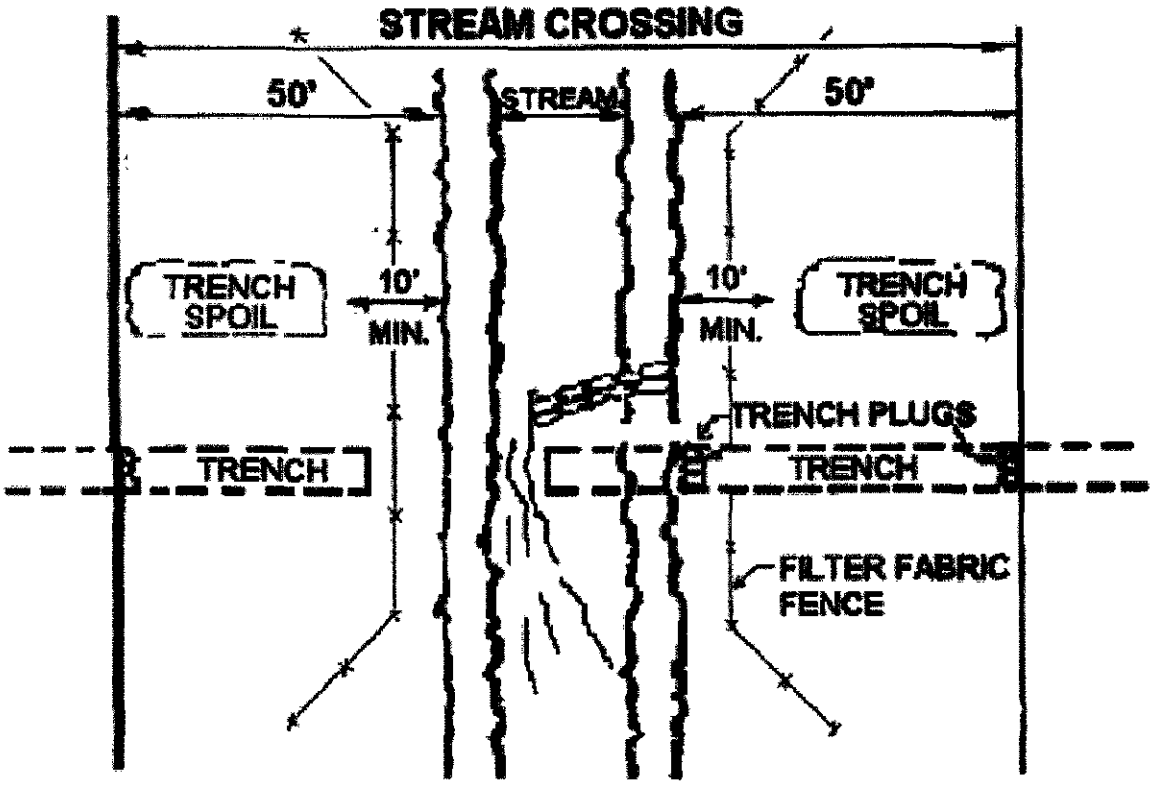
TYPICAL FLUMED STREAM CROSSING



Note: Scour prevention at the downstream end of the flume pipe should be considered.

