2.0 PROPOSED ACTION

2.1 PROPOSED FACILITIES

Millennium proposes to construct and operate a new pipeline system of 24- and 36-inch-diameter pipeline extending from an interconnection with TransCanada in Lake Erie at the U.S./Canadian border to landfall near Ripley in Chautauqua County, New York, across southern New York to an interconnection with ConEd near the Westchester/Bronx County line in Mount Vernon, New York. [1/]

The new pipeline system would include:

Construction and operation of:

373.5 miles of 36-inch-diameter pipeline;

43.8 miles of 24-inch-diameter pipeline;

3 measurement and regulating stations and regulator station; and

associated pipeline facilities, including pipeline and block valves, pig launchers and receivers, blowdown valves, and cathodic protection rectifier beds.

2. Acquisition from Columbia of:

6.7 miles of 24-inch-diameter pipeline in Rockland County that would be used for the new pipeline system between MPs [2/] 376.4 and 383.3; and

20.1 miles of laterals and 28 metering and regulation stations in New York and Pennsylvania, and one compressor station in Pennsylvania.

Millennium's pipeline system would replace most of Columbia's aging Line A-5 and Millennium would operate the mainline and laterals as part of the Millennium Pipeline Project. Figure 2.1-1 shows the general location of the mainline facilities listed in table 2.1-1; table 2.1-2 lists the Columbia facilities that would become part of the new Millennium pipeline system.

1/ On October 27, 1998, Millennium filed a line change at the Lake Erie landfall in response to comments from landowners. The revised route would avoid the originally proposed landfall in North East, Pennsylvania. On the same date, Millennium filed 15 other line changes to its originally filed route in response to state agency and landowner comments (see section 3.4). In addition, on June 28, 2000, Millennium filed the 9/9A Proposal that identified a new proposed route for 22.7 miles of the route in Westchester County. This revised route is analyzed in this FEIS.

2/ In order to provide a consistent frame of reference and facilitate review throughout the scoping process, the milepost marker locations in this FEIS (and on the maps in appendix B) are those that were filed in Millennium's original application on December 22, 1997. However, the alignment sheets filed on October 27, 1998, included the results of additional surveys completed in the summer of 1998 and the 16 line changes that were incorporated into the original route. These changes modified the survey length and increased the actual length of the pipeline by about 2.0 miles. Incorporation of the 9/9A Proposal decreased the total length by about 0.9 mile. Therefore, mileposts cannot be used to calculate length. Actual crossing lengths in this FEIS have been determined from the survey station numbers.

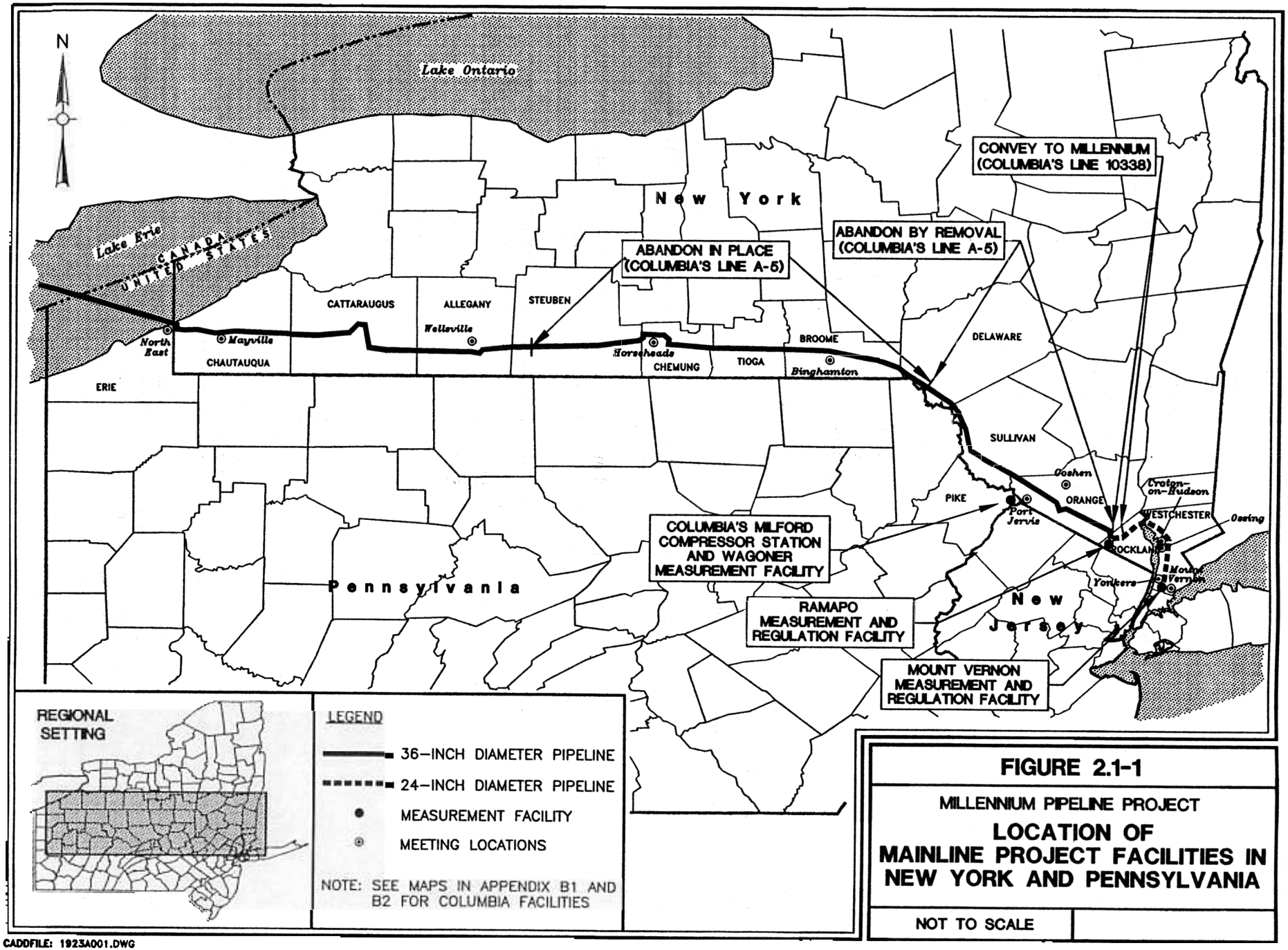

FIGURE 2.1-1

MILLENNIUM PIPELINE PROJECT

LOCATION OF MAINLINE PROJECT FACILITIES IN NEW YORK AND PENNSYLVANIA

NOT TO SCALE

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TABLE 2.1-1

Millennium Mainline Project Facilities

Facility	Diameter	Pipeline Milepost	Approximate County	State
Mainline a/	36-inch	0.0 - 32.9	NA b/	NY, PA
		32.9 - 72.4	Chautauqua	NY
		72.4 - 117.2	Cattaraugus	NY
		117.2 - 148.0	Allegany	NY
		148.0 - 191.4	Steuben	NY
		191.4 - 216.3	Chemung	NY
		216.3 - 238.2	Tioga	NY
		238.2 - 275.4	Broome	NY
		275.4 - 298.0	Delaware	NY
		298.0 - 333.0	Sullivan	NY
		333.0 - 372.2	Orange	NY
	24-inch	372.2 - 389.2 c/ d/	Rockland	NY
		389.2 - 421.8 d/	Westchester	NY
Subtotal - Mainline Construction		**416.7 miles e/**		
Metering and Regulation Stations				
Wagoner Metering and Regulation Station f/			Pike	PA
Union Center Regulator Station		243.5	Broome	NY
Ramapo Metering and Regulation Station		376.4	Rockland	NY
Mount Vernon Metering and Regulation Station		420.6	Westchester	NY
Mainline/Block Valves and Pig Launchers/Receivers				
Mainline Valve, Lake Erie Landfall	36-inch	32.9	Chautauqua	NY
Block Valve and Receiver/Launcher Mayville Compressor Station	--	44.4	Chautauqua	NY
Mainline Valve, Access Road	--	59.1	Chautauqua	NY
Mainline Valve, State Route 241	--	74.0	Cattaraugus	NY
Mainline Valve, Little Valley Compressor Station		88.1	Cattaraugus	NY
Mainline Valve, Bear Hollow Road	--	96.9 g/	Cattaraugus	NY
Mainline Valve, Hinsdale Road h/	--	110.6	Cattaraugus	NY
Mainline Valve, Zimmer Road	--	129.0	Allegany	NY
Mainline Valve, Rauber Road h/	--	138.7	Allegany	NY
Mainline Valve, County Route 31	--	158.4	Steuben	NY
Mainline Valve, County Route 4	--	178.2	Steuben	NY
Block Valve and Receiver/Launcher, Corning Compressor Station	36-inch	190.8	Steuben	NY
Mainline Valve, Johnson Road h/	--	200.3	Chemung	NY
Mainline Valve, Hagadorn Hill Road	--	221.4	Tioga	NY
Mainline Valve, McLean Road	--	231.1	Tioga	NY
Mainline Valve, Cummings Road h/	--	243.5	Broome	NY
Mainline Valve, County Route 68	--	252.8	Broome	NY
Mainline Valve, Thompson Road	--	260.1	Broome	NY
Mainline Valve, Pazelli Road	--	269.3	Broome	NY
Mainline Valve, Roods Creek Road	--	280.8	Delaware	NY
Mainline Valve, Silas Thompkins Road	--	295.5	Delaware	NY
Mainline Valve, County Route 114	--	310.4	Sullivan	NY
Mainline Valve, Plank Road	--	330.3 g/	Sullivan	NY
Mainline Valve, Line K Junction	--	337.9	Orange	NY
Mainline Valve, Huguenot Station	--	340.5	Orange	NY
Mainline Valve, Middletown Station	--	347.7	Orange	NY
Mainline Valve, Warwick Station	--	359.3	Orange	NY
Mainline Valve, Greenwood Lake Station	--	364.2	Orange	NY
Mainline Valve, Tuxedo Station	--	367.9	Orange	NY
Mainline Valve, Sloatsburg Station	--	373.3	Rockland	NY

TABLE 2.1-1 (cont'd)

Facility	Diameter	Pipeline Milepost	Approximate County	State
Mainline/Block Valves and Pig Launchers/Receivers (cont'd)				
Block Valve and Receiver/Launcher, Ramapo Station	36-/24-inch	376.4	Rockland	NY
Mainline Valve, Buena Vista Station	24-inch	383.3	Rockland	NY
Mainline Valve, Hudson River	--	387.7	Rockland	NY
Mainline Valve, Hudson River	--	390.4	Westchester	NY
Mainline Valve, State Route 9A	--	396.8	Westchester	NY
Mainline Valve, Pleasantville Road		401.7	Westchester	NY
Mainline Valve, Old Saw Mill Road	--	406.7	Westchester	NY
Mainline Valve	--	408.6	Westchester	NY
Mainline Valve	--	416.2	Westchester	NY
Block Valve and Receiver	--	420.6	Westchester	NY
Remote Cathodic Protection Rectifier Beds i/				
Conventional ground bed	--	34.9	Chautauqua	NY
Conventional ground bed	--	56.3	Chautauqua	NY
Conventional ground bed	--	74.7	Cattaraugus	NY
Conventional ground bed	--	95.7	Cattaraugus	NY
Conventional ground bed	--	115.3	Cattaraugus	NY
Conventional ground bed	--	135.9	Allegany	NY
Conventional ground bed	--	156.5	Steuben	NY
Conventional ground bed		176.3	Steuben	NY
Conventional ground bed		195.4	Chemung	NY
Conventional ground bed	--	215.1	Chemung	NY
Conventional ground bed	--	235.2	Tioga	NY
Conventional ground bed	--	254.8	Broome	NY
Conventional ground bed		276.3	Delaware	NY
Conventional ground bed	--	296.2	Delaware	NY
Conventional ground bed	--	315.9	Sullivan	NY
Conventional ground bed	--	336.6	Orange	NY
Conventional ground bed		359.4	Orange	NY
Conventional ground bed	--	369.6	Orange	NY
Deep well ground bed	--	390.4	Westchester	NY
Deep well ground bed	--	408.2	Westchester	NY
Deep well ground bed	--	408.6	Westchester	NY

a/ Generally, Millennium would install the new pipeline adjacent to Columbia's Line A-5 between MPs 154.3 and 285.6, and would remove and replace Columbia's Line A-5 between MPs 285.6 and 376.4.

b/ This is the 32.9-mile-long Lake Erie crossing. Landfall is in New York.

c/ Millennium would acquire 6.7 miles of Columbia's 24-inch-diameter pipeline (Line 10338) in Rockland County, between MP 376.4 and MP 383.3, as part of its mainline system. No construction would be required on this segment. In addition, the PSCNY has approved Hudson Valley Gas Corporation's application to construct 4.2 miles of pipeline extending between Millennium's Buena Vista Station at MP 382.5 and the Bowline Generating Station at MP 387.4. This pipeline would be transferred to Millennium if the Commission receives approval for its project.

d/ Includes the 2.1-mile-long Hudson River crossing.

e/ Although the mainline system would be about 423.4 miles long, actual pipeline construction is 416.7 miles, comprising 32.9 miles offshore in Lake Erie and 383.8 miles on land in New York (including the Hudson River crossing). Mileposts cannot be used to calculate length. Actual crossing lengths have been determined from survey station numbers.

f/ The Wagoner Station would be constructed adjacent to Columbia's Milford Compressor Station on Columbia's Line 1278 that would be conveyed by Columbia to Millennium.

g/ Valve relocated out of floodplain from MP 95.9 to 96.9 and from MP 330.0 to 330.3.

h/ Remote blowdown valves would be constructed outside of the permanent right-of-way in areas where mainline valves are required by the U.S. Department of Transportation regulations and the pipeline would be adjacent to a powerline. Each would require a 250- to 300-foot-long right-of-way adjacent to the existing right-of-way that allows for a 100-foot offset between the pipeline and the closest conductor (see figure A-1085 in appendix C).

i/ Remote cathodic protection rectifier beds would be required where the existing beds are not sufficient for the new pipeline.