DETAIL B-4

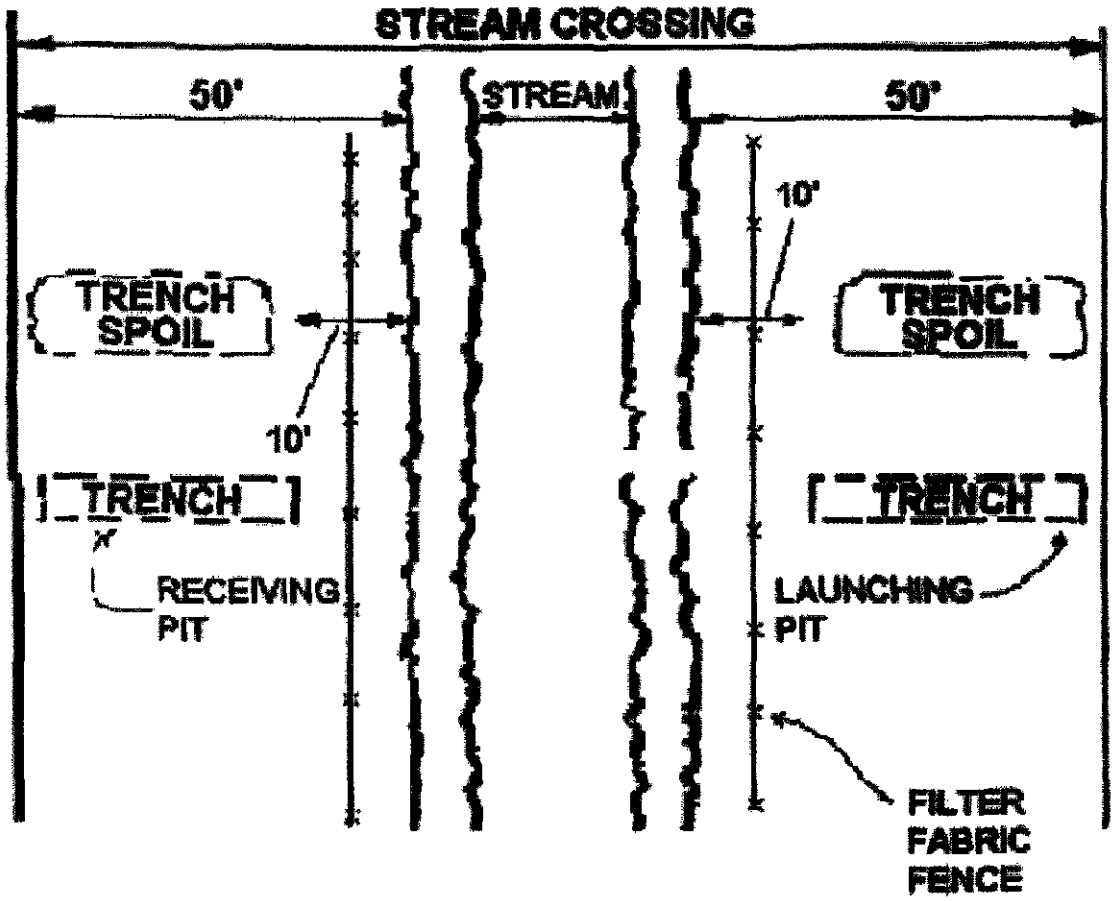
TYPICAL DIVERSION BARRIER STREAM CROSSING



PLAN
N.T.S

DETAIL B-5

TYPICAL BORED STREAM CROSSING

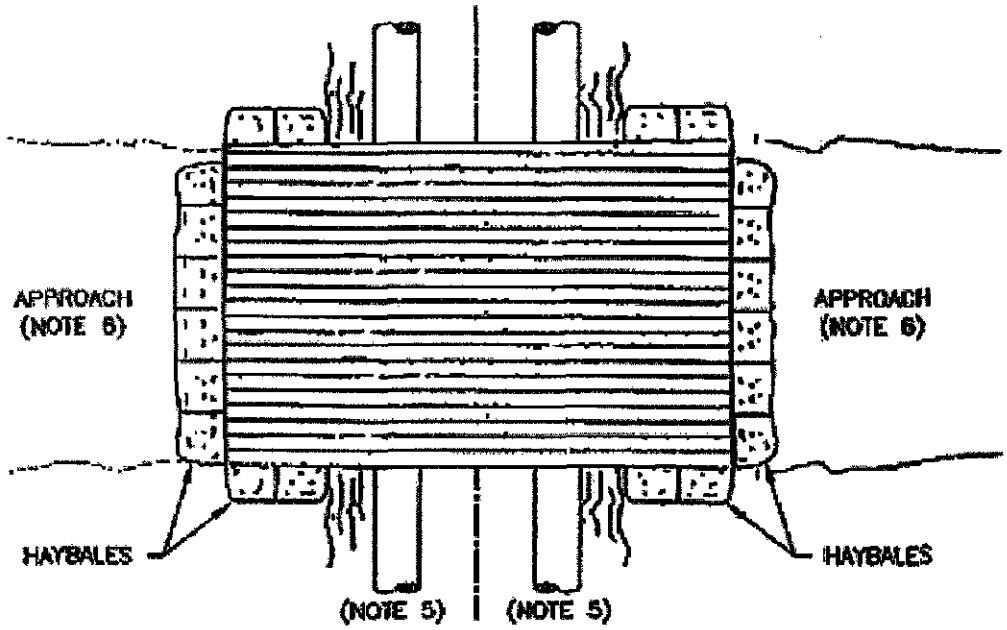


PLAN

N.T.S

DETAIL B-6

TYPICAL TIMBER MAT BRIDGE FOR STREAM CROSSINGS



PLAN

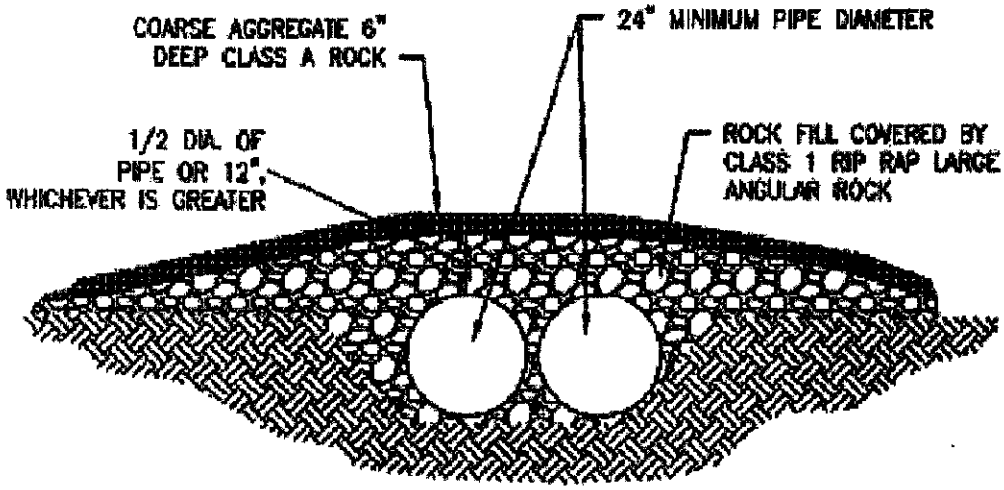
ELEVATION

NOTES:

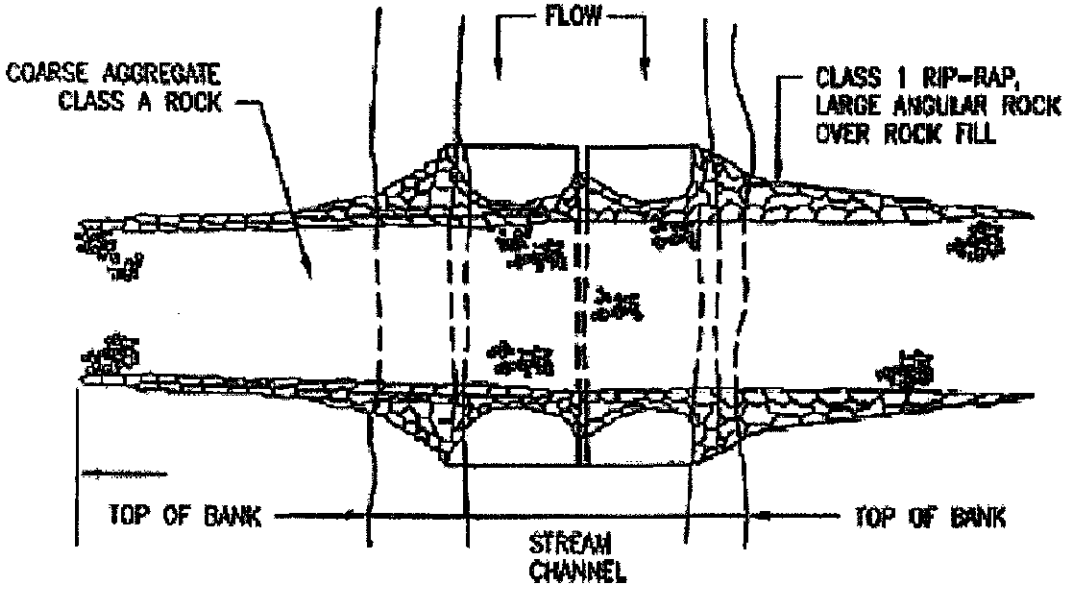
1. THIS TYPE OF BRIDGE IS GENERALLY USED FOR SMALL STREAM CROSSINGS LESS THAN 20 FEET IN WIDTH IN COMBINATION WITH A PROPER STREAM BANK CONFIGURATION.
2. BRIDGE WILL BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE FOR CROSSING.
3. BRIDGE TO REMAIN IN PLACE UNTIL THE COMPLETION OF FINAL RESTORATION.
4. FILTER SOCKS ARE RECOMMENDED IN LIEU OF STRAW BALES, SAND BAGS, AND SILT FENCE. REMOVE DURING USE; REPLACE AT NIGHT AND WHEN CROSSING IS NOT BEING USED.
5. CULVERT PIPES MAY BE UTILIZED IF ADDITIONAL SUPPORT IS REQUIRED.
6. RAMP APPROACHES CAN BE EITHER GRADED OR DUG INTO GROUND IF NECESSARY, STONE MAY BE USED ON APPROACHES.
7. MAINTAIN PADS TO PREVENT SOIL FROM ENTERING STREAM.

DETAIL B-7

TYPICAL FLUMED EQUIPMENT CROSSING



ELEVATION



PLAN

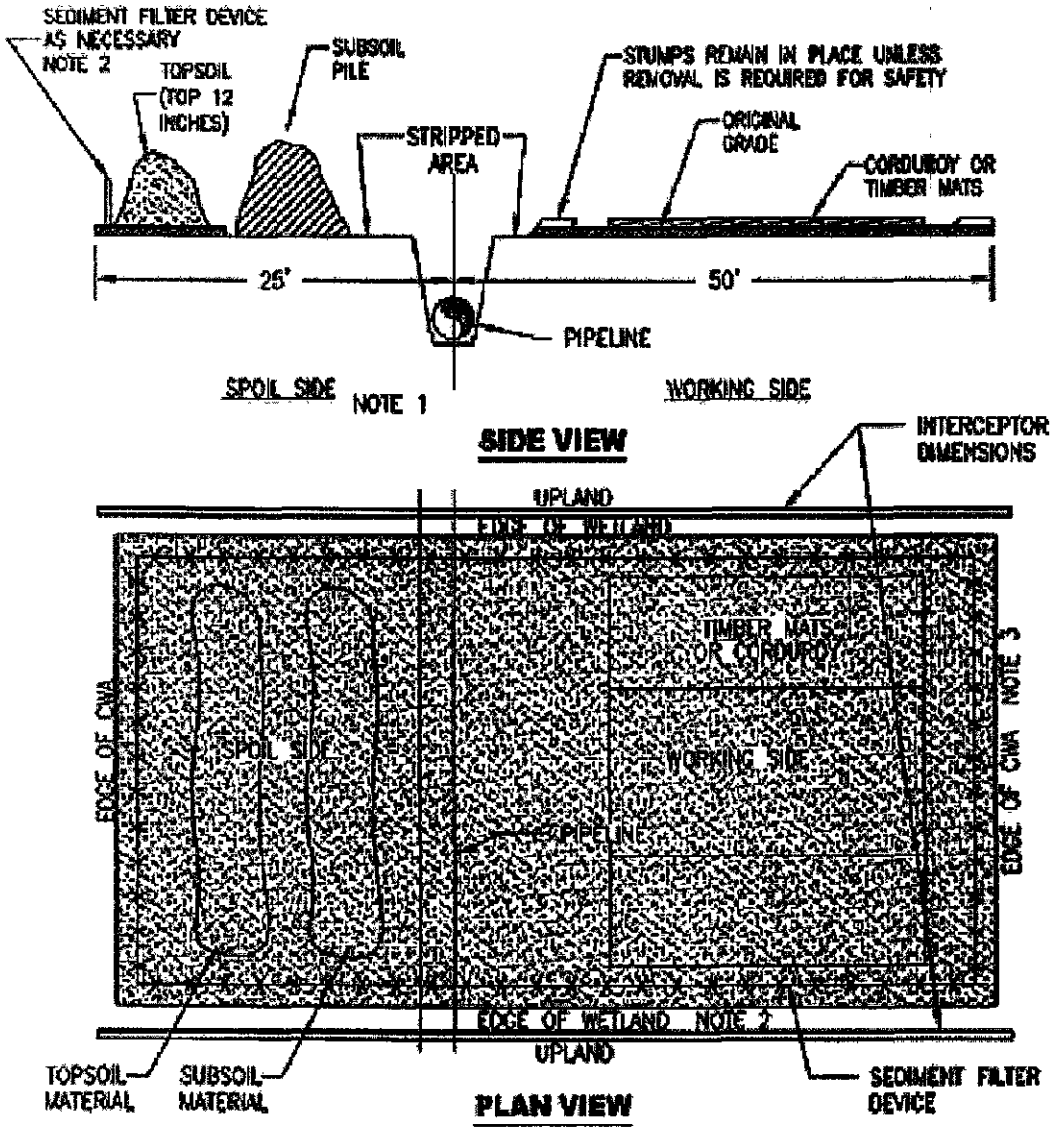
GENERAL NOTES:

1. NOT TO SCALE
2. THIS TYPE OF CROSSING CAN BE INSTALLED IN BOTH WET OR DRY WEATHER STREAM CONDITIONS WHERE THE DRAINAGE AREA EXCEEDS 10 ACRES.
3. A CULVERTED CROSSING MAY NOT BE APPROVED IN HIGH FISHERY VALUE STREAMS.

FLUMED EQUIPMENT CROSSING

DETAIL B-8

TYPICAL CONVENTIONAL WETLAND CROSSING



NOTES:

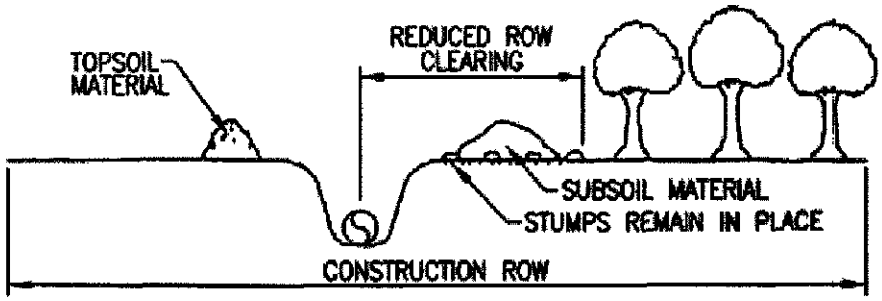
1: IN WETLAND AREAS WHICH CONTAIN NO STANDING WATER OR SATURATED SOILS, TOPSOIL (TOP 12 INCHES) AND SUBSOIL SHOULD BE STOCKPILED SEPARATELY WITHIN THE WETLAND CWA. TOPSOIL SHOULD BE DISTINGUISHED FROM SUBSOIL BY A COMMUNICATING DEVICE (FLAGGING, RIBBON, OR OTHER EFFECTIVE DEVICE).