Note: The USDOT may require block valves under water in Lake Erie since it would consider Lake Erie a class 1 location, unless it gives Millennium a waiver of this requirement.

TABLE 2.1-2

Columbia's Facilities to be Abandoned or Conveyed to Millennium

Facility	Pipeline Diameter (inches)	Approximate Millennium Milepost	Approximate Length (miles)	County	State
ABANDON IN PLACE					
Line A-5 a/	10, 12, 20	154.3 - 285.6	129.8	Steuben, Chemung, Tioga, Broome, Delaware	NY
ABANDON BY REMOVAL					
Line A-5 a/	8, 10, 12, 16, 24	285.6 - 376.4	92.2	Delaware, Sullivan, Orange, Rockland	NY
ABANDON BY CONVEYANCE TO MILLENNIUM					
Lines A-1 to A-4 b/	6, 12	151.8	4.0	Steuben	NY
Line A-5 c/	12	195.8	1.9	Chemung	NY
Line AD-31 d/	6	231.5	2.6	Tioga	NY
Line N e/	12	250.8	0.1	Broome	NY
Line A-2 f/	6	285.6	0.7	Delaware	NY
Milford Line: g/					
Line K	10, 14	337.9	4.9	Orange	NY
Line U	4		0.1	Orange	NY
Line 1278	10, 14		5.6	Pike	PA
Line 1842	8, 12, 14		0.2	Pike	PA
Line 10338 h/	24	376.4 - 383.3	6.7	Rockland	NY
Sub-total:			**26.8**		
Milford Compressor Station g/				Pike	PA
Metering and Regulation Stations: I/					
North Road		157.9		Steuben	NY
Corning Natural Gas		180.4		Steuben	NY
Cooper Plains		182.1		Steuben	NY
M Account		187.5		Steuben	NY
Corning Glass		188.4		Steuben	NY
Hickory Grove Road c/		195.8		Chemung	NY
Spencer (Dean Creek)		217.3		Tioga	NY
Catatonk		228.2		Tioga	NY
Owego d/		231.5		Tioga	NY
Union Center		240.2		Broome	NY
Endicott		241.7		Broome	NY
Westover		245.7		Broome	NY
Willis Road		248.1		Broome	NY
Port Dickinson e/		250.8		Broome	NY
Kirkwood		253.8		Broome	NY
Walton-Deposit		276.1		Delaware	NY
Hancock		285.6		Delaware	NY
Hartwood Club		332.1		Sullivan	NY
Huguenot		340.5		Orange	NY
Middletown		347.7		Orange	NY
Warwick		359.3		Orange	NY
Greenwood Lake		364.2		Orange	NY
Central Hudson/Tuxedo		367.9		Orange	NY
Sloatsburg		373.3		Rockland	NY
Ramapo		376.4		Rockland	NY
Buena Vista		383.3		Rockland	NY
Port Jervis g/		-		Orange	NY
Wagoner g/		-		Pike	PA

TABLE 2.1-2 (cont'd)

a/ Line A-5 begins at Columbia's North Greenwood Compressor Station in Steuben County, about 0.6 mile northwest of the interconnection with Millennium's pipeline at MP 154.3. Line A-5 extends for about 222.0 miles to Rockland County. About 126.4 miles of 12-inch, 2.5 miles of 20-inch, and 0.9 mile of 10-inch pipeline would be abandoned in place. About 7.1 miles of 24-inch, 0.2 mile of 16-inch, 54.6 miles of 12-inch, 21.4 miles of 10-inch, and 8.9 miles of 8-inch pipeline would be abandoned by removal.

b/ Lines A-1, A-2, A-3, and A-4 begin at MP 151.8 and continue west and parallel to each other for about 0.8 mile. Line A-1 continues west for additional 0.8 mile.

c/ A segment of Line A-5 would be used to transport gas from Millennium's pipeline at MP 195.8 to the Hickory Grove Metering and Regulating Station, about 1.9 miles east of the Millennium pipeline.

d/ Line AD-31 is a lateral that would transport gas from Millennium's pipeline at MP 231.5 to the Owego Metering and Regulating Station, about 2.6 miles south of the Millennium pipeline.

e/ Line N is a lateral that would transport gas from Millennium's pipeline at MP 250.8 to the Port Dickinson Metering and Regulating Station, about 0.1 mile south of the Millennium pipeline.

f/ Line A-2 begins at the Hancock Measuring Station at MP 285.6 and continues south for 0.7 mile.

g/ The Milford Line consists of Line K, Line U, Line 1278, and Line 1842 (see appendix B2). Line K begins at Millennium MP 337.9 and continues southwest for 4.9 miles to the Port Jervis Meter and Regulating Station and then west to the New York/Pennsylvania state line. At the state line, Line K splits. Line U turns south for about 1.2 miles and Line 1278 continues southwest to the Milford Compressor Station and the Wagoner Meter and Regulating Station. Line 1842 extends southwest for about 0.2 miles between the Milford Compressor Station and an interconnection with Tennessee Gas Pipeline Company. The Milford Compressor Station consists of three, 350 horsepower units with a total of 1,050 horsepower.

h/ Line 10338 begins at the Ramapo Metering and Regulating Station, the end of Line A-5, and extends east for 6.7 miles to the Buena Vista Metering and Regulating Station. This line would be acquired and used by Millennium as part of the Millennium mainline system between MPs 376.4 and 383.3.

I/ Columbia would install overpressure protection equipment at its Metering and Regulating Stations before they are acquired by Millennium.

Detailed maps of the mainline and laterals are in appendix B1 (mainline and New York laterals) and appendix B2 (Milford laterals in New York and Pennsylvania). Appendix B3 includes plot plans for the metering and regulation stations, and typical plot plans for the mainline valves and launcher/receiver facilities. The 9/9A Proposal, as filed in June 2000 and as described in section 1.0, is incorporated into the proposed project facilities.

In its related application, Columbia proposes to abandon or convey to Millennium its Line A-5 pipeline and certain associated pipeline facilities that provide service from Line A-5 (see table 2.1-2). Specifically, Columbia would:

> abandon in place about 129.8 miles of 10- to 20-inch-diameter pipeline between Steuben and Delaware Counties, New York (Line A-5) (MPs 154.3 to 285.6);
>
> abandon and remove 92.2 miles of 8- to 24-inch-diameter pipeline between Delaware and Rockland Counties, New York (Line A-5) (MPs 285.6 to 376.4);
>
> abandon and convey to Millennium 6.7 miles of 24-inch-diameter pipeline in Rockland County, New York (Line 10338) (MPs 376.4 to 383.3) ; and
>
> abandon and convey to Millennium 14.3 miles of 4- to 14-inch-diameter pipeline and 27 measuring stations in New York, and 5.8 miles of 8- to 14-inch-diameter pipeline and 1 compressor station and 1 measuring station in Pennsylvania that extend from Columbia's Line A-5 to customers in New York and Pennsylvania.

Columbia would also install overpressure protection equipment at those meter and regulating stations that would be conveyed to Millennium. Table 2.1-2 identifies Columbia's facilities by county and state; detailed maps of these facilities are included in the maps in appendices B1 and B2. Firm gas service to customers on Line A-5 would be maintained during construction of the Millennium pipeline through use of the existing Line A-5 between Steuben and Delaware Counties (MPs 154.3 to 285.6), temporary facilities, staged construction practices, and load balancing. However, restrictions may occur during some periods for customers with interruptible gas service.

In areas where Line A-5 would be abandoned in place, Columbia proposes to retain rights to the pipeline and right-of-way. Columbia states that it has received several offers to acquire all or portions of the pipeline to be abandoned and that the pipeline may be used in the future to provide natural gas service, if appropriate and in the public interest. However, Columbia has provided no details on the proposal since it would not use or transfer the pipeline as part of this application. Actual use of this pipeline, if reactivated in the future, would be subject to the appropriate Federal and state environmental review at the time when the proposal is finalized (see section 2.6).

This FEIS analyzes all those facilities that would require construction for the new Millennium pipeline system. Those facilities that would be abandoned in place or conveyed by Columbia to Millennium (including the 6.7 miles in Rockland County) would require only minimal ground disturbance to clean and seal the pipeline and would be within the same areas disturbed for construction of the Millennium pipeline. Installation of the overpressure protection equipment at Columbia's metering and regulating stations would take place entirely within these existing facilities. Therefore, environmental impacts associated with conveyance or modification of these facilities are either included in our analysis of construction and operation of the Millennium pipeline or are considered negligible.

2.2 LAND REQUIREMENTS

Millennium would use a nominal 75-foot-wide construction right-of-way for installation of the pipeline (see figure 2.2-1). About 335.0 miles (80 percent of the total miles and 87 percent of the land miles) of the pipeline would be constructed adjacent to or within existing pipeline, powerline, or road rights-of-way and the remaining 81.7 miles (about 32.9 miles in Lake Erie and 48.8 miles on land) would be constructed on new right-of-way.

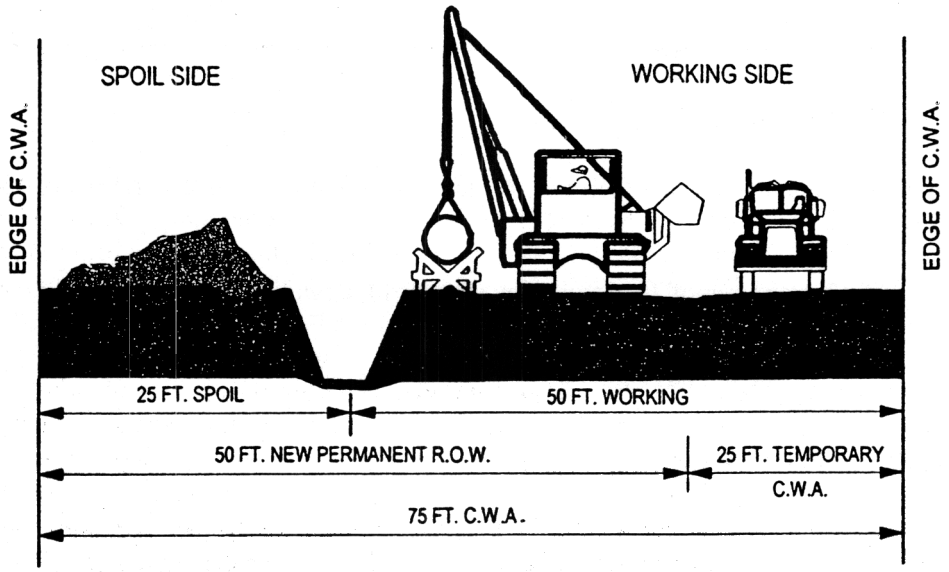
Detailed cross-sections, showing the pipeline within the proposed construction and operational rights-of-way, are in appendix C. Table C1 lists by approximate milepost the location where each typical right-of-way cross-section would apply.

In addition to the construction right-of-way, temporary extra work space outside the construction right-of-way would be required on both sides of roads, railroads, rivers, wider stream and wetland crossings, and in areas of side slope, cultivated agricultural land, and for crossovers of existing pipelines. Typically, each extra work space would be between 100 and 150 feet long and between 50 and 75 feet wide, and would be on the working side of the construction right-of-way. Aboveground facilities would either be adjacent to the right-of-way (measuring stations, the regulator station, and the blowdown valves) or within the operational right-of-way (mainline valves and pig launchers/receivers).

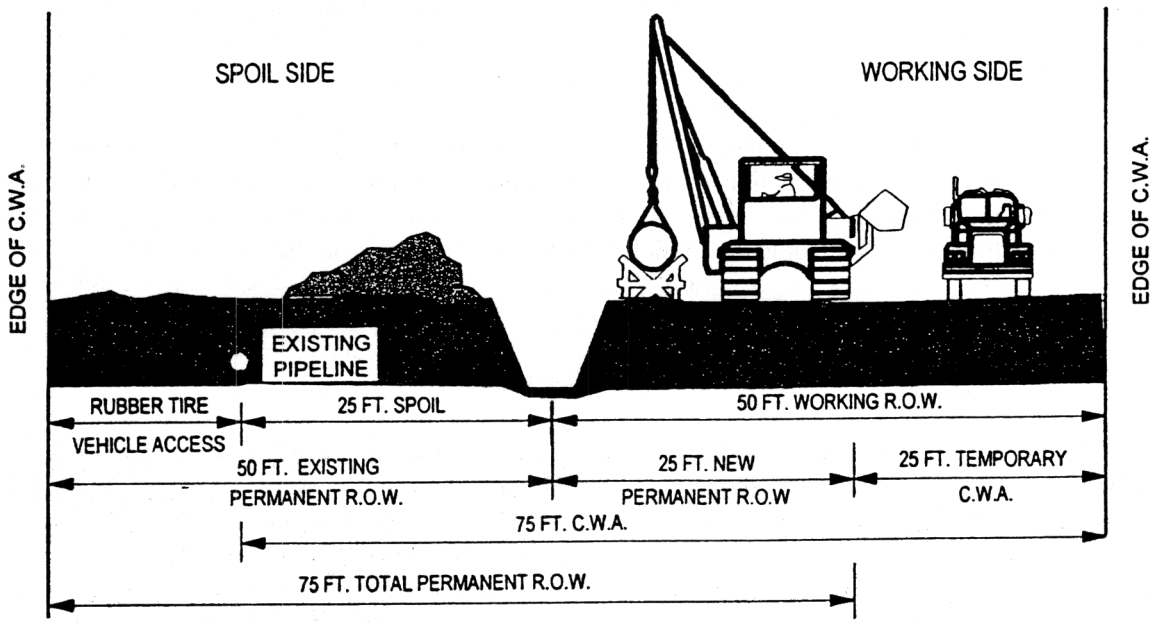
Disturbance would also occur in areas beyond the construction right-of-way for access roads and pipe storage/contractor yards. Although access to the construction right-of-way would generally be from existing roads and along the construction right-of-way, Millennium has identified 247 private roads that would be used for access to the construction right-of-way and may require minor grading or improvements to support construction traffic. The temporary access roads are identified on the maps in appendix B and listed by milepost in appendix D. Millennium also identified 23 potential pipe storage/contractor yards. These yards are generally on level sites in open or commercial areas with easy public access to the right-of-way. Appendix B4 includes maps of each pipe storage/contractor yard.