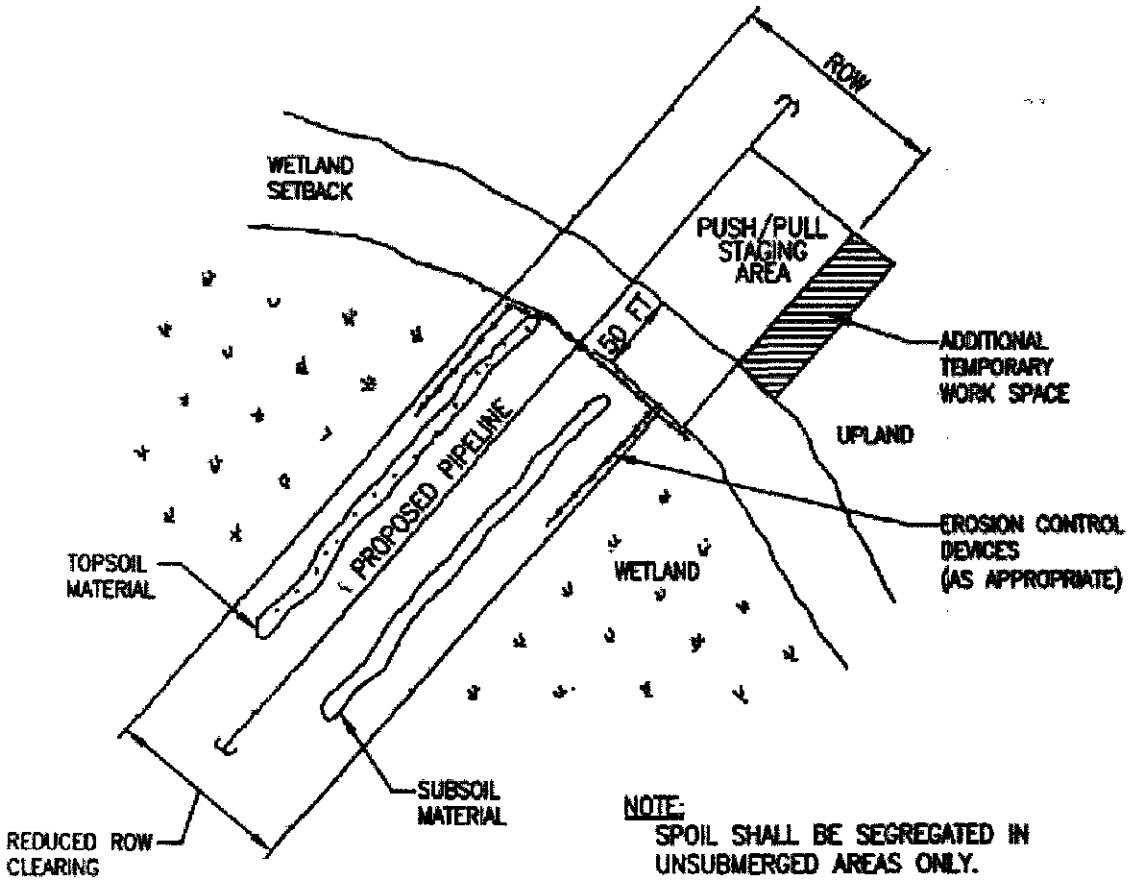
2: A SEDIMENT FILTER DEVICE WILL BE PLACED ACROSS THE CWA AT THE WETLAND'S EDGE.

3: A SEDIMENT FILTER DEVICE WILL BE PLACED AT THE EDGE OF THE CWA AND AROUND TOPSOIL AND SUBSOIL PILES AS NECESSARY.

DETAIL B-9

TYPICAL PUSH PULL WETLAND CROSSING





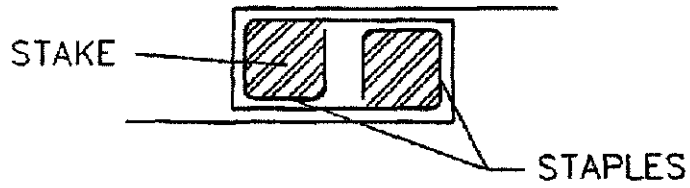
NOTE:
SPOIL SHALL BE SEGREGATED IN UNSUBMERGED AREAS ONLY.

APPENDIX C

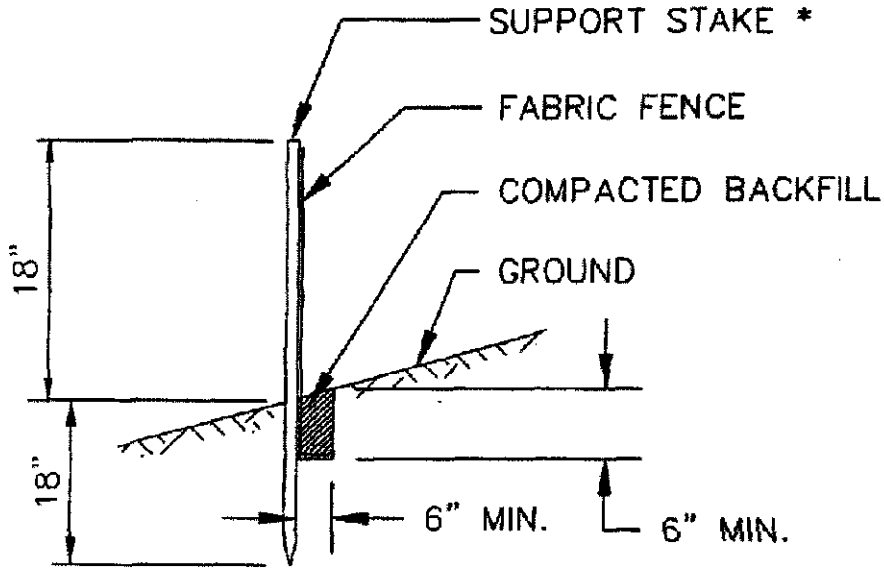
Sediment Control Detail Drawings

DETAIL C-1

FILTER FABRIC FENCE DETAIL



JOINING FENCE SECTIONS



*Stakes spaced @ 8' maximum. Use 2"x 2" wood or equivalent steel stakes.