Construction of the Millennium Pipeline Project would affect a total of about 5,956.0 acres of land and water. This includes 797.6 acres underwater in Lake Erie and 5,158.4 acres for the construction work areas, including 739.0 acres of temporary extra work areas, 225.6 acres for the access roads, 322.9 acres for the pipe storage/contractor yards, 3.6 acres for the aboveground facilities, 0.6 acre for the remote blowdown valves, and 18.6 acres for the remote cathodic protection ground beds. Affected land would include about 2,222.8 acres of open land (including existing rights-of-way), 1,487.9 acres of forest, 1,018.8 acres of agriculture, 863.7 acres of water, and 362.8 acres of other land including residential and commercial/industrial land. The NYSDA&M commented that as much as 20 percent of the open land actually may be used for agriculture and could be verified during easement negotiations.

Following construction, Millennium would retain permanent easements of about 3,139.0 acres for operation of the project.



NEW R.O.W. & LIFT AND LAY



ADJACENT TO EXISTING R.O.W.

NOTES:
1. THE DIMENSIONS SHOWN ON THIS FIGURE ARE TYPICAL. REFER TO CONSTRUCTION ALIGNMENT SHEETS FOR SPECIFIC CONSTRUCTION WORK AREA DIMENSIONS.
2. R.O.W. = RIGHT-OF-WAY
3. C.W.A. = CONSTRUCTION WORK AREA

NOT TO SCALE

MILLENNIUM PIPELINE PROJECT	TYPICAL UPLAND CONSTRUCTION WORK AREA	FIGURE 2.2-1

2.3 CONSTRUCTION PROCEDURES

The pipeline and aboveground facilities would be designed, constructed, operated, and maintained in accordance with:

> U.S. Department of Transportation (USDOT) regulations in 49 CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards;" and
>
> Title 18, CFR 380.15, "Siting and Maintenance Requirements.

In addition, Millennium would implement the construction and restoration procedures identified in its Environmental Construction Standards (ECS) (see appendix E1), which incorporates the FERC staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) (see FERC website at www.ferc.gov). In the Black Dirt Area in Orange County, Millennium would implement its Archeological and Construction Work Plan for the Proposed Millennium Pipeline Project Black Dirt Area (Black Dirt Plan, see appendix E2).

Construction Spreads

Millennium proposes to construct the pipeline using nine construction spreads (see table 2.3-1). Each spread would install the pipeline simultaneously over a period of 6 to 8 months between April and November 1 of the year of construction. Millennium proposes to construct the pipeline in Westchester County (including the 9/9A Proposal) using one construction spread. However, this spread would likely be divided into smaller crews that would install the pipeline simultaneously in different locations.

TABLE 2.3-1

Proposed Construction Spreads

State/County	Construction Spread	Approximate Milepost	Ending Milepost Location	Approximate Spread Length (mi)
Pennsylvania/New York	1 a/	0.0 - 33.5	Landfall	33.5
New York				
Chautauqua, Cattaraugus	2	33.5 - 88.4	State Route 353	55.2
Cattaraugas, Allegany, Steuben	3	88.4 - 148.9	Williamson Road	60.8
Steuben, Chemung, Tioga	4	148.9 - 217.3	Dean Creek Road	68.7
Tioga, Broome, Delaware	5	217.3 - 276.0	Walton-Deposit Station	59.0
Delaware, Sullivan	6	276.0 - 337.8	Line K Tie-in	62.1
Sullivan, Orange	7	337.8 - 376.4	Ramapo Station	38.8
Orange, Rockland	9A b/	383.3 - 387.4	Bowline Point	4.1
Rockland, Westchester	8 c/	387.5 - 391.2	State Route 9A	3.8
Westchester	9B	391.2 - 421.8	Mount Vernon Station	30.7

a/ Lake Erie construction spread, including directional drill of shore.
b/ Between MPs 376.4 and 383.3 (6.7 miles), no construction would be required since Millennium would acquire Columbia's 24-inch-diameter pipeline.
c/ Hudson River construction spread.

Environmental Inspection

To monitor compliance with environmental requirements, Millennium would assign one full-time lead environmental specialist to each spread to support its environmental and agricultural inspectors (as needed). One or more environmental and agricultural inspectors would be assigned to each spread (see section VII of Millennium's ECS for a description of the duties of these inspectors). Millennium would also require that each construction contractor provide at least one environmental compliance specialist per spread to monitor the contractor's maintenance of erosion control devices and construction in environmentally sensitive areas on shore. Figure 2.3-1 shows the organizational flow chart for Millennium's environmental team. All environmental inspectors would be responsible for monitoring construction activities for compliance with the conditions of the FERC certificate; the ECS; and all other applicable Federal, state, and local permits and landowner agreements.

The FERC would also assign monitors to inspect construction and restoration of the project. For larger projects with multiple spreads, the FERC typically assigns a team of two monitors during construction (and one inspector during restoration) to each of the longer spreads, or to two or three spreads if the spreads are shorter in length. The inspection frequency on each spread varies, but can be as often as every week during the early phases of construction, to once or twice a month during later phases of construction, to every month or 6 to 8 weeks during restoration. The frequency of inspections on each spread depends on the problems observed during previous inspections and the sensitivity of the resource being affected. For example, inspection frequency may increase on spreads where numerous problems have been identified, when sensitive waterbodies or wetlands are being crossed, or when landowners or regulatory agencies have identified concerns with construction or restoration. The duration of each inspection varies from 2 to 3 days to 1 week.

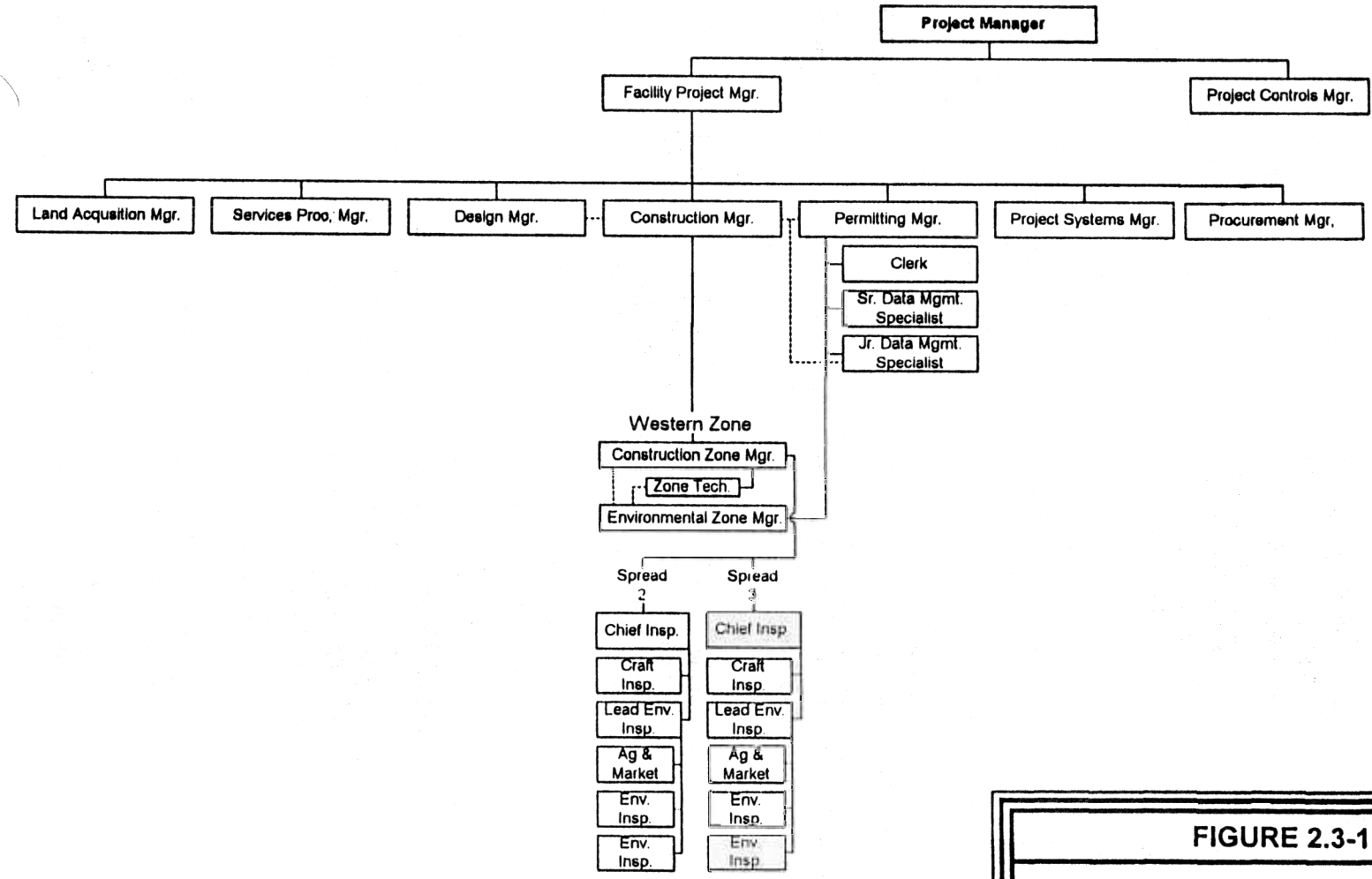
The FERC has also implemented a more reactive and comprehensive environmental inspection program, in which third-party environmental monitors (reporting directly to the FERC project manager) are assigned full-time (6 days a week, 10 hours a day) to specific spreads. The monitors would have limited authority to make field decisions about modifications to construction procedures that are defined in the terms of the third-party contract.

Because of the magnitude and complexity of this project, we recommend:

- **Millennium should hire and fund a third-party contractor, to work under the direction of the Commission staff, for the sole purpose of monitoring Millennium's compliance with the environmental conditions attached to the order, including all measures proposed by Millennium. A draft monitoring program should be developed by Millennium and filed with the Commission for review and approval of the Director of Energy Projects (OEP), along with a proposal from potential contractors that would be available to provide the monitoring and reporting services. The monitoring program should include the following elements:**

  a. the employment by the contractor of one to two full-time, on-site monitors per construction spread;

  b. the employment by the contractor of a full-time compliance manager to direct and coordinate with the monitors, manage the reporting systems, and provide technical support to the Commission staff;



EXAMPLE SHOWING THE WESTERN ZONE

FIGURE 2.3-1

MILLENNIUM PIPELINE PROJECT
ENVIRONMENTAL INSPECTION ORGANIZATIONAL CHART

a systematic strategy for the review and approval by the contract compliance manager and monitors of variances to certain construction activities as may be required by Millennium based on site-specific field conditions;

d. the development of an Internet web site for the posting of daily or weekly inspection reports submitted by both the third-party monitors and Millenniums' environmental inspectors; and

e. a discussion of how the monitoring program could incorporate and/or be coordinated with the monitoring or reporting that may be required by other Federal and state agencies.

The FERC monitors are responsible for inspecting the project to ensure that it is being constructed in compliance with the environmental conditions of the FERC certificate issued for the project. They are not responsible for any permit requirements issued by other agencies unless this responsibility is agreed to as part of the overall monitoring program in consultation with other federal and state agencies as noted above. The New York State Department of Environmental Conservation (NYSDEC) in its section 401 Water Quality Certificate (issued December 8, 1999) has required that one third-party inspector, who reports directly to the NYSDEC, be assigned to each construction spread. The COE will also require third-party inspector(s) as part of its pending permit for the project.

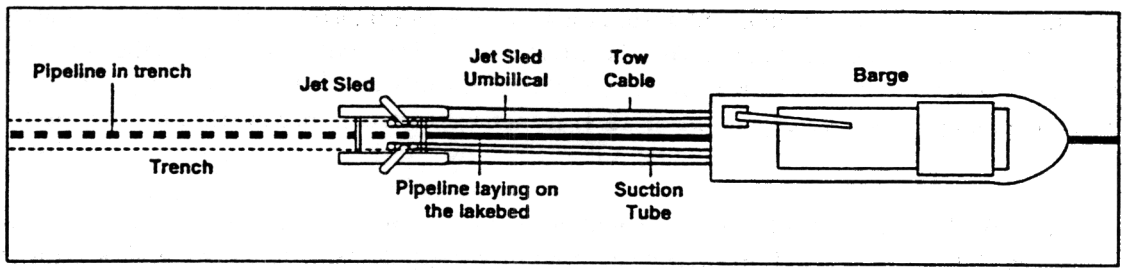
2.3.1 General Offshore Construction Procedures

TransCanada would construct the Lake Erie segment of the pipeline and would transfer ownership and the operation of the U.S. segment to Millennium after construction is complete. The entire Lake Erie crossing would be about 93.3 miles long, with about 60.4 miles in Canada and 32.9 miles in the U.S. in Pennsylvania and New York state waters. Both the U.S. and Canada shorelines would be directionally drilled and the Lake Erie segment of the pipeline would be installed using the standard jet sled/barge construction technique (see figure 2.3.1-1) with some modification because of the lake environment (e.g., cold winters that freeze the lake from January through March, and the availability of large pipe laying equipment because of limited access into the Great Lakes). Offshore construction is expected to begin in early April 2003 and to be completed by the in-service date of November 1, 2003.