Filter Fabric Fence must be placed at level existing grade. Both ends of the barrier must be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

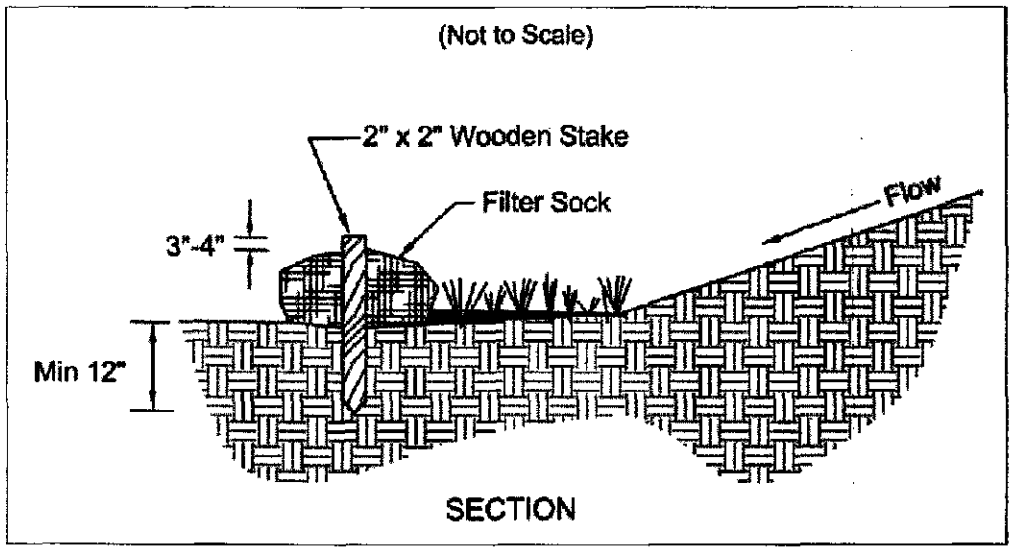
Trench shall be backfilled and compacted to prevent runoff from cutting underneath the fence.

Sediment must be removed when accumulations reach 1/2 the above ground height of the fence.

Any section of Filter fabric fence that has been undermined or topped should be immediately replaced.

DETAIL C-2

FILTER SOCK DETAIL



1. Materials – Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
2. Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

INSTALLATION:

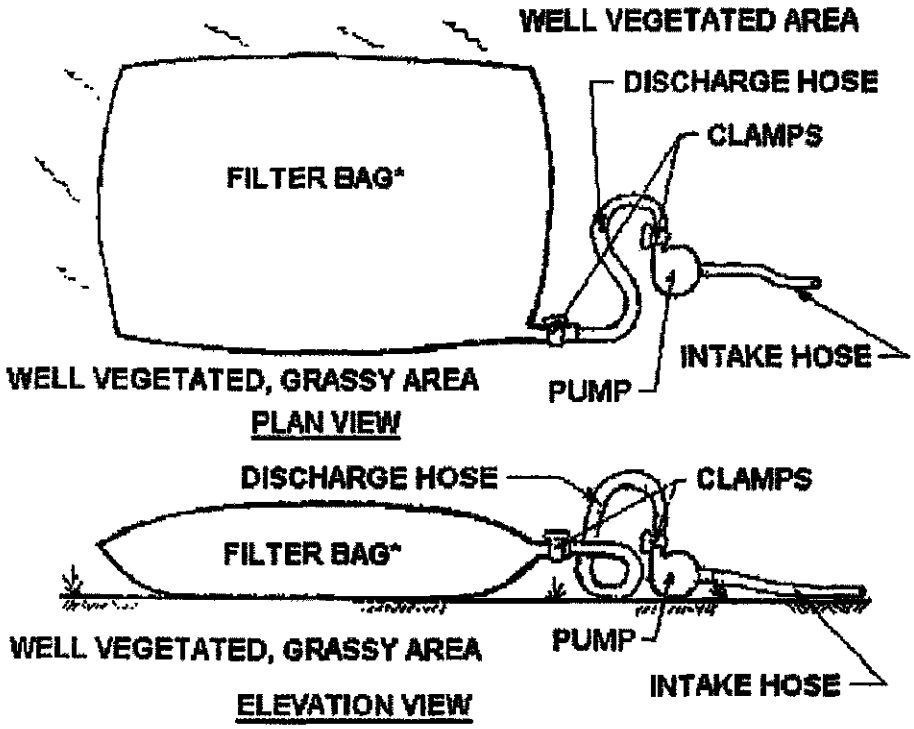
3. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed mid-slope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runoff channels.

MAINTENANCE:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

DETAIL C-3

PUMPED WATER FILTER BAG DETAIL



Filter bags shall be made from non-woven geotextile material sewn with high strength, double stiched "J" type seams. They shall be capable of trapping particles larger than 150 microns.

A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become 1/2 full. Spare bags shall be kept available for replacement of those that have failed or are filled.

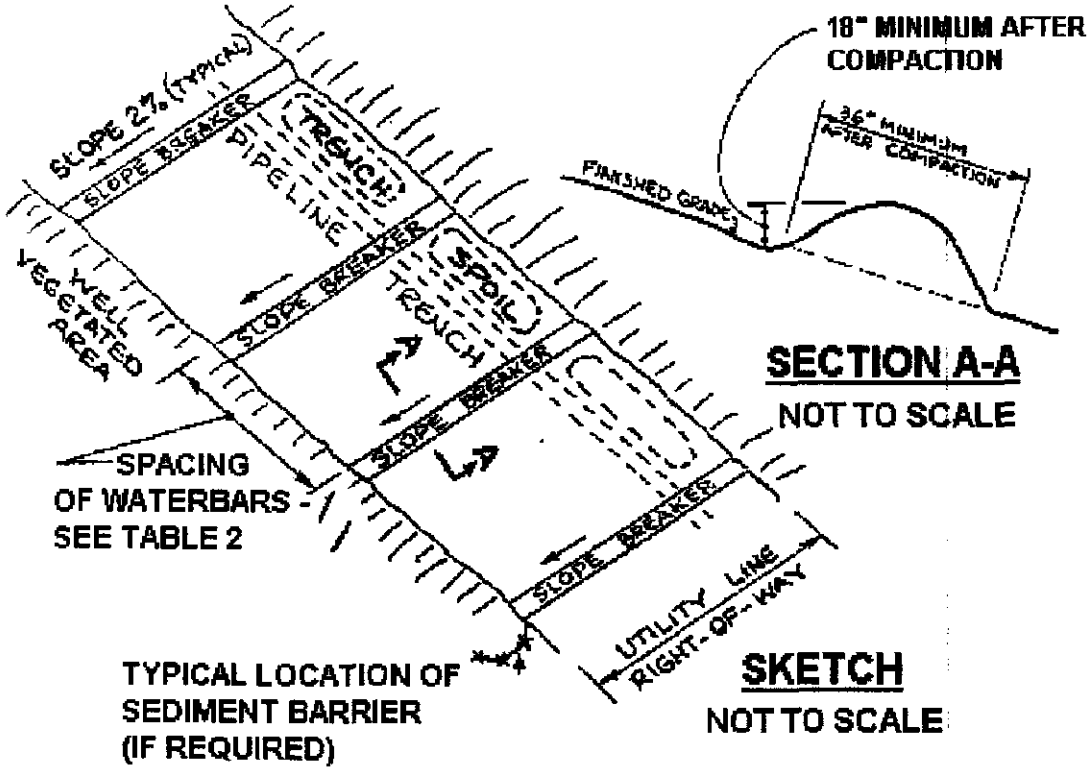
Bags shall be located in a well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path shall be provided. Bags should not be placed on slopes greater than 5%.