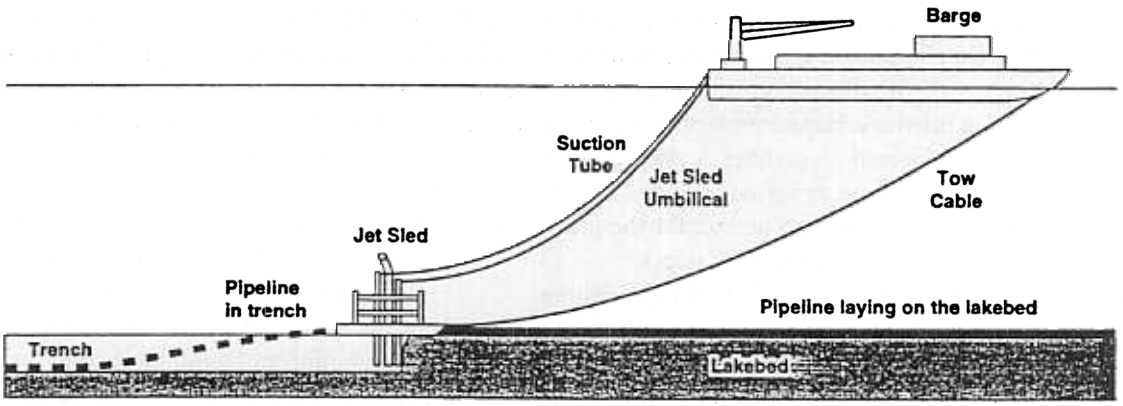
The directional drill of the U.S. shoreline is scheduled to begin in early March and be completed by July. It would involve drilling a pilot hole about 700 feet back from shoreline to about 3,500 to 3,900 feet offshore. The pilot hole would then be enlarged with a reamer to accommodate the pipeline that would be staged in Lake Erie and pulled back to shore. During the drilling operation, about 5,000 feet of pipe would be fabricated on lay barges offshore and laid on the lake bottom in preparation for the pull back to the shore. The directional drill would involve two shifts of workers operating 24 hours a day, 7 days a week for about 3 months.

Millennium states that exposed bedrock and coarse till material predominate the lake bed for more than 0.8 mile beyond the directional drill exit hole. Blasting may be required for trench excavation. However, other trenching techniques, including ripping and cutting, are also being considered for this portion of the pipeline corridor.

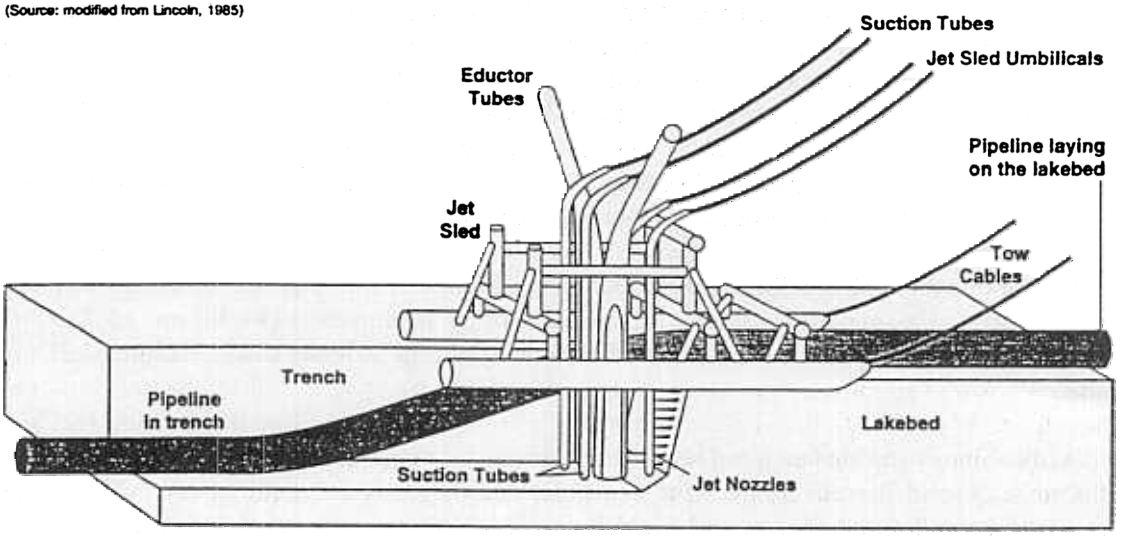
Plan
(Source: MPC, 1997)



Profile
(Source: MPC, 1997)



Jet Sled Details
(Source: modified from Lincoln, 1985)



NOT TO SCALE

MILLENNIUM PIPELINE PROJECT	TYPICAL JET BARGE OPERATION	FIGURE 2.3.1-1

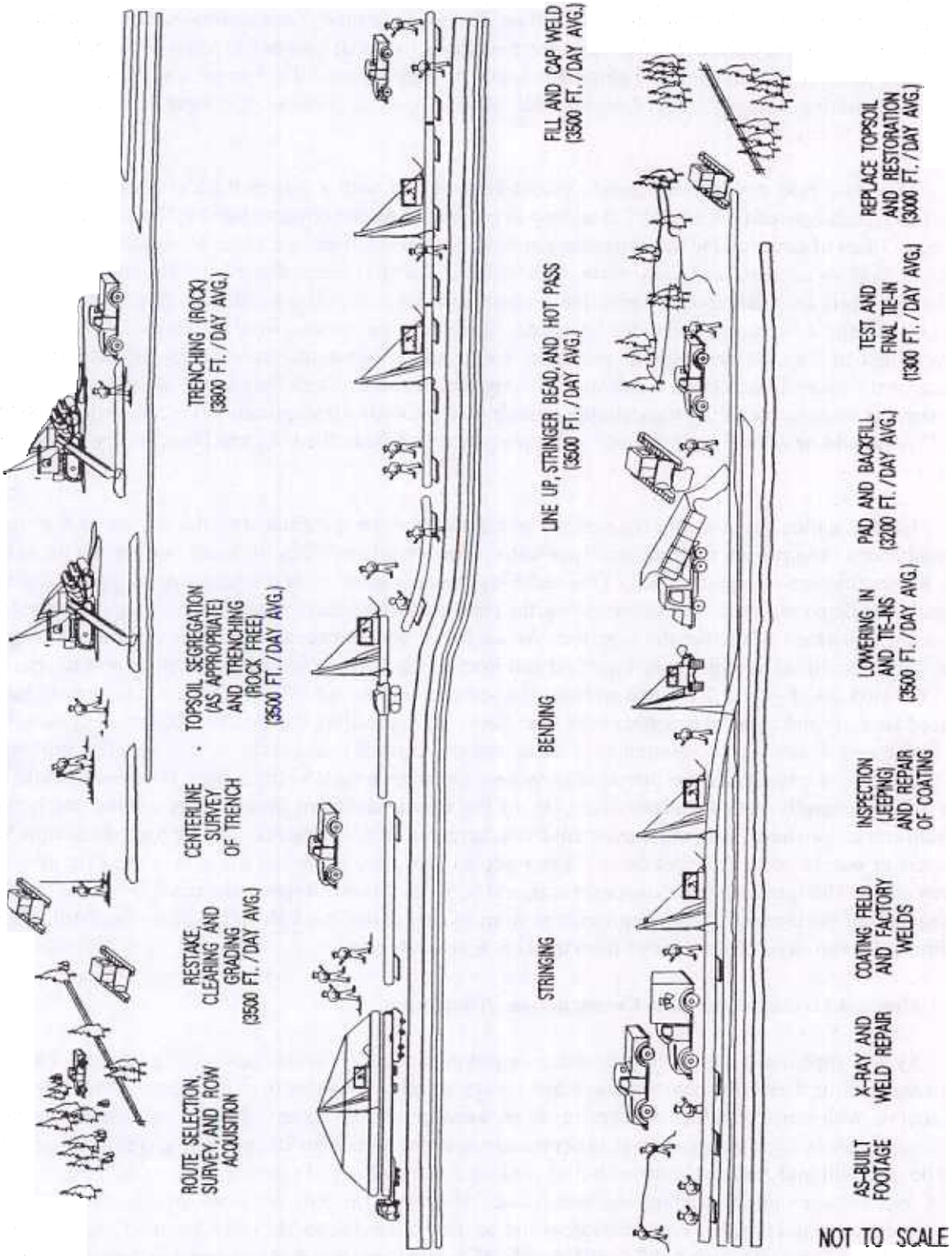
Installation of the offshore segment of the pipeline in Lake Erie would begin in April and would continue to November 1. It would involve welding 40-foot-long pipe joints end-to-end on lay barges for installation by jet sled in the lake bottom from the directional drill exit hole in Canada to the U.S. drill hole. The average production rate would be about 100 joints per day (about 4,000 feet per day) using two shifts of workers operating 24 hours a day, 7 days a week. Lay barges can continue operating in seas up to 8 feet high.

The Lake Erie segment of pipeline would be weighted with a 3-inch-thick concrete coating and buried in a trench between 6.6 and 11.2 feet deep to provide adequate cover to meet USDOT requirements for at least 3 feet of cover and to minimize the potential for damage from ice scour as recommended by the COE Cold Regions Research and Engineering Laboratory (CRREL) (see section 5.3.3). The concrete coating would most likely be applied to the pipeline sections at a local concrete coating yard, possibly in Erie, Pennsylvania, and then transported to the lay barge, where the pipe sections would be aligned along the pre-surveyed right-of-way, welded together on the lay barge, and lowered into the water by the stringer crane. Because of the short construction window, trenching would follow close behind the pipeline lay vessel. Other support vessels, including tugs, supply vessels, and personnel transportation vessels, would also be needed and would most likely operate out of the port areas in Erie in the U.S. and Port Stanley in Canada.

Jetting, which involves the immediate installation of the pipeline into the trench, is the most commonly used construction method in deeper water, where tidal and other hydraulic action can fill in the trench before the pipe can be installed. This technique usually consists of a towed sled, or self-propelled buoyancy-stabilized machine, that moves along the pipeline and employs water jets to cut up, liquefy, and remove the substrate from under the pipeline. An air lift or water evacuation system is usually mounted behind the jet manifold to remove the liquefied soil from under the pipe and the pipe settles into the trench behind the sled (see figure 2.3.1-1 and additional discussion in section 5.3.3). The excavated material is displaced laterally and allowed to settle on the lake floor. By controlling the speed of the jetting system, the spoil discharge velocity can be maintained at the minimum required to excavate the trench and to minimize the dispersion of the spoil into the surrounding water. Once the pipe is in the trench, the trench would be left to fill in naturally with localized slumping of the trench sediment immediately behind the jetting operation and longer-term sediment movement from currents and storm events. The jet barge technique has been used in waters up to 250 feet deep. Water depths along the proposed route in Lake Erie average between 80 and 100 feet deep in the deepest areas, and between 50 and 80 feet in the shallower areas. In the U.S. segment of the crossing, water depths range from 25 feet at the exit hole of the directional drill of the shoreline to 93 feet deep about 5 miles from the U.S./Canada border.

2.3.2 General Overland Pipeline Construction Procedures

Typical pipeline construction proceeds as a moving assembly line as shown in figure 2.3.2-1 and as summarized below. The entire construction sequence is typically completed in an average of about 150 days, or 5 months, with most activities proceeding at an average rate of about 3,000 to 3,800 feet per day. Millennium estimates that the trench would not remain open for more than 30 days in any area and that there would be an additional 2 weeks between initial grading and trenching. Typically, there would be no more than 44 days between initial grading and backfilling. However, the only segments of the 9/9A Proposal where typical overland pipeline construction would be used are between MPs 391.2 and 391.8, 392.7 and 392.9, 396.4 and 396.6, 406.8 and 407.1, 407.4 and 407.8, 408.6 and 408.8, 414.6 and 414.7, and 416.5 and 416.6. Most construction along the 9/9A Proposal would involve specialized techniques because of its unique characteristics.



MILLENNIUM PIPELINE PROJECT	TYPICAL UPLAND PIPELINE CONSTRUCTION SEQUENCE	FIGURE 2.3.2-1

Additional descriptions of each phase of construction, and proposed construction and restoration procedures, are included in Millennium's ECS in appendix E1. In areas where Millennium would remove the existing pipeline (MPs 285.6 to 376.4), Millennium would remove the existing pipeline and install the new pipeline using the same general methods as described below.

Right-of-Way Survey

Before the start of construction, Millennium would finalize land surveys, locate the centerline and construction work space, and complete land or easement acquisition. If the necessary land or easements cannot be obtained through good faith negotiations with landowners and the project has been certificated by the Commission, Millennium may use the right of eminent domain granted to it under section 7(h) of the NGA and the Rules of Civil Procedure to obtain a right-of-way.

The construction work area (e.g., nominal construction right-of-way and extra work areas) would first be surveyed and staked. Existing utility lines and other sensitive resources, identified in easement agreements or by Federal and state agencies, would be located and marked to prevent accidental damage during pipeline construction. Millennium would use a nominal 75-foot-wide construction right-of-way, but also proposes to use part of the existing right-of-way for excess spoil storage and as a travel way for light-duty vehicles where the proposed pipeline would be adjacent to the existing Columbia pipeline. Millennium would need to acquire a permit from the COE if maintenance or use of the road results in permanent impact on wetlands or waterbodies. Landowners would be notified at least 5 days before the start of construction unless earlier notice is requested in the easement negotiations. As part of the right-of-way survey, Millennium's survey personnel would walk the right-of-way taking photographs to note locations of grade changes and locations where the existing grade within the construction work area is different from the existing grade outside of the construction work area.

Removal or Abandonment of Existing Pipeline

Pipeline to be abandoned would either be abandoned in place (MPs 154.3 to 285.6) or removed (MPs 285.6 to 376.4). Pipeline may also be abandoned in place in areas such as highway, railroad, and waterbody crossings or where removal could result in adverse environmental impact. Where the pipe would be abandoned in place, the pipe would be emptied of all gas and cleaned using cleaning pigs to remove all foreign matter. The openings would then be capped and sealed before abandonment. There would be no disturbance of the existing right-of-way, except in areas where the pipeline is capped. Removal of the existing pipeline would involve excavating a trench over the old pipeline, removing the pipe, and installing the replacement pipe in the same location as the old pipe using the standard cross-country construction methods discussed below. Alternatively, the trench may be backfilled and compacted, and then retrenched for the installation of the new pipe.

Where pipeline to be removed would cross major roadways, and is cased, the carrier pipe would be removed, and the casing pipe would be abandoned in place by capping, coating, and filling with appropriate material. At major road crossings where the carrier pipe is not cased, the carrier pipe would be abandoned in place in the same manner.

Columbia would retain rights to the pipeline abandoned in place and the right-of-way since Columbia anticipates the possibility of using the abandoned Line A-5 (or selling it for use) in the future (see section 2.1). Millennium would install its pipeline 25 feet from the pipeline abandoned in place.

Clearing and Grading

The construction work area would be cleared and graded to provide a relatively level surface for trench excavating equipment and a sufficiently wide work space for the passage of heavy construction equipment. Vegetation would be removed by mechanical cutting or by hand. Temporary erosion controls would be installed immediately after initial disturbance of the soils and would be maintained throughout construction. In upland areas, brush would be disposed of by piling adjacent to the construction work area, or it may be burned, or chipped and either given away, buried, or thinly spread across the right-of-way (less than 2 inches thick). However, we believe 2 inches of wood chips is excessive. This corresponds to about 70 tons of wood chips per acre. Our Plan (section V.F.d.3) limits the amount of wood chips that can be spread over the construction right-of-way to no more than 1 ton per acre. This corresponds to an extremely sparse scattering of wood chips. Therefore, we recommend that:

- **Prior to construction, Millennium modify section II.C.2 of its ECS so that it is consistent with section V.F.3.d of our Plan which states that no more than 1 ton of wood chips per acre be spread on the construction right-of-way.**

Logs and other usable wood products would remain the property of the landowner and would not be used unless permission is granted in the easement agreement. Usable timber (over 10 inches in diameter) would be cut into even lengths and stockpiled adjacent to the construction work area. Tree stumps and large rocks, which have been excavated or blasted from the trench, would be disposed of as agreed with the landowner and may be buried within the construction work area, windrowed adjacent to the construction work area, or removed to an approved landfill. No brush, timber, stumps, or large rocks would be stockpiled or buried within 50 feet of streams, or in wetlands, agricultural, or residential areas. No chips would be spread over wetlands or waterbodies.

In agricultural areas, up to 16 inches of topsoil would be stripped from the construction work area in annually cultivated or rotated agricultural land, in idle or fallow fields (improved pasture),[3/] and where requested by the landowner during easement negotiations. In areas maintained as residential lawns or yards, up to 12 inches of topsoil would be stripped from the construction work area. In wetlands without standing water or saturated soils, the top 12 inches of soil would be conserved from graded areas and the trench.

Trenching

The trench would be excavated to a depth sufficient to provide the minimum cover required by USDOT specifications. Typically, the trench would be about 6 feet deep, to allow for about 3 feet of cover, about 6 to 8 feet wide in stable soils and rock, and up to 12 feet wide at the top in sandy and saturated soils. Trench breakers or barriers to slow the movement of water along the trench would be installed every 15 feet as soon as the trench is completed. In agricultural areas, depth of cover would be increased to 4 feet and would be at least 1 foot below existing drainage tile. All excavated soil would be temporarily stored on the non-working side of the right-of-way. Generally, the trench would not remain open for more than 30 days, except at hydrostatic test locations. The trench would not be excavated until the pipe is ready for installation and would be backfilled immediately at the crossings of waterbodies, roads that are open cut, residential areas, and trails. Where access across the trench is required, trench plugs or steel plates would be installed to permit safe crossing for livestock, vehicles, equipment, or people. Fencing would also be installed at the access points to the crossovers to prevent entry into the trench.

3/ Pasture from which crops or hay could be harvested.

In areas where mechanical equipment cannot break up and loosen the bedrock, blasting would be required. All blasting would be conducted only during daylight hours and in accordance with applicable Federal, state, and local laws, permits, and authorizations. Landowners would be provided 1 week prior notice, with at least 24 hours confirming notice, before blasting. With the landowner's approval, pre- and post-blasting inspections would be conducted at all residential or commercial structures or utilities within 150 feet of blasting. Millennium would contact all utility owners and request that an inspector from the utility be present during construction across the utility line. Generally, excavated rock would be used to backfill the trench to the top of the existing bedrock profile, except in agricultural land where specific depths of cover over excavated rock material would apply. Large rock not suitable for use as backfill material would either be windrowed along the edge of the right-of-way with the landowner's permission, or hauled off the right-of-way and disposed of in an approved disposal area.

Pipe Stringing, Bending, and Welding

After trenching, the pipe would be strung along the right-of-way and individual sections of pipe would be bent where necessary to fit the contours of the trench, aligned, welded together into long strings, and placed on temporary supports along the edge of the trench. All welds would be x-rayed to insure structural integrity and compliance with the requirements established by the American Petroleum Institute Standard 1104. Those welds that do not meet established specifications would be repaired or removed. Once the welds are approved, the welded joints would be coated with a protective coating equal to the rest of the pipeline to protect the pipeline from corrosion.

Lowering In and Backfilling

The trench would be dewatered, cleaned of debris, and padded as necessary before the pipeline is lowered into the trench. Trench barriers and breakers would be installed before backfilling to prevent water movement along the pipeline. The trench would then be backfilled using the excavated materials. If the excavated material is rocky, the pipeline would be padded with select fill from commercial borrow areas or by separating suitable material from the existing trench spoil. No topsoil would be used for pipeline padding. After the trench is backfilled, the pipeline would be cleaned of any dirt, water, or debris by pipeline "pigs" which are propelled through the pipeline.

Hydrostatic Testing

After backfill and cleaning, each segment of the pipeline would be hydrostatically tested according to USDOT specifications with water obtained from nearby surface waters or available municipal supplies. Test water would be pumped into each test section, pressurized to design test pressure, and maintained at that pressure for about 8 hours. Leaks would be repaired, and the pipeline would then be retested until the specifications are met. After testing a segment, the water may be pumped into the next test segment or discharged in one of the following ways: through an energy dissipater and erosion control devices off right-of-way, back into the source waterbody through an aeration type energy dissipater, or into a transport trailer tank to be disposed of in compliance with Millennium's National Pollutant Discharge Elimination System (NPDES) permit.

Cleanup and Restoration

Within 10 days of backfilling, weather and soil conditions permitting, all work areas would be final graded and restored to preconstruction contours as closely as possible. To minimize future settling, the trench would either be crowned (with landowner permission) or compacted with tracked construction equipment. Surplus construction material and debris would be removed and disposed of at appropriate sites. Initially, subsoil would be ripped to help alleviate compaction in agricultural areas and the topsoil would be

returned to its original horizon (see section 2.3.3). Permanent erosion controls (waterbars or slope breakers) would be installed within the right-of-way, except in agricultural and pasture land where the landowner has not consented to their installation.

Restoration would begin within 6 days of final grading, weather and soil conditions permitting, and the construction work areas would be fertilized and seeded. Private property such as fences, gates, and driveways would be restored to a condition equal to or better than preconstruction condition, and pipeline markers and warning signs would be installed at roads as required. In areas of new right-of-way, off-road vehicle control (trees, slash and timber barriers, gates, and fencing) would be installed as agreed with each landowner or land manager.

The construction work area would be regraded to match the grade of areas outside of the construction work area, and special features noted in the pre-construction survey would be restored. Millennium states that its specification for adequate restoration is that final grade must be within 6 inches of pre-construction grade. Surveyed contours for major waterbody crossings would be used to assist in restoring these construction work areas. However, some slopes and bluffs cannot be restored to their original contours. Further, Millennium would be required to construct water diversion bars at appropriate locations which would result in a final contour that would differ from the original.

Post Construction Monitoring

Millennium would monitor all areas disturbed by construction until the right-of-way surface conditions are similar to the adjacent undisturbed land and all temporary erosion control devices are removed. Agricultural areas would be monitored for at least 2 years (and the black dirt area for 5 years) for loss in crop productivity, soil settling, excessive soil compaction, excessive rocks, and excessive wetness. Other upland areas would be monitored for at least two full growing seasons. Upland revegetation would be considered successful when the density and cover of non-nuisance vegetation on the disturbed right-of-way are similar to the density and cover off the right-of-way. In accordance with our Procedures, wetlands would be monitored for 3 to 5 years for the reestablishment of wetland vegetation. Revegetation would be considered successful when the cover of native herbaceous and/or woody species is at least 80 percent of the total area and the diversity of native species is at least 50 percent of the diversity originally found in the wetland. Millennium would repair and correct any areas where restoration and revegetation is not successful. The COE will require a mitigation plan for the project as part of its permit. As part of the mitigation plan, Millennium would consult with the COE and NYSDEC to develop a time period for monitoring wetland mitigation activities.

2.3.3 Special Overland Construction Techniques

To minimize construction impact in sensitive areas, Millennium would implement the mitigation measures defined in the ECS, our Plan and Procedures, and as further described in section 5 of this FEIS. Additional site-specific mitigation measures would be included on the construction alignment sheets (CAS). Typical construction techniques in these areas are summarized below.

Agricultural Areas

To the greatest extent practicable, construction and restoration in agricultural land would be completed between the last week in May and the first week in October. Millennium would employ an agricultural inspector, who by training and experience is qualified to deal with all aspects of agricultural management during construction and would be responsible for assuring that construction is in accordance with all applicable requirements. The agricultural inspector, in consultation with the NYSDA&M, would be responsible for determining if soil and weather conditions are suitable for construction or restoration

outside this time frame, or if construction activities should be restricted within this time frame. Construction would be within a 100- to 125-foot-wide right-of-way to allow for topsoil segregation and storage, and deeper cover under drainage tiles. In addition to topsoil segregation, at least two-thirds of the subsoil would be stripped and conserved from the construction work area to reestablish the thin soil profile where the bedrock is less than 20 inches deep.

Excess rock may be used to backfill the trench provided it is deeply buried (e.g., between 30 and 36 inches depending on the type of soils). During restoration, subsoil would be decompacted twice to at least 16 inches in depth, and excess rock over 4 inches would be removed. The first phase of decompaction would be deep ripping of the subsoil to break apart the brick-like denseness resulting from the movement of construction equipment on the right-of-way. After the topsoil is replaced, the second phase of decompaction (soil-profile shattering) would involve use of a deep, angled-leg subsoiler, or paratill, to penetrate through the topsoil to the subsoil. Soil compaction tests would be administered for both subsoil and topsoil during final grading, and final tests would be completed during the monitoring program. Once topsoil is returned, construction equipment traffic would be restricted to prevent recompaction. All drainage tiles crossed by the pipeline would be marked, and any tiles damaged by construction would be repaired or replaced. Crop productivity in the construction work area would be monitored for 2 years following completion of restoration activities to determine if additional mitigation would be required to correct for excessive soil settling, soil compaction, rocks, or wetness.

Black Dirt Area

Millennium has prepared a site-specific plan for construction across the black dirt area of Orange County (the Black Dirt Plan, see appendix E2). Because there are three distinct peat soil segments, Millennium proposes to use three different construction methods: push-pull (as described below for wetland construction), stove-pipe (as described below for residential areas), and conventional boring (as described below for roads and highways). The pipe would be concrete coated and installed in a 9-foot-deep trench, and the construction work area would be restored to grade. Millennium would monitor the construction work areas for 5 years for crop losses, and would repair or pay for any reduction in crop yields that are determined to be the result of pipeline construction.

Waterbodies

Construction across rivers and streams would be accomplished by either trenching across the waterbody (open-cut crossing) or using "dry crossing" construction techniques. An open-cut crossing involves trenching and installing the pipe directly across the stream flow. Proposed dry crossing techniques include directional drilling under wide waterbodies, conventional bore, a dam and pump (pumping the water flow around the trench by installing dams upstream and downstream of the crossing), or a flumed crossing (directing the water flow through flumes and excavating the trench and installing the pipe under the flumes). Millennium would use dry crossing techniques for 493 of the 507 waterbody crossings. To minimize environmental impact on streams, Millennium would implement its ECS and our Procedures (see additional discussion in section 5.3.2).

A directional drill would involve drilling a pilot hole underneath the waterbody and then enlarging that hole until the hole is large enough to accommodate the pipe. Pipe sections would be staged and welded along the right-of-way and then pulled through the drilled hole. Because the pipe must be pulled down and through this hole, bending naturally to fit the contour of the hole, this technique is not effective for minor streams and is usually only used for wider waterbody crossings, where geologic conditions are acceptable. Millennium proposes to directionally drill the U.S. shoreline at Lake Erie, and the Chenango, Ramapo, and Croton Rivers.