For hydrostatic discharge, the pumping rate is 350-500 gallons per minute (gpm). For trench dewatering, the pumping rate shall be no more than 750 gpm. Floating pump intakes should be considered to allow sediment-free water to be discharged during dewatering.

Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected.

DETAIL C-4

WATERBAR INSTALLATION



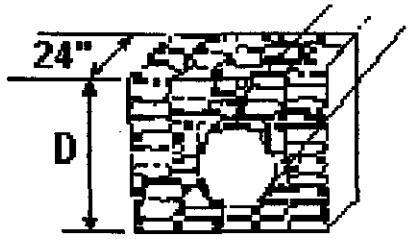
Required Spacing for Temporary and Permanent Waterbars	
Percent Slope	**Spacing (FT)**
1	400
2	250
5	135
10	80
15	60
20	45

Waterbars should be constructed at a slope of 1% and discharge to a well-vegetated area. Waterbars should not discharge into an open trench. Waterbars should be oriented so that the discharge does not flow back onto the ROW. Obstructions, (e.g. silt fence, rock filters, etc.) should not be placed in any waterbars. Where needed, they should be located below the discharge end of the waterbar.

DETAIL C-5

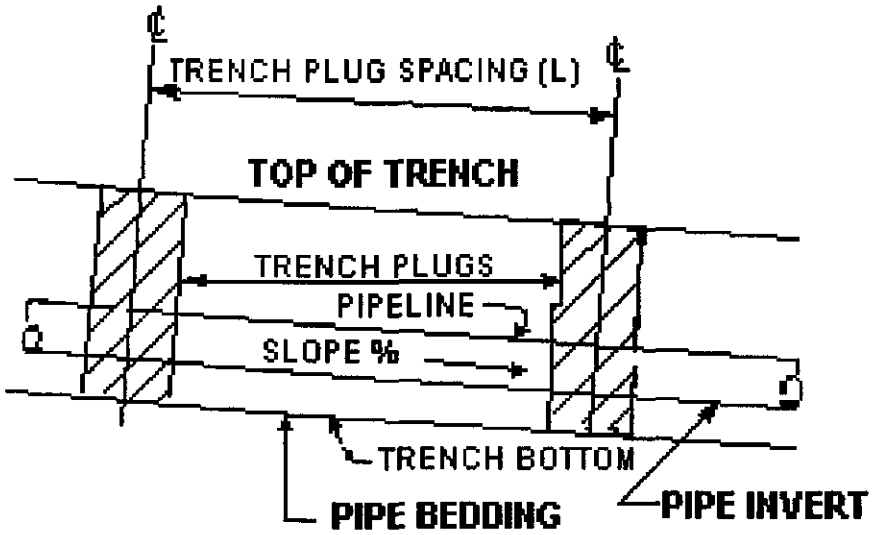
TRENCH PLUG INSTALLATION DETAIL

D - DEPTH TO BOTTOM OF TRENCH



SECTION VIEW

NOT TO SCALE



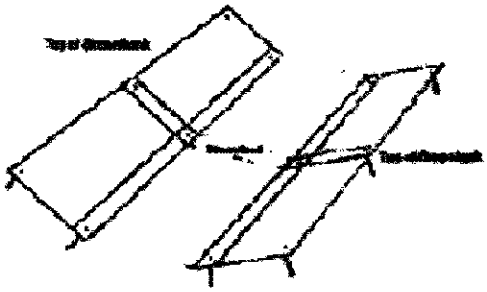
ELEVATION

NOT TO SCALE

DETAIL C-6

STREAM BANK RESTORATION DETAIL

Erosion Control Mat Details



Refer to matting manufacturer's installation detail for overlap, embedment, staple patterns, and vegetative stabilization specifications

Stream Rip-Rap Details

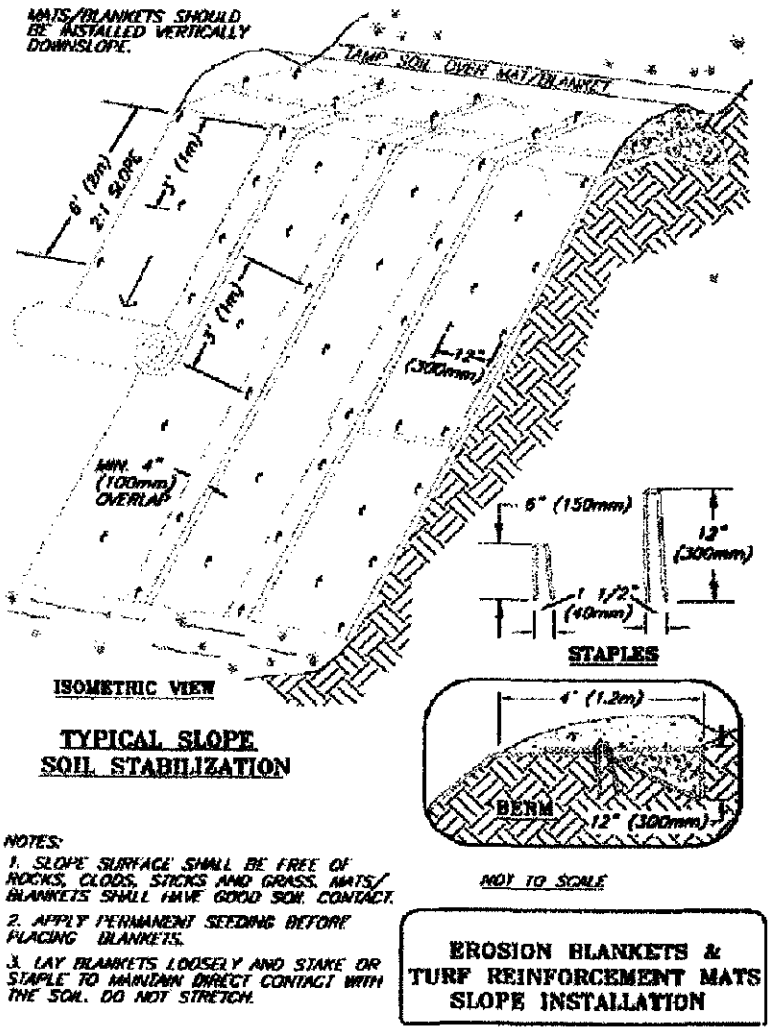
The following guidelines will be used to select riprap size and thickness:

- For channels with water depth > 3 feet, use R-5 at 6" thick.
- For channels with water depth between 2 and 3 feet, use R-4 at 4" thick
- For channels with water depth between 1 and 2 feet, use R-3 at 3" thick
- For channels with water depth < 1 feet, use R-2 at 3" thick

DETAIL C-7

EROSION CONTROL MATTING DETAIL

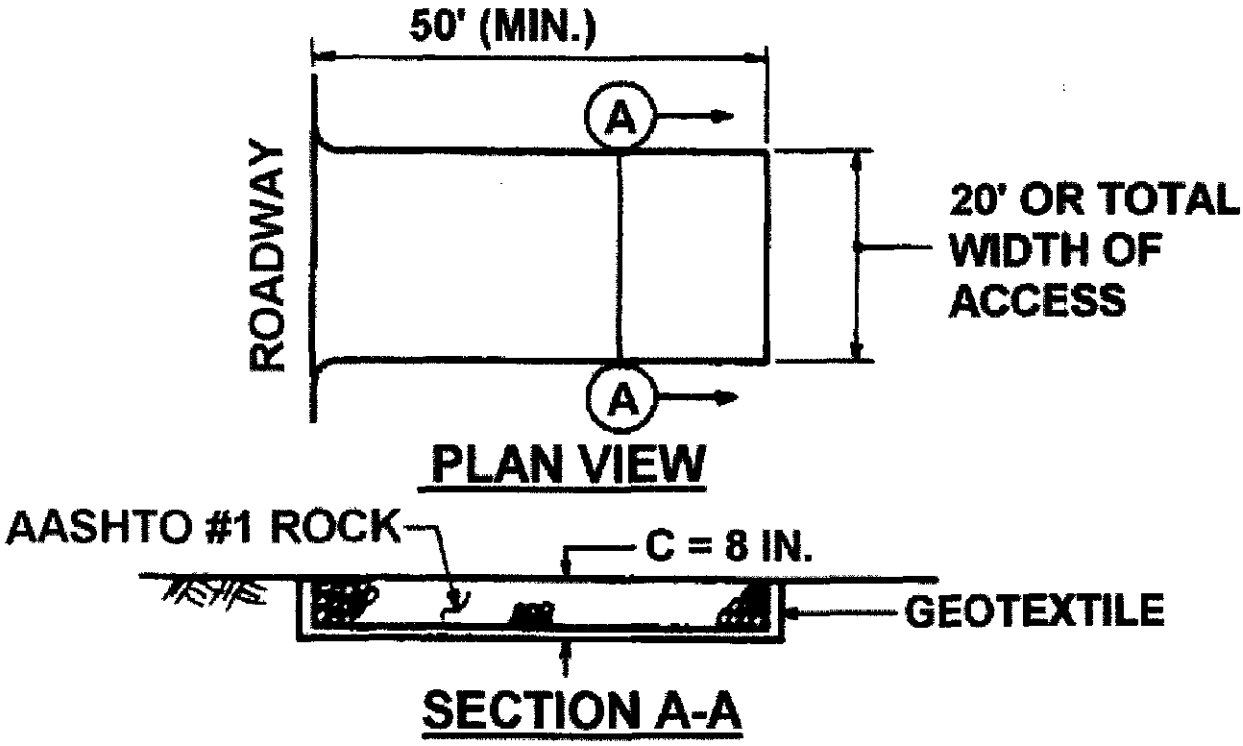
EROSION CONTROL BLANKET DETAIL



Refer to manufacturer's lining installation detail for overlap, embedment, staple patterns, and vegetative stabilization specifications

DETAIL C-8

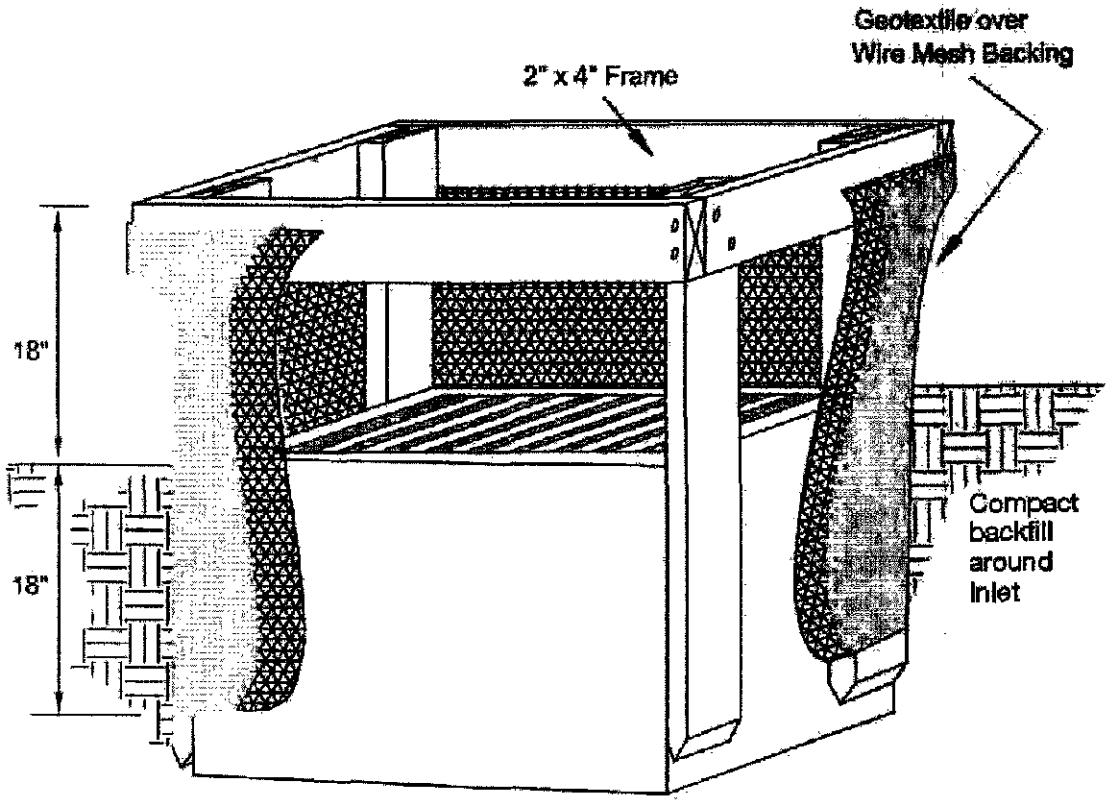
ROCK CONSTRUCTION ENTRANCE DETAIL



MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site. Steel plates, timber mats, and tires are also acceptable materials for short-term construction entrances.