Hudson River/Haverstraw Bay

As proposed, the pipeline would be installed across the 2.1-mile-long crossing of the Hudson River (MP 387.9) using an open cut, lay-barge dredge construction method that would involve installing the pipeline continuously. This method would require a lay barge, a pipe supply barge, a crane dredge equipped with closed buckets, and bottom-dump barges (see section 5.3.4 for a detailed description). In general, construction would involve excavating a 1,300-foot-long trench section at one time and then installing the prefabricated pipe segments (with a 3-inch concrete coating), which have been assembled on the lay barge, in the excavated trench. The trench would be backfilled immediately after pipe installation using the bottom-dump barges, and trenching would begin on the next 1,300-foot-long segment. Millennium currently proposes to install the pipeline between September 1 and November 15th. This construction window is the result of a long process of collaboration between Millennium, NYSDEC, New York State Department of State (NYSDOS), and the National Marine Fisheries Service (NMFS) (see section 5.3.4 for additional discussion).

Wetlands

The pipeline would cross 673 wetlands with a total crossing length of about 41.4 miles. Construction across drier wetlands would be accomplished by conventional pipeline construction techniques. In saturated wetlands, the push-pull method would be used. This involves assembling the pipeline in an upland area, pushing/pulling it along the flooded trench through the wetland, and then lowering it into the trench. Mats or timber riprap would be used to stabilize the travel lane for passage of construction equipment. Wetlands, with standing water or saturated soils, would be constructed separately to minimize the duration of construction disturbance. To minimize wetland impacts, Millennium would implement its ECS and our Procedures (see section 5.7 for additional discussion of construction procedures in wetlands).

Residential Areas

Construction within 50 feet of a residence would be accomplished by conventional pipeline, stove-pipe, or drag-section construction techniques. For stove-pipe construction, a short section of trench is dug, a section of pipe is laid and welded into place, and that section of the trench is backfilled immediately. For drag-section construction, a separate work space is required for prefabrication of short pipeline segments consisting of several sections of pipe. Once the trench has been dug, the prefabricated pipeline segments are moved into place, laid in the trench, welded into place, and the trench is backfilled. Restoration in residential areas should begin immediately after backfilling. Both techniques limit the amount of land required for construction and the time the trench is left open in the vicinity of the affected residences. Some segments of the pipeline would be installed in existing roads or streets in residential areas, most of which (about 3.4 miles) are at the east end of the pipeline in Yonkers and Mount Vernon (see discussion below).

We believe it is important to begin restoration of residential properties immediately after the pipeline is installed and the trench is backfilled to minimize the time residents are disturbed by construction activities on their properties. Therefore we recommend:

- **Millennium should modify section II.F of its ECS to state that restoration of residential properties would begin immediately after trench backfilling.**

Roads, Highways, and Railroads

Construction across roads, highways, and railroads would be in accordance with requirements of applicable permits or approvals. Railroads, highways, and most paved roads would be crossed by boring underneath the crossing (bored crossing) and installing the pipe within a casing if required by the permitting

authority. Millennium also proposes to bore Bemus Creek, Great Valley Creek, Wrights Creek, Canisteo River, Owego Creek, Nanticoke Creek, Susquehanna River, West Branch Delaware River, East Branch Delaware River (partial bore), Neversink River, Wallkill River, Pochuck Creek, and Intermittent Ditch to Eurich Ditch.

A bore requires excavating pits on both sides of the road or waterbody at the depth of the pipeline and boring a hole large enough for the diameter of the pipe or casing, if required. The depth of the pits depends on topography and the depth required to cross under the road or waterbody, but is usually at least 10 feet deep. A boring machine would be lowered into the bore pit and a casing advanced through the soil with an auger that removes soil from within the casing. Spoil would be removed from the bore pit, and excess spoil typically would be hauled off site for disposal. Once the casing is in place, the pipe would be placed through the casing. If additional pipe sections are required, they are usually welded to the first section of pipe in the bore pit before being pushed through the bore hole. When the pipe is in place, the casing would be removed, the pipe welded to the adjacent pipe sections, and the pits would be filled in and restored.

There would be little or no disruption of traffic on roads that are bored. Other roads and driveways may be crossed by trenching across the road (open-cut crossing). Any open trenches would be either fenced or covered with steel plates during non-working hours.

Millennium also proposes to install the pipeline in the streets in a number of areas, but primarily in Yonkers and Mount Vernon in Westchester County (see cross-sections ST-8525-000-A-1080 and -1081 in appendix C). The same technique would be used to install the pipeline in bicycle trails (see cross-section ST-8525-000-A-1082 in appendix C). For this type of construction, the pipe would be installed using stove-pipe construction techniques and a 20- to 35-foot-wide construction work area. That segment of the street needed for construction would be closed to traffic, and traffic would be routed around the work area. The length of the segment would vary, but would typically be between 200 and 500 feet to allow for trenching, staging and welding of the pipe, and backfill (see additional discussion in section 5.8.2.2).

Restoration of roads and bicycle trails should begin immediately after trench backfilling is completed so that the roads and trails are opened for full public use as soon as possible. Therefore, we recommend that:

> **Millennium should modify ECS section II.G to state that it would restore all trails and section II.J to state that it would restore all roads immediately after backfilling the trench so that they are opened quickly for full public use.**

Special Construction Techniques for the 9/9A Propo

Where the pipeline would be installed within U.S. Route 9 (MPs 391.8 to 392.6 and MPs 392.9 to 394.2) and State Route 9A (MPs 397.0 and 401.3), Millennium would use a construction work area that would be approximately 35 feet wide. One lane of the roadway and the adjacent shoulder would be used as construction work space (see figure 2.3.3-1). One northbound and two southbound lanes would remain open during construction. Millennium plans to construct 20 hours a day and would avoid construction during the 4-hour peak weekday evening traffic period (3 to 7 p.m.).

Along State Routes 9A/100 (MPs 401.3 - 404.0), Millennium would install the pipeline within the Briarcliff-Peekskill Trailway, using the adjacent southbound lane of the roadway for construction work space. Millennium plans to construct 20 hours a day along State Routes 9A/100, but it would not construct during the 4-hour peak weekday morning traffic period (6 to 10 a.m.).

Millennium states that it would install the pipeline in compliance with traffic control and maintenance plans that would be prepared in consultation with the New York State Department of

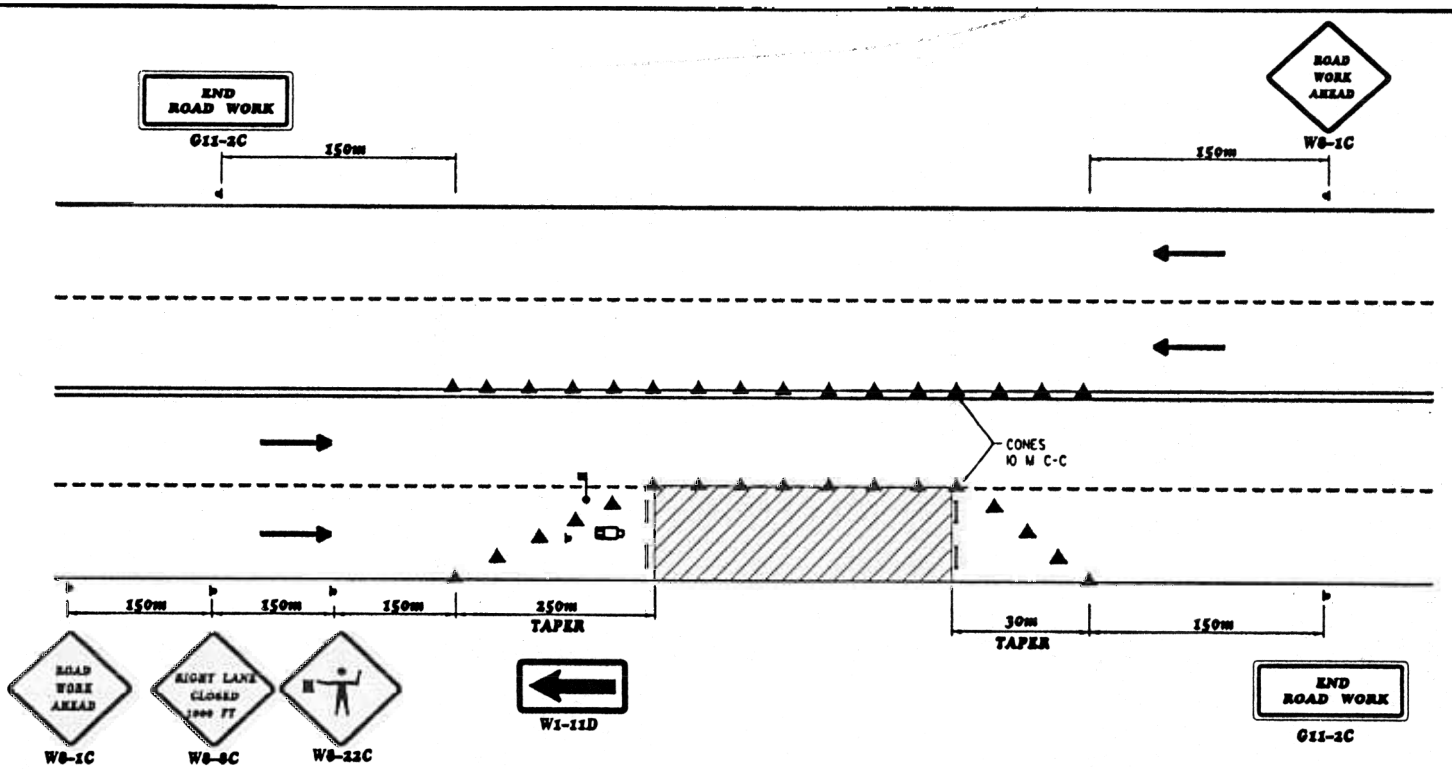
Transportation (NYSDOT) to maintain safe and effective traffic control during construction activities. These plans would be approved by the NYSDOT before construction.

Millennium would use stove-pipe construction methods to install the pipeline in these segments along roadways. Progress is anticipated to be about 400 feet per day, using two separate work crews. The first crew would set up traffic control and maintenance devices, excavate the trench, and haul off excess spoil. The second crew would string, bend, weld, and tie-in the pipeline segment to that which was previously installed. This crew would then backfill the trench with a low-strength concrete mixture (called flowable fill) and place steel plates over the trench until it cures (about 24 hours). An approximate 1,500-foot-long road segment would be affected by the two work crews for staging, but only 400 feet of trench would be open at any one time. All construction would be during off-peak hours.

Construction under the bridges would be accomplished using the same procedures except that the construction work area immediately under the bridge would be restricted to approximately 15 feet in width. Spoil would be conveyed to a dump truck positioned directly in front of the excavation equipment. Other equipment operation and construction activities would occur from either end of the relatively short segment under the bridge, thus ensuring that only one lane is temporarily closed in the area of construction.

Millennium proposes to use specialized equipment (e.g., a rocsaw trencher) for construction in selected locations along the 9/9A Proposal (see appendix F for information on the rocsaw trencher). The primary limitation of the equipment would be the need for a relatively level working area across the construction right-of-way to allow for a vertical trench. However, Millennium expects that nearly all of the 9/9A Proposal, including the old railroad right-of-way now used as a bicycle path for the North and South County Trailways, could be excavated with a rocsaw trencher because the terrain is nearly level throughout. The exception would be on the Trailway between MPs 413.6 and 416.0, particularly the section adjacent to the New York State Thruway (MPs 413.6 to 414.5), where it is too steep for rock trenching equipment and would require alternative excavation methods.

The rocsaw trencher excavates rock using a grinding action created by heavy-duty tooth blocks on a digging chain that is pressed against the rock or other consolidated materials. The cutting speed of the trencher is adjusted depending on the hardness of the rock material and depth of trench being excavated. Because these machines are normally used in consolidated materials, and the trench walls are nearly vertical, spoil generation is minimized. Millennium expects that the trench would be approximately 4 feet wide at the top and bottom and that approximately 30 cubic feet of spoil per linear foot of trench would be generated. Spoil material would be deposited on a conveyor belt that would discharge the material into a pile along the trench or into a receiving dump truck.



NOTES:

1. ALL MAINTENANCE AND PROTECTION OF TRAFFIC MPT SITE WORK SHALL CONFORM TO THE LATEST NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, EXCEPT AS MODIFIED BY THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT AN MPT PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING HIS SITE WORK.
2. ALL SIGNS MAY BE FOUND IN THE NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.). ALL "W" SERIES SIGNS SHALL BE BLACK ON FLUORESCENT ORANGE. ALL REFLECTORIZED SIGN BACK GROUNDS SHALL BE CLASS "B" OR "C" REFLECTIVE SHEETING.
3. WORK ZONES SHOULD BE LIMITED TO ONE SIDE OF THE TRAVELED WAY AT A TIME UNLESS APPROVED BY THE E.I.C. WORK ZONES ON OPPOSITE SIDES OF THE ROAD SHALL NOT OVERLAP. WORK ZONE IS DEFINED AS THAT AREA IN WHICH TRAFFIC IS RESTRICTED BECAUSE OF CONSTRUCTION ACTIVITES OR THAT AREA WHICH INVOLVES A DROP-OFF NEXT TO THE PAVEMENT.
4. THE TRAVEL LANE SHALL BE SWEPT CLEAN BY THE CONTRACTOR BEFORE THE LANE IS RE-OPENED TO TRAFFIC.
5. FOR NIGHTTIME OPERATIONS, THE SPACING OF CHANNELIZING DEVICES FOR LANE CLOSURE TAPERS AND TANGENTS SHALL BE IN ACCORDANCE WITH SECTION 619-3.13C OF THE STANDARD SPECIFICATIONS AND AGENDA. AT INTERSECTING ACCESS/EXIT RAMPS, CORES AND OTHER CRITICAL AREAS, THE SPACING SHALL BE HALF THE TANGENT SPACING SPECIFIED IN SECTION 619-3.13C ABOVE.
6. IF CONES ARE TO BE PLACED DIRECTLY OPPOSITE SHOULDER TAPER, PROVIDE AN ADDITIONAL 30 m MINIMUM BETWEEN FLAGGER AND START OF LANE TAPER.

LEGEND:

A.O.D.D.	AS ORDERED BY ENGINEER
	SIGNAL FACE
	TEMPORARY CONCRETE BARRIER
	EXISTING PAVEMENT MARKINGS
	TRAFFIC DRUM WITH FLASHING LIGHT
	CONSTRUCTION SIGN, ITEM 619.06 M
	FLASHING ARROW BOARD
	FLASHING LIGHT. USE TYPE 'B' LIGHTS WHEN SPECIFIED FOR USE IN BATLIGHT APPLICATIONS. USE TYPE 'C' LOW INTENSITY STEADY BURNING LIGHTS FOR CHANNELIZATION.
	TYPE 3 CONSTRUCTION BARRICADE WITH HIGH INTENSITY LIGHTING
	28" CONICAL CONE 7 LB MIN. AT 10m INTERVALS MAX ON CENTER
	DIRECTION OF TRAFFIC
	FLAGGER
	TRUCK MOUNTED ATTENUATOR
	WORK AREA
	FLAGGER TREE

BAKER ENGINEERING NY, INC.

MILLENNIUM PIPELINE

MAINTENANCE AND PROTECTION OF TRAFFIC
ONE-LANE CLOSURE ON FOUR-LANE ROADWAY

06-21-00 ISSUE A

Approved

FIGURE 2.3.3-1

Where dump trucks would be used, trench spoil material would be loaded directly into the trucks via the conveyor belt discharge from the rocsaw trencher or directly from excavating equipment where the rocsaw trencher is not employed. A truck would be positioned either to the right or immediately ahead of the rocsaw trencher, and would move slowly along the trencher until it is filled with spoil. The trucks would be emptied at designated fill sites. On the return trip, some trucks would transport the padding material to be used as protective backfill around the pipe. Flowable fill, a low-strength concrete poured from concrete mixer trucks, would be used as backfill for the remainder of the trench. The trucks containing either the padding material or the flowable fill would be positioned on the right of the trench as their material is discharged. If the spoil meets the sieve analysis requirements, it would be mixed on-site with the concrete to become part of the flowable backfill. This would reduce the quantity of spoil needing to be hauled off site (see figure 2.3.3-1).

Between 30 to 40 truck trips per day would be needed to haul off spoil, assuming a rate of advance of 400 feet per day. About 4 dump trucks would be required, assuming 10 loads per truck per day. Truck and spoil holding areas would be determined before construction and would include areas such as abandoned quarries or construction sites needing clean fill material. If the spoil material can be incorporated into the flowable backfill material, the number of truck trips will be reduced to approximately 30.

The engine and other mechanical parts of the trencher produce about the same amount of noise as other heavy equipment, about 87 to 92 decibels (dBA) at 50 feet. During operation, the trenching noise is about 98 dBA at 50 feet ("Transit Noise and Vibration Impact" guidance manual, DOT-T-95-16, April 1995). See section 5.11.2 for additional discussion.

Powerlines

The Millennium pipeline would be constructed adjacent to or within powerline rights-of-way operated by Niagara Mohawk, New York State Electric and Gas (NYSEG), Orange and Rockland Utilities, and ConEd (see cross-sections ST-8525-000-A-1077, -1078, -1079, and 1085 in appendix C). Safety and design considerations for construction under or near powerlines are addressed in 29 CFR 1910.269 (Electric Power Generation, Transmission and Distribution), 1926.950-960 (Power Transmission and Distribution), 1926.416 (Electrical Safety Related Practices), and 1926.550 (Cranes and Derricks) and in state regulations including the Consolidated Laws of New York Labor section 202-h ("High-Voltage Proximity Act"), Compilation of Codes, Rules and Regulations of the State of New York Title 16, section 25.467 (relating to external corrosion control and electrical isolation),Title 16, section 127.1 (relating to allowable induced voltages in pipelines), Title 12, section 23-1.13 (electrical hazards), and Title 12, section 23-9.6(e)(7) (aerial baskets). These regulations establish safe clearances for equipment and personnel working near powerlines as well as precautionary actions that must be taken to protect equipment and personnel from electric shock. In addition to state regulations, the powerline company may want Millennium to use additional precautions to minimize the potential for damage to the powerline structures and associated facilities, and possible power outages.

Although construction techniques would not significantly differ from those described above, additional special construction, maintenance, and operating procedures would be implemented to minimize risk to workers, the pipeline, and the powerline. These procedures can include specialized training for workers, maintaining minimum distances between power structures and lines, providing grounding equipment on all construction vehicles, and additional monitoring of construction equipment operating within powerline rights-of-way. These procedures would be developed between Millennium and the affected powerline company.

The 9/9A Proposal would cross the ConEd right-of-way five times and would parallel this right-of-way for 2.7 miles between MPs 402.7 and 405.4. Safety and design considerations for construction under

or near these powerlines are addressed in a Memorandum of Understanding (MOU) and Supplemental Memorandum of Understanding (SMOU) between the PSCNY and Millennium (see appendix G). These documents specify guidelines that would be used when installing the pipeline within or adjacent to the ConEd powerline and for maintaining the pipeline.

Aboveground Facility Construction Procedures

Construction of the measurement and regulation facilities would involve clearing and grading, where necessary, for placement of the facilities, piping, and structures. The sites would be cleared of trees, brush, and debris; graded and compacted to surveyed elevations; covered with gravel or paved; and fenced for construction security and safety.

Appurtenant pipeline facilities (mainline valves, block valves, and pig launchers and receivers) would be installed over the pipeline and in areas easily accessible to operating personnel. Valve assemblies would be installed at intervals specified in the USDOT regulations and would be fenced, as necessary, to protect them from damage or vandalism.

All relevant measures of the ECS, Plan, and Procedures would be implemented during construction of the aboveground facilities. See section 5.8.6, Visual Resources, for information about the visual impact of aboveground facilities.

Corrosion Protection and Detection Systems

The corrosion prevention and detection systems would meet the USDOT requirements for protection of metallic facilities from external, internal, and atmospheric corrosion. These systems would be routinely monitored by survey crews as part of Millennium's ongoing pipeline integrity program. Cathodic protection would be supplied primarily by deep well groundbeds within the permanent right-of-way and would be supplemented at some locations with remote groundbeds and/or magnesium or zinc anodes attached to the pipe. Millennium proposes to use the existing corrosion and detection systems of Columbia's Line A-5, where appropriate. However, Millennium has also identified locations where remote ground beds would be required (see table 2.1-1).

Generally, remote conventional ground beds would be installed a minimum of 500 feet from the pipeline, and anodes would be installed perpendicular to the pipeline. The ground bed would affect an area 900 feet long by 50 feet wide in which a 2-foot-deep by 1-foot-wide trench would be excavated along the length of the ground bed. The anodes would be installed in 12-inch-diameter by 108-inch-deep vertical holes adjacent to the trench. After installation, the area would be backfilled and marked to prevent damage. Deep well anodes could also be installed using a 10-inch-diameter well drilled a minimum of 50 feet below the surface and connecting to a surface junction box. This would require an approximate 500-foot by 50-foot area that is perpendicular to the right-of-way and protected by a permanent fence.

The anode beds would be constructed at about the same time as the pipeline and are designed for the life of the facility. For a coated pipeline, the anode beds would be spaced many miles apart depending on the results of the cathodic protection survey. The cathodic protection system would be monitored, and anode beds would be replaced when or if they become depleted due to changed field conditions.

In Lake Erie, sacrificial (galvanic) zinc bracelet anodes would be used. These bracelet anodes provide protection to the pipeline by creating an electrochemical cell which causes current to flow from the anode to the pipeline. This electrochemical process provides an abundant supply of electrons to the surface of the pipeline so no positive metal ions can form, thus providing full cathodic protection. This is a passive system as opposed to an impressed current system. The bracelet anodes would be installed on the pipe during

the concrete coating process and are protected from damage by the concrete coating itself. Millennium would install anodes on every ninth joint of the pipeline in Lake Erie.

The low voltage direct current used in a cathodic protection system would have no effect on other metallic facilities near the pipeline. The path of the circuit is primarily from the anode bed through the earth to the pipeline, and back along the pipeline to the anode bed. There would be no magnetic fields set up in the area. There are no known health hazards associated with cathodic protection.

2.4 OPERATION AND MAINTENANCE

Millennium would operate and maintain the pipeline in accordance with applicable Federal and state regulations. The right-of-way would be patrolled by air and by ground on a routine basis, and erosion or unstable conditions repaired as necessary. Routine vegetation maintenance would be in accordance with the ECS and our Plan and Procedures, and would include annual mowing or hand clearing of a 10-foot-wide corridor centered over the pipe for the entire length of the pipeline to permit access, facilitate periodic corrosion and leak surveys, and allow visibility of the right-of-way during aerial monitoring. Periodic vegetation maintenance would be done no more frequently than once every 3 years and would be limited to a 50-foot-wide corridor in upland areas. In wetlands and within 25 feet of waterbodies, annual maintenance would be confined to the 10-foot-wide corridor centered over the pipe, and periodic maintenance would be confined to the removal of trees over 15 feet in height within a 30-foot-wide corridor centered over the pipeline.

The valve settings and associated valves on the block valves would be inspected at least once per year and no less frequently than every 15 months. During the inspection, the valve would be greased and partially operated. Other maintenance activities may include isolating a section of pipeline, evacuating the gas from that section, and painting of aboveground piping on an as-needed basis.

The measurement facilities would be inspected a minimum of once every 2 months, depending on the equipment installed at the facility. Maintenance activities may include inspecting the meter, calibrating pressure and temperature transducers, calibrating the chromatograph, maintaining the building and yard, checking for leaks, and painting of aboveground piping.

The regulator stations and associated equipment (such as heaters) would be inspected at least twice per year to make sure they are operating properly. Other activities may include heater maintenance, including cleaning the burner assembly and adding heater fluid, checking for leaks, calibrating controllers, changing filters, making pressure adjustments, painting of aboveground piping, and maintaining the building and yard.

The pig launchers/receivers involve smart pigging the pipeline to check the integrity of the pipeline. This would be done immediately after the pipeline is constructed and periodically thereafter as needed. Pigging may also be used to remove fluid from the pipeline.

2.5 SAFETY CONTROLS

Section 5.12 of this FEIS describes the USDOT safety regulations and requirements for natural gas transmission systems. Among other requirements, the USDOT specifies class locations for pipe wall thickness. These class locations are based on population density, as determined by the number of buildings intended for human occupancy within 220 yards of the pipeline for any continuous 1-mile length of pipeline. Class 1 pipe is specified for 10 or fewer buildings, Class 2 pipe for more than 10 but fewer than 46 buildings, Class 3 pipe for 46 or more buildings intended for human occupation, and Class 4 for buildings with four or more stories aboveground. In addition, block valves to shut off gas flow in the event of an emergency

must be spaced at regular intervals as determined by class locations. See table 5.12.1-1 in section 5.12.1 for Class 3 and Class 4 pipe locations along the Millennium Pipeline Project. In addition, Millennium and the PSCNY have agreed to additional pipeline design and operating requirements for pipeline construction in Westchester County, that exceed the USDOT requirements. This is discussed in sections 5.8.1.2 and 5.12.1 and appendix G.

All external pipe surfaces would be coated with a fusion-bonded epoxy corrosion coating. Concrete coating would be applied over the corrosion coating in locations where weight is required for buoyancy control. The pipeline would be installed within a casing at road and railroad crossings when required by a permitting agency.

The pipeline system would be monitored and controlled 24 hours a day by gas controllers that detect pressure drops in the pipeline that could indicate a leak. Leak patrols would be conducted at least once a year and more often in areas specified in USDOT regulations. These patrols would observe surface conditions on and adjacent to the pipeline right-of-way and identify any indications of leaks, construction activity, or other factors that may affect the safety and operation of the pipeline. In addition, every year, Millennium would provide educational information on how to identify and report leaks to landowners along the pipeline.

In the event of an emergency, Millennium personnel would work with local emergency response organizations and public officials to coordinate the response and protect the safety of the public. Trained personnel would be available at five locations along the pipeline (Mayville, Horseheads, Binghamton, Port Jervis, and in Westchester County, all in New York). Public safety presentations to local emergency response officials would be conducted before the pipeline goes into service and every 2 years thereafter. Millennium would also establish general service agreements with pipeline contractors to provide supplementary manpower and equipment if needed to respond to an emergency.

2.6 FUTURE PLANS AND ABANDONMENT

2.6.1 Future Plans

The Millennium Pipeline Project facilities would provide a new delivery system for natural gas supplies from Canada and the U.S. between Chautauqua and Westchester Counties, New York. Millennium has identified no future plans for additional facilities on the Millennium Pipeline Project. However, interconnecting pipelines and meter stations could be proposed in the future to serve local distribution systems, electric power plants, and other natural gas customers.

Line A-5

These new demands may affect the status of Columbia's abandoned Line A-5. Columbia has indicated that it has received several offers for acquisition of all or segments of the pipeline to be abandoned in place. Columbia has not accepted any of these offers and proposes to retain rights to the abandoned pipeline and the right-of-way for potential future use. If and when Millennium (or Columbia) proposes to construct additional facilities (or reactivate existing facilities), these facilities would be subject to the appropriate Federal and state review.

Bowline Lateral

Millennium also plans to construct and operate a short lateral and a measurement facility to serve the Bowline Generating Station at MP 387.4 in Rockland County if a service agreement is finalized. All facilities would be constructed within the generating station.

Hudson Valley Gas Corporation

The PSCNY approved Hudson Valley Gas Corporation's application to construct a 4.2-mile-long, 24-inch-diameter natural gas pipeline extending along Millennium's proposed route between Millennium's Buena Vista Station at MP 382.5 and the Bowline Generating Station at MP 387.4.[4/] The order granting the certificate notes that "if Millennium does receive FERC approval, to avoid duplication of facilities, Hudson Valley Gas Corporation is negotiating with Millennium to transfer ownership and operation of its pipeline to Millennium."

IBM Lateral

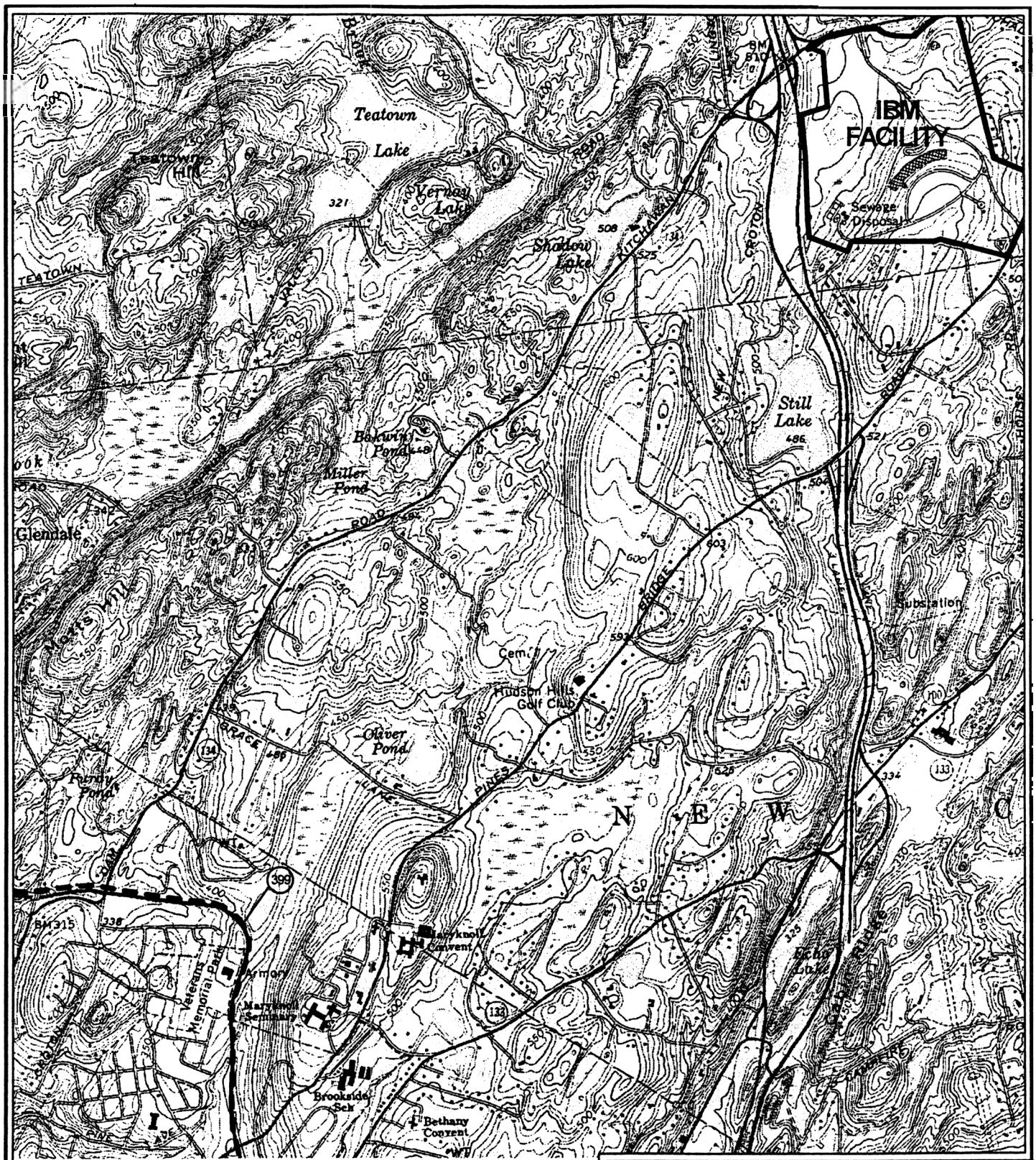
Millennium is developing plans to construct a lateral to the IBM facility in Westchester County. As originally proposed, the lateral would consist of about 2.2 miles of 2-inch-diameter pipeline and about 0.5 mile of low pressure piping and a measurement station within the IBM facility. It would be built from MP 397.8 of the original route (in the vicinity of Pines Bridge Road) and would generally follow powerline and road rights-of-way to the terminus in the IBM facility (see figure 2.6-1). Millennium has not indicated how this lateral would be constructed from the 9/9A Proposal, but it would likely follow a similar though possibly longer route. This facility would be subject to the Commission's jurisdiction and appropriate environmental review.

2.6.2 Abandonment

Millennium has no plans for abandonment of the Millennium Pipeline Project facilities, which have an estimated life of at least 20 years. Any abandonment of the facilities would be subject to the approval of the Commission under section 7(b) of the NGA, and would comply with USDOT regulations and specific agreements or stipulations applicable to a specific segment of the right-of-way. Future abandonments would be reviewed as required by the regulations at the time of the abandonment.

Section 106 of the NHPA requires the FERC to take into account the effects of its undertakings on any prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance to Native Americans, listed on or eligible for listing on the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. The Commission has requested that Millennium, as a non-Federal party, assist it in meeting its obligations under section 106 by preparing the necessary information and analyses as required by the ACHP procedures in 36 CFR part 800. The FERC is required to consult with the appropriate State Historic Preservation Officer (SHPO) regarding the NRHP eligibility of cultural resources and the potential effects of the proposed undertaking on any NRHP-listed or -eligible cultural resources. See sections 4.9 and 5.9 of this FEIS for the status of this review.

4/ Case 99-T-1814, Order Granting Certificate of Environmental Compatibility and Public Need, March 29, 2001



Base: USGS 7.5 Minute Topographic Quadrangles: Mount vernon and White Plains, New York.

FIGURE 2.6-1

IBM FACILITY LOCATION

SHEET 1

In addition to the FERC's requirement for a Certificate, other Federal, state, or local regulatory agencies may have environmental permit or approval authority over portions of the proposed project (see table 2.7-1). The Commission states in its orders that applicants should cooperate with state and local agencies. However, any state or local permits issued with respect to the jurisdictional facilities must be consistent with the conditions of any Certificate the Commission may issue. Although the Commission encourages cooperation between interstate pipelines and local authorities, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the Commission.

2.7 PERMITS, APPROVALS, AND REGULATORY REQUIREMENTS

The Commission is required to ensure compliance with section 7 of the Endangered Species Act (ESA) and section 106 of the National Historic Preservation Act (NHPA).

Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by any Federal agency (e.g., the Commission) should not "... jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined ... to be critical ..." (16 U.S. Code §1536(a)(2) 1988). The Commission is required to consult with the FWS and the NMFS to determine whether any federally listed or proposed endangered or threatened species or their designated critical habitat occur in the vicinity of the project. If, upon review of existing data, the Commission determines that these species or habitats may be affected by the project, the Commission is required to prepare a Biological Assessment (BA) to identify the nature and extent of adverse impact, and to recommend mitigation measures that would avoid the habitat and/or species, or reduce potential impact to acceptable levels. If, however, the Commission determines that no federally listed or proposed endangered or threatened species or their designated critical habitat would be affected by the project, no further action is necessary. See sections 4.6 and 5.6 of this FEIS for the status of this review.

Section 106 of the NHPA requires the FERC to take into account the effects of its undertakings on any prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance to Native Americans, listed on or eligible for listing on the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. The Commission has requested that Millennium, as a non-Federal party, assist it in meeting its obligations under section 106 by preparing the necessary information and analyses as required by the ACHP procedures in 36 CFR part 800. The FERC is required to consult with the appropriate State Historic Preservation Officer (SHPO) regarding the NRHP eligibility of cultural resources and the potential effects of the proposed undertaking on any NRHP-listed or -eligible cultural resources. See sections 4.9 and 5.9 of this FEIS for the status of this review.

In addition to the FERC's requirement for a Certificate, other Federal, state, or local regulatory agencies may have environmental permit or approval authority over portions of the proposed project (see table 2.7-1). The Commission states in its orders that applicants should cooperate with state and local agencies. However, any state or local permits issued with respect to the jurisdictional facilities must be consistent with the conditions of any Certificate the Commission may issue. Although the Commission encourages cooperation between interstate pipelines and local authorities, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the Commission.

TABLE 2.7-1

Major Environmental Permits and Reviews for the Millennium Pipeline Project

Agency	Permit/Clearance
FEDERAL	
Advisory Council on Historic Preservation	Comment on the project and its effects on historic properties.
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity
U.S. Department of the Army Army Corps of Engineers	Section 10 Permit Section 404 Permit
U.S. Department of the Interior Fish and Wildlife Service National Park Service	Endangered and Threatened Species Biological Opinion, if needed. Comments on the project with respect to the Wild and Scenic Rivers and the Upper Delaware Scenic and Recreational River Acts.
U.S. Department of Commerce National Marine Fisheries Service	Endangered and Threatened Species Biological Opinion, if needed. Essential Fish Habitat, Magnusen - Stevens Fishery Conservation and Management Act review.
U.S. Department of Transportation Federal Aviation Administration	Notice of Filing (49 CFR 77.13) where pipeline facilities or construction equipment may create a hazard to air traffic near airports, if needed.
PENNSYLVANIA	
Department of Environmental Protection	Section 401 Water Quality Certificate Hydrostatic Test Water Discharge Permit (NPDES, section 402) Stormwater Discharge Permit (section 402) Coastal Zone Management Consistency Determination
Division for Historic Preservation	Review/comments on construction activities affecting cultural resources (section 106, NHPA)
NEW YORK	
Department of Environmental Conservation	Section 401 Water Quality Certificate Hydrostatic Test Water Discharge Permit (NPDES, section 402) Stormwater Discharge Permit (section 402)
Department of State	Coastal Zone Management Consistency Determination
Office of Parks, Recreation, and Historic Preservation	Review/comments on construction activities affecting cultural resources (section 106, NHPA)
New York State Thruway Authority	Occupancy or Work permits for construction in interstate roadways.

At the Federal level, required environmental permits and approval authority outside the FERC's jurisdiction include compliance with the regulations of the Clean Water Act (CWA), the Rivers and Harbors Act, and the Coastal Zone Management Act (CZMA). Each of these statutes has been taken into account in the preparation of this document. Federal requirements of the CWA include compliance with sections 401, 402, and 404. Water quality certification (section 401) has been delegated to state jurisdiction. On December 8, 1999, the NYSDEC issued its section 401 Water Quality Certificate for the Millennium Pipeline Project (as amended on February 14, 2000). This certificate contains project-wide conditions that would also apply to the 9/9A Proposal or to any alternative route approved by the Commission. Millennium has not yet requested a modification to amend the Water Quality Certificate to incorporate the 9/9A Proposal.

A NPDES permit (section 402) would be needed for discharge of stormwater from construction areas or discharge of hydrostatic test water. Both New York and Pennsylvania have been delegated NPDES permitting authority.

The COE has responsibility for determining compliance with all regulatory requirements associated with section 10 of the Rivers and Harbors Act and section 404 of the CWA. Section 10 permits would be required for all construction activities that occur in navigable waterways. The section 404 permitting process regulates the discharge of dredged or fill material associated with the construction of pipelines across streams or in wetlands, and the discharge of fill associated with temporary access roads, and other aboveground facilities. The Millennium Pipeline Project would cross three COE districts: Pittsburgh, Pennsylvania; and Buffalo and New York, New York. The COE has indicated that an individual section 404 permit would be required for this project.

Before an individual section 404 permit can be issued, the CWA requires that a section 404(b)(1) guidelines analysis be completed. The FERC, in the NEPA review required to prepare this EIS, has analyzed all technical aspects required for the section 404(b)(1) guidelines analysis, including analysis of natural resources and cultural resources affected by the project, as well as analyses of reasonable alternatives and route variations that would eliminate or minimize the discharge of fill material into waters of the U.S. The results of these studies are presented in this EIS. In addition, Millennium's ECS and our Procedures constitute a set of best management practices that Millennium would implement during construction to minimize adverse impact on waters of the U.S. (see appendix E1).

The Millennium Pipeline Project facilities would be within the coastal zone of Pennsylvania (Lake Erie) and New York (Lake Erie and Hudson River). Millennium must obtain a determination of consistency with the Federal CZMA in accordance with the Pennsylvania and New York CZM programs that were developed to comply with the CZMA. Millennium received its coastal zone consistency determination from the Pennsylvania Department of Environmental Protection (PADEP) on April 6, 2000. In New York, the NYSDOS commented that a consistency determination would be based on review of this EIS and the requirements outlined in 15 CFR part 930, Subpart D and 6 New York Code of Rules and Regulations part 617.11. See section 5.8.1.2 of this FEIS for the status of this review.