DETAIL C-9

GEOTEXTILE INLET PROTECTION DETAIL



SECTION

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.

2. The earth around the inlet shall be excavated completely to a depth at least 18 inches.

3. The wooden frame shall be constructed of 2-inch by 4-inch construction grade lumber. The 2-inch by 4-inch posts shall be driven one (1) ft. into the ground at four corners of the inlet and the top portion of 2-inch by 4-inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.

4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.

5. Geotextile material shall have an equivalent opening size of 20-40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 inches below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.

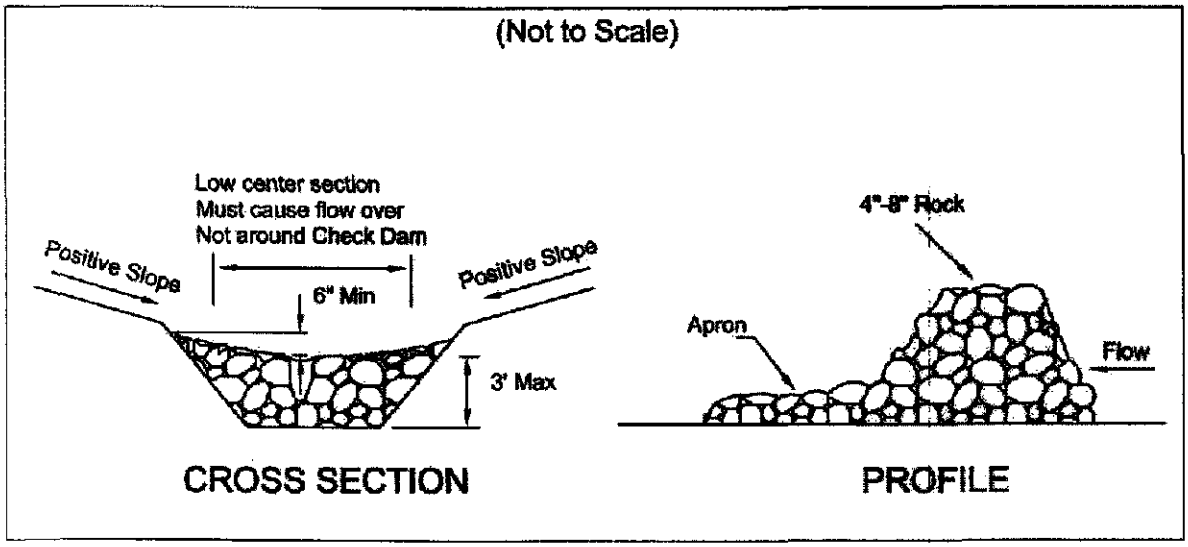
6. Backfill shall be placed around the inlet in compacted 6inch layers until the earth is even with notch elevation on ends and top elevation on sides.

7. A compacted earth dike or check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.

8. Filter fabric and filter socks can also be used as inlet protection.

DETAIL C-10

ROCK CHECK DAM DETAIL



1. The check dam shall be constructed of 4-8 inch diameter stone, placed so that it completely covers the width of the channel. ODOT Type D stone is acceptable, but should be underlain with a gravel filter consisting of ODOT No. 3 or 4 or suitable filter fabric.
2. Maximum height of check dam shall not exceed 3.0 feet.
3. The midpoint of the rock check dam shall be a minimum of 6 inches lower than the sides in order to direct across the center and away from the channel sides.
4. The base of the check dam shall be entrenched approximately 6 inches.
5. Spacing of check dams shall be in a manner such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.
6. A Splash Apron shall be constructed where check dams are expected to be in use for an extended period of time; a stone apron shall be constructed immediately downstream of the check dam to prevent flows from undercutting the structure. The apron should be 6 in. thick and its length two times the height of the dam.
7. Stone placement shall be performed either by hand or mechanically as long as the center of check dam is lower than the sides and extends across entire channel.
8. Side slopes shall be a minimum of 2:1.

DETAIL C-11

SWPPP INSPECTION CHECKLIST

Detail C-11 begins on the following page and is provided as a sample SWPPP Inspection Form. The forms will be completed weekly and kept onsite as a log throughout construction.

SWPPP INSPECTION FORM

Client: Date:
Site:
Environmental Inspector/ Biologist:
Qualifications: Completed 8-HR Stormwater Management During Construction Course Y N
CESSWI Y# N
Signature:

Routine Inspection **Precipitation Event >0.5"** **Other** _____
(circle all applicable)

Has it rained since last inspection? *(circle one and document the time storm started and duration)*

Yes: Date(s) & Approx. Amount_____ **No**

Current Conditions: _____

Soil Conditions: **Dry** **Wet** **Saturated** **Frozen**
(circle applicable conditions)

Feature ID	BMP, ECD, SCD Applied	Recommendations

SCD: Sediment Control Device **ECD: Erosion Control Device** **BMP: Best Management Practice**

ECM: Erosion Control Matting **SF: Silt Fence** **FS: Filter Sock** **W: Wetland** **S: Stream**

Date Site

Stormwater Pollution Prevention Plan Inspection Form

Construction Inspector(s) On Site:

Unresolved issues from previous inspections:

Are the SWPPP, NOI and General Permit Letter on-site? **Yes** **No**

List newly disturbed areas likely to lie dormant for more than 21 days:

Have soil stockpiles been placed at least 50 ft from drainageways?

List construction entrances and SCDs used to prevent tracking into roadway:

Are E/SCDs of appropriate design for area they are controlling, properly installed and being maintained?

List any areas at final grade:

Is the inlet protection of appropriate design?

Were any discharges into streams, wetlands or inlets observed? If yes, document location(s):

Note person(s) notified of noncompliance and expected date of correction:

Notes: