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APPLICATION

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11 January 2010

David Snyder, Ph. D.  
Archaeology Reviews Manager  
Resource Protection and Review  
Ohio Historic Preservation Office  
1982 Velma Avenue  
Columbus, Ohio 43211-2497

**Re: Phase I Cultural Resource Literature Review:  
Substation No. 11 to Substation No. 10  
138 kV Overhead Transmission Line Project  
Cities of Fairfield and Hamilton, Butler County, Ohio**

Dear Dr. Snyder:

The City of Hamilton intends to submit a Letter of Notification (LON) to the Ohio Power Siting Board shortly for a 2.1 mile 138 kV electric transmission line project within its city limits and passing through the City of Fairfield. As part of the LON process and to satisfy Ohio Administrative Code Rule 4906-11(D)(3), a Phase I Cultural Resource Study was performed by Ohio Valley Archaeology, Inc. (OVAI) on Hamilton's behalf. Because Hamilton intends to request an expedited review of the, I am providing you with an advance copy of OVAI's report.

As indicated on page 9 of OVAI's report, the City of Hamilton believes this project will not have an impact on known cultural resources and is unlikely to impact archaeological sites. If you have any questions about the report, you may contact me at [rmever@amppartners.org](mailto:rmever@amppartners.org) or (614) 337-6222.

On behalf of the City of Hamilton,



R. J. Meyer  
Director of Environmental Affairs

cc: Alan McIntire, City of Hamilton

Attachment

ENCLOSURE

ENCLOSURE

OHIO

RECEIVED

RECEIVED

WEST VIRGINIA

## Erratum

1. Page 1, Project description, Line 23 and Page 2, Line 2: As a point of clarification, the proposed transmission line will utilize an existing Duke Energy transmission circuit between the former Fisher Body Plant and Gilmore Road.

OVAI Contract Report #2009-77a

**A PHASE I CULTURAL RESOURCE LITERATURE REVIEW FOR  
THE PROPOSED ROUTE, SUBSTATION 11 TO SUBSTATION 10,  
138 kV TRANSMISSION LINE PROJECT, CITY OF HAMILTON  
AND CITY OF FAIRFIELD, BUTLER COUNTY, OHIO**

By

Stephen M. Biehl

December 22, 2009

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**Ohio Valley Archaeology, Inc.**

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**A PHASE I CULTURAL RESOURCE LITERATURE REVIEW FOR  
THE PROPOSED ROUTE, SUBSTATION 11 TO SUBSTATION 10,  
138 kV TRANSMISSION LINE PROJECT, CITY OF HAMILTON  
AND CITY OF FAIRFIELD, BUTLER COUNTY, OHIO**

By

Stephen M. Biehl

*Prepared for:*

BBC&M Engineering, Inc.  
6190 Enterprise Court  
Dublin, OH 43016

*On behalf of:*

American Municipal Power, Inc. (AMP)  
1111 Schrock Road, Suite 100  
Columbus, OH 43229

*Prepared by:*

Ohio Valley Archaeology, Inc.  
4889 Sinclair Road, Suite 210  
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*Albert M. Pecora*  
Albert M. Pecora Ph.D., RPA  
Principal Investigator  
December 22, 2009

***Lead Agency:*** Ohio Power Siting Board

## INTRODUCTION

The following literature review was completed at the request of Mary Sharrett of BBC&M Engineering, Inc. This review is designed to list and summarize known or previously recorded cultural resources within 3.0 km of the Substation 11 to Substation 10, 138 kV Transmission Line project located within the City of Hamilton and City of Fairfield, Butler County, Ohio (Figures 1-5).

Previously recorded cultural resources are the product of isolated professional surveys and amateur archaeology. Ohio has not been systematically surveyed to identify and record all cultural resources. Because of this, the literature review cannot determine if the proposed project will impact undocumented cultural resources, including National Register eligible properties. That is, we can only determine the presence of cultural resources that have been previously recorded and documented at the Ohio Historic Preservation Office, Columbus. The nature of the terrain, coupled with historic-era map information and demographic location (e.g., urban, rural, etc.), does help in determining the potential for previously undocumented cultural resources at any given location.

## PROJECT DESCRIPTION

The proposed project includes the installation of overhead power lines and poles (as needed) along the designated Proposed Route that extends from the existing Substation 10 to the existing Substation 11 (Figures 2 and 5). The Proposed Route, which is the preferred route by the City of Hamilton, will extend west from the existing Substation 10 over a modern commercial property to the west side of the B&O railroad and east side of Zimmerman Avenue (Figures 2 and 5; Plates 1-4). This portion of the Proposed Route extends through residential neighborhood (west side of railroad tracks) and commercial properties (east side of railroad tracks). From this point, the Proposed Route follows the same trajectory as an existing power line along the west side of the railroad tracks, and adjacent to an existing railroad bridge over Corwin Avenue (Figure 5; Plates 5-7). At the intersection of the railroad and Dixie Highway/SR 4, the Proposed Route turns south, continuing along an existing power line and residential street, which eventually intersects with Dixie Highway/SR 4 (Figures 2 and 5; Plate 8). The Proposed Route will traverse adjacent to a documented structure (BUT-1366-09), which was constructed in 1895 (Figure 2; Plates 9 and 10). Since this portion of the Proposed Route will be installed on an existing power line corridor which is also adjacent to a commercial complex, it will not create a new visual impact for BUT-1366-09. Slightly south of BUT-1366-09, the Proposed Route turns east and crosses over Dixie Highway/SR 4 and traverses through an industrial property (BUT-1370-12), which is the 1945 Fisher Body Plant factory (Figures 2 and 5; Plates 12 and 13). This industrial property is still operational, although it is no longer the Fisher Body Plant. After crossing the industrial property, the Proposed Route will meet-up with the B&O railroad line again and continue along the west side of the tracks on top of existing poles (Figures 2 and 5; Plates 13-15). Before reaching the intersection of Symmes Road and the B&O

railroad, the Proposed Route turns northeast, crossing over the railroad tracks and traverses along the existing Duke Energy transmission power line, which is located along the northern edge of an existing natural gas pipeline corridor (Figure 2). The Proposed Route/Duke Energy power line traverses through an industrial park to the west side of Gilmore Road (Figures 2 and 5; Plates 16-21). The industrial park is comprised of both disturbed (developed) and undisturbed (fallow/agricultural field) portions. At Gilmore Road, the Proposed Route will turn south, along the west side of the road, until it reaches the existing Substation 11 (Figures 2 and 5; Plate 21). At this point, the Proposed Route will turn east, crossing over Gilmore Road, into Substation 11 (Figures 2 and 5).

**Proposed Route:** No National Register of Historic Places (NRHP) properties are located within 100 ft or within 1,000 ft of the Proposed Route. No previously recorded archaeological sites (OAI) are located within 100 ft of the Proposed Route. One site, 33Bu211, is located approximately 656 ft south of the eastern end of the Proposed Route near the existing Substation 11 (Figure 2). It is doubtful that this site is intact since it is situated along the western side of Gilmore Road within an industrial park. Three Ohio Historic Inventory (OHI) structures were identified within 1,000 ft of the Proposed Route (Figure 2). OHI structure BUT-877-09 is identified as a 1947 vernacular style, Vernon Gase House, located at 1125 Tiffin Avenue, west of the Proposed Route and Substation 10 (Figure 2). OHI structure BUT-1366-09 is identified as an 1895 Queen Anne style, Paul De Fazio House, located at 3951 Dixie Highway (southwest quadrant of Dixie Highway and Bishop Road) (Figure 2; Plates 9 and 10). This structure is also within 100 ft of the Proposed Route. OHI structure BUT-1370-12 is identified as a 1945 vernacular style, Fisher Body Plant factory, located at the northeast quadrant of the intersection of Dixie Highway and Symmes Road (Figure 2; Plates 12 and 13). This structure is also within 100 ft of the Proposed Route. The visual impact from the Proposed Route is considered minimal on OHI structures BUT-1366-09 and BUT-1370-12, both of which are located within 100 ft of the route. This is based on the fact that the area surrounding these structures is comprised of modern structures including commercial buildings. Also, the Proposed Route will be installed on top of existing poles that already have power lines strewn along their course (Plates 8-14). Based on this information, no cultural resources will be directly impacted by the Proposed Route.

### Soils

Two soil associations are mapped for the proposed project corridor and include Fincastle-Patton-Xenia and Eldean-Ockley (USDA-SCS 1980). The Fincastle-Patton-Xenia association is described as "deep, nearly level and gently sloping, somewhat poorly drained, poorly drained, and moderately well drained soils that have a moderately fine textured subsoil; formed in loess, glacial till, and lacustrine silts" (USDA-SCS 1980:9). The Eldean-Ockley association is described as "deep, nearly level to moderately sloping, well drained soils that mostly have a fine or moderately fine textured subsoil; formed mainly in glacial outwash" (USDA-SCS 1980:9). Eight specific soil types have been mapped for the Proposed Route and include Eldean-Urban land complex (EuA), nearly level; Urban land-Eldean complex (UpA), nearly level; Uniontown silt

loam (UnA), 0-2% slopes; Udorthents & Dumps (Uf); Patton silty clay loam (Pa); Russell-Miamian silt loam (RuB2), 2-6% slopes, moderately eroded; Xenia silt loam (XeB), 2-6% slopes; and Fincastle silt loam (FcA), 0-2% slopes (USDA-SCS 1980). General soil series profiles for the Eldean, Tippecanoe, Xenia, Patton, Uniontown, Russell-Miamian, and Fincastle are given in Table 1.

The Eldean-Urban land complex (EuA) is described as consisting of both the well drained Eldean soils (50-65%) and the Urban land soils (25-50%). This soil type is typically found along terraces and glacial outwash plains and has been mapped within two separate areas comprising more than 2500 acres. These areas include the cities of Hamilton and Middletown (USDA-SCS 1980). The Urban land-Eldean complex (UpA) is described as consisting of both the Urban land soils (50-85%) and the well drained Eldean soils, which can consist of upwards of 50% Eldean soils but are usually intermixed beyond practical separation delineation. Typically, this soil type is found near the urban built-up areas of towns and cities such as Hamilton and Middletown and around large industrial complexes (USDA-SCS 1980). The Udorthents & Dumps (Uf) is described as those areas that have been artificially filled with materials including trash, stone, perishable/nonperishable materials, and industrial waste. These areas may include sanitary landfills, slag piles from steel mills, and paper mills (USDA-SCS 1980). The majority of the soils have a low potential to contain intact archaeological deposits, especially prehistoric sites, since the soils are comprised of the Urban land complex.

Table 1. General soil series profiles (USDA-SCS 1980).

Soil Series	Horizon:	Depth:	Hue:	Texture:
Eldean	Ap	0-15 cm	Dark brown (10YR4/3)	Loam
	B1	15-23 cm	Brown (7.5YR4/4)	Silty clay loam
	B21t	23-46 cm	Brown (7.5YR4/4)	Gravelly clay
Fincastle	Ap	0-20 cm	Dark grayish brown (10YR4/2)	Silt loam
	A&B	20-33 cm	A-Dark grayish brown (10YR4/2) B-grayish brown (10YR5/2)	Silt loam
	B21tg	33-51 cm	Dark yellowish brown (10YR4/4)	Silty clay loam
Miamian	Ap	0-15 cm	Brown (10YR4/3)	Silt loam
	B1	15-25 cm	Dark yellowish brown (10YR4/4)	Silty clay loam
Patton	Ap	0-18 cm	Very dark gray (10YR3/1)	Silty clay loam
	A12	18-33 cm	Black (10YR2/1)	Silty clay loam
Russell	Ap	0-18 cm	Dark brown (10YR4/3)	Silt loam
	B1	18-25 cm	Brown (10YR5/3)	Silt loam
Tippecanoe	Ap	0-20 cm	Very dark grayish brown (10YR3/2)	Silt loam
	A12	20-33 cm	Very dark brown (10YR2/2)	Heavy silt loam
Uniontown	Ap	0-25 cm	Dark grayish brown (10YR4/2)	Silt loam
	B1	25-36 cm	Brown (10YR4/4)	Heavy silt loam
Xenia	Ap	0-15 cm	Dark grayish brown (10YR4/2)	Silt loam
	B&A	15-25 cm	B-Brown (10YR5/3) A-Grayish brown (10YR5/2)	Heavy silt loam



## LITERATURE REVIEW

The following literature review examines and summarizes the following documents and maps. The Ohio Archaeological Inventory (OAI), the Ohio Historic Inventory (OHI), the National Register of Historic Places files, and the Cultural Resource Management (CRM) reports, which are kept on file at the Ohio Historic Preservation Office (OHPO), are current as of the date of this report.

1. *An Archeological Atlas of Ohio* (Mills 1914);
2. Ohio Archaeological Inventory (OAI);
3. Ohio Historic Inventory (OHI);
4. National Register of Historic Places files;
5. OHPO Cultural Resource Management (CRM) reports;
6. 19<sup>th</sup> century atlas of Butler County;
7. The early 20<sup>th</sup> century USGS 15' series topographic maps; and
8. Modern USGS 7.5' series topographic maps.

### Archaeological and Historic Records for Project Area and Surrounding Region

**Mills' Atlas (1914):** Mills (1914) recorded 251 archaeological sites in Butler County. These sites include mounds (n=221), enclosures (n=24), village site (n=1), burials (n=4), and cemetery (n=1) (Mills 1914). The majority of these sites are located along the Great Miami River, with most of these along the west side. A number of these sites are also found along the main tributaries of the Great Miami River, which include Sevenmile Creek, Fourmile Creek, and Indian Creek. Twenty-five of these sites are located within Fairfield Township and include mounds (n=17), enclosures (n=7), and cemetery (n=1). None of these sites appear to be located within, adjacent to, or within view of the project area.

**Ohio Archaeological Inventory (OAI):** Eleven archaeological sites have been documented within the 3.0 km study radius (Table 2; Figure 2). Due to map scale constraints, not all of these sites could be plotted on Figure 2. Documented temporal components include Early Archaic (n=1), Middle Archaic (n=1), Late Archaic (n=3), Early Woodland (n=1), unassigned prehistoric (n=7), and 19<sup>th</sup>/20<sup>th</sup> century (n=2). These 11 sites were documented on four types of landform including terrace (n=4, 36%), glacial hummock (n=5, 45%), wetland hummock (n=1, 9%), and moraine (n=1, 9%). Nine of these sites (33Bu231, 233-236, 477, 479-481) were identified during professional cultural resource management surveys (Duerksen and Doershuk 1993, 1994b; White 1979). One of these sites, 33Bu477, was recommended for a Phase III data recovery survey (Duerksen and Doershuk 1994a). With the exception of 33Bu211, none of these sites are located within, adjacent to, or within view of the project area. Site 33Bu211 is located approximately 200 meters (656 ft) south of the Proposed Route where it intersects with the existing Substation 11 (Figure 2). It is doubtful that this site remains intact since this entire area has been developed into an industrial park.

**Ohio Historic Inventory:** Ninety-eight previously recorded Ohio Historic Inventory (OHIs) structures are located within the 3.0 km study radius, 10 of which are located within a 2.0 km radius (Table 3; Figure 2). None of these structures are within the project area, although three (BUT-877-09; BUT-1366-09; BUT-1370-12) are within view of the Proposed Route (Figure 2). Two structures, BUT-1366-09 and BUT-1370-12, are located adjacent to the Proposed Route (Figure 2). BUT-1366-09 is a Queen Anne-style house constructed in 1895 (Plates 9 and 10). BUT-1370-12 is a vernacular-style manufacturing plant (Fisher Body Plant) that was constructed in 1945. Due to map scale constraints, not all of the OHIs within the 3.0 km radius are plotted on Figure 2.

**National Register of Historic Places (NRHP):** No NRHP properties or districts are located within the 3.0 km study radius.

**Cultural Resource Management Reports:** Three Phase I Cultural Resource Management (CRM) surveys (Duerksen and Doershuk 1993, 1994b; White 1979) have been conducted within the 3.0 km study radius (Figure 2). Due to map scale constraints, not all of these surveys are plotted on Figure 2. None of these surveys overlap the project corridor (Figure 2). One Phase III data recovery survey has been completed within the 3.0 km study radius on site 33Bu477 (Duerksen and Doershuk 1994a).

**Historic-era Atlas:** The 1875 *Combination Atlas Map of Butler County, Ohio* (Everts 1875) indicates that the Proposed Route passes through the 1875 properties of J. Burke; along an existing railroad line; an existing road; J. Hay Heirs; M. Diefel; E. Bork; and D. C. Cumler (Figure 3). The Proposed Route does not appear to cross-over any 1875 structure locations (Figure 3).

**15' USGS topographic quadrangles:** The project corridor does not appear to cross-over any structure locations that are indicated on the 1915 (surveyed 1903 & 1915) Hamilton, Ohio 15' USGS topographic map (Figure 4). The Proposed Route extends west from the present day location of Substation 10 and follows southeast along the Cincinnati, Hamilton, and Dayton railroad line before turning south along a road then southeast back to the aforementioned railroad line, then east towards the present day location of the Substation 11 (Figure 4). One structure appears to be adjacent to the Proposed Route (Figure 4).

**7.5' USGS topographic quadrangles:** On the current 1965 (PR 1981) Greenhills, Ohio 7.5' USGS topographic map the Proposed Route extends west from Substation 10 over a commercial property then traverses southeast along the west side of the Baltimore and Ohio railroad (B&O), between Zimmerman Avenue and the railroad before turning south along the west side of Dixie Highway/SR 4, then turning east through an industrial plant property and meeting back with the B&O railroad, after which it turns east-northeast towards the existing Substation 11 (Figure 2).

Table 2. Previously recorded archaeological sites (OAs) within the 3.0 km study radius.

Site #	Temporal Period	Landform	Artifacts	Site Size	Reference
33Bu208	Unass. prehistoric	Glacial hummock	Debitage=19; Biface=3; Tools=9; Core=1	50 m <sup>2</sup>	Site form
33Bu211	Early Archaic; Late Archaic; Early Woodland	Glacial hummock	Debitage=74; Points=7; Tools=69; Biface=8; Core=1; Animal bone=8; Human bone=7	20,000 m <sup>2</sup>	Site form
33Bu231	Unass. prehist./Historic	Terrace	Debitage=8; FCR=7; Shell=1; Biface=1/ Hist.=3	18,115.5 m <sup>2</sup>	White 1979
33Bu233	Unass. prehist./Historic	Terrace	Debitage=52; FCR=2; Tools=4/ Hist.=1	37,160 m <sup>2</sup>	White 1979
33Bu234	Late Archaic	Terrace	Debitage=50; Tools=6; Point=1	9290 m <sup>2</sup>	White 1979
33Bu235	Middle Archaic	Terrace	Debitage=13; FCR=6; Tools=3; Point=1	33,444 m <sup>2</sup>	White 1979
33Bu236	Unass. prehistoric	Moraine	Debitage=10; FCR=1; Biface=1; Core=2	9290 m <sup>2</sup>	White 1979
33Bu477	Late Archaic	Wetland hummock	304+ artifacts; Botanical remains	2400 m <sup>2</sup>	Duerksen and Doershuk 1993, 1994a
33Bu479	Unass. prehistoric	Glacial hummock	Debitage=4	809 m <sup>2</sup>	Duerksen and Doershuk 1994b
33Bu480	Unass. prehistoric	Glacial hummock	Debitage=2; Biface=1	809 m <sup>2</sup>	Duerksen and Doershuk 1994b
33Bu481	Unass. prehistoric	Glacial hummock	Debitage=2; Hammerstone=1	809 m <sup>2</sup>	Duerksen and Doershuk 1994b

Table 3. Previously recorded structures (OHIs) within the 2.0 km study radius.

OHI	Name	Address	Style	Date	UTM East: Zone 16	UTM North: Zone 16
BUT-877-09	Vernon Gase House	1125 Tiffin Ave	Vernacular	1947	711169	4359918
BUT-1366-09	Paul De Fazio House	3951 Dixie Hwy	Queen Anne	1895	711728	4359058
BUT-1367-09	Not given	4551 Dixie Hwy	Dutch Colonial Revival	1920	711727	4358533
BUT-1368-09	Bales House	4565 Dixie Hwy	Tudor/English Revival	1920	711723	4358511
BUT-1369-12	Holiday Inn	4670 Dixie Hwy	Not given	1968	711870	4358220
BUT-1370-12	Fisher Body Plant	Dixie Highway and Symmes Rd	Vernacular	1945	712013	4358683
BUT-1371-12	Aaron W Schenck House	Dixie Highway	Italianate	1864	712171	4357774
BUT-1372-12	Fairfield High School	5050 Dixie Hwy	International	1951	712415	4357403
BUT-1373-12	Central Elementary School	5058 Dixie Hwy	Second Renaissance Revival	1929	712457	4357306
BUT-1473-12	Patrick Burns House	4815 Walter Ave	Vernacular	1915	711610	4357810

## Summary

No previously recorded cultural resources (OAIs, OHIs, or NRHP properties/district) are located within the Substation 11 to Substation 10, 138 kV Transmission Line project in the City of Hamilton and City of Fairfield, Butler County, Ohio. No structures appear to be within the Proposed Route on the 1875 atlas, 1915 15' USGS map or the current 1965 (PR 1981 and 1988) 7.5' USGS maps, although one structure does appear adjacent on the 15' USGS map and several on the current 7.5' USGS map. Currently, the Proposed Route will be adjacent to two OHIs, BUT-1366-09 and BUT-1370-12. Because the Proposed Route follows an existing power lines and will be installed on existing poles, it will not create a new visual impact on the two adjacent OHIs (Plates 11-13). In addition, modern residential and commercial structures are adjacent to these OHIs (Plate 11).

Based on the map information extending back to 1875, it is unlikely that significant historic-era archaeological sites will be impacted by the proposed project. Because the Proposed Route will utilize existing poles, for the most part, they will not have a new visual impact on any historic properties or structures. Likewise, this alignment is unlikely to have an impact on archaeological resources. In sum, the Substation 11 to Substation 10, 138 kV Transmission Line project will not impact known cultural resources. No further work is recommended for the project.

## REFERENCES CITED

Duerksen, Ken and John F. Doershuk

1993 Phase I and II Cultural Resources Survey for the Proposed Kiesland Business Park in Fairfield Township, Butler County, Ohio. 3D/Environmental Services, Cincinnati. Report on file at the Ohio Historic Preservation Office, Columbus.

1994a Report on the Archaeological Data Recovery at 33Bu477, A Late Maple Creek Phase Occupation in Butler County, Ohio. 3D/Environmental Services, Cincinnati. Report on file at the Ohio Historic Preservation Office, Columbus.

1994b Phase I and II Cultural Resources Survey of an 80 Acre Tract in Fairfield Township, Butler County, Ohio. 3D/Environmental Services, Cincinnati. Report on file at the Ohio Historic Preservation Office, Columbus.

Everts, L. H.

1875 *Combination Atlas Map of Butler County, Ohio*. Philadelphia.

Mills, William C.

1914 *An Archeological Atlas of Ohio*. Ohio State Archaeological and Historical Society, Columbus.

United States Department of Agriculture, Soil Conservation Service (USDA-SCS)

1980 *Soil Survey of Butler County, Ohio*. United States Department of Agriculture, Soil Conservation Service in cooperation with ODNR, Division of Lands and Soil, and the Ohio Agricultural Research and Development Center.

United States Department of the Interior, National Park Service (USDI, NPS)

1997 *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. U.S. Department of the Interior, National Park Service, Cultural Resources, Washington.

White, Claude F.

1979 *An Archaeological Impact Assessment of the Hamilton Airport Improvements*, Hamilton, Butler County, Ohio.



Figure 1. State of Ohio map showing general location of the project area.

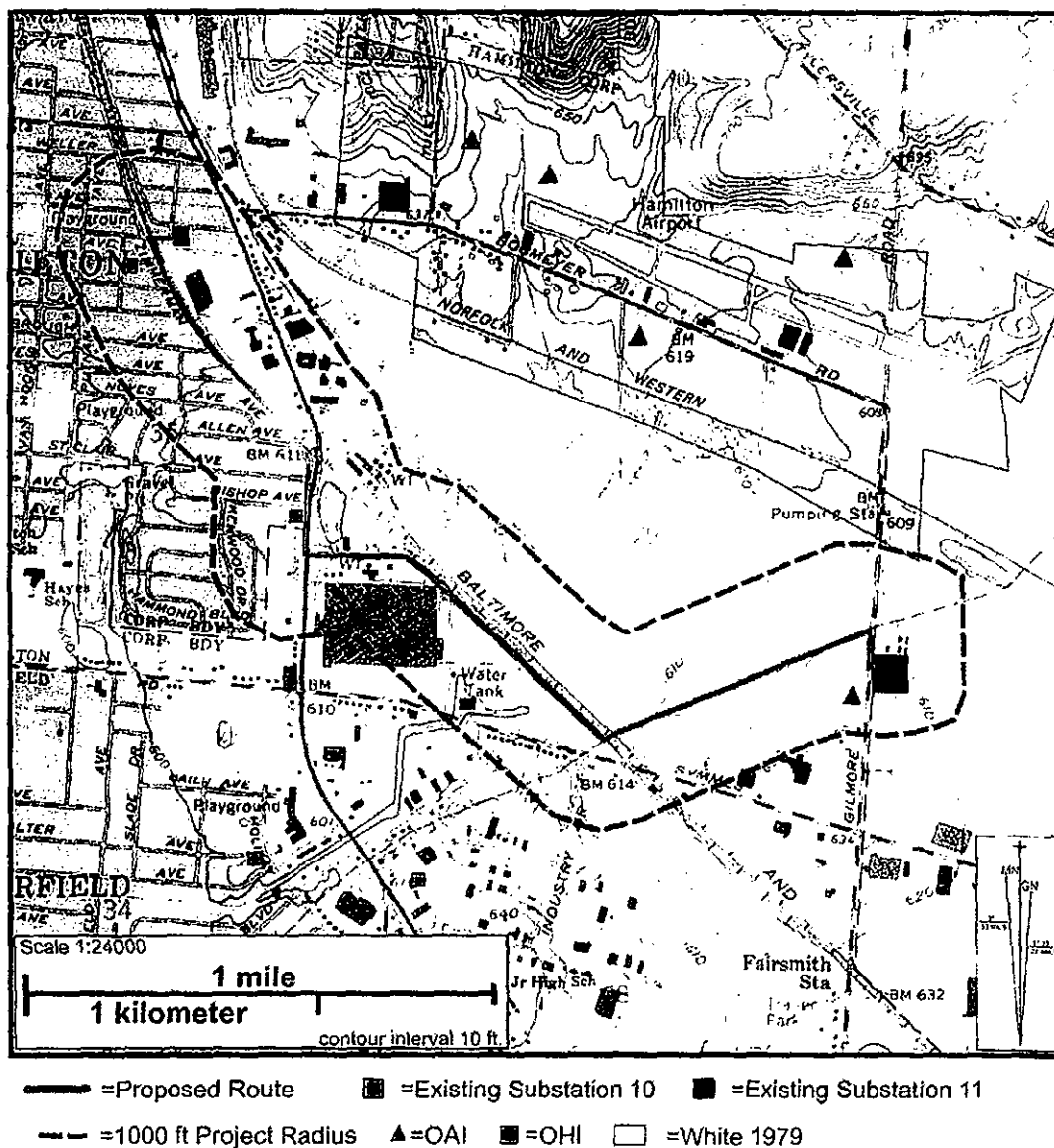


Figure 2. Portion of the 1965 (PR 1981) Greenhills, Ohio 7.5' USGS topographic map showing the location of the project area, previously recorded cultural resources, and previously surveyed area.



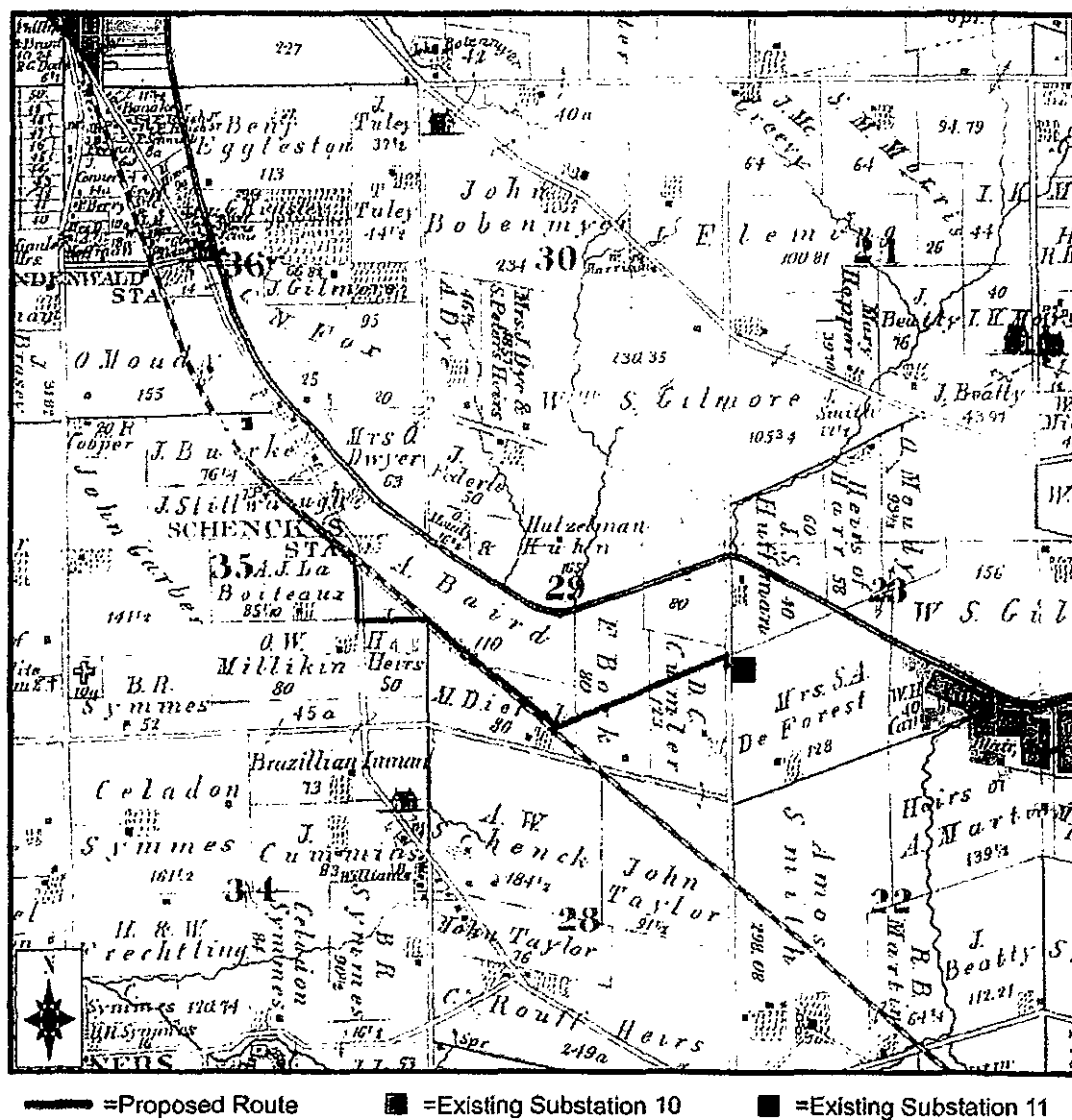


Figure 3. Portion of the 1875 *Combination Atlas Map of Butler County, Ohio* (Everts 1875) showing the location of the project area.



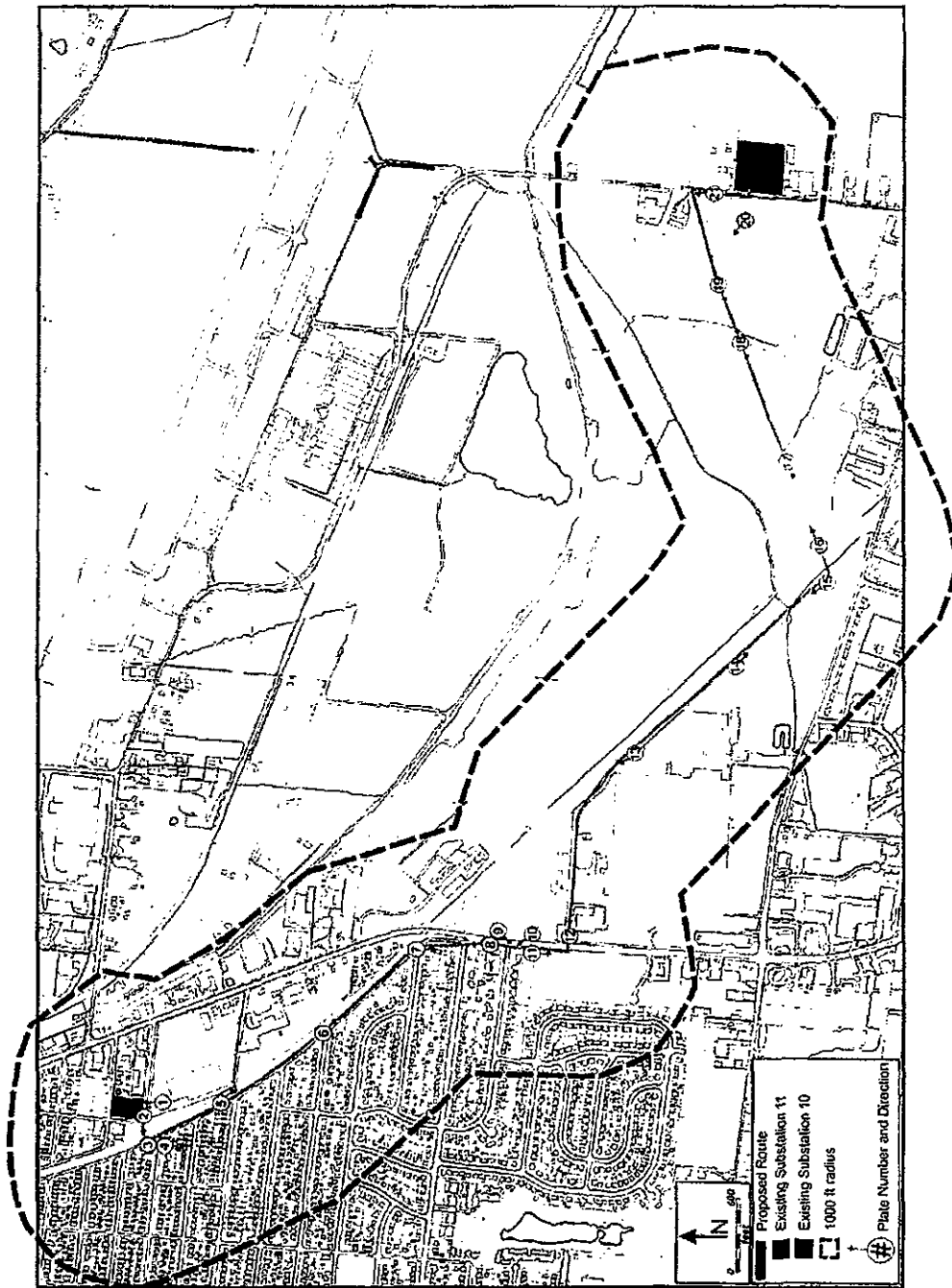


Figure 5. Photo-keyed map of the project area.

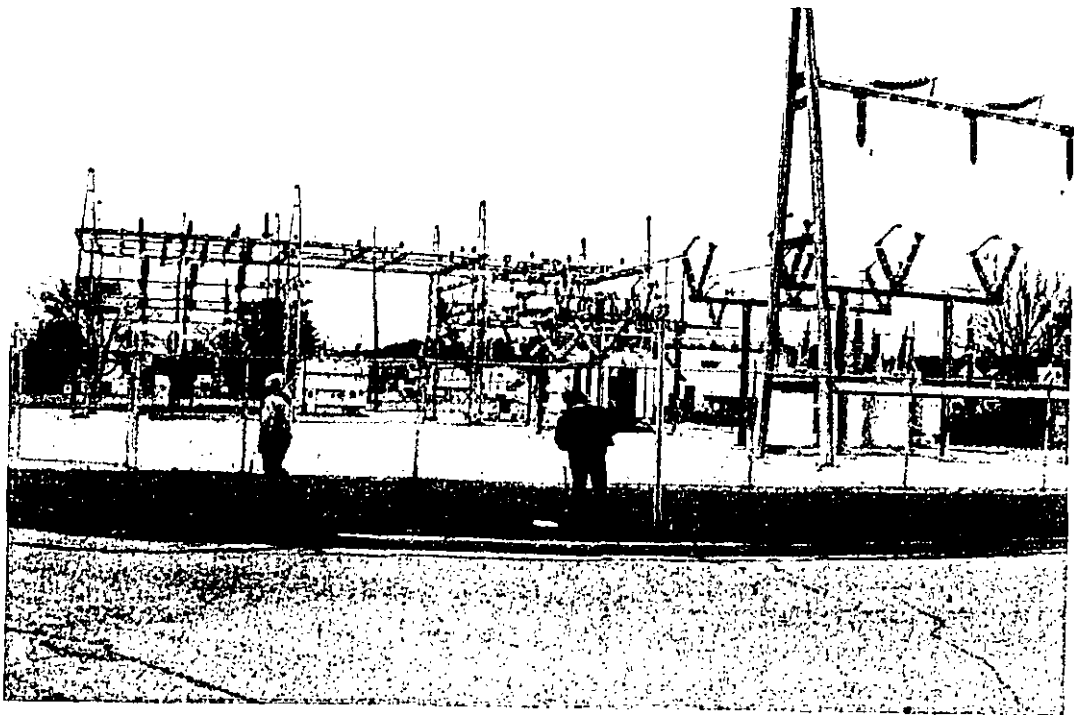


Plate 1. View of Substation 10, facing northeast.



Plate 2. View of commercial property west of Substation 10, facing west.



Plate 3. View of Proposed Route along railroad tracks and Zimmerman Avenue, facing southeast.



Plate 4. View of residential neighborhood west of Proposed Route, facing south.



Plate 5. View of railroad bridge over Corwin Road along Proposed Route, facing southeast.



Plate 6. View of Proposed Route between railroad tracks and Zimmerman Avenue, facing southeast.



Plate 7. View of Proposed Route turning towards Dixie Highway/SR 4, facing south.



Plate 8. View of Proposed Route along Dixie Highway/SR 4, facing north.



Plate 9. View of north and east elevations of BUT-1366-09, facing southwest.



Plate 10. View of east and south elevations of BUT-1366-09, facing northwest.





Plate 11. View of Proposed Route along Dixie Highway/SR 4, facing south.

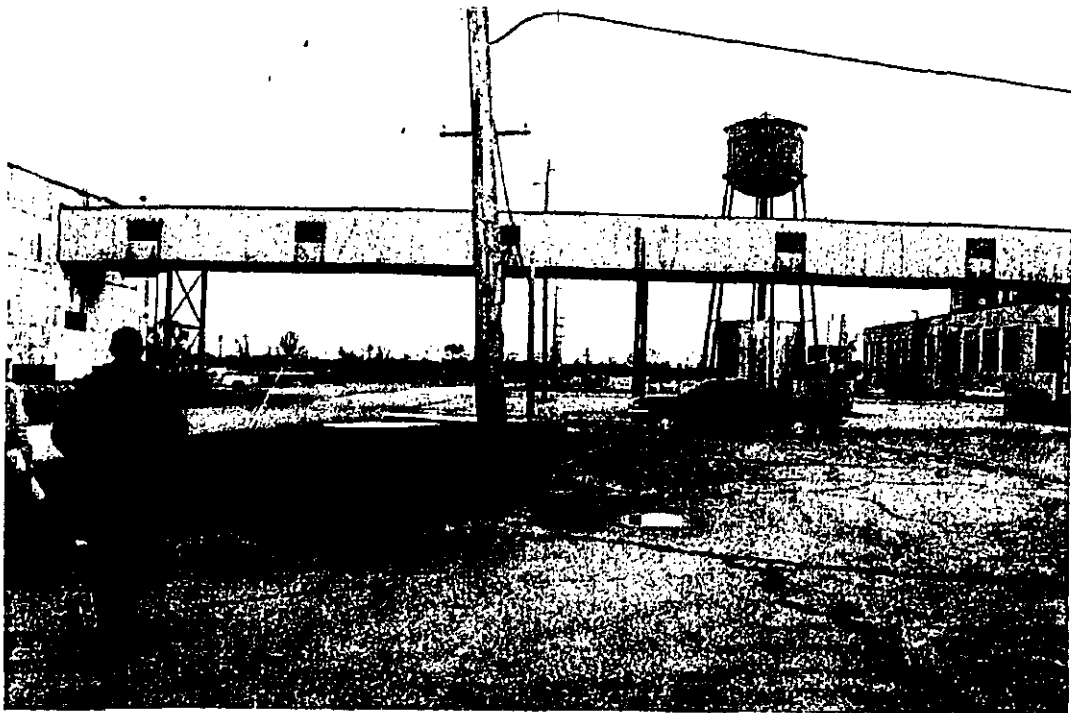


Plate 12. View of Proposed Route through industrial property (BUT-1370-12), facing east.



Plate 13. View of Proposed Route through industrial property (BUT-1370-12), facing northwest.

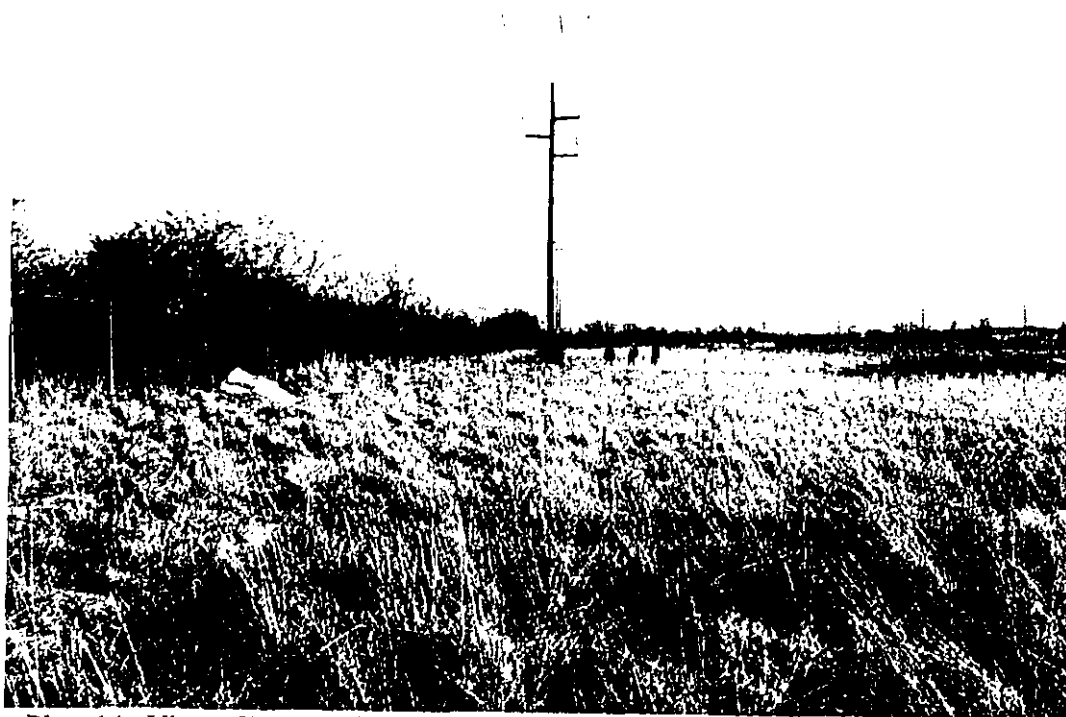


Plate 14. View of Proposed Route through industrial property (BUT-1370-12), facing southeast.



Plate 15. View of Proposed Route, facing northwest.



Plate 16. View of Proposed Route, facing northeast.



Plate 17. View of Proposed Route, facing southwest.



Plate 18. View of Proposed Route, facing southwest.



Plate 19. View of Proposed Route, facing southwest.

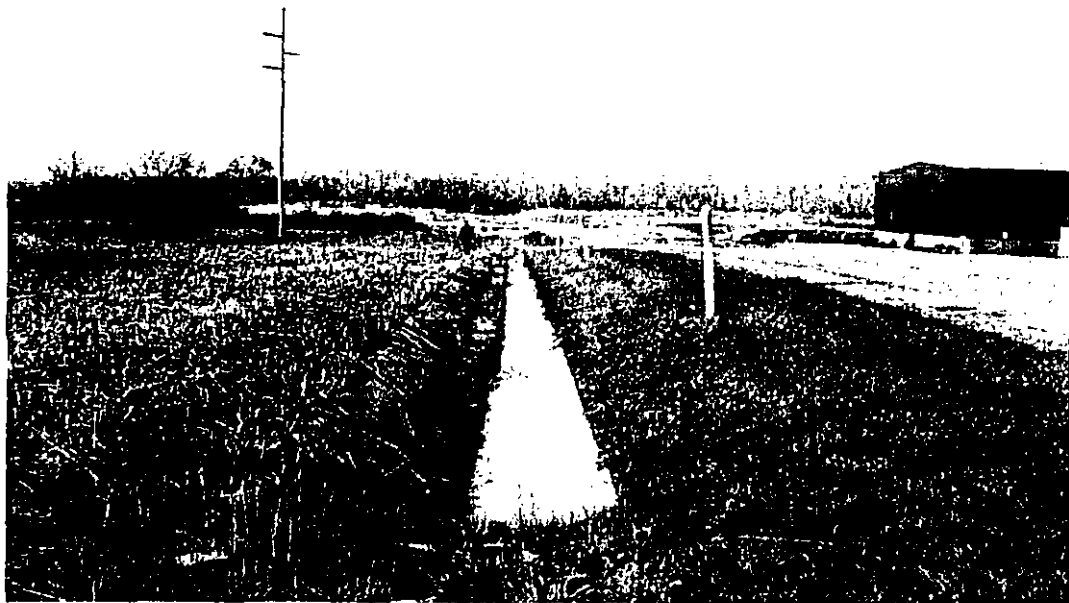


Plate 20. View of Proposed Route along Bohkle Boulevard, facing northwest.

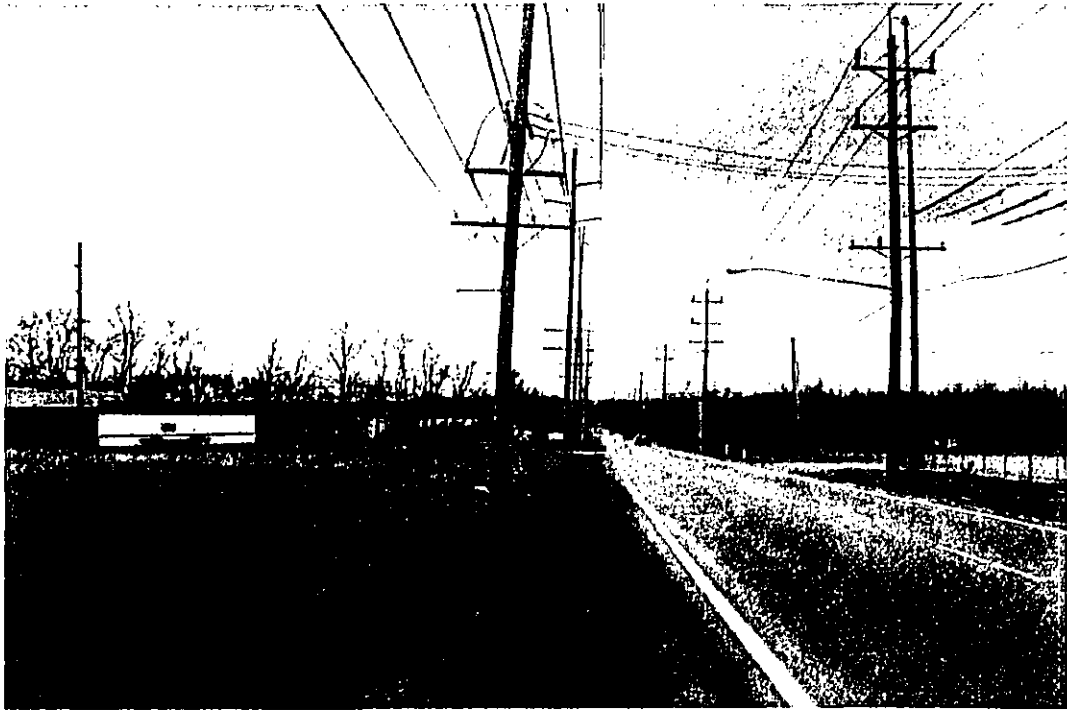


Plate 21. View of Proposed Route along west side of Gilmore Road, facing north.

## **Appendix G**

### **List of Community Leaders and Organizations Contacted about the Project**

[illegible]



[illegible]

[illegible]

[illegible]

## **Appendix H**

### **Sample Project Announcement Letters**

**-----SAMPLE LETTER TO LOCAL GOVERNMENT OFFICIALS-----**

Mr. Ron Porter  
T.I.D.  
315 High Street  
Hamilton, OH 45011

February 23, 2010

Dear Mr. Porter:

In the past several years, the City of Hamilton Electric Department has been in the process of upgrading its electric system. This process will continue through year 2011. Part of the process will involve the construction of a 138-kV transmission circuit from Hamilton Substation No. 11, 8950 Gilmore Rd, to Hamilton Substation No. 10, located at 1235 Hooven Ave, in late 2010 or early 2011.

Hamilton's current generation capability is at 97.6%. Soon, a substantial percentage of city-owned generation assets will be located outside City of Hamilton limits with the completion of the Captain Anthony Meldahl Locks and Dam near Willow Grove, KY. Hamilton will then be importing a significant portion of its total energy through its 138-kV interconnection with Duke Energy at 8950 Gilmore Rd. The proposed transmission circuit from Substation No. 11 to Substation No. 10 will provide much needed capacity for proposed hydroelectric generation from the Captain A. Meldahl Locks and Dam.

This proposed transmission circuit will utilize existing electric transmission and/or distribution routes (please see attached route map). On the map, the proposed transmission circuit is broken out into three segments. Segment A, from Substation No. 11 to Dixie Hwy, is an existing transmission line which the City of Hamilton will be purchasing from Duke Energy. Segment B, from Dixie Hwy to Zimmerman Ave and Huston Rd, is an existing Duke Energy transmission line which Duke will be rebuilding for our joint use. Segment C, north along CSX right-of-way, is an existing City of Hamilton distribution line which will be rebuilt to accommodate our transmission circuit.

With the completion of the generation plant at Meldahl, approximately 70% of Hamilton's electric generation will be green. Hence, this new transmission circuit is a valuable project for Hamilton and the surrounding area. By importing green power, Hamilton's electric customers can rely on safe, adequate and affordable electric for many years to come.

If you have any questions or concerns, please feel free to contact me at 513-785-7208 or [pochardt@ci.hamilton.oh.us](mailto:pochardt@ci.hamilton.oh.us)

Sincerely,

Anthony P. Pochard, P.E.  
Manager of Transmission & Distribution Operations  
City of Hamilton, Electric Department

**-----SAMPLE LETTER TO CITY OF HAMILTON RESIDENTS  
AFFECTED BY THE PROJECT-----**

**Mr. Denver Hatton  
434 Mill Road  
Hamilton, OH 45011**

**February 22, 2010**

**Dear Mr. Hatton:**

**In the past several years, the City of Hamilton Electric Department has been in the process of upgrading its electric system. As this process continues in the fall of 2010 and early in 2011, the City of Hamilton Electric Department will be constructing a 138-kV transmission circuit from Substation No. 10, located at Wulzen & Hooven Avenues, to Substation No. 11, located on Gilmore Rd. This transmission circuit will occupy existing rights-of-way on the west side of Zimmerman Ave, on the west side of Huston Rd and Dixie Hwy. Existing utility poles will be replaced to accommodate the additional circuit.**

**Due to the location of a substantial percentage of city-owned generation assets outside City of Hamilton limits, Hamilton imports a significant portion of its total energy through its 138-kV interconnection with Duke Energy. The new transmission circuit from Substation No. 10 to Substation No. 11 will provide much needed capacity for proposed hydroelectric generation from the Captain Anthony Meldahl Locks and Dam near Willow Grove, Kentucky.**

**This upgrade may require brief interruptions to the electric service of some residents. If electric service interruptions are required, they will occur during normal working hours and will be carefully coordinated to limit the time you will be without service.**

**The City of Hamilton Electric Department will employ a contracting firm to construct the new line. The contractor will be required to clean up and remove all debris, signs, tools and barricades. All areas affected by this upgrade will be restored. Some streets may be temporarily closed for through traffic during construction.**

**You are a valued City of Hamilton Electric customer. We think this is an important project for Hamilton residents as this project will help provide safe, adequate electric for many years to come.**

**If you have any questions, please feel free to contact me at 785-7224 or [mcintire@ci.hamilton.oh.us](mailto:mcintire@ci.hamilton.oh.us).**

**Sincerely,**

**Alan McIntire  
Electric Department  
City of Hamilton, Ohio**

**----SAMPLE LETTER TO CITY OF FAIRFIELD BUSINESSES  
AFFECTED BY THE PROJECT----**

**Mr. Dale R. Cochran  
P.O. Box 15001  
Hamilton, OH 45015-001**

**February 23, 2010**

**Dear Mr. Cochran:**

**In the past several years, the City of Hamilton Electric Department has been in the process of upgrading its electric system. This process will continue through year 2011. Part of the process will involve the purchase of an existing Duke Energy transmission circuit and construction of a 138-kV transmission circuit from Hamilton Substation No. 11, 8950 Gilmore Rd, to Hamilton Substation No. 10, located at 1235 Hooven Ave, in late 2010 or early 2011.**

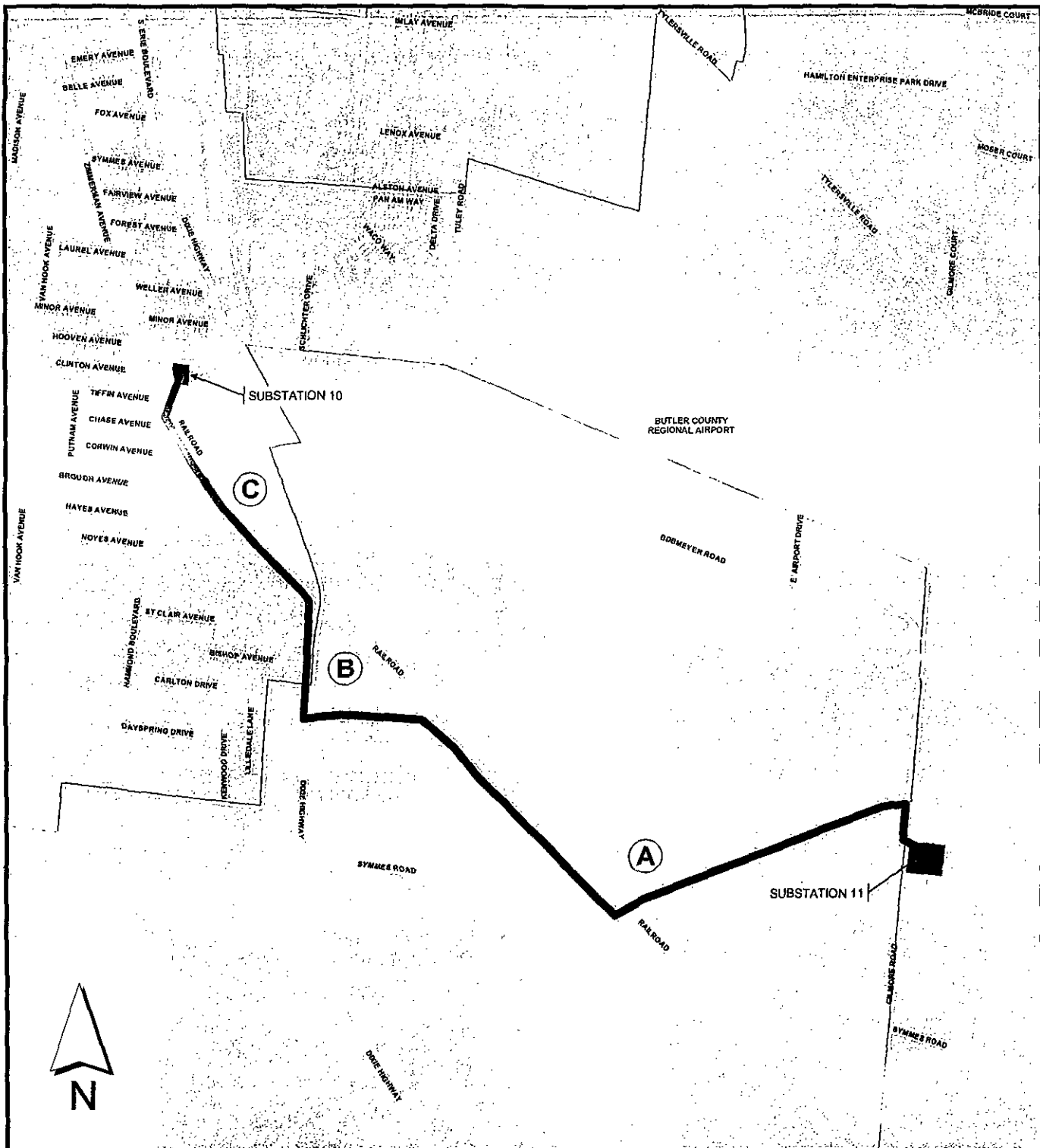
**Due to the location of a substantial percentage of city-owned generation assets outside City of Hamilton limits, Hamilton imports a significant portion of its total energy through its 138-kV interconnection with Duke Energy at 8950 Gilmore Rd. The new transmission circuit from Substation No. 10 to Substation No. 11 will provide much needed capacity for proposed hydroelectric generation from the Captain Anthony Meldahl Locks and Dam near Willow Grove, Kentucky.**

**This proposed transmission circuit will utilize existing electric transmission and/or distribution routes (please see attached route map). On the map, the proposed transmission circuit is broken out into three segments. Segment A, from Substation No. 11 to Dixie Hwy, is an existing transmission line which the City of Hamilton will be purchasing from Duke Energy. Segments B & C, from Dixie Hwy north to Hamilton Substation No. 10, will be a rebuild of existing pole lines.**

**The purchase of Duke Energy's transmission circuit will not affect your service and no interruptions are scheduled. You will continue to receive electric service from the same provider.**

**Sincerely,**

**Alan McIntire  
Electric Department  
City of Hamilton, Ohio**



- 'A' HAMILTON PURCHASE FROM DUKE ENERGY**
- 'B' DUKE ENERGY REBUILD FOR HAMILTON**
- 'C' HAMILTON REBUILD**
- - - HAMILTON / FAIRFIELD CITY BOUNDARY**

## CITY OF HAMILTON! OHIO ELECTRIC ENGINEERING

### ROUTE MAP 138KV 'LONGLINE'

Scale:  
1"=1500'

Date:  
2/24/2010

Drwn By:  
JLM

Revised:

Drawing:  
1 OF 1

0 750 1,500 3,000 4,500 6,000 Feet



**Appendix I**

**Ohio EPA General Storm Water Permit OHC000003**

OHIO E.P.A.

APR 21 2008

WATERED DIRECTOR'S JOURNAL

Page 1 of 40

Ohio EPA Permit No.: OHC000003

Effective Date: April 21, 2008

Expiration Date: April 20, 2013

**OHIO ENVIRONMENTAL PROTECTION AGENCY**

**AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED  
WITH CONSTRUCTION ACTIVITY UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et. seq. hereafter referred to as "the Act") and the Ohio Water Pollution Control Act [Ohio Revised Code ("ORC") Chapter 6111], dischargers of storm water from sites where construction activity is being conducted, as defined in Part I.B of this permit, are authorized by the Ohio Environmental Protection Agency, hereafter referred to as "Ohio EPA," to discharge from the outfalls at the sites and to the receiving surface waters of the State identified in their Notice of Intent ("NOI") application form on file with Ohio EPA in accordance with the conditions specified in Parts I through VII of this permit.

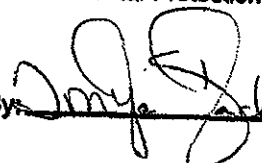
It has been determined that a lowering of water quality of various waters of the State associated with granting coverage under this permit is necessary to accommodate important social and economic development in the state of Ohio. In accordance with OAC 3745-1-05, this decision was reached only after examining a series of technical alternatives, reviewing social and economic issues related to the degradation, and considering all public and intergovernmental comments received concerning the proposal.

This permit is conditioned upon payment of applicable fees, submittal of a complete NOI application form and written approval of coverage from the director of Ohio EPA in accordance with Ohio Administrative Code ("OAC") Rule 3745-38-06.



**Laura H. Powell**  
**Assistant Director**

I certify this to be a true and accurate copy of the  
official documents as filed in the records of the Ohio  
Environmental Protection Agency.

By:  Date: 4-21-08

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**PART I. COVERAGE UNDER THIS PERMIT**

**A. Permit Area.**

This permit covers the entire State of Ohio.

**B. Eligibility.**

1. Construction activities covered. Except for storm water discharges identified under Part I.B.2, this permit may cover all new and existing discharges composed entirely of storm water discharges associated with construction activity that enter surface waters of the State or a storm drain leading to surface waters of the State.

For the purposes of this permit, construction activities include any clearing, grading, excavating, grubbing and/or filling activities that disturb one or more acres of land. Discharges from trench dewatering are also covered by this permit as long as the dewatering activity is carried out in accordance with the practices outlined in Part III.G.2.g.iv of this permit. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

This permit also authorizes storm water discharges from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:

- a. The support activity is directly related to a construction site that is required to have NPDES permit coverage for discharges of storm water associated with construction activity;
- b. The support activity is not a commercial operation serving multiple unrelated construction projects and does not operate beyond the completion of the construction activity at the site it supports;
- c. Appropriate controls and measures are identified in a storm water pollution prevention plan (SWP3) covering the discharges from the support activity; and
- d. The support activity is on or contiguous with the property defined in the NOI (off-site borrow pits and soil disposal areas, which serve only one project, do not have to be contiguous with the construction site);

**Part I.B**

2. Limitations on coverage. The following storm water discharges associated with construction activity are not covered by this permit:
  - a. Storm water discharges that originate from the site after construction activities have been completed, including any temporary support activity, and the site has achieved final stabilization. Industrial post-construction storm water discharges may need to be covered by an NPDES permit;
  - b. Storm water discharges associated with construction activity that the director has shown to be or may reasonably expect to be contributing to a violation of a water quality standard; and
  - c. Storm water discharges authorized by an individual NPDES permit or an alternative NPDES general permit;
3. Waivers. After March 10, 2003, sites whose larger common plan of development or sale have at least one, but less than five acres of land disturbance, which would otherwise require permit coverage for storm water discharges associated with construction activities, may request that the director waive their permit requirement. Entities wishing to request such a waiver must certify in writing that the construction activity meets one of the two waiver conditions:
  - a. **Rainfall erosivity waiver.** For a construction site to qualify for the rainfall erosivity waiver, the cumulative rainfall erosivity over the project duration must be five or less and the site must be stabilized with at least a 70 percent vegetative cover or other permanent, non-erosive cover. The rainfall erosivity must be calculated according to the method in U.S. EPA Fact Sheet 3.1 Construction Rainfall Erosivity Waiver dated January 2001. If it is determined that a construction activity will take place during a time period where the rainfall erosivity factor is less than five, a written waiver certification must be submitted to Ohio EPA at least 21 days before construction activity is scheduled to begin. If the construction activity will extend beyond the dates specified in the waiver certification, the operator must either: (a) recalculate the waiver using the original start date with the new ending date (if the R factor is still less than five, a new waiver certification must be submitted) or (b) submit an NOI application form and fee for coverage under this general permit at least seven days prior to the end of the waiver period (see Attachment A); or

**Part I.B.3**

- b. TMDL (Total Maximum Daily Load) waiver.** Storm water controls are not needed based on a TMDL approved or established by U.S. EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the director of Ohio EPA that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis. A written waiver certification must be submitted to Ohio EPA at least 21 days before the construction activity is scheduled to begin.
- 4. Prohibition on non-storm water discharges.** All discharges covered by this permit must be composed entirely of storm water with the exception of the following: discharges from fire fighting activities; fire hydrant flushings; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water from trench or well point dewatering and foundation or footing drains where flows are not contaminated with process materials such as solvents. Dewatering activities must be done in compliance with Part III.G.2.g.iv of this permit. Discharges of material other than storm water or the authorized non-storm water discharges listed above must comply with an individual NPDES permit or an alternative NPDES general permit issued for the discharge.

Except for flows from fire fighting activities, sources of non-storm water listed above that are combined with storm water discharges associated with construction activity must be identified in the SWP3. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

**Part I.B**

5. Spills and unintended releases (Releases in excess of Reportable Quantities). This permit does not relieve the permittee of the reporting requirements of 40 CFR Part 117 and 40 CFR Part 302. In the event of a spill or other unintended release, the discharge of hazardous substances in the storm water discharge(s) from a construction site must be minimized in accordance with the applicable storm water pollution prevention plan for the construction activity and in no case, during any 24-hour period, may the discharge(s) contain a hazardous substance equal to or in excess of reportable quantities.

40 CFR Part 117 sets forth a determination of the reportable quantity for each substance designated as hazardous in 40 CFR Part 116. The regulation applies to quantities of designated substances equal to or greater than the reportable quantities, when discharged to surface waters of the State. 40 CFR Part 302 designates under section 102(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, those substances in the statutes referred to in section 101(14), identifies reportable quantities for these substances and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act (CWA).

**C. Requiring an individual NPDES permit or an alternative NPDES general permit.**

1. The director may require an alternative permit. The director may require any operator eligible for this permit to apply for and obtain either an individual NPDES permit or coverage under an alternative NPDES general permit in accordance with OAC Rule 3745-38-04. Any interested person may petition the director to take action under this paragraph.

The director will send written notification that an alternative NPDES permit is required. This notice shall include a brief statement of the reasons for this decision, an application form and a statement setting a deadline for the operator to file the application. If an operator fails to submit an application in a timely manner as required by the director under this paragraph, then coverage, if in effect, under this permit is automatically terminated at the end of the day specified for application submittal.

**Part I.C**

2. Operators may request an individual NPDES permit. Any owner or operator eligible for this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner or operator shall submit an individual application with reasons supporting the request to the director in accordance with the requirements of 40 CFR 122.26. If the reasons adequately support the request, the director shall grant it by issuing an individual NPDES permit.
3. When an individual NPDES permit is issued to an owner or operator otherwise subject to this permit or the owner or operator is approved for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of approval for coverage under the alternative general permit, whichever the case may be.

**D. Permit requirements when portions of a site are sold**

If an operator obtains a permit for a development, and then the operator (permittee) sells off lots or parcels within that development, permit coverage must be continued on those lots until a Notice of Termination (NOT) in accordance with Part IV.B is submitted. For developments which require the use of centralized sediment and erosion controls (i.e., controls that address storm water runoff from one or more lots) for which the conveyance of permit coverage for a portion of the development will either prevent or impair the implementation of the controls and therefore jeopardize compliance with the terms and conditions of this permit, the permittee will be required to maintain responsibility for the implementation of those controls. For developments where this is not the case, it is the permittee's responsibility to temporarily stabilize all lots sold to individual lot owners unless an exception is approved in accordance with Part III.G.4. In cases where permit coverage for individual lot(s) will be conveyed, the permittee shall inform, in writing, the individual lot owner of the obligations under this permit and ensure that the Individual Lot NOI application is submitted to Ohio EPA.

**E. Authorization**

1. Obtaining authorization to discharge. Operators that discharge storm water associated with construction activity must submit an NOI application form in accordance with the requirements of Part II of this permit to obtain authorization to discharge under this general permit. As required under OAC Rule 3745-38-06(E), the director, in response to the NOI submission, shall notify the applicant in writing that he/she has been granted general permit coverage to discharge storm water associated with construction activity under the terms and conditions of this permit or that the applicant must apply for an individual NPDES permit or coverage under an alternate general NPDES permit as described in Part I.C.1.



**Part I.E**

2. No release from other requirements. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations. Other permit requirements commonly associated with construction activities include, but are not limited to, section 401 water quality certifications, isolated wetland permits, permits to install sanitary sewers or other devices that discharge or convey polluted water, permits to install drinking water lines, single lot sanitary system permits and disturbance of land which was used to operate a solid or hazardous waste facility (i.e., coverage under this NPDES general permit does not satisfy the requirements of OAC Rule 3745-27-13 or ORC Section 3734.02(H)). This permit does not relieve the permittee of other responsibilities associated with construction activities such as contacting the Ohio Department of Natural Resources, Division of Water, to ensure proper well installation and abandonment of wells.

**Part II. NOTICE OF INTENT REQUIREMENTS**

**A. Deadlines for notification.**

Initial coverage: Operators who intend to obtain initial coverage for a storm water discharge associated with construction activity under this general permit must submit a complete and accurate NOI application form and appropriate fee at least 21 days prior to the commencement of construction activity. If more than one operator, as defined in Part VII of this general permit, will be engaged at a site, each operator shall seek coverage under this general permit. Where one operator has already submitted an NOI prior to other operator(s) being identified, the additional operator shall request modification of coverage to become a co-permittee. In such instances, the co-permittees shall be covered under the same facility permit number. No additional permit fee is required.

Individual lot transfer of coverage: Operators must each submit an individual lot notice of intent (Individual Lot NOI) application form (no fee required) to Ohio EPA at least seven days prior to the date that they intend to accept responsibility for permit requirements for their portion of the original permitted development from the previous permittee. The original permittee may submit an Individual Lot NOT at the time the Individual Lot NOI is submitted. Transfer of permit coverage is not granted until an approval letter from the director of Ohio EPA is received by the applicant.

**B. Failure to notify.**

Operators who fail to notify the director of their intent to be covered and who discharge pollutants to surface waters of the State without an NPDES permit are in violation of ORC Chapter 6111. In such instances, Ohio EPA may bring an enforcement action for any discharges of storm water associated with construction activity.

**Part II**

**C. Where to submit an NOI.**

Operators seeking coverage under this permit must submit a signed NOI form, provided by Ohio EPA, to the address found in the associated instructions.

**D. Additional notification.**

The permittee shall make NOIs and SWP3s available upon request of the director of Ohio EPA, local agencies approving sediment and erosion control plans, grading plans or storm water management plans, local governmental officials, or operators of municipal separate storm sewer systems (MS4s) receiving drainage from the permitted site. Each operator that discharges to an NPDES permitted MS4 shall provide a copy of its Ohio EPA NOI submission to the MS4 in accordance with the MS4's requirements, if applicable.

**E. Renotification.**

Upon renewal of this general permit, the permittee is required to notify the director of his intent to be covered by the general permit renewal. Permittees covered under the previous NPDES general permits for storm water discharges associated with construction activity (NPDES permit numbers OHR100000 and OHC000002) shall have continuing coverage under this permit. The permittees covered under OHR100000 or OHC000002 shall submit a letter within 90 days of receipt of written notification by Ohio EPA expressing their intent that coverage be continued. There is no fee associated with these letters of intent for continued coverage. Permit coverage will be terminated after the 90-day period if the letter is not received by Ohio EPA. Ohio EPA will provide instructions on the contents of the letter and where it is to be sent within the notification letter.

### **PART III. STORM WATER POLLUTION PREVENTION PLAN (SWP3)**

#### **A. Storm Water Pollution Prevention Plans.**

A SWP3 shall be developed for each site covered by this permit. For a multi-phase construction project, a separate NOI shall be submitted when a separate SWP3 will be prepared for subsequent phases. SWP3s shall be prepared in accordance with sound engineering and/or conservation practices by a professional experienced in the design and implementation of standard erosion and sediment controls and storm water management practices addressing all phases of construction. The SWP3 shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with construction activities. The SWP3 shall be a comprehensive, stand-alone document, which is not complete unless it contains the information required by Part III.G of this permit. In addition, the SWP3 shall describe and ensure the implementation of best management practices (BMPs) that reduce the pollutants in storm water discharges during construction and pollutants associated with post-construction activities to ensure compliance with ORC Section 6111.04, OAC Chapter 3745-1 and the terms and conditions of this permit.

#### **B. Timing**

A SWP3 shall be completed prior to the timely submittal of an NOI and updated in accordance with Part III.D. Upon request and good cause shown, the director may waive the requirement to have a SWP3 completed at the time of NOI submission. If a waiver has been granted, the SWP3 must be completed prior to the initiation of construction activities. The SWP3 must be implemented upon initiation of construction activities.

Permittees continuing coverage from the previous generations of this permit (OHR100000 and OHC000002) that have initiated construction activity prior to the receipt of the first written notification from Ohio EPA to submit a letter of intent to continue coverage, as required in Part II.E, are not required to update their SWP3 as a result of this renewal (OHC000003). Permittees continuing coverage from the previous generations of this permit (OHR100000 and OHC000002) that have not initiated construction activity prior to the receipt of the first written notification from Ohio EPA to submit a letter of intent to continue coverage, as required in Part II.E, are required to update their SWP3 as a result of this renewal (OHC000003).

#### **C. SWP3 Signature and Review.**

1. Plan Signature and Retention On Site. The SWP3 shall include the certification in Part V.H., be signed in accordance with Part V.G., and be retained on site during working hours.

**Part III.C**

**2. Plan Availability**

- a. On-site: The plan shall be made available immediately upon request of the director or his authorized representative during working hours. A copy of the NOI and letter granting permit coverage under this general permit also shall be made available at the site.
  - b. By written request: The permittee must provide a copy of the SWP3 within 10 days upon written request by any of the following:
    - i. The director or the director's authorized representative;
    - ii. A local agency approving sediment and erosion plans, grading plans or storm water management plans; or
    - iii. In the case of a storm water discharge associated with construction activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the operator of the system.
  - c. To the public: All NOIs, general permit approval for coverage letters, and SWP3s are considered reports that shall be available to the public in accordance with the Ohio Public Records law. The permittee shall make documents available to the public upon request or provide a copy at public expense, at cost, in a timely manner. However, the permittee may claim to Ohio EPA any portion of an SWP3 as confidential in accordance with Ohio law.
3. Plan Revision. The director or authorized representative, may notify the permittee at any time that the SWP3 does not meet one or more of the minimum requirements of this part. Within 10 days after such notification from the director (or as otherwise provided in the notification) or authorized representative, the permittee shall make the required changes to the SWP3 and, if requested, shall submit to Ohio EPA the revised SWP3 or a written certification that the requested changes have been made.

**D. Amendments**

The permittee shall amend the SWP3 whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the State or if the SWP3 proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity. Amendments to the SWP3 may be reviewed by Ohio EPA in the same manner as Part III.C.

**Part III**

**E. Duty to inform contractors and subcontractors**

The permittee shall inform all contractors and subcontractors not otherwise defined as "operators" in Part VII of this general permit, who will be involved in the implementation of the SWP3, of the terms and conditions of this general permit. The permittee shall maintain a written document containing the signatures of all contractors and subcontractors involved in the implementation of the SWP3 as proof acknowledging that they reviewed and understand the conditions and responsibilities of the SWP3. The written document shall be created and signatures of each individual contractor shall be obtained prior to their commencement of work on the construction site.

**F. Total Maximum Daily Load (TMDL) allocations**

If a TMDL is approved for any waterbody into which the permittee's site discharges and requires specific BMPs for construction sites, the director may require the permittee to revise his/her SWP3.

**G. SWP3 Requirements**

Operations that discharge storm water from construction activities are subject to the following requirements and the SWP3 shall include the following items:

1. Site description. Each SWP3 shall provide:
  - a. A description of the nature and type of the construction activity (e.g., low density residential, shopping mall, highway, etc.);
  - b. Total area of the site and the area of the site that is expected to be disturbed (i.e., grubbing, clearing, excavation, filling or grading, including off-site borrow areas);
  - c. An estimate of the impervious area and percent imperviousness created by the construction activity;
  - d. A calculation of the runoff coefficients for both the pre-construction and post construction site conditions;
  - e. Existing data describing the soil and, if available, the quality of any discharge from the site;
  - f. A description of prior land uses at the site;

**Part III.G.1**

- g. An implementation schedule which describes the sequence of major construction operations (i.e., grubbing, excavating, grading, utilities and infrastructure installation) and the implementation of erosion, sediment and storm water management practices or facilities to be employed during each operation of the sequence;
- h. The name and/or location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s) and the areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project. For discharges to an MS4, the point of discharge to the MS4 and the location where the MS4 ultimately discharges to a stream or surface water of the State must be indicated;
- i. For subdivided developments where the SWP3 does not call for a centralized sediment control capable of controlling multiple individual lots, a detail drawing of a typical individual lot showing standard individual lot erosion and sediment control practices.

This does not remove the responsibility to designate specific erosion and sediment control practices in the SWP3 for critical areas such as steep slopes, stream banks, drainage ways and riparian zones.

- j. Location and description of any storm water discharges associated with dedicated asphalt and dedicated concrete plants covered by this permit and the best management practices to address pollutants in these storm water discharges;
- k. A copy of the permit requirements (attaching a copy of this permit is acceptable);
- l. A cover page or title identifying the name and location of the site, the name and contact information of all construction site operators, the name and contact information for the person responsible for authorizing and amending the SWP3, preparation date, and the estimated dates that construction will start and be complete;
- m. A log documenting grading and stabilization activities as well as amendments to the SWP3, which occur after construction activities commence; and
- n. Site map showing:

**Part III.G.1.n**

- i. Limits of earth-disturbing activity of the site including associated off-site borrow or spoil areas that are not addressed by a separate NOI and associated SWP3;
- ii. Soils types should be depicted for all areas of the site, including locations of unstable or highly erodible soils;
- iii. Existing and proposed contours. A delineation of drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres;
- iv. Surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA;
- v. Existing and planned locations of buildings, roads, parking facilities and utilities;
- vi. The location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during the course of site development;
- vii. Sediment and storm water management basins noting their sediment settling volume and contributing drainage area;
- viii. Permanent storm water management practices to be used to control pollutants in storm water after construction operations have been completed.
- ix. Areas designated for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle fueling;
- x. The location of designated construction entrances where the vehicles will access the construction site;
- xi. The location of any in-stream activities including stream crossings;

**Part III.G**

2. **Controls.** The SWP3 must contain a description of the controls appropriate for each construction operation covered by this permit and the operator(s) must implement such controls. The SWP3 must clearly describe for each major construction activity identified in Part III.G.1.g: (a) appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented; and (b) which contractor is responsible for implementation (e.g., contractor A will clear land and install perimeter controls and contractor B will maintain perimeter controls until final stabilization). The SWP3 shall identify the subcontractors engaged in activities that could impact storm water runoff. The SWP3 shall contain signatures from all of the identified subcontractors indicating that they have been informed and understand their roles and responsibilities in complying with the SWP3. Ohio EPA recommends that the primary site operator review the SWP3 with the primary contractor prior to commencement of construction activities and keep a SWP3 training log to demonstrate that this review has occurred.

Ohio EPA recommends that the erosion, sediment, and storm water management practices used to satisfy the conditions of this permit should meet the standards and specifications in the current edition of Ohio's Rainwater and Land Development (see definitions) manual or other standards acceptable to Ohio EPA. The controls shall include the following minimum components:

- a. **Non-Structural Preservation Methods.** The SWP3 must make use of practices which preserve the existing natural condition as much as feasible. Such practices may include: preserving riparian areas adjacent to surface waters of the State, preserving existing vegetation and vegetative buffer strips, phasing of construction operations in order to minimize the amount of disturbed land at any one time and designation of tree preservation areas or other protective clearing or grubbing practices. The recommended buffer that operators should leave undisturbed along a surface water of the State is 25 feet as measured from the ordinary high water mark of the surface water.
- b. **Erosion Control Practices.** The SWP3 must make use of erosion controls that are capable of providing cover over disturbed soils unless an exception is approved in accordance with Part III.G.4. A description of control practices designed to restabilize disturbed areas after grading or construction shall be included in the SWP3. The SWP3 must provide specifications for stabilization of all disturbed areas of the site and provide guidance as to which method of stabilization will be employed for any time of the year. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.



**Part III.G.2.b**

- i. **Stabilization.** Disturbed areas must be stabilized as specified in the following tables below. Permanent and temporary stabilization are defined in Part VII.

**Table 1: Permanent Stabilization**

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the State and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

**Table 2: Temporary Stabilization**

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a surface water of the State and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 21 days
For all construction activities, any disturbed areas that will be dormant for more than 21 days but less than one year, and not within 50 feet of a surface water of the State	Within seven days of the most recent disturbance within the area  For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed.

- ii. **Permanent stabilization of conveyance channels.** Operators shall undertake special measures to stabilize channels and outfalls and prevent erosive flows. Measures may include seeding, dormant seeding (as defined in the current edition of the Rainwater and Land Development manual), mulching, erosion control matting, sodding, riprap, natural channel design with bioengineering techniques or rock check dams.

**Part III.G.2**

- c. **Runoff Control Practices.** The SWP3 shall incorporate measures which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may include rock check dams, pipe slope drains, diversions to direct flow away from exposed soils and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable. Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.
- d. **Sediment Control Practices.** The plan shall include a description of structural practices that shall store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjunction with a sediment settling pond.

The SWP3 must contain detail drawings for all structural practices.

- i. Timing. Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.
- ii. Sediment settling ponds. A sediment settling pond is required for any one of the following conditions:
- concentrated storm water runoff (e.g., storm sewer or ditch);
  - runoff from drainage areas, which exceed the design capacity of silt fence or other sediment barriers;
  - runoff from drainage areas that exceed the design capacity of inlet protection; or
  - runoff from common drainage locations with 10 or more acres of disturbed land.

**Part III.G.2.d.ii**

The permittee may request approval from Ohio EPA to use alternative controls if the permittee can demonstrate the alternative controls are equivalent in effectiveness to a sediment settling pond.

The sediment settling pond volume consists of both a dewatering zone and a sediment storage zone. The volume of the dewatering zone shall be a minimum of 1800 cubic feet (ft<sup>3</sup>) per acre of drainage (67 yd<sup>3</sup>/acre) with a minimum 48-hour drain time for sediment basins serving a drainage area over 5 acres. The volume of the sediment storage zone shall be calculated by one of the following methods: Method 1: The volume of the sediment storage zone shall be 1000 ft<sup>3</sup> per disturbed acre within the watershed of the basin. OR Method 2: The volume of the sediment storage zone shall be the volume necessary to store the sediment as calculated with RUSLE or a similar generally accepted erosion prediction model. The accumulated sediment shall be removed from the sediment storage zone once it's full. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment-laden runoff. The depth of the dewatering zone must be less than or equal to five feet. The configuration between inlets and the outlet of the basin must provide at least two units of length for each one unit of width (> 2:1 length:width ratio), however, a length to width ratio of 4:1 is recommended. When designing sediment settling ponds, the permittee must consider public safety, especially as it relates to children, as a design factor for the sediment basin and alternative sediment controls must be used where site limitations would preclude a safe design. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal is encouraged.

- iii. Silt Fence and Diversions. Sheet flow runoff from denuded areas shall be intercepted by silt fence or diversions to protect adjacent properties and water resources from sediment transported via sheet flow. Where intended to provide sediment control, silt fence shall be placed on a level contour downslope of the disturbed area. This permit does not preclude the use of other sediment barriers designed to control sheet flow runoff. The relationship between the maximum drainage area to silt fence for a particular slope range is shown in the table below.

Part III.G.2.d.iii

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

Placing silt fence in a parallel series does not extend the size of the drainage area. Storm water diversion practices shall be used to keep runoff away from disturbed areas and steep slopes where practicable. Such devices, which include swales, dikes or berms, may receive storm water runoff from areas up to 10 acres.

- iv. Inlet Protection. Other erosion and sediment control practices shall minimize sediment laden water entering active storm drain systems, unless the storm drain system drains to a sediment settling pond. All inlets receiving runoff from drainage areas of one or more acres will require a sediment settling pond.
- v. Surface Waters of the State Protection. If construction activities disturb areas adjacent to surface waters of the State, structural practices shall be designed and implemented on site to protect all adjacent surface waters of the State from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling pond) shall be used in a surface water of the State. For all construction activities immediately adjacent to surface waters of the State, it is recommended that a setback of at least 25-feet, as measured from the ordinary high water mark of the surface water, be maintained in its natural state as a permanent buffer. Where impacts within this setback area are unavoidable due to the nature of the construction activity (e.g., stream crossings for roads or utilities), the project shall be designed such that the number of stream crossings and the width of the disturbance within the setback area are minimized.
- vi. Modifying Controls. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee must replace or modify the control for site conditions.

**Part III.G.2**

- e. **Post-Construction Storm Water Management Requirements.** So that the receiving stream's physical, chemical, and biological characteristics are protected and stream functions are maintained, post-construction storm water practices shall provide perpetual management of runoff quality and quantity. To meet the post-construction requirements of this permit, the SWP3 must contain a description of the post-construction BMPs that will be installed during construction for the site and the rationale for their selection. The rationale must address the anticipated impacts on the channel and floodplain morphology, hydrology, and water quality. Post-construction BMPs cannot be installed within a surface water of the State (e.g., wetland or stream) unless it's authorized by a CWA 401 water quality certification, CWA 404 permit, or Ohio EPA non-jurisdictional wetland/stream program approval. Note: localities may have more stringent post-construction requirements.

Detail drawings and maintenance plans must be provided for all post-construction BMPs. Maintenance plans shall be provided by the permittee to the post-construction operator of the site (including homeowner associations) upon completion of construction activities (prior to termination of permit coverage). For sites located within a community with a regulated municipal separate storm sewer system (MS4), the permittee, land owner, or other entity with legal control of the property may be required to develop and implement a maintenance plan to comply with the requirements of the MS4. Maintenance plans must ensure that pollutants collected within structural post-construction practices, be disposed of in accordance with local, state, and federal regulations. To ensure that storm water management systems function as they were designed and constructed, the post construction operation and maintenance plan must be a stand-alone document, which contains: (1) a designated entity for storm water inspection and maintenance responsibilities; (2) the routine and non-routine maintenance tasks to be undertaken; (3) a schedule for inspection and maintenance; (4) any necessary legally binding maintenance easements and agreements; and (5) a map showing all access and maintenance easements. Permittees are not responsible under this permit for operation and maintenance of post-construction practices once coverage under this permit is terminated.

Post-construction storm water BMPs that discharge pollutants from point sources once construction is completed, may in themselves, need authorization under a separate NPDES permit (one example is storm water discharges from regulated industrial sites).

**Part III.G.2.e**

Construction activities that do not include the installation of any impervious surface (e.g., soccer fields), abandoned mine land reclamation activities regulated by the Ohio Department of Natural Resources, stream and wetland restoration activities, and wetland mitigation activities are not required to comply with the conditions of Part III.G.2.e of this permit. Linear construction projects, (e.g., pipeline or utility line installation), which do not result in the installation of additional impervious surface, are not required to comply with the conditions of Part III.G.2.e of this permit. However, linear construction projects must be designed to minimize the number of stream crossings and the width of disturbance and achieve final stabilization of the disturbed area as defined in Part VII.H.1.

Large Construction Activities. For all large construction activities (involving the disturbance of five or more acres of land or will disturb less than five acres, but is a part of a larger common plan of development or sale which will disturb five or more acres of land), the post construction BMP(s) chosen must be able to detain storm water runoff for protection of the stream channels, stream erosion control, and improved water quality. The BMP(s) chosen must be compatible with site and soil conditions. Structural (designed) post-construction storm water treatment practices shall be incorporated into the permanent drainage system for the site. The BMP(s) chosen must be sized to treat the water quality volume (WQv) and ensure compliance with Ohio's Water Quality Standards in OAC Chapter 3745-1. The WQv shall be equivalent to the volume of runoff from a 0.75-inch rainfall and shall be determined according to the following equation:

$$WQv = C * P * A / 12$$

where:

WQv = water quality volume in acre-feet

C = runoff coefficient appropriate for storms less than 1 inch

(Either use the following formula:  $C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04$ , where  $i$  = fraction of post-construction impervious surface or use Table 1)

P = 0.75 inch precipitation depth

A = area draining into the BMP in acres

Part III.G.2.e

**Table 1**  
**Runoff Coefficients Based on the Type of Land Use**

Land Use	Runoff Coefficient
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/acre)	0.5
Medium Density Residential (4 to 8 dwellings/acre)	0.4
Low Density Residential (<4 dwellings/acre)	0.3
Open Space and Recreational Areas	0.2

Where the land use will be mixed, the runoff coefficient should be calculated using a weighted average. For example, if 60% of the contributing drainage area to the storm water treatment structure is Low Density Residential, 30% is High Density Residential, and 10% is Open Space, the runoff coefficient is calculated as follows  $(0.6)(0.3) + (0.3)(0.5) + (0.1)(0.2) = 0.35$ .

An additional volume equal to 20 percent of the WQv shall be incorporated into the BMP for sediment storage. Ohio EPA recommends that BMPs be designed according to the methodology included in the Rainwater and Land Development manual or in another design manual acceptable for use by Ohio EPA.

The BMPs listed in Table 2 below shall be considered standard BMPs approved for general use. However communities with a regulated MS4 may limit the use of some of these BMPs. BMPs shall be designed such that the drain time is long enough to provide treatment, but short enough to provide storage for successive rainfall events and avoid the creation of nuisance conditions. The outlet structure for the post-construction BMP must not discharge more than the first half of the WQv or extended detention volume (EDv) in less than one-third of the drain time. The EDv is the volume of storm water runoff that must be detained by a structural post-construction BMP. The EDv is equal to 75 percent of the WQv for wet extended detention basins, but is equal to the WQv for all other BMPs listed in Table 2.

Part III.G.2.e

**Table 2**  
**Structural Post-Construction BMPs & Associated Drain (Drawdown) Times**

Best Management Practice	Drain Time of WQv
Infiltration Basin <sup>^</sup>	24 - 48 hours
Enhanced Water Quality Swale	24 hours
Dry Extended Detention Basin <sup>*</sup>	48 hours
Wet Extended Detention Basin <sup>**</sup>	24 hours
Constructed Wetland (above permanent pool) <sup>+</sup>	24 hours
Sand & Other Media Filtration	40 hours
Bioretention Cell <sup>^</sup>	40 hours
Pocket Wetland <sup>#</sup>	24 hours
Vegetated Filter Strip	24 hours

\* Dry basins must include forebay and micropool each sized at 10% of the WQv

\*\* Provide both a permanent pool and an EDv above the permanent pool, each sized at 0.75

\* WQv

+ Extended detention shall be provided for the full WQv above the permanent water pool.

<sup>^</sup> The WQv shall completely infiltrate within 48 hours so there is no standing or residual water in the BMP.

<sup>#</sup> Pocket wetlands must have a wet pool equal to the WQv, with 25% of the WQv in a pool and 75% in marshes. The EDv above the permanent pool must be equal to the WQv.

The permittee may request approval from Ohio EPA to use alternative post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Table 2 above. Construction activities shall be exempt from this condition if it can be demonstrated that the WQv is provided within an existing structural post-construction BMP that is part of a larger common plan of development or if structural post-construction BMPs are addressed in a regional or local storm water management plan. A municipally operated regional storm water BMP can be used as a post-construction BMP provided that the BMP can detain the WQv from its entire drainage area and release it over a 24 hour period.

Transportation Projects The construction of new roads and roadway improvement projects by public entities (i.e., the state, counties, townships, cities, or villages) may implement post-construction BMPs in compliance with the current version (as of the effective date of this permit) of the Ohio Department of Transportation's "Location and Design Manual, Volume Two Drainage Design" that has been accepted by Ohio EPA as an alternative to the conditions of this permit.



**Part III.G.2.e**

Offsite Mitigation of Post-Construction Ohio EPA may authorize the offsite mitigation of the post-construction requirements of Part III.G.2.e of this permit on a case by case basis provided the permittee clearly demonstrates the BMPs listed in Table 2 are not feasible and the following criteria is met: (1) a maintenance agreement or policy is established to ensure operations and treatment in perpetuity; (2) the offsite location discharges to the same HUC-14 watershed unit; and (3) the mitigation ratio of the WQv is 1.5 to 1 or the WQv at the point of retrofit, whichever is greater. Requests for offsite mitigation must be received prior to receipt of the NOI applications.

Redevelopment Projects Sites that have been previously developed where no post-construction BMPs were installed shall either ensure a 20 percent net reduction of the site impervious area, provide for treatment of at least 20 percent of the WQv, or a combination of the two. A one-for-one credit towards the 20 percent net reduction of impervious area can be obtained through the use of pervious pavement and/or green roofs. Where projects are a combination of new development and redevelopment, the total WQv that must be treated shall be calculated by a weighted average based on acreage, with the new development at 100 percent WQv and redevelopment at 20 percent WQv.

Non-Structural Post-Construction BMPs The size of the structural post-construction can be reduced by incorporating non-structural post-construction BMPs into the design. Practices such as preserving open space will reduce the runoff coefficient and, thus, the WQv. Ohio EPA encourages the implementation of riparian and wetland setbacks. Practices which reduce storm water runoff include permeable pavements, green roofs, rain barrels, conservation development, smart growth, low-impact development, and other site design techniques contained in the Ohio Lake Commission's Balanced Growth Program (see [www.glc.org/landuse/ohroundtable/ohiobgi.html](http://www.glc.org/landuse/ohroundtable/ohiobgi.html)). In order to promote the implementation of such practices, the Director may consider the use of non-structural practices to demonstrate compliance with Part III.G.2.e of this permit for areas of the site not draining into a common drainage system of the site, i.e., sheet flow from perimeter areas such as the rear yards of residential lots, for low density development scenarios, or where the permittee can demonstrate that the intent of pollutant removal and stream protection, as required in Part III.G.2.e of this permit is being addressed through non-structural post-construction BMPs based upon review and approval by Ohio EPA.

**Part III.G.2.e**

Use of Alternative Post-Construction BMPs This permit does not preclude the use of innovative or experimental post-construction storm water management technologies. However, the Director may require these practices to be tested using the protocol outlined in the Technology Acceptance Reciprocity Partnership's (TARP) Protocol for Stormwater Best Management Practice Demonstrations (see <http://www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp>).

The Director may require discharges from such structures to be monitored to ensure compliance with Part III.G.2.e of this permit. Permittees must request approval from Ohio EPA to use alternative post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Table 2 above. To demonstrate this equivalency, the permittee must show that the alternative BMP has a minimum total suspended solids (TSS) removal efficiency of 80 percent. Also, the WQv discharge rate from the practice must be reduced to prevent stream bed erosion and protect the physical and biological stream integrity unless there will be negligible hydrological impact to the receiving surface water of the State. The discharges will have a negligible impact if the permittee can demonstrate that one of the following four conditions exist:

- i. The entire WQv is recharged to groundwater;
- ii. The larger common plan of development or sale will create less than one acre of impervious surface;
- iii. The project is a redevelopment project within an ultra-urban setting (i.e., a downtown area or on a site where 100 percent of the project area is already impervious surface and the storm water discharge is directed into an existing storm sewer system); or
- iv. The storm water drainage system of the development discharges directly into a large river (fourth order or greater) or to a lake and where the development area is less than 5 percent of the watershed area upstream of the development site, unless a TMDL identified water quality problems in the receiving surface waters of the State.

**Part III.G.2.e**

The Director shall only consider the use of alternative BMPs on projects where the permittee can demonstrate that the implementation of the BMPs listed in Table 2 is infeasible due to physical site constraints that prevent the ability to provide functional BMP design. Alternative practices may include, but are not limited to, underground detention structures, vegetated swales and vegetated filter strips designed using water quality flow, natural depressions, rain barrels, permeable pavements green roofs, rain gardens, catch basin inserts, and hydrodynamics separators. The Director may also consider non-structural post-construction approaches where no local requirement for such practices exist.

Small Construction Activities. For all small land disturbance activities (which disturb one or more, but less than five acres of land and is not a part of a larger common plan of development or sale which will disturb five or more acres of land), a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed must be included in the SWP3. Structural measures should be placed on upland soils to the degree attainable. Such practices may include, but are not limited to: storm water detention structures (including wet basins); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The SWP3 shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed pre-development levels.

- f. **Surface Water Protection.** If the project site contains any streams, rivers, lakes, wetlands or other surface waters, certain construction activities at the site may be regulated under the CWA and/or state non-jurisdictional stream and wetland requirements. Sections 404 and 401 of the Act regulate the discharge of dredged or fill material into surface waters and the impacts of such activities on water quality, respectively. Construction activities in surface waters which may be subject to CWA regulation and/or state requirements include, but are not limited to: sewer line crossings, grading, backfilling or culverting streams, filling wetlands, road and utility line construction, bridge installation and installation of flow control structures. If the project contains streams, rivers, lakes or wetlands or possible wetlands, the permittee must contact the appropriate U.S. Army Corps of Engineers District Office. (CAUTION: Any area of seasonally wet hydric soil is a potential wetland - please consult the Soil Survey and list of hydric soils for your County, available at your county's Soil and Water Conservation District. If you have any questions about Section 401 water quality certification, please contact the Ohio Environmental Protection Agency, Section 401 Coordinator.)

**Part III.G.2.f**

U.S. Army Corps of Engineers (Section 404 regulation):  
Huntington, WV District (304) 399-5210 (Muskingum River, Hocking River, Scioto River, Little Miami River, and Great Miami River Basins)  
Buffalo, NY District (716) 879-4191 (Lake Erie Basin)  
Pittsburgh, PA District (412) 395-7154 (Mahoning River Basin)  
Louisville, KY District (502) 315-6733 (Ohio River)

Ohio EPA 401/404 and non-jurisdictional stream/wetland coordinator can be contacted at (614) 644-2001 (all of Ohio)

Concentrated storm water runoff from BMPs to natural wetlands shall be converted to diffuse flow before the runoff enters the wetlands. The flow should be released such that no erosion occurs downslope. Level spreaders may need to be placed in series, particularly on steep sloped sites, to ensure non-erosive velocities. Other structural BMPs may be used between storm water features and natural wetlands, in order to protect the natural hydrology, hydroperiod, and wetland flora. If the applicant proposes to discharge to natural wetlands, a hydrologic analysis shall be performed. The applicant shall attempt to match the pre-development hydroperiods and hydrodynamics that support the wetland. The applicant shall assess whether their construction activity will adversely impact the hydrologic flora and fauna of the wetland. Practices such as vegetative buffers, infiltration basins, conservation of forest cover, and the preservation of intermittent streams, depressions, and drainage corridors may be used to maintain wetland hydrology.

- g. **Other controls.** The SWP3 must also provide BMPs for pollutant sources other than sediment. Non-sediment pollutant sources, which may be present on a construction site, include paving operations, concrete washout, structure painting, structure cleaning, demolition debris disposal, drilling and blasting operations, material storage, slag, solid waste, hazardous waste, contaminated soils, sanitary and septic wastes, vehicle fueling and maintenance activities, and landscaping operations.
  - i. **Non-Sediment Pollutant Controls.** No solid or liquid waste, including building materials, shall be discharged in storm water runoff. The permittee must implement all necessary BMPs to prevent the discharge of non-sediment pollutants to the drainage system of the site or surface waters of the State. Under no circumstance shall concrete trucks wash out directly into a drainage channel, storm sewer or surface waters of the State. No exposure of storm water to waste materials is recommended.
  - ii. **Off-site traffic.** Off-site vehicle tracking of sediments and dust generation shall be minimized.

**Part III.G.2.g**

- iii. **Compliance with other requirements.** The SWP3 shall be consistent with applicable State and/or local waste disposal, sanitary sewer or septic system regulations, including provisions prohibiting waste disposal by open burning and shall provide for the proper disposal of contaminated soils to the extent these are located within the permitted area.
- iv. **Trench and ground water control.** There shall be no turbid discharges to surface waters of the State resulting from dewatering activities. If trench or ground water contains sediment, it must pass through a sediment settling pond or other equally effective sediment control device, prior to being discharged from the construction site. Alternatively, sediment may be removed by settling in place or by dewatering into a sump pit, filter bag or comparable practice. Ground water dewatering which does not contain sediment or other pollutants is not required to be treated prior to discharge. However, care must be taken when discharging ground water to ensure that it does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.
- v. **Contaminated Sediment.** Where construction activities are to occur on sites with contamination from previous activities, operators must be aware that concentrations of materials that meet other criteria (is not considered a Hazardous Waste, meeting VAP standards, etc.) may still result in storm water discharges in excess of Ohio Water Quality Standards. Such discharges are not authorized by this permit. Appropriate BMPs include, but are not limited to:
  - The use of berms, trenches, and pits to collect contaminated runoff and prevent discharges;
  - Pumping runoff into a sanitary sewer (with prior approval of the sanitary sewer operator) or into a container for transport to an appropriate treatment/disposal facility; and
  - Covering areas of contamination with tarps or other methods that prevent storm water from coming into contact with the material.

Operators should consult with Ohio EPA Division of Surface Water prior to seeking permit coverage.

- h. **Maintenance.** All temporary and permanent control practices shall be maintained and repaired as needed to ensure continued performance of their intended function. All sediment control practices must be maintained in a functional condition until all up slope areas they control are permanently stabilized. The SWP3 shall be designed to minimize maintenance requirements. The applicant shall provide a description of maintenance procedures needed to ensure the continued performance of control practices.

**Part III.G.2**

- i. **Inspections.** At a minimum, procedures in an SWP3 shall provide that all controls on the site are inspected at least once every seven calendar days and within 24 hours after any storm event greater than one-half inch of rain per 24 hour period. The inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized or runoff is unlikely due to weather conditions (e.g., site is covered with snow, ice, or the ground is frozen). A waiver of inspection requirements is available until one month before thawing conditions are expected to result in a discharge if all of the following conditions are met: the project is located in an area where frozen conditions are anticipated to continue for extended periods of time (i.e., more than one month); land disturbance activities have been suspended; and the beginning and ending dates of the waiver period are documented in the SWP3. Once a definable area has been finally stabilized, you may mark this on your SWP3 and no further inspection requirements apply to that portion of the site. The permittee shall assign "qualified inspection personnel" to conduct these inspections to ensure that the control practices are functional and to evaluate whether the SWP3 is adequate and properly implemented in accordance with the schedule proposed in Part III.G.1.g of this permit or whether additional control measures are required.

Following each inspection, a checklist must be completed and signed by the qualified inspection personnel representative. At a minimum, the inspection report must include:

- i. the inspection date;
- ii. names, titles, and qualifications of personnel making the inspection;
- iii. weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
- iv. weather information and a description of any discharges occurring at the time of the inspection;
- v. location(s) of discharges of sediment or other pollutants from the site;
- vi. location(s) of BMPs that need to be maintained;
- vii. location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- viii. location(s) where additional BMPs are needed that did not exist at the time of inspection; and
- ix. corrective action required including any changes to the SWP3 necessary and implementation dates.

**Part III.G.2.i**

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for pollutants entering the drainage system. Erosion and sediment control measures identified in the SWP3 shall be observed to ensure that those are operating correctly. Discharge locations shall be inspected to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to the receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking.

The permittee shall maintain for three years following the submittal of a notice of termination form, a record summarizing the results of the inspection, names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3 and a certification as to whether the facility is in compliance with the SWP3 and the permit and identify any incidents of non-compliance. The record and certification shall be signed in accordance with Part V.G. of this permit.

- i. **When practices require repair or maintenance.** If the inspection reveals that a control practice is in need of repair or maintenance, with the exception of a sediment settling pond, it must be repaired or maintained within three days of the inspection. Sediment settling ponds must be repaired or maintained within 10 days of the inspection.
- ii. **When practices fail to provide their intended function.** If the inspection reveals that a control practice fails to perform its intended function and that another, more appropriate control practice is required, the SWP3 must be amended and the new control practice must be installed within 10 days of the inspection.
- iii. **When practices depicted on the SWP3 are not installed.** If the inspection reveals that a control practice has not been implemented in accordance with the schedule contained in Part III.G.1.g of this permit, the control practice must be implemented within 10 days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record must contain a statement of explanation as to why the control practice is not needed.

**Part III.G**

3. **Approved State or local plans.** All dischargers regulated under this general permit must comply, except those exempted under state law, with the lawful requirements of municipalities, counties and other local agencies regarding discharges of storm water from construction activities. All erosion and sediment control plans and storm water management plans approved by local officials shall be retained with the SWP3 prepared in accordance with this permit. Applicable requirements for erosion and sediment control and storm water management approved by local officials are, upon submittal of a NOI form, incorporated by reference and enforceable under this permit even if they are not specifically included in an SWP3 required under this permit. When the project is located within the jurisdiction of a regulated municipal separate storm sewer system (MS4), the permittee must certify that the SWP3 complies with the requirements of the storm water management program of the MS4 operator.
4. **Exceptions.** If specific site conditions prohibit the implementation of any of the erosion and sediment control practices contained in this permit or site specific conditions are such that implementation of any erosion and sediment control practices contained in this permit will result in no environmental benefit, then the permittee shall provide justification for rejecting each practice based on site conditions. Exceptions from implementing the erosion and sediment control standards contained in this permit will be approved or denied on a case-by-case basis.

The permittee may request approval from Ohio EPA to use alternative methods to satisfy conditions in this permit if the permittee can demonstrate that the alternative methods are sufficient to protect the overall integrity of receiving streams and the watershed. Alternative methods will be approved or denied on a case-by-case basis.

**PART IV. NOTICE OF TERMINATION REQUIREMENTS**

**A. Failure to notify.**

The terms and conditions of this permit shall remain in effect until a signed Notice of Termination (NOT) form is submitted. Failure to submit an NOT constitutes a violation of this permit and may affect the ability of the permittee to obtain general permit coverage in the future.

**B. When to submit an NOT**

1. Permittees wishing to terminate coverage under this permit must submit an NOT form in accordance with Part V.G. of this permit. Compliance with this permit is required until an NOT form is submitted. The permittee's authorization to discharge under this permit terminates at midnight of the day the NOT form is



**Part IV.B**

submitted. Prior to submitting the NOT form, the permittee shall conduct a site inspection in accordance with Part III.G.2.i of this permit and have a maintenance agreement in place to ensure all post-construction BMPs will be maintained in perpetuity.

2. All permittees must submit an NOT form within 45 days of completing all permitted land disturbance activities. Enforcement actions may be taken if a permittee submits an NOT form without meeting one or more of the following conditions:
  - a. Final stabilization (see definition in Part VII) has been achieved on all portions of the site for which the permittee is responsible (including, if applicable, returning agricultural land to its pre-construction agricultural use);
  - b. Another operator(s) has assumed control over all areas of the site that have not been finally stabilized;
  - c. For residential construction only, temporary stabilization has been completed and the lot, which includes a home, has been transferred to the homeowner. (Note: individual lots without housing which are sold by the developer must undergo final stabilization prior to termination of permit coverage.); or
  - d. An exception has been granted under Part III.G.4.

**C. How to submit an NOT**

Permittees must use Ohio EPA's approved NOT form. The form must be completed and mailed according to the instructions and signed in accordance with Part V.G of this permit.

**PART V. STANDARD PERMIT CONDITIONS.**

**A. Duty to comply.**

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of ORC Chapter 6111. and is grounds for enforcement action.
2. Ohio law imposes penalties and fines for persons who knowingly make false statements or knowingly swear or affirm the truth of a false statement previously made.

**B. Continuation of an expired general permit.**

An expired general permit continues in force and effect until a new general permit is issued.

**Part V**

**C. Need to halt or reduce activity not a defense.**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

**D. Duty to mitigate.**

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

**E. Duty to provide information.**

The permittee shall furnish to the director, within 10 days of written request, any information which the director may request to determine compliance with this permit. The permittee shall also furnish to the director upon request copies of records required to be kept by this permit.

**F. Other information.**

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI, SWP3, NOT or in any other report to the director, he or she shall promptly submit such facts or information.

**G. Signatory requirements.**

All NOIs, NOTs, SWP3s, reports, certifications or information either submitted to the director or that this permit requires to be maintained by the permittee, shall be signed.

1. These items shall be signed as follows:

- a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
  - i. A president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision-making functions for the corporation; or

**Part V.G.1.a**

- ii. The manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
  - b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or
  - c. For a municipality, State, Federal or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).
2. All reports required by the permits and other information requested by the director shall be signed by a person described in Part V.G.1 of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- a. The authorization is made in writing by a person described in Part V.G.1 of this permit and submitted to the director;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator of a well or well field, superintendent, position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
  - c. The written authorization is submitted to the director.

**Part V.G**

3. Changes to authorization. If an authorization under Part V.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part V.G.2 of this permit must be submitted to the director prior to or together with any reports, information or applications to be signed by an authorized representative.

**H. Certification.**

Any person signing documents under this section shall make the following certification:

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

**I. Oil and hazardous substance liability.**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the CWA or 40 CFR Part 112. 40 CFR Part 112 establishes procedures, methods and equipment and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable surface waters of the State or adjoining shorelines.

**J. Property rights.**

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

**K. Severability.**

The provisions of this permit are severable and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

**Part V**

**L. Transfers.**

Ohio NPDES general permit coverage is transferable. Ohio EPA must be notified in writing sixty days prior to any proposed transfer of coverage under an Ohio NPDES general permit. The transferee must inform Ohio EPA it will assume the responsibilities of the original permittee transferor.

**M. Environmental laws.**

No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

**N. Proper operation and maintenance.**

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWP3s. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

**O. Inspection and entry.**

The permittee shall allow the director or an authorized representative of Ohio EPA, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

**PART VI. REOPENER CLAUSE**

**A.** If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with construction activity covered by this permit, the permittee of such discharge may be required to obtain coverage under an individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements.

**B.** Permit modification or revocation will be conducted according to ORC Chapter 6111.

**PART VII. DEFINITIONS**

- A. "Act" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117 and Pub. L. 100-4, 33 U.S.C. 1251 et. seq.
- B. "Best management practices (BMPs)" means schedules of activities, prohibitions of practices, maintenance procedures and other management practices (both structural and non-structural) to prevent or reduce the pollution of surface waters of the State. BMP's also include treatment requirements, operating procedures and practices to control plant and/or construction site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage.
- C. "Commencement of construction" means the initial disturbance of soils associated with clearing, grubbing, grading, placement of fill or excavating activities or other construction activities.
- D. "Concentrated storm water runoff" means any storm water runoff which flows through a drainage pipe, ditch, diversion or other discrete conveyance channel.
- E. "Director" means the director of the Ohio Environmental Protection Agency.
- F. "Discharge" means the addition of any pollutant to the surface waters of the State from a point source.
- G. "Disturbance" means any clearing, grading, excavating, filling, or other alteration of land surface where natural or man-made cover is destroyed in a manner that exposes the underlying soils.
- H. "Final stabilization" means that either:
  - 1. All soil disturbing activities at the site are complete and a uniform perennial vegetative cover (e.g., evenly distributed, without large bare areas) with a density of at least 70 percent cover for the area has been established on all unpaved areas and areas not covered by permanent structures or equivalent stabilization measures (such as the use of landscape mulches, rip-rap, gabions or geotextiles) have been employed. In addition, all temporary erosion and sediment control practices are removed and disposed of and all trapped sediment is permanently stabilized to prevent further erosion; or
  - 2. For individual lots in residential construction by either:
    - a. The homebuilder completing final stabilization as specified above or

**Part VII.H.2**

- b. The homebuilder establishing temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for and benefits of, final stabilization. (Homeowners typically have an incentive to put in the landscaping functionally equivalent to final stabilization as quick as possible to keep mud out of their homes and off sidewalks and driveways.); or
- 3. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were previously used for agricultural activities, such as buffer strips immediately adjacent to surface waters of the State and which are not being returned to their pre-construction agricultural use, must meet the final stabilization criteria in (1) or (2) above.
- I. "Individual Lot NOI" means a Notice of Intent for an individual lot to be covered by this permit (see parts I and II of this permit).
- J. "Larger common plan of development or sale"- means a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
- K. "MS4" means municipal separate storm sewer system which means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains) that are:
  - 1. Owned or operated by the federal government, state, municipality, township, county, district(s) or other public body (created by or pursuant to state or federal law) including special district under state law such as a sewer district, flood control district or drainage districts or similar entity or a designated and approved management agency under section 208 of the act that discharges into surface waters of the State; and
  - 2. Designed or used for collecting or conveying solely storm water,
  - 3. Which is not a combined sewer and
  - 4. Which is not a part of a publicly owned treatment works.
- L. "National Pollutant Discharge Elimination System (NPDES)" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits and enforcing pretreatment requirements, under sections 307, 402, 318 and 405 of the CWA. The term includes an "approved program."

**Part VII**

- M. "NOI" means notice of intent to be covered by this permit.
- N. "NOT" means notice of termination.
- O. "Operator" means any party associated with a construction project that meets either of the following two criteria:
1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
  2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with an SWP3 for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

As set forth in Part II.A, there can be more than one operator at a site and under these circumstances, the operators shall be co-permittees.

- P. "Owner or operator" means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.
- Q. "Permanent stabilization" means the establishment of permanent vegetation, decorative landscape mulching, matting, sod, rip rap and landscaping techniques to provide permanent erosion control on areas where construction operations are complete or where no further disturbance is expected for at least one year.
- R. "Percent imperviousness" means the impervious area created divided by the total area of the project site.
- S. "Point source" means any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or the floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
- T. "Qualified inspection personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls, who possesses the skills to assess all conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.



**Part VII**

- U. "Rainwater and Land Development" is a manual describing construction and post-construction best management practices and associated specifications. A copy of the manual may be obtained by contacting the Ohio Department of Natural Resources, Division of Soil & Water Conservation.
- V. "Riparian area" means the transition area between flowing water and terrestrial (land) ecosystems composed of trees, shrubs and surrounding vegetation which serve to stabilize erodible soil, improve both surface and ground water quality, increase stream shading and enhance wildlife habitat.
- W. "Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.
- X. "Sediment settling pond" means a sediment trap, sediment basin or permanent basin that has been temporarily modified for sediment control, as described in the latest edition of the Rainwater and Land Development manual.
- Y. "State isolated wetland permit requirements" means the requirements set forth in Sections 6111.02 through 6111.029 of the ORC.
- Z. "Storm water" means storm water runoff, snow melt and surface runoff and drainage.
- AA. "Surface waters of the State" or "water bodies" means all streams, lakes, reservoirs, ponds, marshes, wetlands or other waterways which are situated wholly or partially within the boundaries of the state, except those private waters which do not combine or effect a junction with natural surface or underground waters. Waters defined as sewerage systems, treatment works or disposal systems in Section 6111.01 of the ORC are not included.
- BB. "SWP3" means storm water pollution prevention plan.
- CC. "Temporary stabilization" means the establishment of temporary vegetation, mulching, geotextiles, sod, preservation of existing vegetation and other techniques capable of quickly establishing cover over disturbed areas to provide erosion control between construction operations.
- DD. "Water Quality Volume (WQ<sub>v</sub>)" means the volume of storm water runoff which must be captured and treated prior to discharge from the developed site after construction is complete. WQ<sub>v</sub> is based on the expected runoff generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of runoff events captured begins to occur.

**Attachment A**  
**to**  
**Ohio EPA General Permit OHC000003**

U.S. EPA Fact Sheet 3.1  
Storm Water Phase II Final Rule  
Construction Rainfall Erosivity Waiver



# Storm Water Phase II Final Rule

## Construction Rainfall Erosivity Waiver

### Storm Water Phase II Final Rule Fact Sheet Series

#### Overview

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Proposed Rule Overview

#### Small MS4 Program

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Program Overview

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and Waivers of Regulated Small  
MS4s

2.2 – Urbanized Areas: Definition  
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#### Minimum Control Measures

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and Elimination

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Control

2.7 – Post-Construction Runoff  
Control

2.8 – Pollution Prevention/Good  
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2.9 – Permitting and Reporting:  
The Process and Requirements

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Overview

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#### Industrial "No Exposure"

4.0 – Conditional No Exposure  
Exclusion for Industrial Activity

The 1972 amendments to the Federal Water Pollution Control Act, later referred to as the Clean Water Act (CWA), prohibit the discharge of any pollutant to navigable waters of the United States unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Because construction site storm water runoff can contribute significantly to water quality problems, the Phase I Storm Water Rule imposed a requirement that all construction sites with a planned land disturbance of 5 acres or more obtain an NPDES permit and implement storm water runoff control plans. Phase II extends the requirements of the storm water program to sites of between 1 and 5 acres. The Rainfall erosivity waiver, along with the water quality waiver, allows permitting authorities to waive those sites that do not have adverse water quality impacts.

#### What is Erosivity?

Erosivity is the term used to describe the potential for soil to wash off disturbed, devegetated earth into waterways during storms. The potential for erosion is in part determined by the soil type and geology of the site. For instance, dense, clay-like soils on a glacial plain will erode less readily when it rains than will sandy soils on the side of a hill. Another important factor is the amount and force of precipitation expected during the time the earth will be exposed. While it is impossible to predict the weather several months in advance of construction, for many areas of the country, there are definite optimal periods, such as a dry season when rain tends to fall less frequently and with less force. When feasible, this is the time to disturb the earth, so that the site is stabilized by the time the seasonal wet weather returns. There are many other important factors to consider in determining erosivity, such as freeze/thaw cycles and snow pack.

#### How Is Site Erosivity Determined?

The method for determining if a site qualifies for the erosivity waiver is based on the Universal Soil Loss Equation (USLE) developed by the U.S. Department of Agriculture (USDA) in the 1950s to help farmers conserve their valuable topsoil. The USLE has been updated to the Revised USLE (RUSLE). Using a computer model supported by decades worth of soil and rainfall data, USDA established estimates of annual erosivity values (R) for sites throughout the country. These R factors are used as surrogate measures of the impact that rainfall had on erosion from a particular site. They have been mapped using isoelement contours, as shown in Figures 2 through 5.

USDA developed the Erosivity Index Table (EI Table, provided here in Table 1), to show how the annual erosivity factor is distributed throughout the year in two-week increments. Table 1 is based on 120 rainfall distribution zones for the continental U.S. Detailed instructions for calculating a project R Factor are provided later in this fact sheet.

The Storm Water Phase II rule allows permitting authorities to waive NPDES requirements for small construction sites if the value of the rainfall erosivity factor is less than 5 during the period of construction activity (see § 122.26(b)(15)(i)(A)). Note that the permitting authority has the option to not allow waivers for small construction activity. If the permitting authority in a State chooses to use the rainfall erosivity waiver, it will not become effective until permits are required from small construction activity.

If the R Factor for the period of construction calculates to 5 or lower, and the permitting authority allows the use of the waiver, the site owner may apply for a waiver under the low rainfall erosivity provision of the applicable NPDES Construction General Permit. When applying, owners are encouraged to consider other site-specific factors, such as proximity to water resources and the sensitivity of receiving waters to sedimentation impacts. The small construction operator must certify to the permitting authority that the construction activity will take place during a period when the rainfall erosivity factor is less than 5.

The start and end dates used for the construction activity will be the initial date of disturbance and the anticipated date when the site will have achieved final stabilization as defined by the permit. If the construction continues beyond this period, the operator will need to recalculate the EI for the site based on this new ending date (but keeping the old start date) and either resubmit the certification form or apply for NPDES permit coverage.

### What Other Factors Can Affect Waiver Availability and Eligibility?

EPA has established the R Factor of 5 or lower as the criteria for determining waiver eligibility. However, since the intent is to waive only those construction activities that will not adversely impact water quality, State and Tribal permitting authorities have considerable discretion in determining where, when, and how to offer it. They can establish an R Factor threshold lower than 5, or they can suspend the waiver within an area where watersheds are known to be heavily impacted by, or sensitive to, sedimentation. They can also suspend the waiver during certain periods of the year. They may opt not to offer the waiver at all. NOTE: This waiver is not available to sites that will disturb more than 5 acres of land (large construction).

### What if My Site Is Not Eligible?

If your site is not eligible for a waiver, you must submit a Notice of Intent under the NPDES General Permit, and comply with its requirements. These requirements are described in more detail in Storm Water Phase II Fact Sheet 3.0.

### How Do I Compute the R Factor for My Project?

1. Estimate the construction start date. This is the day you expect to begin disturbing soils, including grubbing, stockpiling, excavating, and grading activities. Pick the 15-day period for your start date (e.g., June 1-15.)
2. Estimate the day you expect to have a permanent vegetative cover of at least 70%, or as defined by your permitting authority, over all previous disturbed areas. Round to the nearest 15-day period.

3. Refer to Figure 1 to find your Erosivity Index (EI) Zone based on your geographic location.
4. Refer to Table 1, the Erosivity Index (EI) Table. Find the number of your EI Zone in the left column. Locate the EI values for the 15-day periods that correspond to the project start and end periods you identified in Steps 1 and 2. Subtract the start value from the end value to find the % EI for your site. The maximum annual EI value for a project is 100%.
5. Refer to the appropriate Isoerodent Map (Figures 2 through 5). Interpolate the annual isoerodent value for your area. This is the annual R Factor for your site.
6. Multiply the percent value obtained in Step 4 by the annual isoerodent value obtained in Step 5. This is the R Factor for your scheduled project.

### Examples

#### 1. Construction started and completed in one calendar year.

*Find the R value of a construction site in Denver, Colorado. Assume the site will be disturbed from March 1 to May 15.*

The EI distribution zone is 84 (Figure 1). Referring to Table 1, the project period will span from March 1 to May 15. The difference in values between these two periods is 4.7% ( $4.9 - 0.2 = 4.7$ ). Since the annual erosion index for this location is about 45 (interpolated from Figure 2), the R Factor for the scheduled construction project is 4.7% of 45, or 2.1.

Because 2.1 is less than 5, the operator of this site would be able to seek a waiver under the low rainfall erosivity provision.

#### 2. Construction spanning two calendar years.

*Find the R value for a construction site in Pittsburgh, Pennsylvania. Assume the site will be disturbed from August 1 to April 15.*

The EI distribution zone is 111 (Figure 1). Referring to Table 1, the project will span from August 1 to April 15. The difference in values between August 1 and December 30 is 35% ( $100 - 65.0 = 35.0$ ). The difference between January 1 and April 15 is 8%. The total percentage EI for this project is 43% ( $35 + 8$ ). Since the annual erosion index for this location is 112 (interpolated from Figure 2), the R Factor for the scheduled construction is 43% of 112, or 48.

Since 48 is greater than 5, the operator of this site would not be able to seek a waiver under the low rainfall erosivity provision.

## Can I Use A Personal Computer to Calculate the R Factor?

The computer program used by USDA to develop the current R Factor maps and table is called the Revised Universal Soil Loss Equation, or RUSLE. The current version of RUSLE (v. 1.60) will calculate the R factor for the entire year for a limited number of cities in the U.S., but does not allow the R factor to be easily adjusted based on a shorter period of construction. If you are interested in using RUSLE; Version 1.06 for Mined Lands, Construction Sites, and Reclaimed Lands, is downloadable free of charge from the Internet at <http://www.sedlab.olemiss.edu/rusle>.

## Where Can I Get Help?

- A copy of "Chapter 2, Rainfall-Runoff Erosivity Factor (R)" from the *USDA Handbook 703 - Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)*, January 1997, is available on EPA's web site at <http://www.epa.gov/owm/sw/>.
- Your local soil conservation district office can provide assistance with R Factors and other conservation-related issues. To find the office nearest you, look in the government section of the phone book under soil conservation district, conservation district, natural resource conservation district, etc.

## For Additional Information

### Reference Documents

- Storm Water Phase II Final Rule Fact Sheet Series
  - Internet: [www.epa.gov/owm/sw/phase2](http://www.epa.gov/owm/sw/phase2)
- Storm Water Phase II Final Rule (64 FR 68722)
  - Internet: [www.epa.gov/owm/sw/phase2](http://www.epa.gov/owm/sw/phase2)
  - Contact the U.S. EPA Water Resource Center
    - S Phone: 202 260-7786
    - S E-mail: [center.water-resource@epa.gov](mailto:center.water-resource@epa.gov)
- *Agricultural Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)*, Chapter 2, pp. 21-64, January 1997.
  - Internet: [www.epa.gov/owm/sw/phase2](http://www.epa.gov/owm/sw/phase2)

Figure 1. Erosivity Index Zone Map

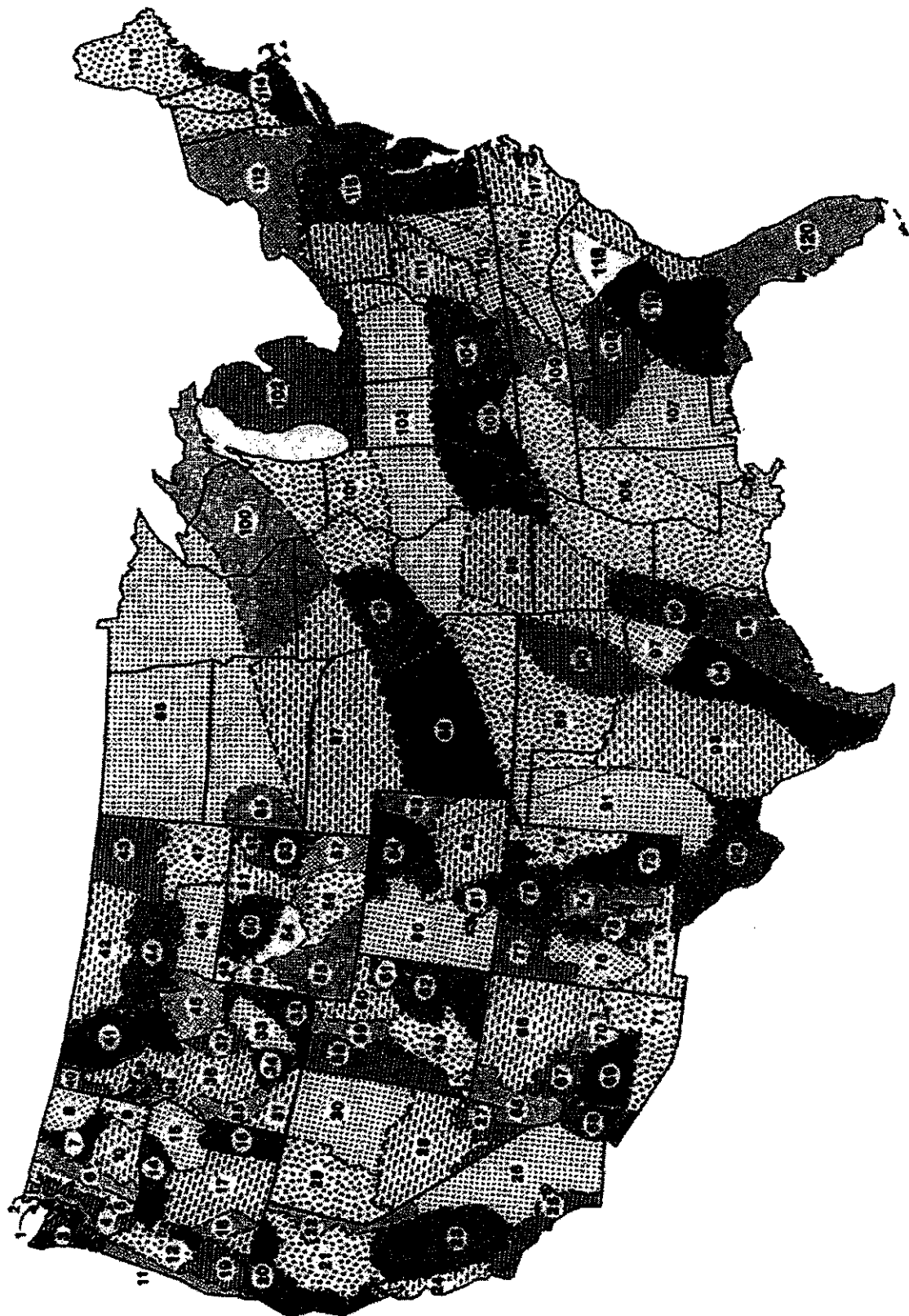
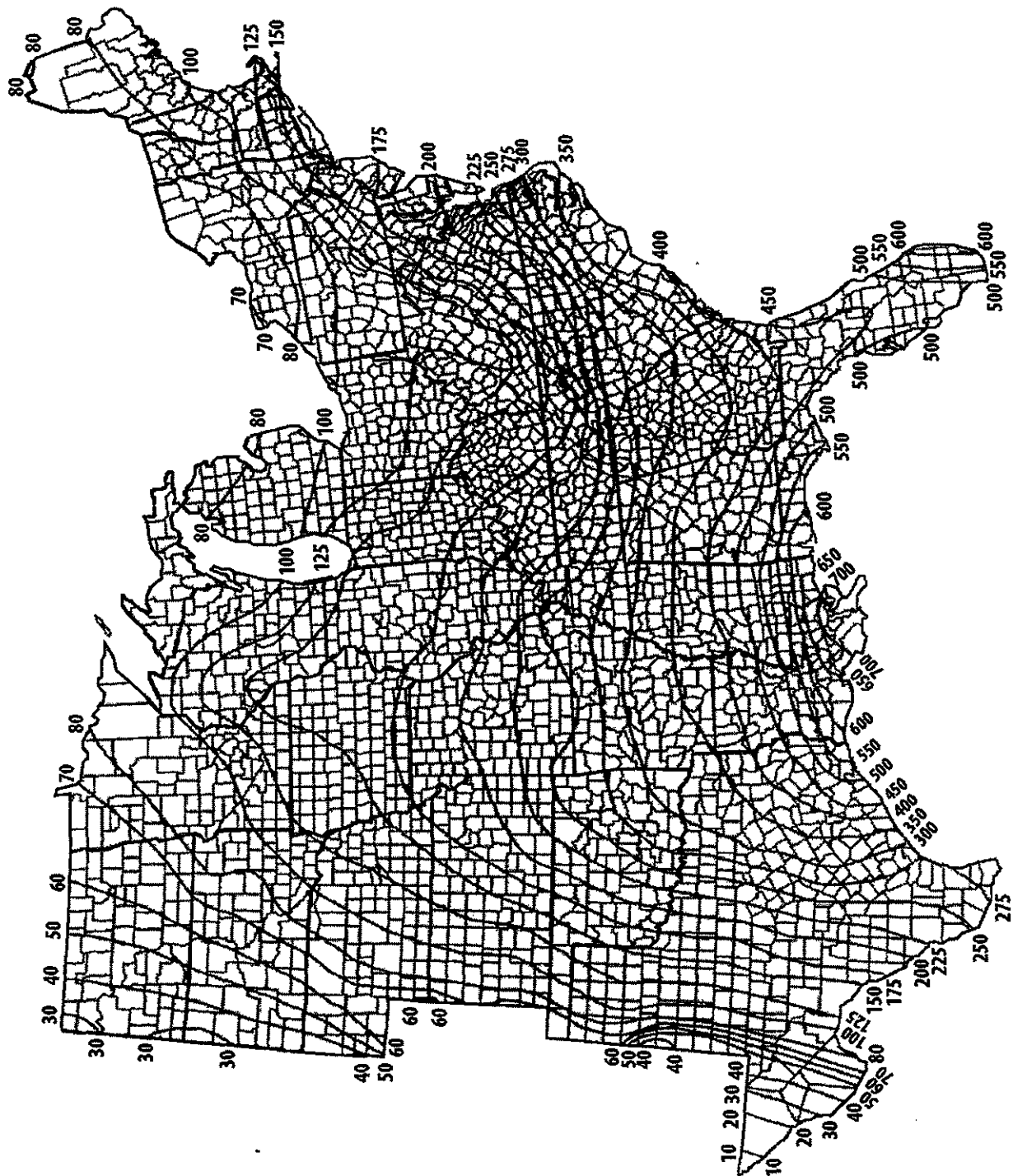
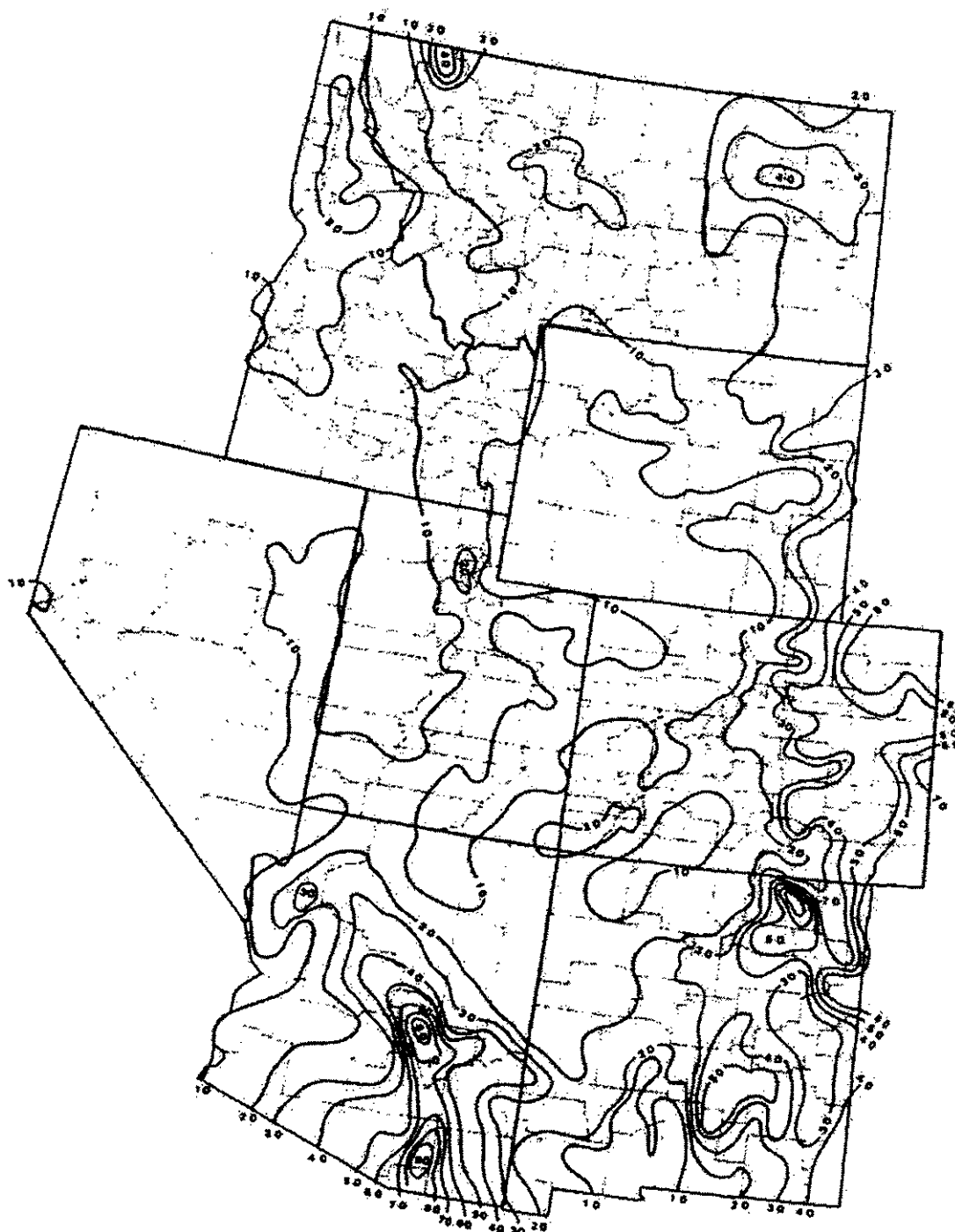


Figure 2. Isoerodent Map of the Eastern U.S.



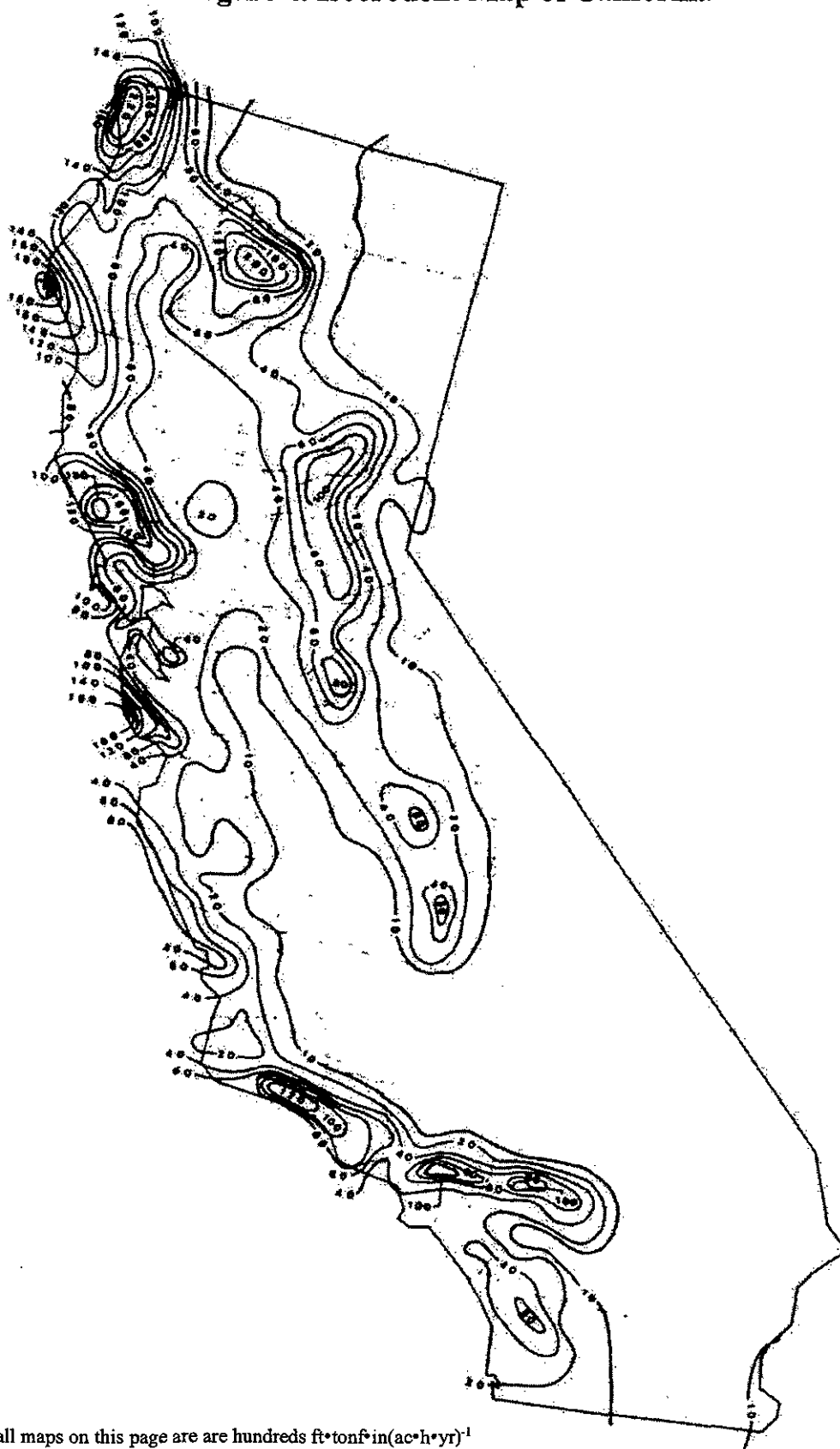
Note: Units for all maps on this page are are hundreds  $\text{ft} \cdot \text{ton} \cdot \text{in} (\text{ac} \cdot \text{h} \cdot \text{yr})^{-1}$

Figure 3. Isoerodent Map of the Western U.S.



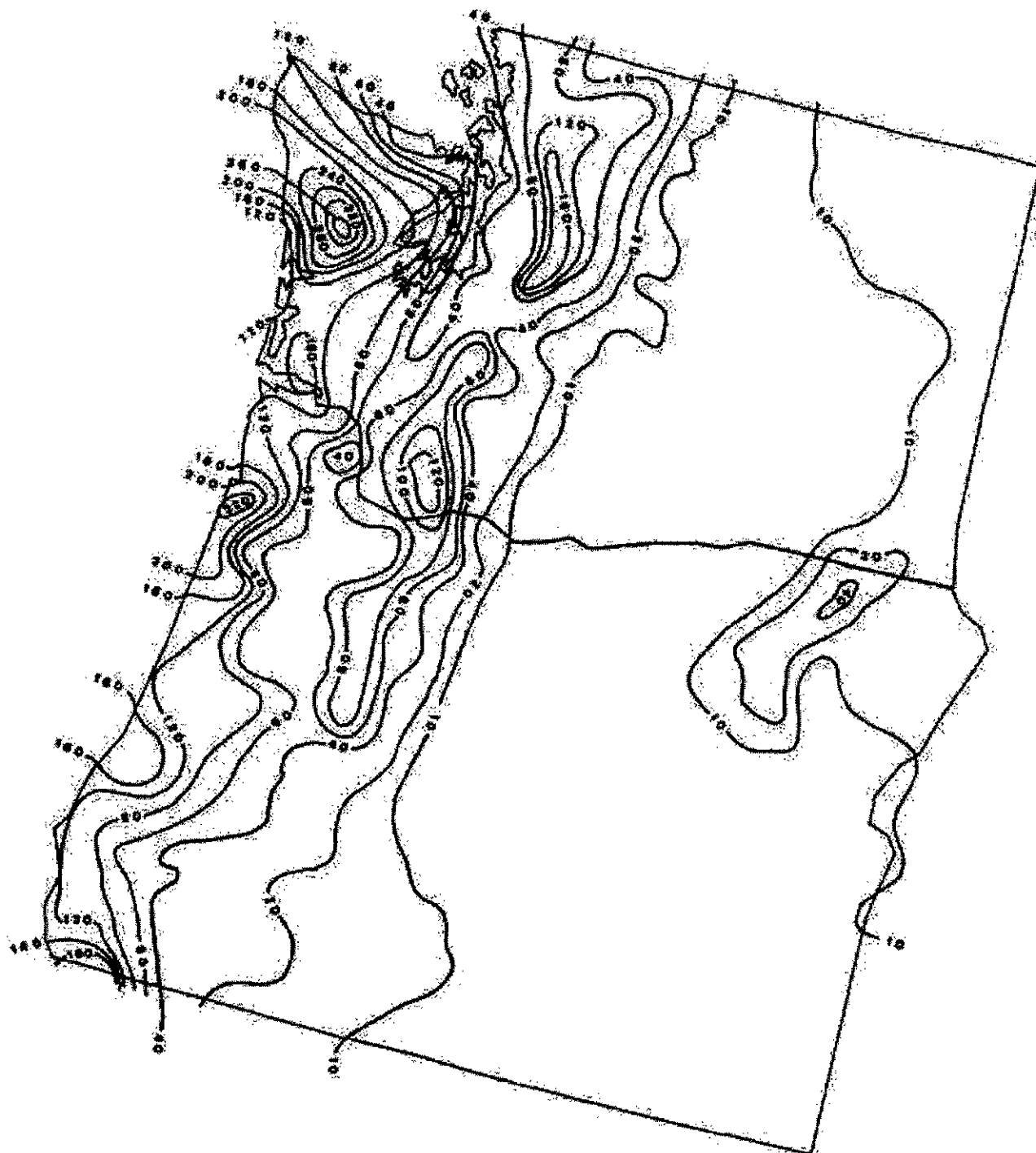
Note: Units for all maps on this page are are hundreds  $\text{ft} \cdot \text{ton} \cdot \text{in} (\text{ac} \cdot \text{h} \cdot \text{yr})^{-1}$



**Figure 4. Isoerodent Map of California**

Note: Units for all maps on this page are are hundreds  $\text{ft} \cdot \text{ton} \cdot \text{in} (\text{ac} \cdot \text{h} \cdot \text{yr})^{-1}$

Figure 5. Isoerodent Map of Oregon and Washington



Note: Units for all maps on this page are are hundreds  $\text{ft} \cdot \text{tonf} \cdot \text{in} (\text{ac} \cdot \text{h} \cdot \text{yr})^{-1}$

Table 1. Erosivity Index Table

EI as a percentage of Average Annual R Value Computed for Geographic Areas Shown in Figure 1

EI#	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31
1	0.0	4.3	8.3	12.8	17.3	21.6	25.1	28.0	30.9	34.9	39.1	42.6	45.4	48.2	50.8	53.0	56.0	60.8	66.8	71.0	75.7	82.0	89.1	95.2
2	0.0	4.3	8.3	12.8	17.3	21.6	25.1	28.0	30.9	34.9	39.1	42.6	45.4	48.2	50.8	53.0	56.0	60.8	66.8	71.0	75.7	82.0	89.1	95.2
3	0.0	7.4	13.8	20.9	26.5	31.8	35.3	38.5	40.2	41.6	42.5	43.6	44.5	45.1	45.7	46.4	47.7	49.4	52.8	57.0	64.5	73.1	83.3	92.3
4	0.0	3.9	7.9	12.6	17.4	21.6	25.2	28.7	31.9	35.1	38.2	42.0	44.9	46.7	48.2	50.1	53.1	56.6	62.2	67.9	75.2	83.5	90.5	96.0
5	0.0	2.3	3.6	4.7	6.0	7.7	10.7	13.9	17.8	21.2	24.5	28.1	31.1	33.1	35.3	38.2	43.2	48.7	57.3	67.8	77.9	86.0	91.3	96.9
6	0.0	0.0	0.0	0.5	2.0	4.1	8.1	12.6	17.6	21.6	25.5	29.6	34.5	40.0	45.7	50.7	55.6	60.2	66.5	75.5	85.6	95.9	99.5	99.9
7	0.0	0.0	0.0	0.0	0.0	1.2	4.9	8.5	13.9	19.0	26.1	35.4	43.9	48.8	53.9	64.5	73.4	77.5	80.4	84.8	89.9	96.6	99.2	99.7
8	0.0	0.0	0.0	0.0	0.0	0.9	3.6	7.8	15.0	20.2	27.4	38.1	49.8	57.9	65.0	75.6	82.7	86.8	89.4	93.4	96.3	99.1	100.0	100.0
9	0.0	0.8	3.1	4.7	7.4	11.7	17.8	22.5	27.0	31.4	36.0	41.6	46.4	50.1	53.4	57.4	61.7	64.9	69.7	79.0	89.6	97.4	100.0	100.0
10	0.0	0.3	0.5	0.9	2.0	4.3	9.2	13.1	18.0	22.7	29.2	39.5	46.3	48.8	51.1	57.2	64.4	67.7	71.1	77.2	85.1	92.5	96.5	99.0
11	0.0	5.4	11.3	18.8	26.3	33.2	37.4	40.7	42.5	44.3	45.4	46.5	47.1	47.4	47.8	48.3	49.4	50.7	53.6	57.5	65.5	76.2	87.4	94.8
12	0.0	3.5	7.8	14.0	21.1	27.4	31.5	35.0	37.3	39.8	41.9	44.3	45.6	46.3	46.8	47.9	50.0	52.9	57.9	62.3	69.3	81.3	91.5	96.7
13	0.0	0.0	0.0	1.8	7.2	11.9	16.7	19.7	24.0	31.2	42.4	55.0	60.0	60.8	61.2	62.6	65.3	67.6	71.6	76.1	83.1	93.3	98.2	99.6
14	0.0	0.7	1.8	3.3	6.9	16.5	26.6	29.9	32.0	35.4	40.2	45.1	51.9	61.1	67.5	70.7	72.8	75.4	78.6	81.9	86.4	93.6	97.7	99.3
15	0.0	0.0	0.0	0.5	2.0	4.4	8.7	12.0	16.6	21.4	29.7	44.5	56.0	60.8	63.9	69.1	74.5	79.1	83.1	87.0	90.9	96.6	99.1	99.8
16	0.0	0.0	0.0	0.5	2.0	5.5	12.3	16.2	20.9	26.4	35.2	48.1	58.1	63.1	66.5	71.9	77.0	81.6	85.1	88.4	91.5	96.3	98.7	99.6
17	0.0	0.0	0.0	0.7	2.8	6.1	10.7	12.9	16.1	21.9	32.8	45.9	55.5	60.3	64.0	71.2	77.2	80.3	83.1	87.7	92.6	97.2	99.1	99.8
18	0.0	0.0	0.0	0.6	2.5	6.2	12.4	16.4	20.2	23.9	29.3	37.7	45.6	49.8	53.3	58.4	64.3	69.0	75.0	86.6	93.9	96.6	98.0	100.0
19	0.0	1.0	2.6	7.4	16.4	23.5	28.0	31.0	33.5	37.0	41.7	48.1	51.1	52.0	52.5	53.6	55.7	57.6	61.1	65.8	74.7	88.0	95.8	98.7
20	0.0	9.8	18.5	25.4	30.2	35.6	38.9	41.5	42.9	44.0	45.2	48.2	50.8	51.7	52.5	54.6	57.4	58.5	60.1	63.2	69.6	76.7	85.4	92.4
21	0.0	7.5	13.6	18.1	21.1	24.4	27.0	29.4	31.7	34.6	37.3	39.6	41.6	43.4	45.4	48.1	51.3	53.3	56.6	62.4	72.4	81.3	88.9	94.7
22	0.0	1.2	1.6	1.6	1.6	1.6	1.6	2.2	3.9	4.6	6.4	14.2	32.8	47.2	58.8	69.1	76.0	82.0	87.1	96.7	99.9	99.9	99.9	99.9
23	0.0	7.9	15.0	20.9	25.7	31.1	35.7	40.2	43.2	46.2	47.7	48.8	49.4	49.9	50.7	51.8	54.1	57.7	62.8	65.9	70.1	77.3	86.8	93.5
24	0.0	12.2	23.6	33.0	39.7	47.1	51.7	55.9	57.7	58.6	58.9	59.1	59.1	59.2	59.2	59.3	59.5	60.0	61.4	63.0	66.5	71.8	81.3	89.6
25	0.0	9.8	20.8	30.2	37.6	45.8	50.6	54.4	56.0	56.8	57.1	57.1	57.2	57.6	58.5	59.8	62.2	65.3	67.5	68.2	69.4	74.8	86.6	93.0
26	0.0	2.0	5.4	9.8	15.6	21.5	24.7	26.6	27.4	28.0	28.7	29.8	32.5	36.6	44.9	55.4	65.7	72.6	77.8	84.4	89.5	93.9	96.5	98.4
27	0.0	0.0	0.0	1.0	4.0	5.9	8.0	11.1	13.0	14.0	14.6	15.3	17.0	23.2	39.1	60.0	76.3	86.1	89.7	90.4	90.9	93.1	96.6	99.1
28	0.0	0.0	0.0	0.0	0.2	0.5	1.5	3.3	7.2	11.9	17.7	21.4	27.0	37.1	51.4	62.3	70.6	78.8	84.6	90.6	94.4	97.9	99.3	100.0
29	0.0	0.6	0.7	0.7	0.7	1.5	3.9	6.0	10.5	17.9	28.8	36.6	43.8	51.5	59.3	68.0	74.8	80.3	84.3	88.8	92.7	98.0	99.8	99.9
30	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.8	7.9	14.2	24.7	35.6	45.4	52.2	58.7	68.5	77.6	84.5	88.9	93.7	96.2	97.6	98.3	99.6

Table 1. Erosivity Index Table (cont.)

El#	Jan 1-15	Jan 16-31	Feb 1-15	Feb 16-29	Mar 1-15	Mar 16-31	Apr 1-15	Apr 16-30	May 1-15	May 16-31	Jun 1-15	Jun 16-30	Jul 1-15	Jul 16-31	Aug 1-15	Aug 16-31	Sep 1-15	Sep 16-31	Oct 1-15	Oct 16-31	Nov 1-15	Nov 16-31	Dec 1-15	Dec 16-31
31	0	0	0	0	0	0	0	3.5	9.9	15.7	26.4	47.2	61.4	65.9	69	77.2	86	91.6	94.8	98.7	100	100	100	100
32	0	0	0	0	0	0	2.2	4.3	9	14.2	23.3	34.6	46.3	54.2	61.7	72.9	82.5	89.6	93.7	98.2	99.7	99.9	99.9	99.9
33	0	0	0	0	0	0	2.3	4.2	8.8	16.1	30	46.9	57.9	62.8	66.2	72.1	79.1	85.9	91.1	97	98.9	98.9	98.9	98.9
34	0	0	0	0	0	0	7.3	10.7	15.5	22	29.9	35.9	42	48.5	56.9	67	76.9	85.8	91.2	95.7	97.8	99.6	100	100
35	0	0	0	0	0	2.5	10.2	15.9	22.2	27.9	34.7	43.9	51.9	56.9	61.3	67.3	73.9	80.1	85.1	89.6	93.2	98.2	99.8	99.8
36	0	0	0	0	0	0.9	3.4	6.7	12.7	18.5	26.6	36.3	46	53.5	60.2	68.3	75.8	82.6	88.3	96.3	99.3	99.9	100	100
37	0	0	0	0	0	0	0	1	3.9	9.1	19.1	26.7	36.3	47.9	61.4	75.1	84.5	92.3	96	99.1	100	100	100	100
38	0	0	0	0	0	7.2	11	13.9	17.9	22.3	30.3	43.1	55.1	61.3	65.7	72.1	77.9	82.6	86.3	90.3	93.8	98.4	100	100
39	0	0	0	0	0	1.6	6.5	11	17.8	24.7	33.1	42.8	50.3	54.9	59.7	68.9	78.1	83.6	87.5	93	96.5	99.2	100	100
40	0	0	0	0	0	1.5	6.2	10.1	16.3	23.3	32.5	42.2	50.1	55.6	60.5	67.5	74.3	79.4	84.1	91.1	95.8	99.1	100	100
41	0	0	0	0	0	0.2	0.2	0.4	1.1	6.8	22.9	40.1	54.9	63.8	70.7	81.5	89.8	96.3	98.7	99.2	99.3	99.4	99.4	99.7
42	0	0	0	0	0	0	0	0.2	0.9	5.2	17.3	33.8	53.2	66.5	75.9	87.6	93.7	97.5	99	99.7	100	100	100	100
43	0	0	0	0	0	0	0	0.1	0.4	2.7	9.5	21.9	42.7	58.6	71.1	84.6	91.9	97.1	99	99.8	100	100	100	100
44	0	1.7	2.3	2.4	2.4	2.4	2.4	2.7	3.5	7.6	18.5	34.3	52.5	64	72.3	83.3	90	95.1	97.3	98.5	98.9	98.9	98.9	99.2
45	0	0.2	0.2	0.3	0.3	0.4	0.6	0.8	1.4	3.7	10.2	22.6	41.8	54	64.5	78.7	88.4	96	98.7	99.4	99.7	99.7	99.8	99.9
46	0	0	0	0	0	0	0	0.6	2.6	7.5	19.6	32.9	48.9	63	73.5	83.3	89.5	95.6	98.3	99.6	100	100	100	100
47	0	0	0	0	0	0	0	0.4	1.6	5.8	17	33	52.5	66.4	75.7	85.5	91.3	96.5	98.8	100	100	100	100	100
48	0	0	0	0	0	0	0	0	0	2	8.1	15.4	27.8	40.7	52.6	61.1	69.3	82.6	92	98	100	100	100	100
49	0	0	0	0	0	0	0	0.7	2.7	8.3	20	27.5	35.6	44.6	56	70.2	81.3	89.2	93.6	98.5	100	100	100	100
50	0	0	0	0	0	0.1	0.4	2.4	8.2	13.7	23.8	38.8	55.1	66.1	73.6	81.8	87.7	93.8	97	99.4	100	100	100	100
51	0	0	0	0	0	0.3	1	3.1	8.7	18.8	35.8	49.6	60.4	70.2	77	84	88.8	93.8	96.6	99.1	100	100	100	100
52	0	0	0	0	0	0	0	0.6	2.5	6.8	17.5	29.8	46.1	60.5	72.7	86	92.8	96.8	98.4	99.7	100	100	100	100
53	0	0	0	0	0	0	0	0.8	3	9.5	24.2	35.3	48	63.1	76.1	87.7	93.5	97.2	98.6	99.5	99.8	99.9	100	100
54	0	0	0	0	0	0.2	0.7	2.4	7.2	14.7	27.2	37.2	47.3	58.8	67.6	74	79.2	86.7	92.6	97.9	99.8	99.9	100	100
55	0	0	0	0	0	0	0	1.3	5.4	13.3	25.5	31.6	38.8	52.5	66.8	75.5	81.2	87.9	92.8	98.3	100	100	100	100
56	0	0	0	0	0	0	0	1.3	5.1	11.4	22.3	29.5	38.5	51.1	65.2	77.8	85.6	91.7	95	98.7	100	100	100	100
57	0	0	0	0	0	0	0.1	1	3.5	9.2	21.5	31	43.5	60.4	75.1	86.1	91.6	96.2	98.1	99.4	99.9	99.9	100	100
58	0	0	0	0	0	0.2	0.9	2.9	8	13.2	21	29.1	38	45.9	54.5	65.4	74.8	82.1	87.5	95.4	98.8	99.7	100	100
59	0	0	0	0	0	0	0	2.2	8.9	15.6	24.2	31.1	38.3	46	54.9	64.2	73.2	81.9	88.5	95.7	98.6	99.4	99.7	99.7
60	0	0	0	0	0	0	0	0.4	1.5	4	9.5	13.3	20.5	33.6	52.8	66.5	76.7	88.1	94.2	98.6	100	100	100	100

Table 1. Erosivity Index Table (cont.)

El#	Jan 1-15	Jan 16-31	Feb 1-15	Feb 16-29	Mar 1-15	Mar 16-31	Apr 1-15	Apr 16-30	May 1-15	May 16-31	Jun 1-15	Jun 16-30	Jul 1-15	Jul 16-31	Aug 1-15	Aug 16-31	Sep 1-15	Sep 16-31	Oct 1-15	Oct 16-31	Nov 1-15	Nov 16-31	Dec 1-15	Dec 16-31
61	0	0	0	0	0	0	0	1.3	5	8.5	15.5	29.8	41.8	46	49.2	56	65.1	71.6	78.6	91.1	97.3	99.3	100	100
62	0	0	0	0	0.1	0.3	2.1	3.6	6.5	9.7	13.7	16.5	20.8	27.3	40.1	56.9	72.6	83.4	89.4	95.5	98.1	99.6	100	100
63	0	0	0	0	0	0	0	0.9	3.7	7.8	13.3	15.8	19.9	29	46.8	64.7	78.3	88.8	93.9	98.5	100	100	100	100
64	0	0	0	0.7	2.8	7.4	12.4	14.4	15.6	17.3	19.4	21	24.4	32.3	48	61.4	72.1	81.9	87	90.1	92.4	98.1	100	100
65	0	3.6	7	9.6	11.4	13	14.4	16.3	17.7	18.4	19.3	20.5	23.6	32	50	66.2	77.2	85.4	88.8	90.4	91.3	92.7	94.8	97
66	0	0	0	0	0	0.1	0.5	1.1	2.2	3.6	6	7.6	11.1	19.8	38.9	59.7	74.4	83.2	88.1	94.6	97.7	99.4	100	100
67	0	0	0	0	0	0.1	0.4	0.9	1.6	1.9	2.4	5	12.1	24.8	48.3	73.6	86.5	92	94.3	96.6	97.9	99.5	100	100
68	0	2.3	4.5	7.8	10.4	12	13.3	16.3	17.7	18.1	18.2	18.3	18.4	19.9	24.5	35	54.4	69.4	78.6	85.7	89.2	91.9	93.9	97
69	0	2	3.7	5.7	7.8	10.5	12.4	13.7	14.3	14.7	15.1	15.7	17.1	22.7	36.7	50.4	63.6	75	81.8	87.8	90.8	93.2	94.9	97.5
70	0	0.5	0.7	1	1.3	1.7	2.2	2.8	3.4	3.9	4.7	5.4	7.4	15.7	36.5	55.8	70.3	80.9	86.4	90.9	93.4	96.4	98.1	99.4
71	0	0.7	1.2	1.6	2.1	2.8	3.3	3.6	4	4.5	5.6	6.5	9.1	18.5	40.6	59.7	74	86.3	91.7	94.7	96	96.7	97.3	98.8
72	0	0	0	0	0	0	0.1	0.2	0.7	0.8	1.3	3.5	9.9	24.7	51.4	71.5	83.6	93.8	97.7	99.2	99.8	99.9	99.9	100
73	0	0	0.1	0.1	0.2	0.2	0.3	0.6	1.3	4.1	11.5	18.1	28.3	40.2	54.1	67	77.2	87.7	93.3	97.5	99.1	99.6	99.8	100
74	0	0	0	0	0	0.1	0.2	0.5	1.2	2.7	6.4	10.2	18.4	31	50.7	68.7	81.2	91.6	96.1	98.4	99.2	99.8	100	100
75	0	0.1	0.1	0.1	0.2	0.5	1.3	1.9	3	4.1	6.6	10	17.6	28.3	44.7	59.4	71.6	83.9	90.3	94.7	96.7	98.8	99.6	99.9
76	0	0	0	0	0	0.1	0.2	0.6	1.3	2	3.5	4.9	8.4	17.4	37.3	57.5	72.9	83.7	89.5	95.8	98.4	99.6	100	100
77	0	0.2	0.3	0.3	0.4	0.8	1.5	2	2.8	3.9	5.9	7.2	10.3	21.5	46.5	66.3	78.3	86.5	90.8	96	98.2	99.1	99.5	99.8
78	0	0	0	0	0	0	0.2	0.5	1.6	3.8	8.9	13.2	21.8	35.8	56.6	75.4	86	92.9	95.9	98.2	99.2	99.8	100	100
79	0	0	0	0	0	0.2	0.7	1.3	2.7	5.8	12.7	18.8	28.8	41.6	58.4	75.7	86.5	94.2	97.3	98.9	99.5	99.9	100	100
80	0	0.6	1.2	1.6	2.1	2.5	3.3	4.5	6.9	10.1	15.5	19.7	26.6	38.4	51.7	67.5	79.4	88.8	93.2	96.1	97.3	98.2	98.7	99.3
81	0	0.1	0.1	0.2	0.4	0.5	0.8	0.9	1.5	3.9	9.9	12.8	18.2	30.7	54.1	77.1	89	94.9	97.2	98.7	99.3	99.6	99.7	99.9
82	0	0	0.1	0.1	0.2	0.2	0.5	1.2	3.1	6.7	14.4	20.1	29.8	44.5	64.2	83.1	92.2	96.4	98.1	99.3	99.7	99.8	99.8	99.9
83	0	0	0.1	0.1	0.1	0.3	0.9	1.6	3.5	8.3	19.4	30	44	59.2	72.4	84.6	91.2	96.5	98.6	99.5	99.8	99.9	100	100
84	0	0	0.1	0.1	0.2	0.3	0.6	1.7	4.9	9.9	19.5	27.2	38.3	52.8	68.8	83.9	91.6	96.4	98.2	99.2	99.6	99.8	99.8	99.9
85	0	0	0	0	0	0	1	2	3	6	11	23	36	49	63	77	90	95	98	99	100	100	100	100
86	0	0	0	0	0	0	1	2	3	6	11	23	36	49	63	77	90	95	98	99	100	100	100	100
87	0	0	0	0	1	1	2	3	6	10	17	29	43	55	67	77	85	91	96	98	99	100	100	100
88	0	0	0	0	1	1	2	3	6	13	23	37	51	61	69	78	85	91	94	96	98	99	99	100
89	0	0	1	1	2	3	4	7	12	18	27	38	48	55	62	69	76	83	90	94	97	98	99	100
90	0	1	2	3	4	6	8	13	21	29	37	46	54	60	65	69	74	81	87	92	95	97	98	99

Table 1. Erosivity Index Table (cont.)

El#	Jan 1-15	Jan 16-31	Feb 1-15	Feb 16-29	Mar 1-15	Mar 16-31	Apr 1-15	Apr 16-30	May 1-15	May 16-31	Jun 1-15	Jun 16-30	Jul 1-15	Jul 16-31	Aug 1-15	Aug 16-31	Sep 1-15	Sep 16-31	Oct 1-15	Oct 16-31	Nov 1-15	Nov 16-31	Dec 1-15	Dec 16-31
91	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100
92	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100
93	0	1	1	2	3	4	6	8	13	25	40	49	56	62	67	72	76	80	85	91	97	98	99	99
94	0	1	2	4	6	8	10	15	21	29	38	47	53	57	61	65	70	76	83	88	91	94	96	98
95	0	1	3	5	7	9	11	14	18	27	35	41	46	51	57	62	68	73	79	84	89	93	96	98
96	0	2	4	6	9	12	17	23	30	37	43	49	54	58	62	66	70	74	78	82	86	90	94	97
97	0	1	3	5	7	10	14	20	28	37	48	56	61	64	68	72	77	81	86	89	92	95	98	99
98	0	1	2	4	6	8	10	13	19	26	34	42	50	58	63	68	74	79	84	89	93	95	97	99
99	0	0	0	1	1	2	3	5	7	12	19	33	48	57	65	72	82	88	93	96	98	99	100	100
100	0	0	0	0	1	1	2	3	5	9	15	27	38	50	62	74	84	91	95	97	98	99	99	100
101	0	0	0	1	2	3	4	6	9	14	20	28	39	52	63	72	80	87	91	94	97	98	99	100
102	0	0	1	2	3	4	6	8	11	15	22	31	40	49	59	69	78	85	91	94	96	98	99	100
103	0	1	2	3	4	6	8	10	14	18	25	34	45	56	64	72	79	84	89	92	95	97	98	99
104	0	2	3	5	7	10	13	16	19	23	27	34	44	54	63	72	80	85	89	91	93	95	96	98
105	0	1	3	6	9	12	16	21	26	31	37	43	50	57	64	71	77	81	85	88	91	93	95	97
106	0	3	6	9	13	17	21	27	33	38	44	49	55	61	67	71	75	78	81	84	86	90	94	97
107	0	3	5	7	10	14	18	23	27	31	35	39	45	53	60	67	74	80	84	86	88	90	93	95
108	0	3	6	9	12	16	20	24	28	33	38	43	50	59	69	75	80	84	87	90	92	94	96	98
109	0	3	6	10	13	16	19	23	26	29	33	39	47	58	68	75	80	83	86	88	90	92	95	97
110	0	1	3	5	7	9	12	15	18	21	25	29	36	45	56	68	77	83	88	91	93	95	97	99
111	0	1	2	3	4	5	6	8	11	15	20	28	41	54	65	74	82	87	92	94	96	97	98	99
112	0	0	0	1	2	3	4	5	7	12	17	24	33	42	55	67	76	83	89	92	94	96	98	99
113	0	1	2	3	4	5	6	8	10	12	17	22	31	42	52	60	68	75	80	85	89	92	96	98
114	0	1	2	4	6	8	11	13	11	13	21	26	32	38	46	55	64	71	77	81	85	89	93	97
115	0	1	2	3	4	5	6	8	10	14	19	26	34	45	56	66	76	82	86	90	93	95	97	99
116	0	1	3	5	7	9	12	15	18	21	25	29	36	45	56	68	77	83	88	91	93	95	97	99
117	0	1	2	3	4	5	7	9	11	14	17	22	31	42	54	65	74	83	89	92	95	97	98	99
118	0	2	4	6	8	12	16	20	25	30	35	41	47	56	67	75	81	85	87	89	91	93	95	97
119	0	1	2	4	6	7	9	12	15	18	23	31	40	48	57	63	72	78	88	92	96	97	98	99
120	0	8	16	25	33	41	46	50	53	54	55	56	56.5	57	57.75	58	58.75	60	61	63	66.5	72	80	90

Table 1. Erosivity Index Table (cont.)

0	Jan	Jan	Feb	Feb	Mar	Mar	Apr	Apr	May	May	Jun	Jun	Jul	Jul	Aug	Aug	Sep	Sep	Oct	Oct	Nov	Nov	Dec	Dec
EI#	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31	1-15	16-31
121	0	7	14	20	25.5	33.5	38	43	46	50	52.5	54.5	56	58	59	60	61.5	63	65	68	72	79	86	93
122	0	4	8	12	17	23	29	34	38	44	49	53	56	59	62	65	69	72	75	79	83	88	93	96
123	0	4	9	15	23	29	34	40	44	48	50	51	52	53	55	57	60	62	64	67	72	80	88	95
124	0	7	12	17	24	30	39	45	50	53	55	56	57	58	59	61	62	63	64	66	70	77	84	92
125	0	9	16	23	30	37	43	47	50	52	54	55	56	57	58	59	60	62	64	67	71	77	86	93
126	0	8	15	22	28	33	38	42	46	50	52	53	53	53	53	54	55	57	59	63	68	75	83	92
127	0	8	15	22	29	34	40	45	48	51	54	57	59	62	63	64	65	66	67	69	72	76	83	91
128	0	9	16	22	27	32	37	41	45	48	51	53	55	56	57	57	58	59	61	64	68	73	79	89
129	0	10	20	28	35	41	46	49	51	53	55	56	56	57	58	59	60	61	62	65	69	74	81	90
130	0	8	15	22	28	33	38	41	44	47	49	51	53	55	56	58	59	60	63	65	69	75	84	92
131	0	10	18	25	29	33	36	39	41	42	44	45	46	47	48	49	51	53	56	59	64	70	80	90
132	0	8	16	24	32	40	46	51	54	56	57	58	58	59	59	60	60	61	62	64	68	74	83	91
133	0	12	22	31	39	45	49	52	54	55	56	56	56	56	57	57	57	57	58	59	62	68	77	88
134	0	7	15	22	30	37	43	49	53	55	57	58	59	60	61	62	63	65	67	70	74	79	85	92
135	0	11	21	29	37	44	50	55	57	59	60	60	60	60	61	61	61	62	63	64	67	71	78	89
136	0	10	18	25	30	39	46	51	54	57	58	59	59	60	60	60	61	62	63	64	67	72	80	90
137	0	11	22	31	39	46	52	56	58	59	60	61	61	61	61	62	62	62	63	64	66	71	78	89
138	0	8	14	20	25	32	37	42	47	50	53	55	56	58	59	61	63	64	66	68	71	76	85	93
139	0	10.6	21.2	28.6	36	41.4	46.8	49.3	51.8	52.5	53.2	53.5	53.7	53.9	54	54.3	54.7	55.7	56.8	61.6	65.3	73.9	82.5	91.2
140	0	0.2	0.3	0.3	0.3	0.3	0.3	0.8	1.3	5.3	9.3	30.1	50.8	56.8	62.9	67.5	72.2	75.8	79.4	85.6	91.7	95.9	100	100
141	0	10.7	21.4	28.7	36	41.7	47.3	50.3	53.2	54.5	55.7	56.2	56.7	56.9	57	57.4	57.8	59	60.2	64.1	67.9	76.1	84.2	92.1
142	0	2.7	5.5	5.7	5.9	7.1	8.4	10	11.7	15.3	19	22.6	26.1	29	31.9	36.6	41.2	46	50.7	62.3	73.9	83.5	93.1	96.6
143	0	8.7	17.5	25.2	33	39.9	46.7	50.8	54.8	56.2	57.6	58	58.4	58.9	59.4	60.8	62.3	64.1	65.9	68.8	71.7	78.6	85.5	92.7
144	0	4.3	8.6	9.3	10.1	11.1	12	15.3	18.6	22.7	26.7	28.7	30.7	31.3	32	34	36	44.4	52.9	60.1	67.3	78.2	89.2	94.6
145	0	11.7	23.3	33.5	43.7	50.7	57.6	60.3	63	63.5	64.1	64.2	64.2	64.5	64.8	66.1	67.3	68.6	69.8	70.7	71.6	79.2	86.7	93.4
146	0	4.8	9.6	13.1	16.5	22.6	28.7	30.8	32.8	33.3	33.8	34	34.2	36.4	38.6	43	47.5	56	64.5	66.2	67.9	77.9	88	94
147	0	0	4.7	9.4	10.8	12.2	13.2	14.3	14.9	15.5	24.2	32.8	45.5	58.2	67.9	77.6	86.3	95.1	95.6	96.1	98	100	100	100
148	0	5.5	11	19.2	27.5	36.6	45.7	47.8	50	50.9	51.7	52.1	52.5	54.2	55.9	60.1	64.4	70.5	76.7	81.2	85.7	90.4	101	97.6
149	0	2.4	4.9	7.4	9.9	11.7	13.6	14.6	15.6	16.2	16.8	17.2	17.7	24.7	31.7	46.9	62.1	67	72	80.7	89.3	92.3	95.3	97.7

## **Appendix J**

### **Reptile and Amphibian Habitat Survey Report**



**Final Report**

**A Habitat Survey for the Eastern Box Turtle, Eastern Cricket Frog, and  
Kirtland's Snake, and Cave Salamander between Substation 10 and  
Substation 11 on Gilmore Rd. in Hamilton, OH for AMP, Ohio Inc.**

**Submitted to:**

**Randy Meyer  
Director of Environmental Affairs  
AMP-Ohio, Inc.  
2600 Airport Drive  
Columbus, OH 43230**

**Submitted by: Jeffrey G. Davis**

**March 22, 2009**

## Introduction

The Ohio Division of Wildlife suggested a Cave Salamander (*Eurycea lucifuga*) habitat survey in Hamilton, Ohio where the City plans to install transmission lines and two substations. The Cave Salamander is a state endangered species that has been reported from Fairfield Township where both substations and the transmission lines will be located. Three other state listed species occur in Fairfield Township. Kirtland's Snake (*Clonophis kirtlandii*) is a state threatened species. The Eastern Cricket Frog (*Acris c. crepitans*) and the Eastern Box Turtle (*Terrapene c. carolina*) are species of special concern in Ohio. OAC 4906-11(D)(1) requires "a description of an applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the area likely to be disturbed by the project". Accordingly, a habitat survey for these three species was conducted as well.

### 1.0 Subject Sites

There are two subject sites, both located in the city of Hamilton, Ohio (Butler County, Fairfield Township). Each subject site consists of a proposed primary transmission line route and a proposed alternative route. The results for the surveys for the route extending between Substation 10 and Substation 11 on Gilmore Road are provided in this report. The results for the route between proposed Substation 13 and Substation 4 were provided in a separate report.

The primary route of the second subject site (Substation 11 to Substation 10) (Figure 1) begins at approximately 39.35271°N 84.51873°W and extends west to the CSX rail line at approximately 39.34991°N 84.53015°W. The route follows the rail line north to an abandoned rail spur for the former GM plant, then to the west side of State Route 4 opposite the former GM plant, then north along the west side of State Route 4 to Zimmerman Ave., to Hooven Ave. where it crosses the CSX rail line to an existing substation at Wulzen and Hooven Ave. (39.36578°N 84.54737°W).

The alternative route of the subject site (Figure 2) begins at the Gilmore Rd. Substation 11 and follows it north to the Norfolk Southern rail line parallel to Bobmeyer Rd. at 39.35576°N 84.51904°W. From this point the route follows the rail line west to approximately 39.36478°N 84.54148°W, which aligns with the intersection of State Route 4 and Clinton Ave. (39.36512°N 84.54489°W) and on to the substation one block to the west at Hooven and Wulzen Ave.

### 2.0 METHODS

Aerial photos and topographic maps were examined to identify areas of interest along the proposed route and its alternative. Such areas included wetlands, woodlots, old fields, ditches and the margins of rail lines. Much of the land bordering the route of the

proposed transmission lines is urbanized; consisting of residential areas and business. Some of the proposed route goes through a light industrial park that is not completely developed and a field behind the former GM plant.

## **2.1 Site Reconnaissance**

A site visit was made to areas of interest on 21 March 2009. Assessments were made to determine their suitability as habitat for the four species named in the introduction. The evaluations were based on field observations within 100 feet of the centerline of the transmission lines and a 100 foot perimeter around the proposed substation site.

Cave Salamanders (Figure 3) require outlets from subterranean water courses such as sink holes, caves, springs or seeps or fractures in rock layers under a closed canopy in limestone areas. Box Turtles (Figure 4) use old fields, forests, and forest edges in wet to damp areas or in areas where ample water is available. Kirtland's Snakes (Figure 5) are inhabitants of wet to damp grasslands and lightly wooded areas. They can also be found in low wet areas where debris is available to them for cover. Cricket Frogs (Figure 6) inhabit the shorelines of slow moving streams, ditches, shallow permanent ponds, and any other body of water that is not under a closed canopy. They prefer sandy or muddy shores among sparse vegetation. Reproduction occurs in any of the aforementioned bodies of water.

## **2.2 Museum and Literature Search**

A literature review and a search for museum specimens were conducted to determine each species' historical distribution records nearest to the subject sites.

## **2.3 Habitat Survey Assessment and Report**

The results of the site reconnaissance were combined with the literature and museum search to determine the suitability of the subject sites as habitat for each species. If suitable habitat or if historical records for any of the four species is identified, a Presence/Absence Survey will be recommended.

# **3.0 RESULTS AND DISCUSSION**

## **3.1 Museum and Literature Search**

No museum specimens of the four surveyed species are known from anywhere along the proposed transmission line route, nor are there any literature records for them. The closest record for Cave Salamanders is approximately 6 km to the WSW in Fairfield near the Hamilton County border. The other three species have been found much closer to the subject site. Cricket Frogs, Box Turtles, and Kirtland's Snakes have been recorded approximately 0.5 to 1.0 km away at Gilmore Ponds, a Butler County park on the east side of Gilmore Road.

### **3.2 Reconnaissance Survey**

Much of the proposed primary transmission line route runs across an area that is slowly being developed as a light industrial park between Gilmore Road and the CSX railroad tracks. There are open grassy fields behind the former GM plant. Otherwise the proposed transmission line route runs along the south edge of Lindenwald on Zimmerman Ave. This area is a densely populated Hamilton neighborhood.

There are two areas of interest along the proposed transmission line route. One is a small depression located near the intersection of Bohlke Blvd. and Tedia Drive at approximately 39.35240°N 84.52384°W (Figure 7). The water table at this site is close to the surface and it stays wet enough that it is not mowed or bush hogged. The wet conditions and dense ground cover provide habitat suitable for Kirtland's Snake.

The second area of interest is behind the former GM plant where a stream emerges from a culvert on the west side of the CSX railroad tracks at approximately 39.35254°N 84.52373°W (Figure 8). The sparsely vegetated shorelines provide habitat suitable for Cricket Frogs which are abundant in the area, despite being a species of special concern in Ohio.

### **4.0 RECOMMENDATIONS**

Based on the presence of suitable habitat I recommend a Presence – Absence Survey for Kirtland's Snake at the site mentioned in paragraph 2, section 3.2. Because the suitable habitat for Cricket Frogs in the stream described in paragraph 3, section 3.2 is so limited, I do not see just cause to conduct a presence absence survey at that site.

# Figures

**Figure 1.** Map illustrating the proposed route from Substation 4 to Substation 13.

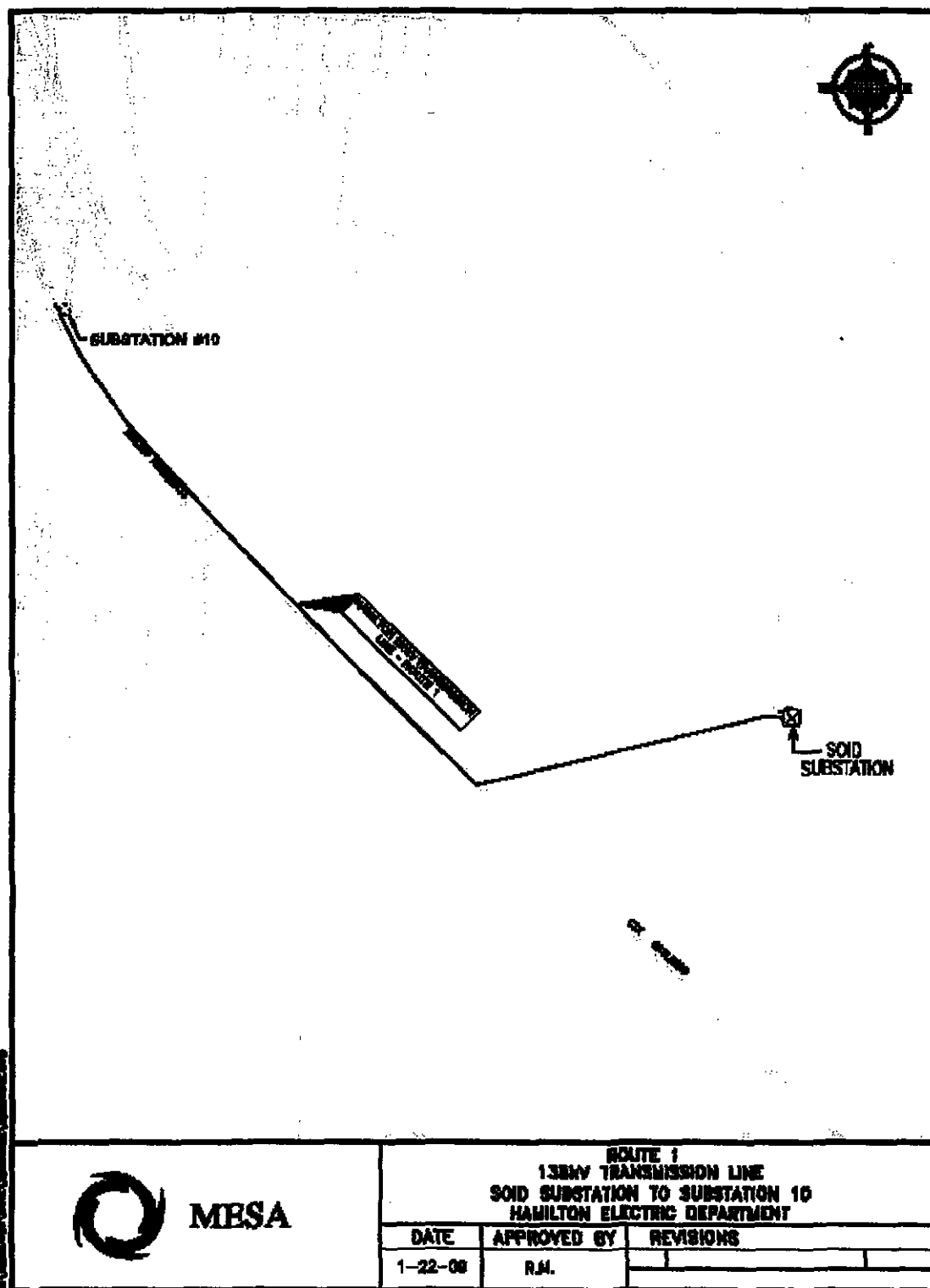


Figure 2. Map illustrating the alternate route from Substation 4 to Substation 13.

**FIGURE No.4**

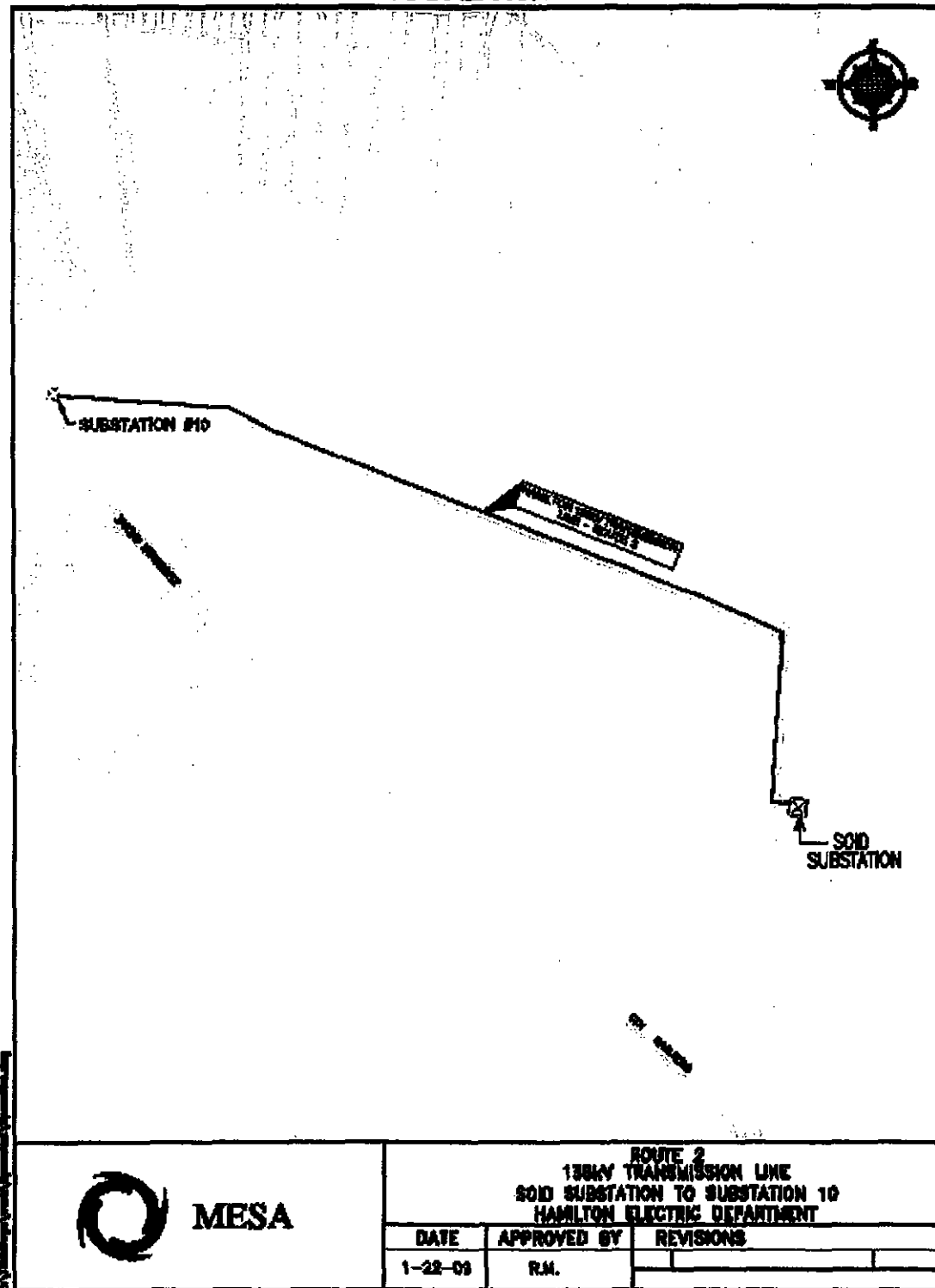


Figure 3. Cave Salamander (*Eurycea lucifuga*). Hamilton Co., OH.

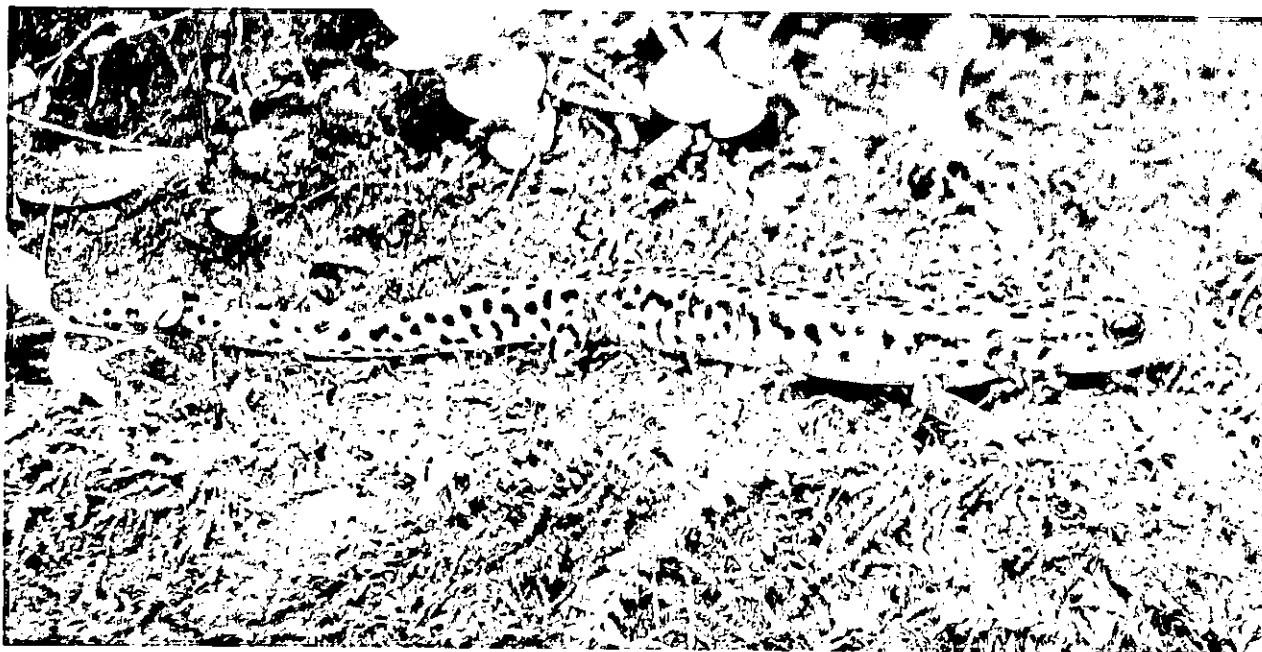
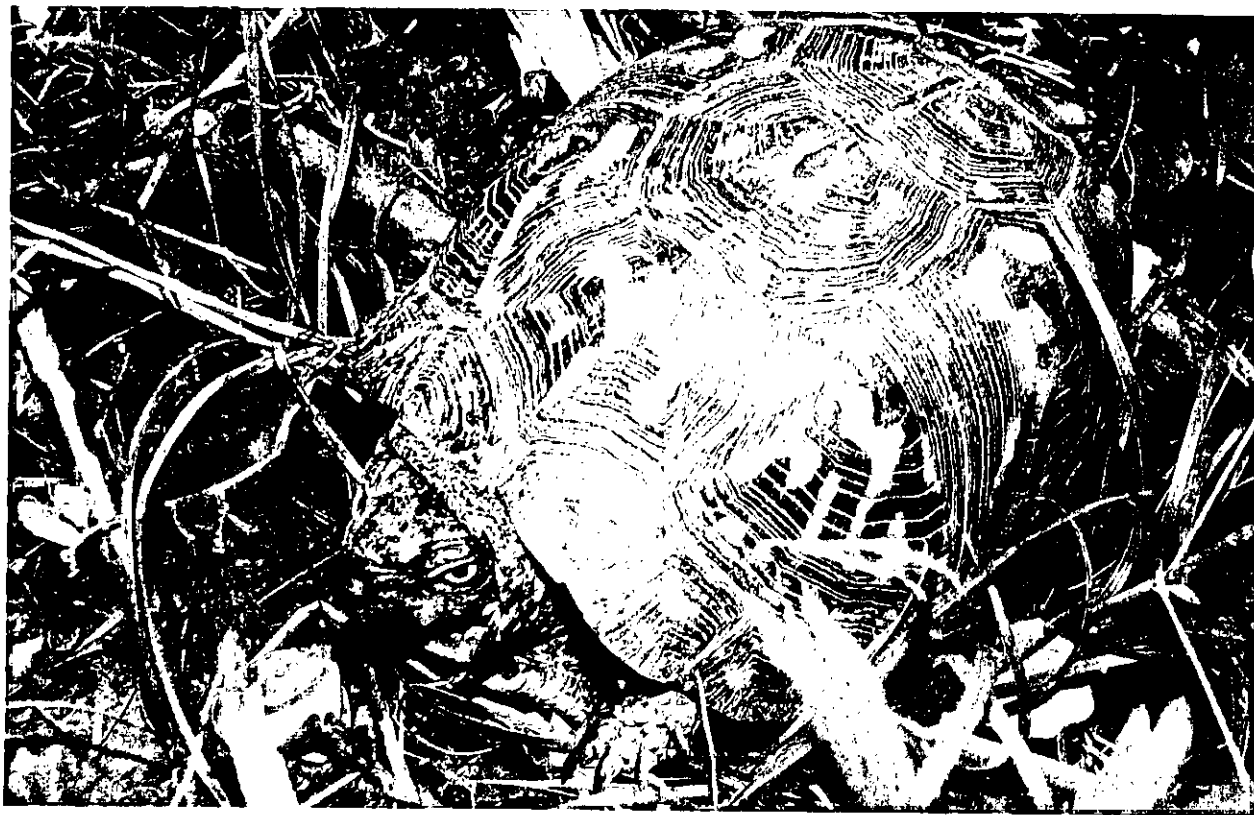
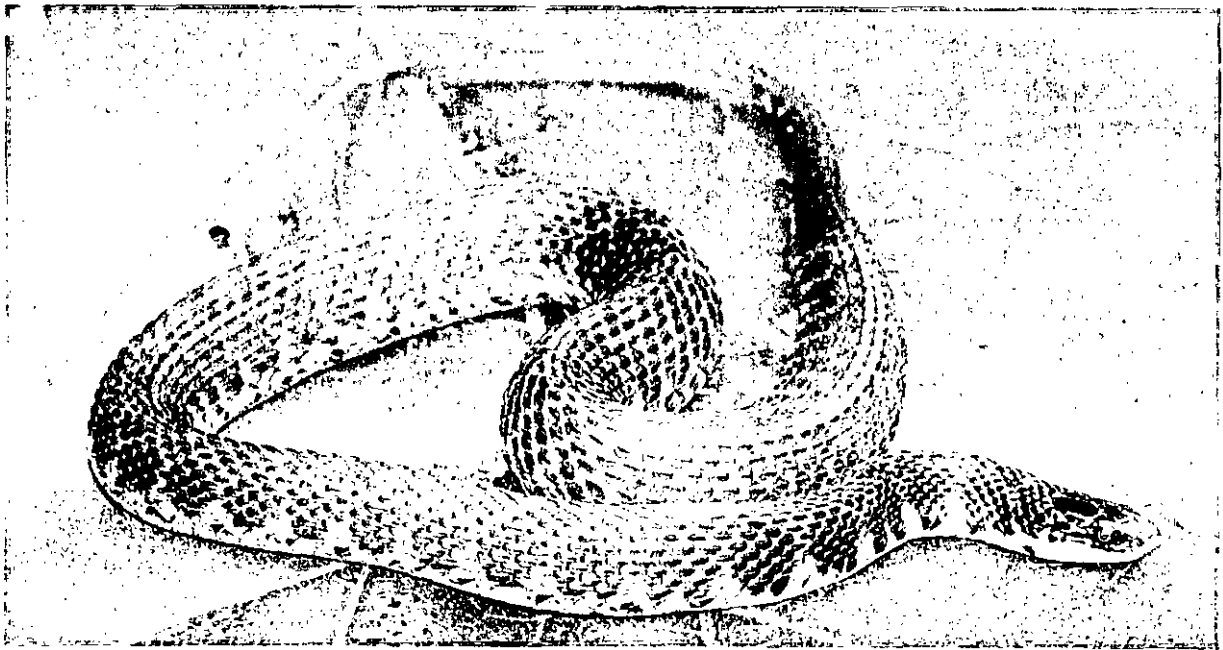


Figure 4. Eastern Box Turtle (*Terrapene c. carolina*). Hamilton Co., OH.

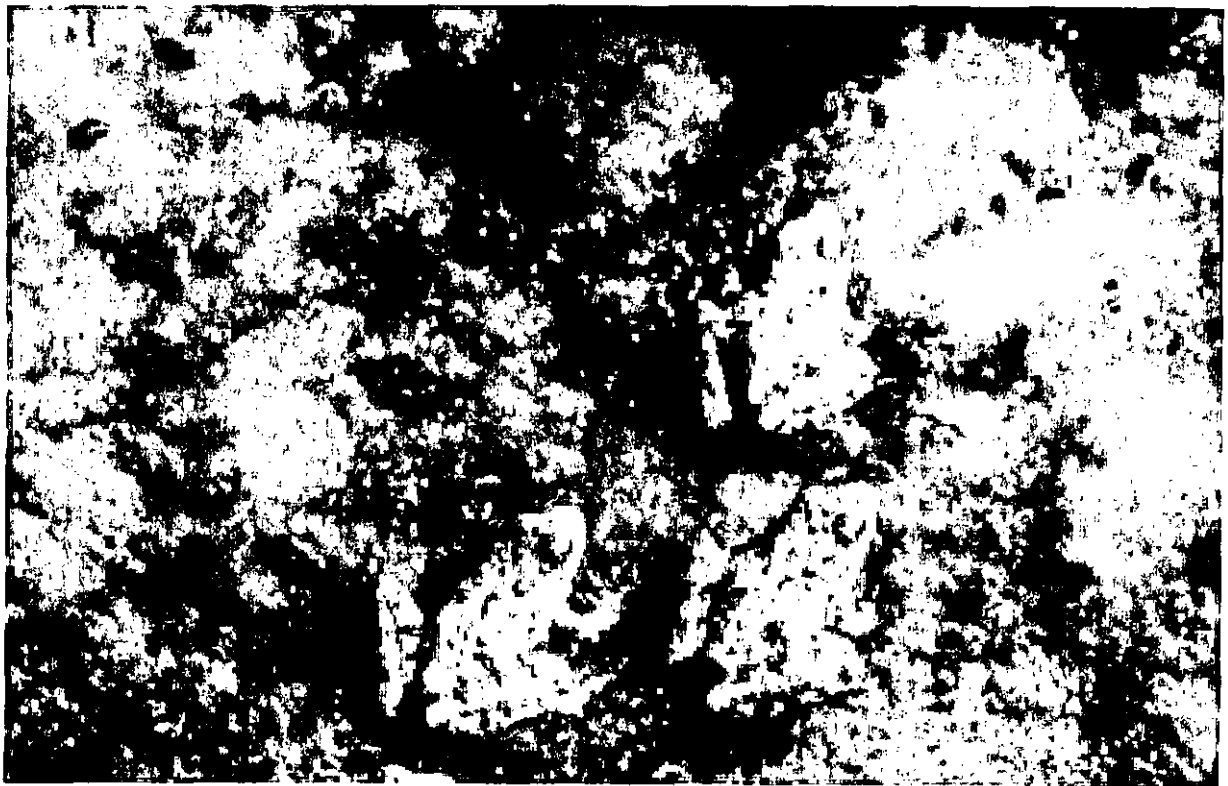




**Figure 5.** Kirtland's Snake (*Clonophis kirtlandii*), an Ohio Threatened species. Champaign Co., OH.



**Figure 6.** Eastern Cricket Frogs (*Acris c. crepitans*), an Ohio Species of Special Concern. Butler Co., OH.



**Figure 7.** Wet depression near the intersection of Bohlke Blvd. and Tedia Drive.

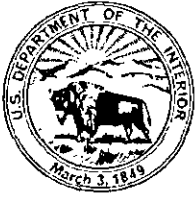


**Figure 8.** Stream behind the former GM plant, west of the CSX and north of Symmes Road.



## **Appendix K**

### **USFWS Indiana Bat Concerns, Hamilton Responses, and USFWS Concurrence**



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

March 5, 2010

Randy Meyer  
American Municipal Power Inc.  
1111 Schrock Rd, Ste 100  
Columbus, OH, 43229

TAILS: 31420-2010-TA-0384

Re: 138 KV Transmission Line and Substations, Hamilton, Butler County, OH

Dear Mr. Meyer:

This is in response to your February 10, 2010 letter with the additional information requested by the Service for the proposed project located within the City of Hamilton, Butler County, Ohio. The Service reviewed the proposed project and requested additional information potential habitat for the Indiana bat in a letter dated January 5, 2009. We understand that the project area consists of an urban setting of residential, commercial and light industrial development. We understand that BBCM delineated three forested category 2 wetlands and five emergent/scrub-shrub category 1 wetlands in the project corridor. In addition to this, an intermittent stream and six ephemeral streams were delineated and are unnamed tributaries to Pleasant Run. We understand that the project area is surrounded by development and only 1.5% of the proposed transmission line route will require tree clearing.

There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this site.

**MIGRATORY BIRD COMMENTS:** The project area lies within the range of the **bald eagle** (*Haliaeetus leucocephalus*). The bald eagle has been removed from the Federal list of endangered and threatened species due to recovery. This species continues to be afforded protection by the Bald and Golden Eagle Protection Act and Migratory Bird Protection Act. There is an active bald eagle nest located approximately 3.5 miles west of the project area on the Great Miami River. Due to the location of the project and on-site habitat, no impacts are expected for this species.

**ENDANGERED SPECIES COMMENTS:** The proposed project lies within the range of the **Indiana bat** (*Myotis sodalis*), a federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines.

During winter, Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas;
- (2) live trees (such as shagbark hickory and oaks) which have exfoliating bark;
- (3) stream corridors, riparian areas, and upland woodlots which provide forage sites.

The proposed project lies within the 5 mile buffer of a capture of an Indiana bat. According to the additional information received from AMP, there are 4 potential roost trees within the project corridor. These trees provide some limited habitat but are not proposed to be removed by the project. We understand that approximately 2 acres of forested habitat is located within the project corridor and is dominated by immature trees. According to your information, only select tree removal and trimming will occur along the ROW. Should the proposed site contain trees or associated habitats exhibiting any of the characteristics listed above, we recommend that the habitat and surrounding trees be saved wherever possible. It appears that habitat exhibiting the characteristics described above may be present at the proposed project site. However, the photos and site description provided indicate that habitat availability for the Indiana bat at the proposed site is limited. Therefore, we recommend that any trees exhibiting any of the characteristics, listed above, as well as surrounding trees, be saved wherever possible. But, if they cannot be avoided, they should only be cut between September 30 and April 1. This should ensure that impacts will be insignificant and discountable.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy.

If you have questions, or if we may be of further assistance in this matter, please contact Melanie Cota at extension 15 in this office or by email at [Melanie\\_Cota@fws.gov](mailto:Melanie_Cota@fws.gov) or visit our website at <http://www.fws.gov/midwest/Ohio>.

Sincerely,



Mary Knapp, Ph.D.  
Field Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, OH



10 February 2010

Mary Knapp, Ph.D.  
Field Supervisor  
United States Department of the Interior, Fish and Wildlife Service  
Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230

**Re: City of Hamilton, Proposed Substation No. 11 to Substation No. 10  
138kV Transmission Line, Butler County, OH**

Dear Dr. Knapp:

This letter is in response to your 05 January 2009 letter (Appendix A) to Scott Ross of BBCM regarding the occurrence of federal listed threatened or endangered species within the vicinity of the above referenced project. BBCM was a subcontractor to AMP (formerly AMP-Ohio), Hamilton's project consultant, collecting preliminary environmental data to support a Letter of Notification to the Ohio Power Siting Board for this project. I am following-up with the additional information you requested in your letter to Mr. Ross. For your convenience, I am responding in Comment/Response format. Also, I think it will be helpful to divide the proposed transmission line into the five distinct segments shown in Figure 1 and described below.

#### **Hamilton Substation 11 Connection**

This segment begins at Substation No. 11 on the east side of Gilmore Road (39.353° N; 84.533° W) and crosses to the west side of Gilmore Road.

#### **Duke Energy Transmission Line Purchase**

This segment is simply a transfer of ownership of an existing Duke Energy 138 kV transmission line, paralleling the west side of Gilmore Road and then an existing interstate natural gas transmission pipeline heading generally southwest across Bohlke Boulevard, Tedia Way and the CSX Railroad. At the west side of the CSX Railroad crossing the transmission line heads generally northwest along the west side of the railroad to a point near the former GM Fisher Body Plant.

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1111 Schrock Road, Suite 100 • Columbus, OH 43229 • [www.amppartners.org](http://www.amppartners.org)

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The transmission line then proceeds nearly due west to the former GM Plant substation (now dismantled) and crosses to the west side of State Route 4 (Dixie Highway).

**Duke Energy Feeder 5762 Rebuild**

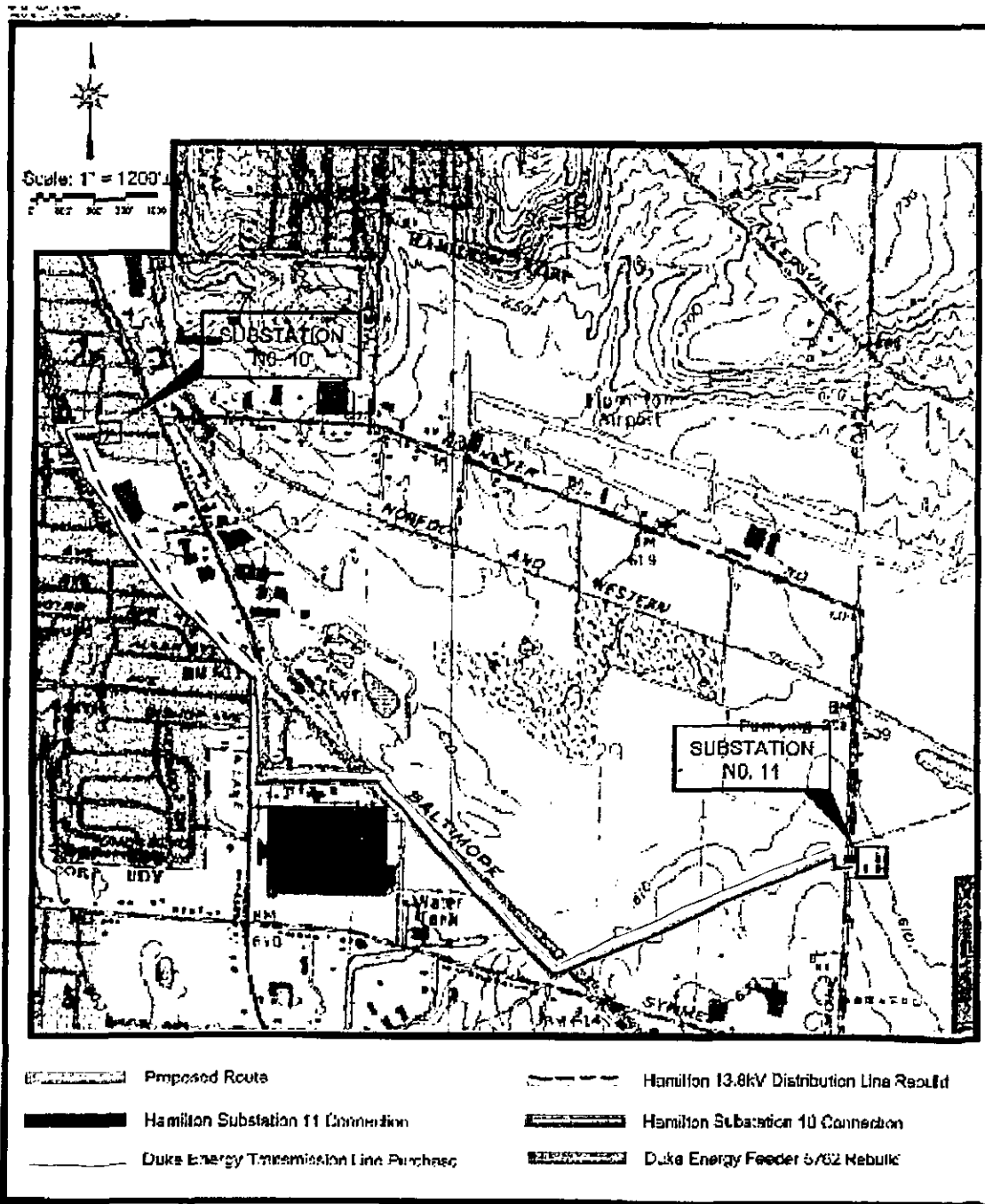
This segment transmission follows an existing Duke Energy Feeder along the west side of Dixie Highway and Huston Road to Zimmerman Avenue. This line will be rebuilt to accommodate Hamilton's transmission line. No change in pole footprint is expected.

**Hamilton 13.8kV Distribution Line Rebuild**

This segment follows an existing 13.8 kV electric distribution line along the east side of Zimmerman Avenue to a point opposite of Clinton Avenue. This line will be rebuilt to accommodate the 138kV transmission line. No change in pole footprint is expected.

**Hamilton Substation 10 Connection**

This segment begins at Zimmerman Avenue, opposite of Clinton Avenue, crosses the CSX Railroad and Wulzen Avenue and connects to Substation 10 (39.3664°N; 84.5483°W). This is the only segment of new construction.



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**Comment**

**1. A map of the site with all forested areas indicated, and a general description of the habitat, including acreage, dominant species composition, age, density of understory, and canopy cover, and representative photos of the areas.**

**Response**

Appendix B contains a series of maps that shows the transmission line route overlaid on large scale, color aerial photography. Urban/forest areas within 100 feet of the project centerline are marked with a yellow boundary; urban/non-forest areas are marked with a green boundary; construction/demolition/debris landfills are marked in blue; agricultural/row crop in magenta; and urban/pre-development areas are in light blue. Appendix C contains a series of annotated color photographs that were taken at select points along the route. Photograph locations are noted on the maps and further described in the photograph log.

The habitat/land use characteristics along the transmission route corridor (within 100 feet) are summarized in the Table 1 below. Urban/forest habitat characteristics are further summarized in Table 2. The forested areas are disjointed, small parcels, heavily impacted by frequent land disturbances and urban pollution along major transportation routes.

<b>Table 1</b>					
<b>Substation No. 11 to Substation No. 10 138kV Transmission Line Corridor</b>					
<b>Habitat Summary</b>					
<b>Habitat</b>	<b>Acreage</b>	<b>Dominant Species</b>	<b>Age</b>	<b>Understory Density</b>	<b>Canopy Cover</b>
Urban/ Forest	4.6	Deciduous Hardwoods (ash, sycamore, maple, hickory)	Mid-Late Stage Maturity	30% - 70%	10% - 60%
Urban/Non- Forest	33.0	Grasses/Shrubs/ Saplings	Early Old Field Succession	30% - 70%	10% - 20%
Construction/ Demolition/ Debris Landfill	3.3	Scrub	N/A	N/A	N/A
Agriculture/ Row Crop	2.2	Corn/Soybeans	N/A	N/A	N/A
Urban/Pre- Development	5.9	Grasses	N/A	N/A	N/A

Table 2

Substation No. 11 to Substation No. 10 138kV Transmission Line Corridor

Urban/Forest Habitat Summary

Map Sheet	Date	Time	Photo Number	Start Station	End Station	Dominant Species	Age	Understory Density	Canopy Cover
1-3	12/16/2009	1:27	p32-p37	114 + 60 R,L	116 + 90 R,L	Low growing shrubs and vines, saplings, max height 10-15'			40-50% 10-15'
				100 + 00 R	113 + 30 R	Approx. 40 % small trees generally less than 18" dbh and 40' or shorter			
				Urban vacant land occupied by species tolerant of disturbed soils and exhaust from automobiles and Most trees appear to be less than 20 years old		Evidence of urban dumping problem near Clinton and Wulzen			
4	12/16/2009	2:35	p30	88 + 20 R	88 + 90 R	Low growing shrubs and vines that are pollution tolerant; A few mature trees. Vegetation generally in poor condition due to pollution.	Mid-stage Old Field Succession.	60-70%	<10% from a few mature trees in poor condition
5	12/16/2009	3:45	p26	84 + 70 R	87 + 70 R	Low growing shrubs and vines that are pollution tolerant; A few mature trees. Vegetation generally in poor condition due to pollution.	Mid-stage Old Field Succession.	60-70%	<10% from a few mature trees in poor condition
6	12/16/2009	3:35	p23	76 + 50 L	76 + 60 L	Maple/Oak/Sycamores Dominated by shrubs and saplings; some dead trees with peeling bark - appears to be due to pollution exposure (near busy highway) and land development stresses (i.e. mechanical clearing and herbicide applications); land is advertised as available for development.	Early Succession - Most trees <6" dbh	Dense Understory 60-70% cover	25-30% from young trees
7	12/16/2009	4:45	p38	64 + 70 R	66 + 30 R	Mature ash and sycamore trees with some hickory and maple; Heights generally 50-70'; 12-18 dbh, some larger	Mature Urban Forest in a narrow strip paralleling the west side of the railroad.	60% on the edges of the forest; 20-30% internal to the forest	60-70% due to high density of mature hardwood trees
8	12/16/2009	4:42	p19	56 + 20 R	60 + 80 R	Mature ash and sycamore trees with some hickory and maple; Heights generally 50-70'; 12-18 dbh, some larger	Mature Urban Forest in a narrow strip paralleling the east side of the railroad.	60% on the edges of the forest; 20-30% internal to the forest	60-70% due to high density of mature hardwood trees
11	12/16/2009	4:26	p18	35 + 00 R,L	35 + 30 R,L	Isolated pockets of mature hardwoods, ash, sycamore and other pollution tolerant species	Some mature trees in a highly modified urban environment. Adjacent to a heavily used railway and road and a demolition landfill.	30-40%	30% mature hardwood trees immediately parallel to the RR ROW and in rough ground areas; much of underbrush has been mechanically cleared.
11	12/16/2009	4:20	p16 and p17	36 + 00 R,L	41 + 40 R	Mature ash and sycamore trees with some hickory; 12-18 dbh, some larger; Heights generally 50-70'	Mature Urban Forest in a narrow strip paralleling the west side of the railroad.	60% on the edges of the forest; 20-30% internal to the forest	60-70% due to high density of mature hardwood trees
13	12/16/2009	4:12	p15	21 + 55 R	22 + 15 R	Dominated by low growing shrubs and saplings. Golden Rod and thistles dominant among grasses.	Mid Old Field Succession with some mature trees due to fence row	60%	20-30% from mature hardwood tree
14	12/16/2009	11:33	p9-p14	14 + 90 R	17 + 30 R	Golden Rod Thistle	Mid-Old Field Succession	60%	20%
						Few Trees: Red Cedar			
						Sycamore Max Ht. 30'			
				Recovery Ag Field Out of Production in 15-20 years - Probably grazed.		Mostly Saplings and shrubs 10' tall max. One possible			

### Comment

**2. A map identifying the location of any exposed bedrock that supports caves, crevices, fissures, or sinkholes, or abandoned mines of any kind, and representative photos of these areas.**

### Response:

There are no known caves, crevices, fissures or sinkholes within one mile of the proposed transmission corridor. There is an open pit sand and gravel operation within 4 miles of the project. Sand and gravel mines do not provide suitable hibernacula for bats.

### Comment

**3. A map indicating the location of suitable roost trees (dead or live trees with peeling bark, cracks, or crevices), and describe species, condition (live or dead), size (dbh), and canopy cover. In particular, potential maternity roost trees should be located and quantified. Potential maternity roosts are typically large diameter trees with peeling bark that receive solar exposure for at least half the day. Please include representative photos of these trees.**

### Response:

A roost tree survey within the transmission line right-of-way was conducted on 16 December 2009. Indiana bat roost tree locations are shown on the maps in Appendix B and their characteristics are summarized in Table 3 below. Photos of the potential roost trees are provided in Appendix B.

**Table 3**

Substation No. 11 to Substation No. 10 138kV Transmission Line Corridor Indiana Bat Roost Tree Survey (Centerline + 15' R/L)														
Potential Roost Tree	Photo Number	Distance to Water Body	Map Sheet	Station	EU/Trim Required	Tree DBH	Tree Height	Canopy Cover %	Tree Species	Tree Condition	Landscape Description	Habitat Description	Understory Density	Additional Notes
1	p12 and p13	75' to swale; 737' to Abandoned Miami Erie Canal	14	16 + 70 R15	No	18"	30' At 65' measured angle 40° at 5.5' AGL	10 - 20% max in the area	Black Willow (Salix nigra)	Live Furrowed Bark; Slight Peeling Evident; Trunk Split; Diebeveled Looking	Somewhat low lying; wet area non JD wetland	Small area of old field succession; Probably grazed 15-20 yrs ago.	60%	Collected twig specimen for species identification
2	p29 background	2,376' to an urban storm water basin	4	90 + 10 R	No	18"	20-25' Trimmed Top	N/A Not in Forest Habitat Setting	White Ash (Fraxinus Americana)	Live; Furrowed Bark; Large dead limbs due to trimming and weather damage	Urban Yard setting in Row Between CSX Railroad and Zimmerman Ave.	Mowed grass and urban accent plantings	N/A Not in Forest Habitat Setting	Collected twig specimen for species identification
3	p28	2,382' to an urban storm water basin	5	87 + 75	No	24"	20-25' Trimmed Top	N/A Urban Yard Setting	Silver Maple (Acer saccharinum)	Diebeveled; Heavily Trimmed/ Topped Exposed to Urban Pollution	Urban Yard; Also in close proximity to several pine trees-heavily shaded	Mowed urban yard; adjacent to busy roadway	N/A Not in Forest Habitat Setting	Identified by leaf litter and bark recognition. Younger tree that does not exhibit much bark exfoliation; Dead members removed.
4	p27	2,364' to an urban storm water basin	5	85 + 85 R25	No	30"	60-70'	N/A Urban Yard Setting	Linden American Basewood (Tilia americana)	Live; Evidence of Lightning Strike at base otherwise healthy; Tight Furrowed Bark	Urban Yard; Also in close proximity to several pine trees-heavily shaded	Mowed urban yard; adjacent to busy roadway	N/A Not in Forest Habitat Setting	Identified by dead leaf sample removed from low hanging branch; shaded by nearby pines.

### Comment

**4. A map indicating the location of any wetlands, streams, ponds, and cleared paths or trails.**

Response:

No wetlands, ponds or cleared paths or trails were observed within 100 feet of the project centerline. The transmission line crosses two headwater streams noted on the maps in Appendix B (Sheet 11, Station 35 + 30 and Sheet 12, Station 27 + 00). The line also crosses an unnamed tributary to Pleasant Run (designated warm water habitat) at Sheet 10, Station 42 + 00. The transmission line at these locations will be used in "as-is" condition, so no tree trimming/cutting or land clearing will be performed near these streams.

**Comment:**

***A description and quantification of any forested parcels and potential roost trees onsite that will be preserved.***

Response:

The City of Hamilton does not anticipate preserving any forested areas as part of this project.

**Comment:**

**6. A description of any other forested properties within the vicinity of the project that are protected in perpetuity (ex. parks, conservation easements, etc.).**

Response:

The Butler County Park District has preserved about 120 acres of forest as part of its nearby Gilmore Ponds Metropark at 7950 Gilmore Road. The City of Hamilton has 1,360 acres of preserved parkland. About 25% is natural woodland.

**Comment:**

**7. A description of the connectivity of forested areas onsite and other adjacent forested parcels.**

Response:

The transmission line route traverses an urbanized area with no large stands of mature trees. Only 13% of the study area is wooded. Much of the wooded area is in the early stages of succession and often impaired by land disturbance activities and pollution from urban transportation corridors. Consequently, only one to two acres of the wooded area is considered moderate to high quality urban forest habitat. Fortunately, this area lies along the Duke Energy Transmission Line Purchase Section, east of the CSX Railroad, and will not be disturbed as part of this project.

As mentioned above, the Butler County Park District has preserved about 120 acres of forest areas at Gilmore Ponds Metropark, and Hamilton has preserved about 340 acres of woodlands. While these forested areas and the small forested parcels along the transmission route are not contiguous, the Indiana bat is known

to move over long distances and may make use of riparian woodlands paralleling streams. Again, construction of this project will not disturb any trees near the three water bodies along the route.

**Comment:**

***8. A list of avoidance and minimization measures to protect the bat and its habitat (such as preservation of suitable habitat, seasonal tree clearing, etc.).***

**Response:**

Indiana bat impact avoidance and minimization measures for this project will include:

1. Tree clearing and trimming will be limited and trees will be cut/trimmed only to the extent necessary to provide for safe and efficient construction, operation and maintenance operations; and
2. Cutting and trimming will be limited to the October 1 through March 30 time period.

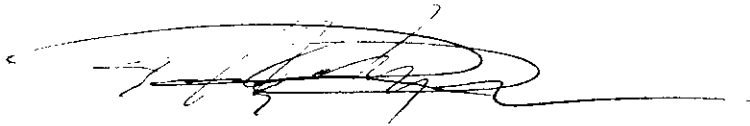
**Comment:**

***9. Using the information above as justification, please include your determination of whether or not the project is likely to adversely affect the Indiana bat.***

**Response:**

Only about 1.5% of this proposed transmission line route will require tree cutting or trimming (Sheet 1, Station 115 + 15 to Station 116 + 95), and only four potential roost trees were discovered along the route. The potential roost trees are not well suited for juvenile bats due to shading and exposure to urban air and noise pollution. None of the potential roost trees will be disturbed by this project. Our conclusion is the project will have no impact on the Indiana bat.

On behalf of the City of Hamilton,



Randy Meyer  
Director of Environmental Affairs

cc: Alan McIntire, City of Hamilton  
April Bott, Bott Law Group

## **Appendix A: USFWS Response**



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
614-416-8993 / FAX 614-416-8994

January 05, 2009

BBCM  
JAN 08 2009  
RECEIVED

Scott Ross  
BBCM  
6190 Enterprise Court  
Dublin, OH, 43016

TAILS: 2009-TA-0165

Re: 138 KV Transmission Line, Hamilton, Butler County, OH

Dear Mr. Ross:

This is in response to your December 9, 2008 letter requesting information we may have regarding the occurrence or possible occurrence of Federally-listed threatened or endangered species within the vicinity of the proposed project located in Hamilton, Butler County, Ohio. We understand that the project area consists of an urban setting of residential, commercial and light industrial development. We understand that BBCM delineated three forested category 2 wetlands and five emergent/scrub-shrub category 1 wetlands in the project corridor. In addition to this, an intermittent stream and six ephemeral streams were delineated and are unnamed tributaries to Pleasant Run.

There are no Federal wildlife refuges, wilderness areas, or Critical Habitat within the vicinity of this site.

In general, the U.S. Fish and Wildlife Service recommends that proposed activities minimize water quality impacts and impacts to quality fish and wildlife habitat, such as forests, streams, and wetlands. Riparian zone habitat should be preserved wherever possible. Vegetated areas along stream and river banks stabilize the banks, provide fish and wildlife habitat, filter pollutants and excess nutrients from the water, store excess water during storm events, and minimize sedimentation. We recommend that the proposed action use best construction techniques to minimize erosion. Prevention of non-native, invasive plant establishment is critical in maintaining quality habitats. All disturbed areas should be mulched and re-vegetated with native plants. We recommend planting disturbed areas with native riparian species, for example willows, dogwoods, and cottonwoods. For maximum benefits on water quality and bank stabilization, riparian areas should not be mowed.

**ENDANGERED SPECIES COMMENTS:** The proposed project lies within the 5 mile buffer zone for the **Indiana bat** (*Myotis sodalis*), a Federally-listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable

forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines.

During winter, Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas;
- (2) live trees (such as shagbark hickory and oaks) which have exfoliating bark;
- (3) stream corridors, riparian areas, and upland woodlots which provide forage sites.

There is a known Indiana bat capture location within approximately 4.5 miles SW of the proposed site. According to your letter, a minimal number of trees with exfoliating bark or split trunks/branches were observed in the study area. We understand that approximately 2 acres of forested habitat is located within the project corridor and is dominated by immature trees. Should the proposed site contain trees or associated habitats exhibiting any of the characteristics listed above, we recommend that the habitat and surrounding trees be saved wherever possible. In order for the Service to evaluate potential impacts to the Indiana bat, the Applicant must submit additional information. We recommend including the following information:

1. A map of the site with all forested areas indicated, and a general description of the habitat, including acreage, dominant species composition, age, density of understory, and canopy cover, and representative photos of these areas.
2. A map identifying the location of any exposed bedrock that supports caves, crevices, fissures, or sinkholes, or abandoned mines of any kind, and representative photos of these areas.
3. A map indicating the location of suitable roost trees (dead or live trees with peeling bark, cracks, or crevices), and describe species, condition (live or dead), size (dbh), and canopy cover. In particular, potential maternity roost trees should be located and quantified. Potential maternity roosts are typically large diameter trees with peeling bark that receive solar exposure for at least half the day. Please include representative photos of these trees.
4. A map indicating the location of any wetlands, streams, ponds, and cleared paths or trails.
5. A description and quantification of any forested parcels and potential roost trees onsite that will be preserved.
6. A description of any other forested properties within the vicinity of the project that are protected in perpetuity (ex. parks, conservation easements, etc.).
7. A description of the connectivity of forested areas onsite and other adjacent forested parcels.
8. A list of avoidance and minimization measures to protect the bat and its habitat (such as preservation of suitable habitat, seasonal tree clearing, etc.).
9. Using the information above as justification, please include your determination of whether or not the project is likely to adversely affect the Indiana bat.

Based on this information, the Service will evaluate potential impacts to the Indiana bat from the proposed project. Depending on the extent of impacts to suitable Indiana bat habitat, we may recommend mist net or emergence surveys to determine bat usage of the project area. These surveys must be designed and conducted in coordination with this office, and *may only be completed between May 15 and August 15*. In lieu of first providing the above information for Service evaluation, the Applicant may elect to forgo a habitat evaluation and conduct a mist net survey on the property. If this option is selected, the Applicant should contact this office immediately for a list of permitted Indiana bat surveyors, and to ensure that the appropriate survey protocol is implemented. Furthermore, if the habitat evaluation and/or mist net surveys do not provide sufficient information to document a "not likely to adversely affect" determination, formal consultation under Section 7 of the Endangered Species Act of 1973, as amended, will be necessary.



These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed ESA section 7 consultation document.

If you have questions, or if we may be of further assistance in this matter, please contact Melanie Cota at extension 15 in this office or by email at [Melanie\\_Cota@fws.gov](mailto:Melanie_Cota@fws.gov) or visit our website at <http://www.fws.gov/midwest/Reynoldsburg/>.

Sincerely,

A handwritten signature in cursive script that reads "Mary Knapp".

Mary Knapp, Ph.D.  
Field Supervisor

cc: ODNR, DOW, SCEA Unit, Columbus, OH



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
4625 Morse Road, Suite 104  
Columbus, Ohio 43230  
(614) 416-8993 / FAX (614) 416-8994

### Federally-Listed Species by Ohio Counties November 2008

COUNTY	SPECIES	E = Endangered T = Threatened C = Candidate	CH = Critical Habitat SC = Species of Concern
ADAMS	Indiana bat (E), running buffalo clover (E), sheepsnose (C), snuffbox (SC), timber rattlesnake (SC)		
ALLEN	Indiana bat (E), bald eagle (SC)		
ASHLAND	Indiana bat (E), bald eagle (SC)		
ASHTABULA	Indiana bat (E), clubshell (E), piping plover (E), eastern massasauga (C), bald eagle (SC), snuffbox (SC)		
ATHENS	Indiana bat (E), American burying beetle (E), pink mucket pearly mussel (E), fanshell (E), sheepsnose (C), snuffbox (SC), timber rattlesnake (SC)		
AUGLAIZE	Indiana bat (E)		
BELMONT	Indiana bat (E), sheepsnose (C), snuffbox (SC), bald eagle (SC)		
BROWN	Indiana bat (E), running buffalo clover (E), rayed bean (C), sheepsnose (C), bald eagle (SC), snuffbox (SC)		
BUTLER	Indiana bat (E)		
CARROLL	Indiana bat (E)		
CHAMPAIGN	Indiana bat (E), clubshell (E), eastern massasauga (C), rayed bean (C), snuffbox (SC)		
CLARK	Indiana bat (E), eastern prairie fringed orchid (T), eastern massasauga (C)		
CLERMONT	Indiana bat (E), running buffalo clover (E), rayed bean (C), sheepsnose (C), snuffbox (SC)		
CLINTON	Indiana bat (E), eastern massasauga (C)		
COLUMBIANA	Indiana bat (E), eastern massasauga (C), sheepsnose (C), snuffbox (SC), bald eagle (SC)		
COSHOCTON	Indiana bat (E), clubshell (E), fanshell (E), purple cat's paw pearly mussel (E), rayed bean (C), sheepsnose (C), bald eagle (SC), snuffbox (SC)		
CRAWFORD	Indiana bat (E), eastern massasauga (C), bald eagle (SC)		
CUYAHOGA	Indiana bat (E), piping plover (E), bald eagle (SC)		

DARKE	Indiana bat (E)
DEFIANCE	Indiana bat (E), white cat's paw pearly mussel (E), clubshell (E), northern riffleshell (E), copperbelly watersnake (T), rayed bean (C), eastern massasauga (C), bald eagle (SC)
DELAWARE	Indiana bat (E), clubshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC)
ERIE	Indiana bat (E), piping plover (E/CH), Lake Erie watersnake (T), Lakeside daisy (T), eastern massasauga (C), bald eagle (SC)
FAIRFIELD	Indiana bat (E), clubshell (E), eastern massasauga (C), rayed bean (C)
FAYETTE	Indiana bat (E), eastern massasauga (C)
FRANKLIN	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC)
FULTON	Indiana bat (E), rayed bean (C), eastern massasauga (C)
GALLIA	Indiana bat (E), pink mucket pearly mussel (E), sheepnose (C), snuffbox (SC)
GEAUGA	Indiana bat (E), bald eagle (SC), snuffbox (SC)
GREENE	Indiana bat (E), clubshell (E), eastern massasauga (C), snuffbox (SC)
GUERNSEY	Indiana bat (E), bald eagle (SC)
HAMILTON	Indiana bat (E), running buffalo clover (E), sheepnose (C), snuffbox (SC)
HANCOCK	Indiana bat (E), clubshell (E), rayed bean (C), bald eagle (SC)
HARDIN	Indiana bat (E), clubshell (E), copperbelly watersnake (T), rayed bean (C), eastern massasauga (C), bald eagle (SC)
HARRISON	Indiana bat (E), bald eagle (SC)
HENRY	Indiana bat (E), bald eagle (SC)
HIGHLAND	Indiana bat (E), bald eagle (SC)
HOCKING	Indiana bat (E), American burying beetle (E), northern monkshood (T), small whorled pogonia (T), timber rattlesnake (SC)
HOLMES	Indiana bat (E), eastern prairie fringed orchid (T), bald eagle (SC)
HURON	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
JACKSON	Indiana bat (E), timber rattlesnake (SC)
JEFFERSON	Indiana bat (E), sheepnose (C), snuffbox (SC)
KNOX	Indiana bat (E), bald eagle (SC)
LAKE	Indiana bat (E), piping plover (E/CH), bald eagle (SC), snuffbox (SC)

LAWRENCE	Indiana bat (E), pink mucket pearly mussel (E), running buffalo clover (E), sheepnose (C), snuffbox (SC), timber rattlesnake (SC)
LICKING	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
LOGAN	Indiana bat (E), eastern massasauga (C)
LORAIN	Indiana bat (E), piping plover (E), eastern massasauga (C), bald eagle (SC)
LUCAS	Indiana bat (E), Karner blue butterfly (E), piping plover (E), eastern prairie fringed orchid (T), rayed bean (C), eastern massasauga (C), bald eagle (SC)
MADISON	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), snuffbox (SC)
MAHONING	Indiana bat (E), bald eagle (SC)
MARION	Indiana bat (E), clubshell (E), eastern massasauga (C), rayed bean (C), bald eagle (SC), snuffbox (SC)
MEDINA	Indiana bat (E), eastern massasauga (C)
MEIGS	Indiana bat (E), pink mucket pearly mussel (E), fanshell (E), sheepnose (C), snuffbox (SC)
MERCER	Indiana bat (E), bald eagle (SC)
MIAMI	Indiana bat (E), rayed bean (C), snuffbox (SC)
MONROE	Indiana bat (E), sheepnose (C), snuffbox (SC)
MONTGOMERY	Indiana bat (E), eastern massasauga (C) rayed bean (C), snuffbox (SC)
MORGAN	Indiana bat (E), American burying beetle (E), fanshell (E), pink mucket pearly mussel (E), sheepnose (C), bald eagle (SC), snuffbox (SC)
MORROW	Indiana bat (E)
MUSKINGUM	Indiana bat (E), fanshell (E), sheepnose (C), bald eagle (SC), snuffbox (SC)
NOBLE	Indiana bat (E), bald eagle (SC)
OTTAWA	Indiana bat (E), piping plover (E), Lake Erie watersnake (T), Lakeside daisy (T), eastern prairie fringed orchid (T), eastern massasauga (C), bald eagle (SC)
PAULDING	Indiana bat (E), eastern massasauga (C)
PERRY	Indiana bat (E), American burying beetle (E)
PICKAWAY	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC)
PIKE	Indiana bat (E), clubshell (E), northern riffleshell (E), rayed bean (C), timber rattlesnake (SC)
PORTAGE	Indiana bat (E), Mitchell's satyr (E), northern monkshood (T), eastern massasauga (C),

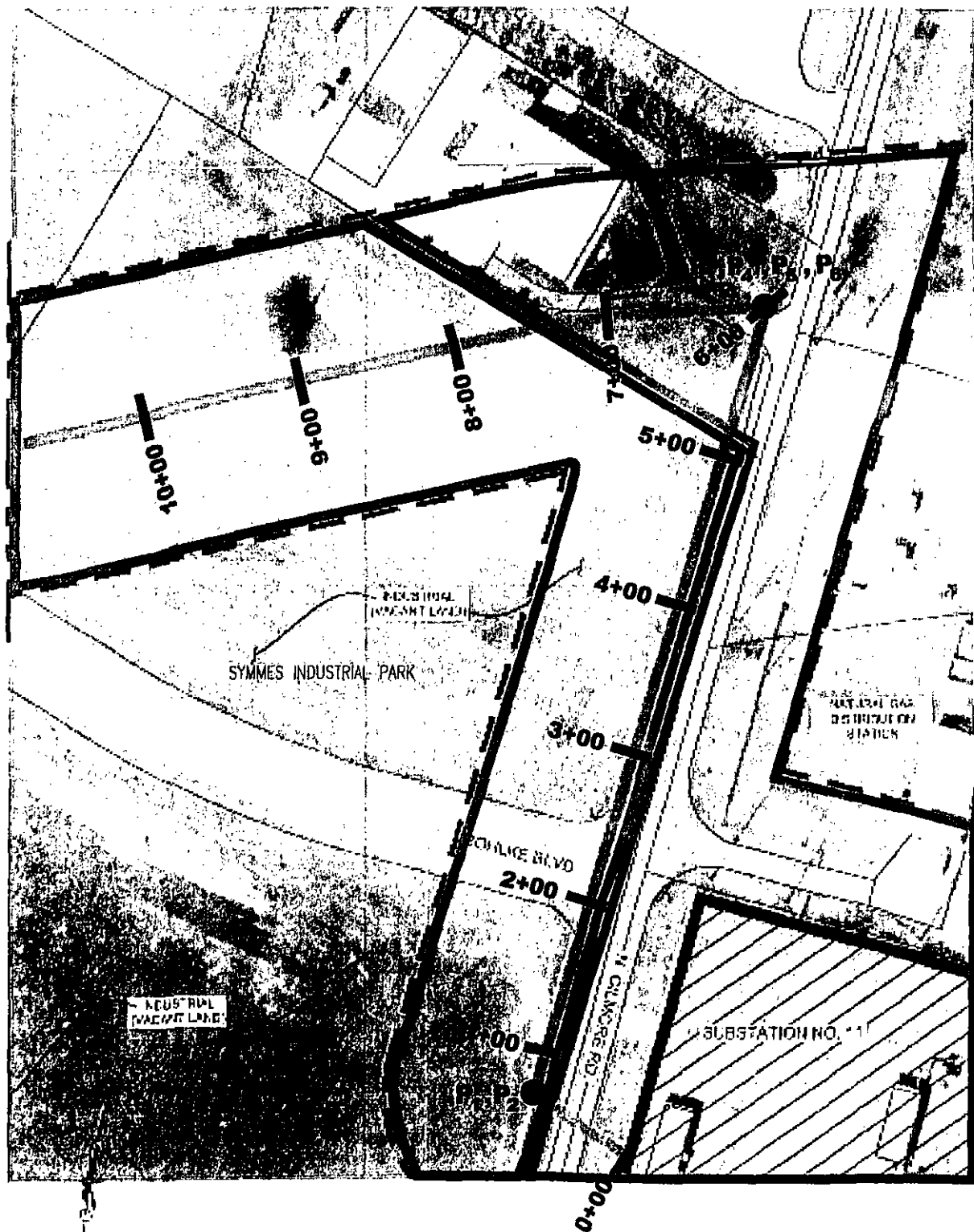
	bald eagle (SC)
PREBLE	Indiana bat (E), eastern massasauga (C)
PUTNAM	Indiana bat (E), bald eagle (SC)
RICHLAND	Indiana bat (E), bald eagle (SC)
ROSS	Indiana bat (E), clubshell (E), northern riffleshell (E), rayed bean (C), bald eagle (SC), snuffbox (SC), timber rattlesnake (SC)
SANDUSKY	Indiana bat (E), piping plover (E), eastern prairie fringed orchid (T), eastern massasauga (C), bald eagle (SC)
SCIOTO	Indiana bat (E), running buffalo clover (E), clubshell (E), northern riffleshell (E), pink mucket pearly mussel (E), Virginia spiraea (T), small whorled pogonia (T), rayed bean (C), sheepnose (C), snuffbox (SC), timber rattlesnake (SC)
SENECA	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
SHELBY	Indiana bat (E)
STARK	Indiana bat (E), eastern massasauga (C), bald eagle (SC)
SUMMIT	Indiana bat (E), northern monkshood (T), bald eagle (SC)
TRUMBULL	Indiana bat (E), clubshell (E), eastern massasauga (C), bald eagle (SC), snuffbox (SC)
TUSCARAWAS	Indiana bat (E), bald eagle (SC)
UNION	Indiana bat (E), Scioto madtom (E), clubshell (E), northern riffleshell (E), rayed bean (C), snuffbox (SC)
VAN WERT	Indiana bat (E)
VINTON	Indiana bat (E), American burying beetle (E), timber rattlesnake (SC)
WARREN	Indiana bat (E), running buffalo clover (E), eastern massasauga (C), rayed bean (C)
WASHINGTON	Indiana bat (E), fanshell (E), pink mucket pearly mussel (E), sheepnose (C), bald eagle (SC), snuffbox (SC)
WAYNE	Indiana bat (E), eastern prairie fringed orchid (T), eastern massasauga (C), bald eagle (SC)
WILLIAMS	Indiana bat (E), white cat's paw pearly mussel (E), clubshell (E), northern riffleshell (E), copperbelly watersnake (T), rayed bean (C)
WOOD	Indiana bat (E), bald eagle (SC)
WYANDOT	Indiana bat (E), eastern massasauga (C), rayed bean (C), bald eagle (SC)

**IMPORTANT NOTE:** This list reflects data available as of November 2008, and will change as new data become available. For this reason, searches for listed species should not necessarily be limited to the counties noted above. Any decisions in that regard should be made only after calling the USFWS (614/416-8993) for guidance.

## **Appendix B: Proposed Transmission Line Route Section Maps**

Jan 28, 2010 4:03pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg

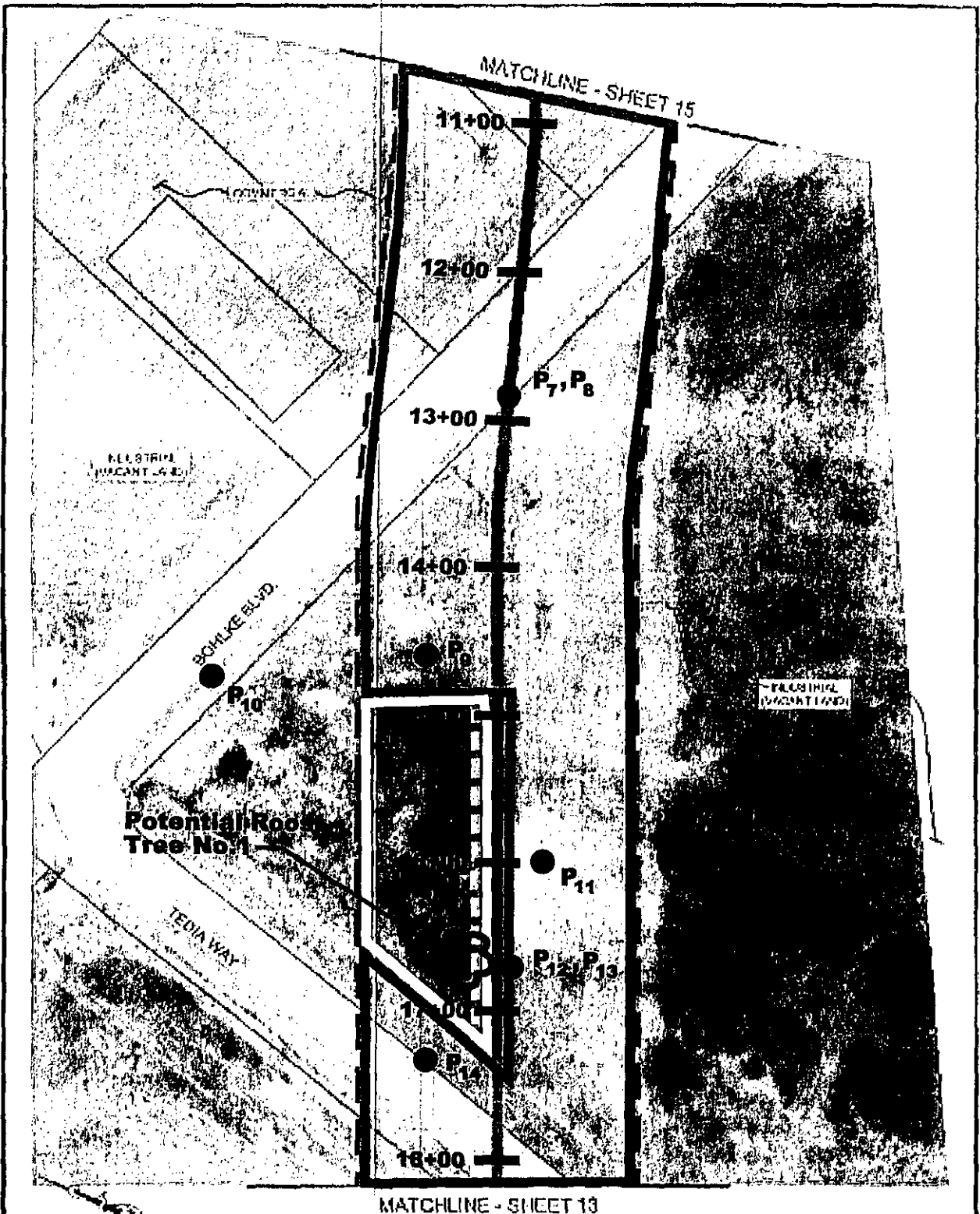
MATCHLINE - SHEET 14



- LEGEND**
- Urban/Non-Forest  
118,331.0 Sq.Ft.
  - Urban, Open,  
Pre-Development: 105,921.0 Sq. Ft.
  - PROPOSED ROUTE
  - 133 RADIUS

LONG LINE - SHEET 15		
138 KV LONG LINE HAMILTON, BUTLER CO., OHIO		
Project: 011-11772-E01	Drawn By: NWS	<b>BBCM</b> BIRCHMOUNT CONSULTING 1244 N. 10th St., Suite 200 Columbus, OH 43260 Phone: 614.291.1100 Fax: 614.291.1101
Drawing Date: 1-6-10	Approved By: MFS	
Last Updated: 1-11-2010	Scale: 1" = 100'	

Jan 28, 2010, 3:52pm  
 Drawing Name: S:\TechDraws\work\138KV Line Hamilton New Route.dwg



**Legend**

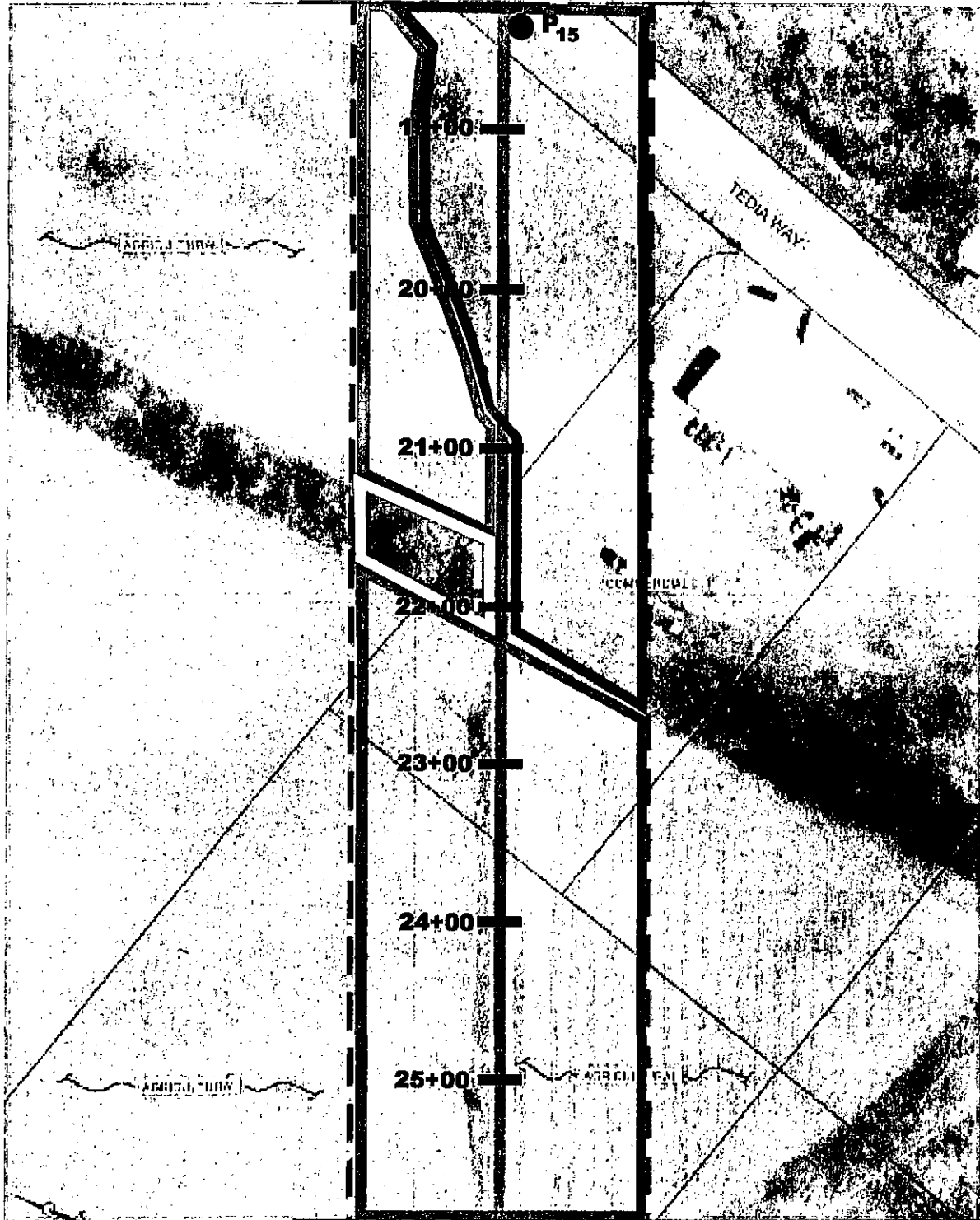
- Roost Tree
- Survey Area
- PROPOSED ROUTE
- 100' RADIUS
- Urban, Open, Pre-Development: 107,023.0 Sq. Ft.
- Urban/Forest 15,934.0 Sq. Ft.

<b>LONG LINE - SHEET 14</b>		
138 KV LONG LINE HAMILTON, BUTLER CO., OHIO		
Project: 011-17772-F31	Drawn By: NWU	 <small>BBOM, INC. 10000 ROUTE 100          COLUMBUS, OHIO 43240          TEL: 614-291-1000          FAX: 614-291-1001          WWW.BBOMINC.COM</small>
Drawing Date: 1.8.10	Approved By: ME3	
Last Updated: 1-6-2010	Scale: 1" = 100'	

138KV LONG LINE  
 1-6-2010 3:52PM  
 138KV LONG LINE  
 1-6-2010 3:52PM  
 138KV LONG LINE  
 1-6-2010 3:52PM



MATCHLINE - SHEET 14



MATCHLINE - SHEET 12

	Agricultural, Row Crop		Roost Tree
	Survey Area		Urban/Forest
	Urban, Open, Pre-Development		
<b>LEGEND</b>			
	PROPOSED ROUTE		
	100' RADIUS		
Agricultural, Row Crop 78,311.0 Sq. Ft.		Urban/Forest 4,155.0 Sq. Ft.	
Urban, Open, Pre-Development 44,818.0 Sq. Ft.			

## LONG LINE - SHEET 13

138 KV LONG LINE  
HAMILTON, BUTLER CO., OHIO

Project: 011-1772-E01	Drawn By: NWD
Drawing Date: 1-8-10	Approved By: NES
Last Updated: 1-8-2010	Scale: 1" = 100'

**BBCIM**  
SOLUTIONS TO RURAL LIFE

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It is to be used only for the project  
for which it was prepared.

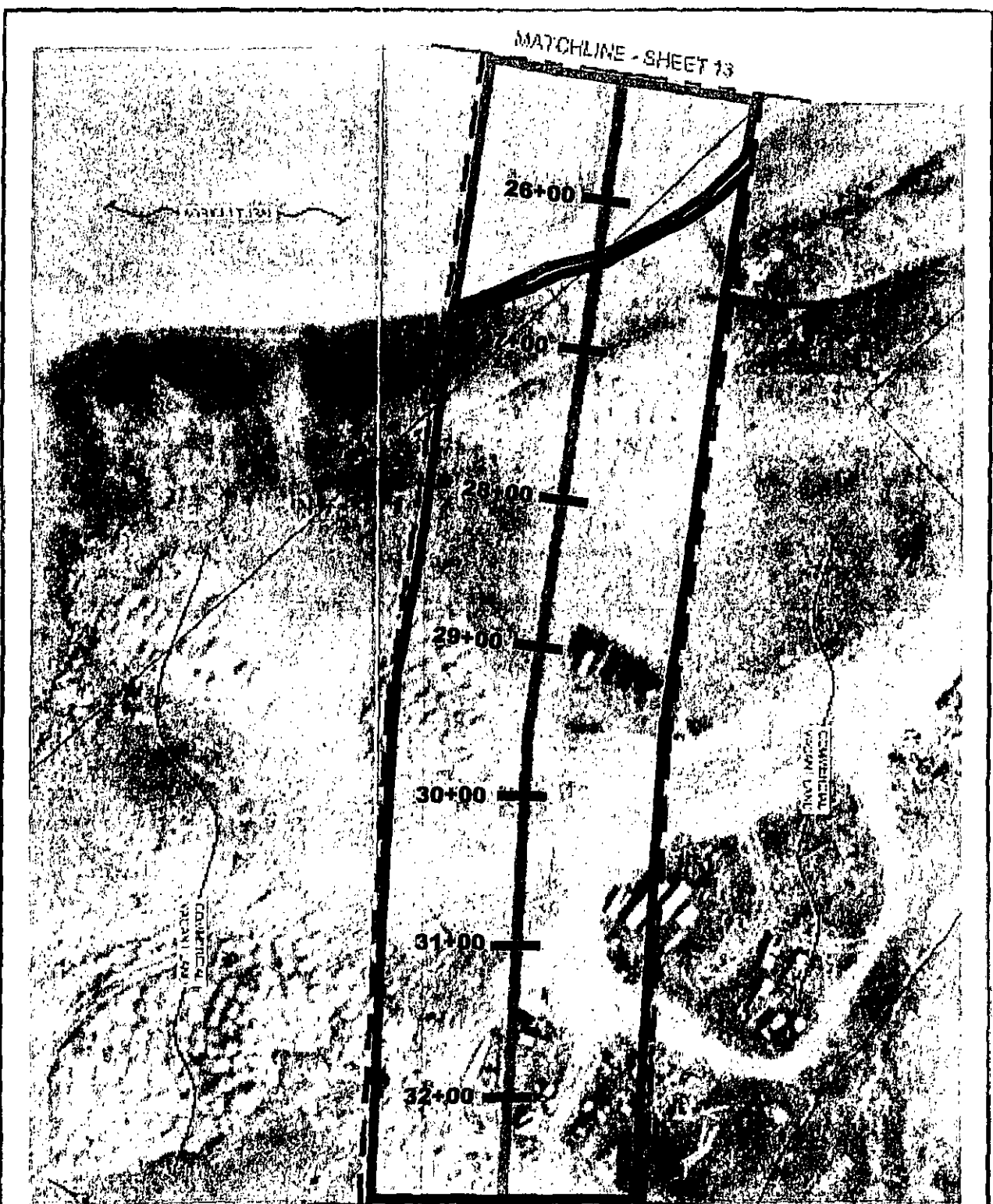
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Jan 28, 2010, 3:53pm  
Drawing Name: S:\TechDwg\work\138KV Line Hamilton New Route.dwg

011-1772-E01

File Path: 011-1772-E01.dwg  
User: nwd  
Date: 1-8-2010 3:53 PM  
SSDAM: 011-1772-E01.dwg

Jan 28, 2010, 3:53pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg



- ☒ Agricultural Row Crop.  
 19,318.0 Sq. Ft.
- LEGEND**
- PROPOSED ROUTE
- 100' RADIUS
- ☒ Construction, Demolition,  
 Debris Landfill: 110,591.0 Sq. Ft.

MATCHLINE SHEET 11

### LONG LINE - SHEET 12

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: D11-11772 L01

Drawn By: EJV

Working Date: 1-8-10

Approved By: MES

Last Updated: 1-8-2010

Scale: 1" = 100'

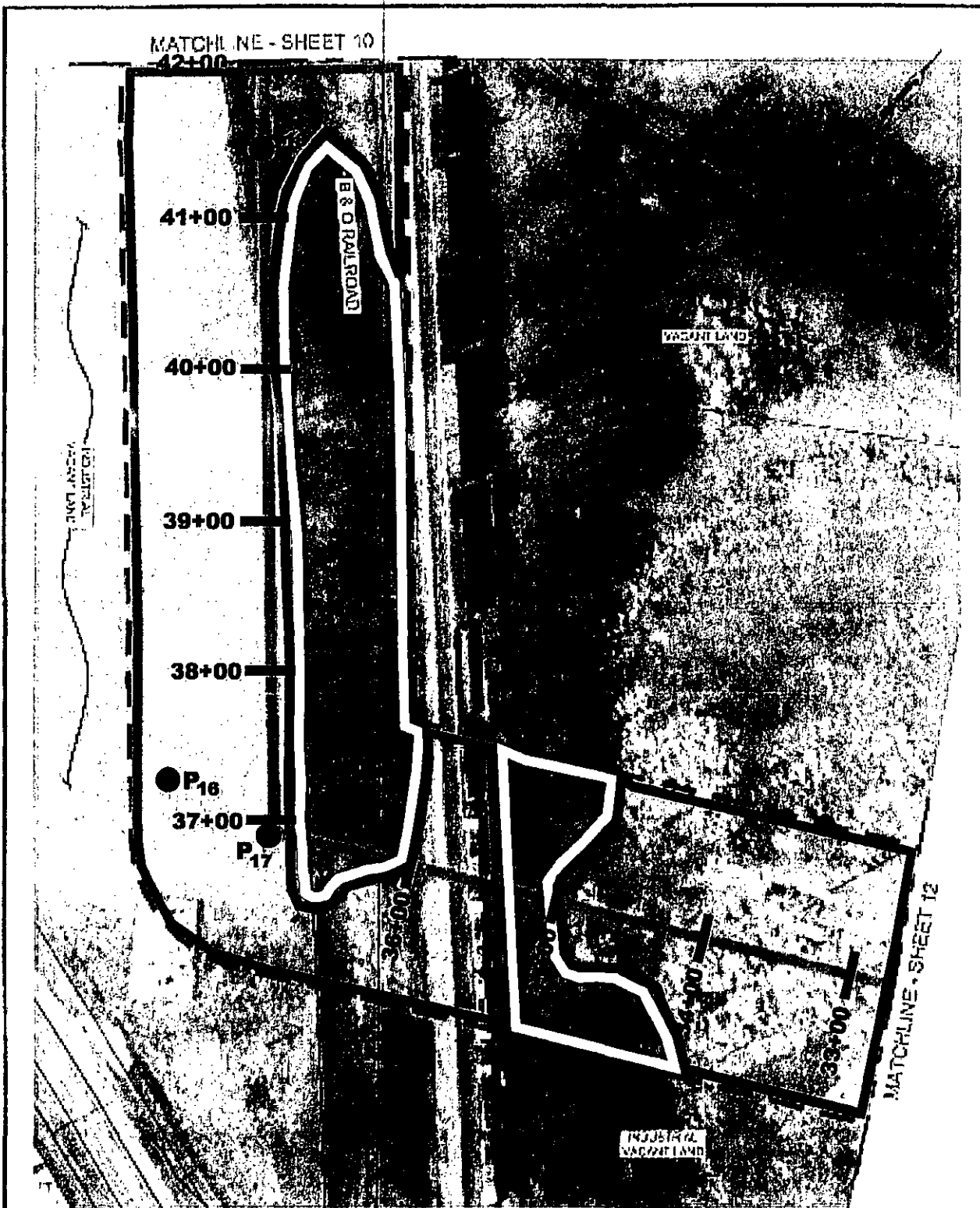
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**BBCM**  
 BROADBENT BROS. & CO. INC.

CONSTRUCTION  
 DEMOLITION  
 DEBRIS LANDFILL

Project: D11-11772 L01  
 Date: 1-8-2010  
 Time: 3:53 PM  
 User: EJV  
 Plot Date: 1-8-2010  
 Plot Time: 3:53 PM  
 Plot User: EJV

Jan 28, 2010, 4:03pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg



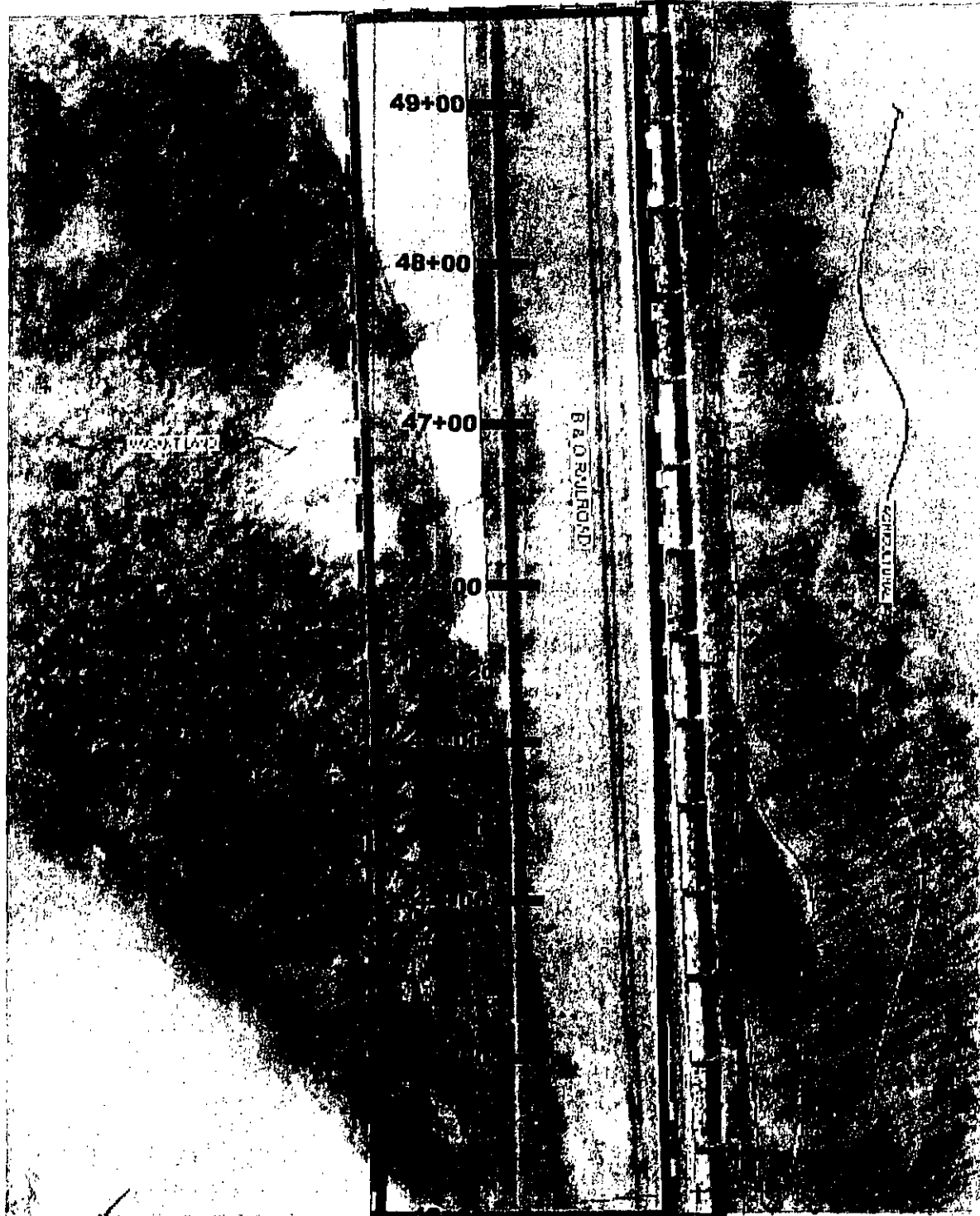
	Construction, Demolition, Debris Landfill: 33,219.0 Sq. Ft.
	Roost Tree
	Survey Area
	PROPOSED ROUTE
	100' RADIUS
	Urban/Forest 42,436.0 Sq. Ft.
	Urban/Non-Forest 76,208.0 Sq. Ft.

LONG LINE - SHEET 11		
138 KV LONG LINE HAMILTON, BUTLER CO., OHIO		
Project: 011-11772-ED1	Drawn By: NWD	 BUREAU OF BROADCASTING COMMUNICATIONS 1000 N. 10th St., Suite 100 Lincoln, NE 68502 Phone: (402) 441-1111 Fax: (402) 441-1112 Email: info@bbcm.com
Drawing Date: 1-6-10	Approved By: MES	
Last Updated: 1-8-2010	Scale: 1" = 100'	

Project: 011-11772-ED1  
 Date: 1-6-10  
 User: NWD  
 Title: 138 KV LONG LINE  
 Path: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg  
 Project: 011-11772-ED1

Jan 28, 2010, 3:54pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg

MATCHLINE - SHEET 9

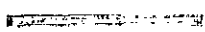


MATCHLINE - SHEET 11



Urban/Non-Forest  
 131,973.0 Sq. Ft.

**LEGEND**



PROPOSED ROUTE



100' RADIUS

**LONG LINE - SHEET 10**

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: 011117/24-01

Drawn By: NWB

Drawing Date: 1-8-10

Approved By: MES

Last Updated: 1-8-2010

Scale: 1" = 100'

1:1



138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO  
 1-8-2010

PROJECT: 011117/24-01

DATE: 1-8-2010

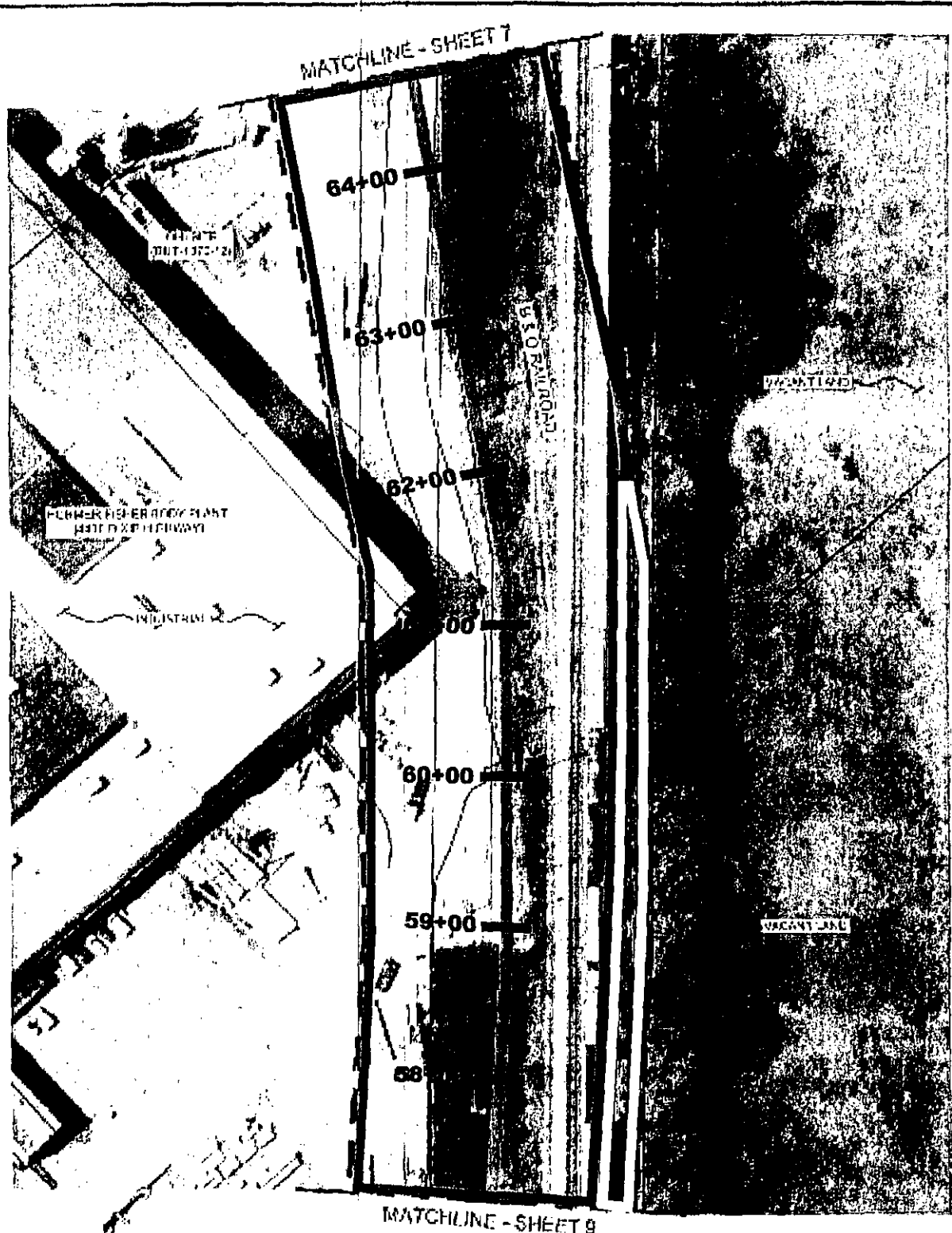
THE LATEST VERSION OF THIS DRAWING IS THE ONLY ONE TO BE USED.


FOR INFO: 1-8-2010 11:24:00 AM BY: NWB



TOTAL NUMBER OF SHEETS: 10 SHEET NO. 10 OF 10



Jan 28, 2010, 3:54pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg



 Urban/Non-Forest  
 120,888.0 Sq. Ft.  
**LEGEND**

 PROPOSED ROUTE  
 100' RADIUS  
 Urban/Forest  
 6,952.0 Sq. Ft.

MATCHLINE - SHEET 8

**LONG LINE - SHEET 8**

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: 011-11772-E01	Drawn By: NWB
Drawing Date: 1-5-10	Approved By: M/S
Last Updated: 1-6-2010	Scale: 1" = 100'

**BBCM**  
 BROADBAND COMMUNICATIONS  
 CONSULTING & DESIGN, INC.  
 1000 N. HIGHWAY 100, SUITE 100  
 COLUMBUS, OHIO 43260-1000  
 (614) 291-1000

1000-1-2010-01  
 File Path: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg  
 Plot File: 138KV Line Hamilton New Route.dwg  
 BCCM File Name: 138KV Line Hamilton New Route.dwg  
 1000-1-2010-01

Jan 28, 2010, 3:55pm  
 Drawing Name: S:\TechDwg\work\138KV Line Hamilton New Route.dwg



Urban/Forest  
 4,141.0 Sq. Ft.

Urban/Non-Forest  
 117,382.0 Sq. Ft.

# LEGEND

- PROPOSED ROUTE
- 100' RADIUS

## LONG LINE - SHEET 7

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

**BBCM**  
 SURVEYING & DESIGN

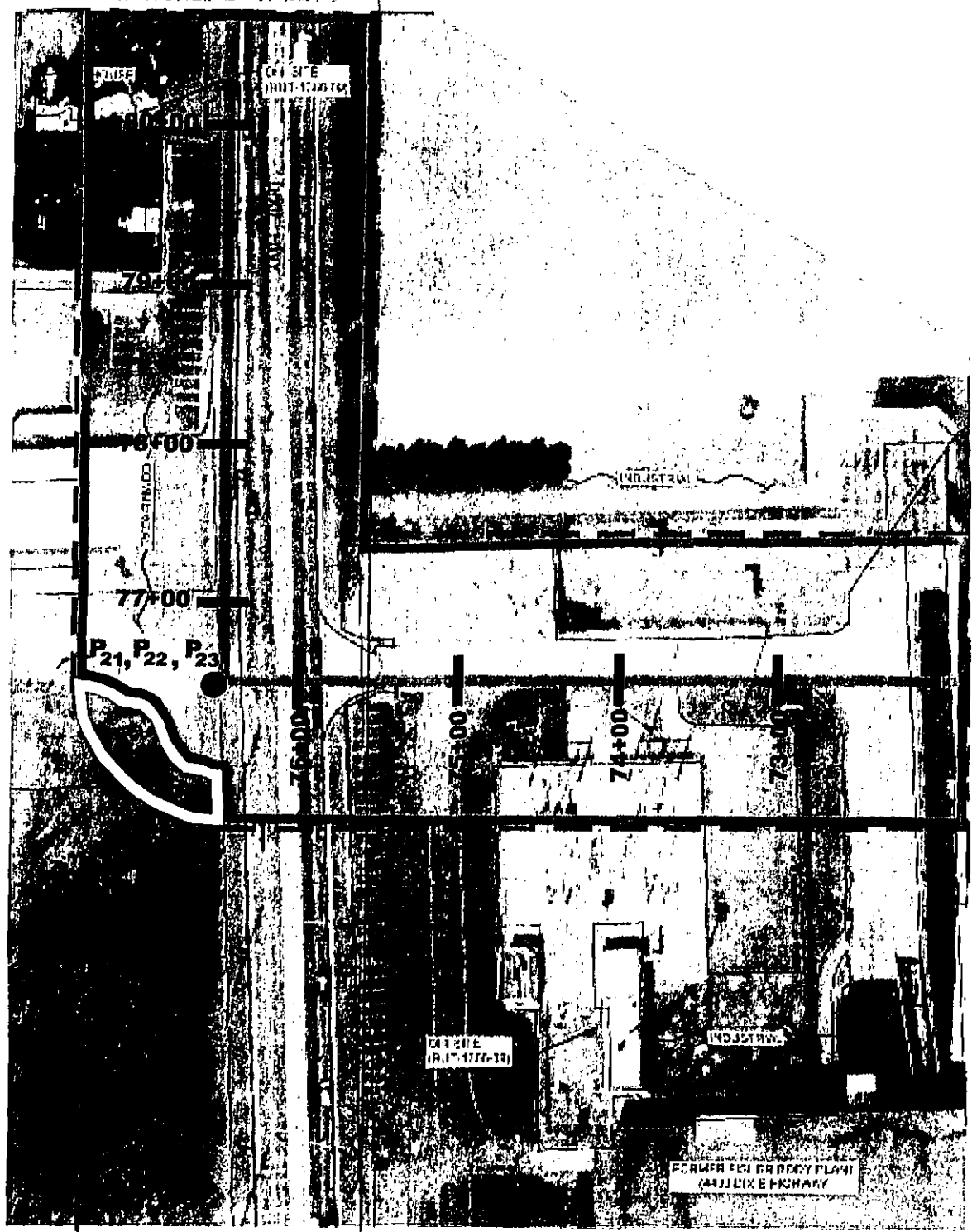
Project: 011-11772-F01	Drawn By: MVS
Drawing Date: 1-6-10	Approved By: MCB
Last Updated: 1-6-2010	Scale: 1" = 100'

10 and 11111 101 100  
 101111 101 100  
 10111 101 100  
 10111 101 100

10111 101 100  
 10111 101 100  
 10111 101 100  
 10111 101 100



Jan 28, 2010, 3:55pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg



Urban/Forest 3,473.0 Sq. Ft.  Urban/Non-Forest 149,290.0 Sq. Ft.

**LEGEND**

- PROPOSED ROUTE
- 100' RADII

**LONG LINE - SHEET 6**

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: 01*-11772-ED1	Drawn By: MVB
Drawing Date: 1-6-10	Approved By: MFR
Last Updated: 1-6-2010	Scale: 1" = 100'



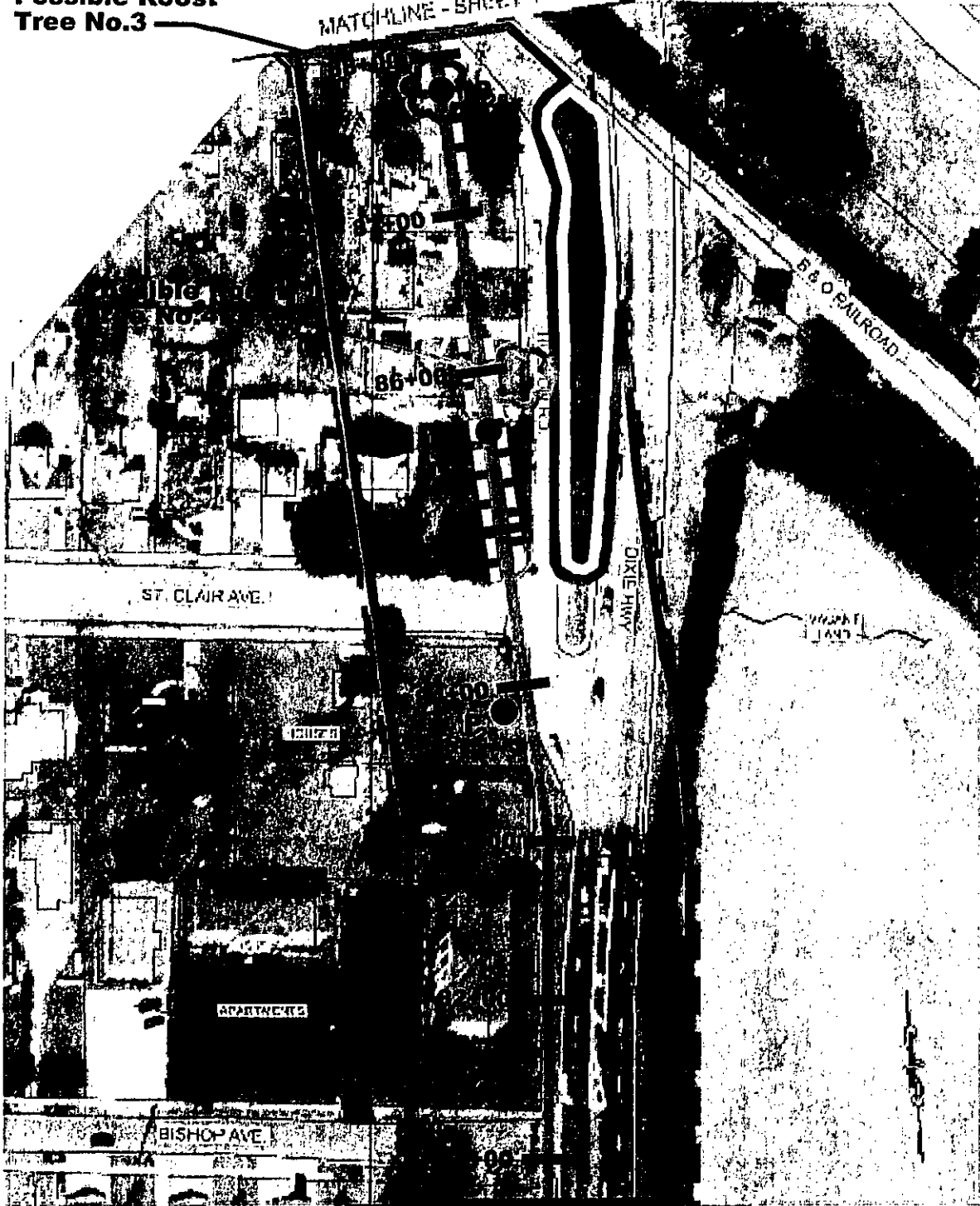
Geometric Design  
 Civil Engineering  
 Surveying  
 Construction Management

138KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO  
 1-6-10  
 1" = 100'  
 138KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO  
 1-6-10  
 1" = 100'



Possible Roost  
Tree No.3

MATCHLINE - SHEET 4



Urban/Forest 7,454.0 Sq. Ft. ☐ Urban/Non-Forest 117,877.0 Sq. Ft.

MATCHLINE - SHEET 6

### LEGEND

- PROPOSED ROUTE
- 100' RADIUS
- Roost Tree
- Survey Area

### LONG LINE - SHEET 5

138 KV LONG LINE  
HAMILTON, BUTLER CO., OHIO

Project: 011-11772-E01	Drawn By: KWB
Drawing Date: 1-8-10	Approved By: MIES
Last Updated: 1-8-2010	Scale: 1" = 100'

**BBCM**  
BUTLER COUNTY BROADCASTING COMPANY

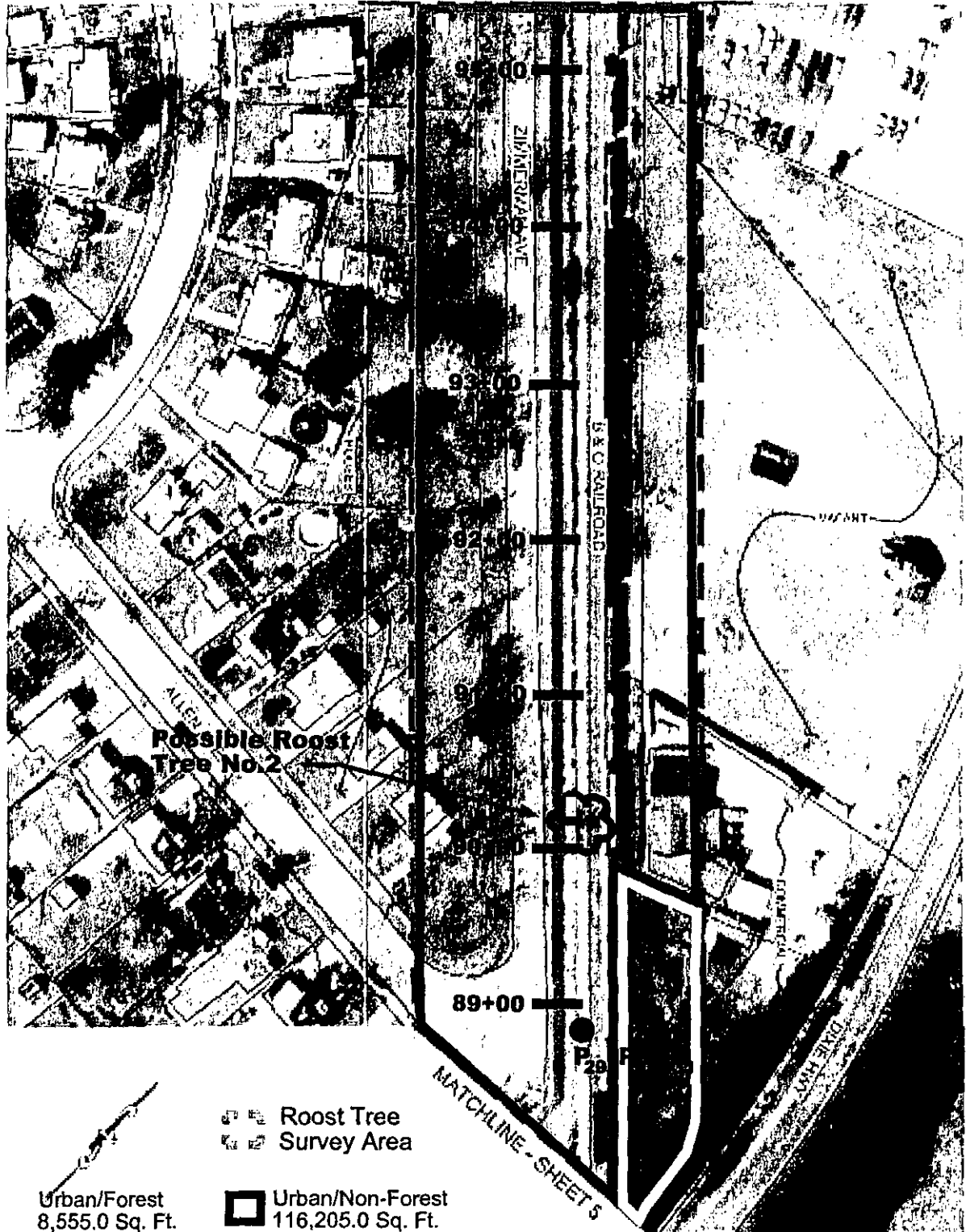
Call us at 510-2000  
Fax us at 510-2000  
or visit our website  
www.bbcm.com

Jan 28, 2010, 4:04pm  
Drawing Name: S:\TechDwg\work\138KV Line Hamilton New Route.dwg

Project: 011-11772-E01  
Drawing: 1-8-10  
Drawing Date: 1-8-10  
Last Updated: 1-8-2010

Jan 28, 2010, 4:04pm  
 Drawing Name: S:\TechDraws\work\138KV Line Hamilton New Route.dwg

MATCHLINE SHEET 3



Urban/Forest  
 8,555.0 Sq. Ft.

Roost Tree  
 Survey Area

Urban/Non-Forest  
 116,205.0 Sq. Ft.

**LEGEND**

PROPOSED ROUTE  
 100' RADII

**LONG LINE - SHEET 4**

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: 011-11772-E-01	Drawn By: NWR
Drawing Date: 1-8-10	Approved By: MBS
Last Updated: 1-5-2010	Scale: 1" = 100'

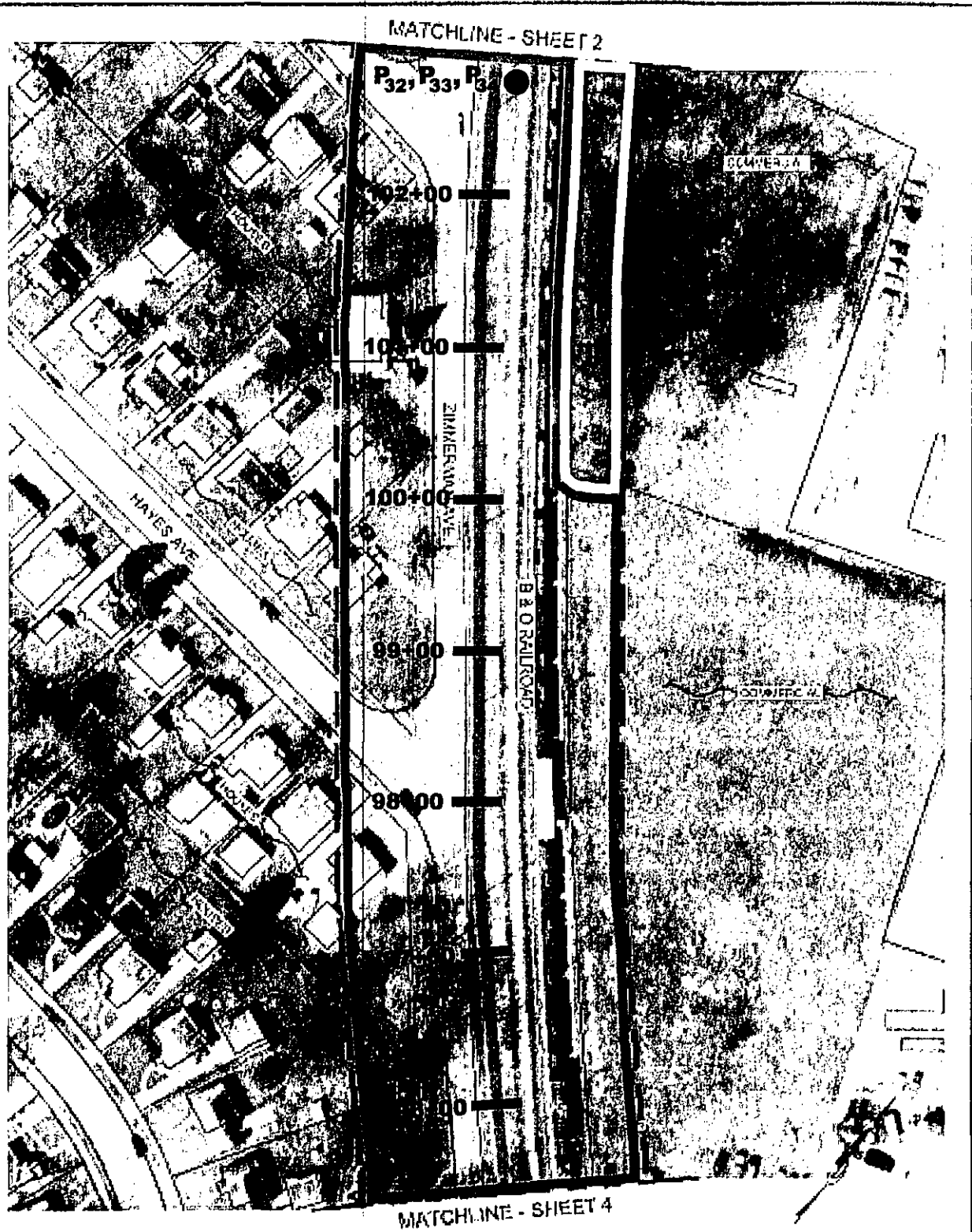
**BBCM**  
 BIRCH BROS. CONSULTING & ENGINEERING, INC.

2000 North Main Street  
 Columbus, Ohio 43215  
 614.291.1111  
 www.bbcm.com

1:1

Jan 28, 2010, 3:56pm  
Drawing Name: S:\TechDraws\work\138KV Line Hamilton New Route.dwg

Images - New.dwg  
File Last Updated Jan 05, 2010  
Plot Date 1-6-2010 6:04:06 PM By: [unclear]  
BBCM File Name: S:\TechDraws\work\138KV Line Hamilton New Route.dwg - 00001



Urban/Forest 9,102.0 Sq. Ft.    ☐ Urban/Non-Forest 119,231.0 Sq. Ft.

**LEGEND**

PROPOSED ROUTE  
 100' RADIUS

**LONG LINE - SHEET 3**

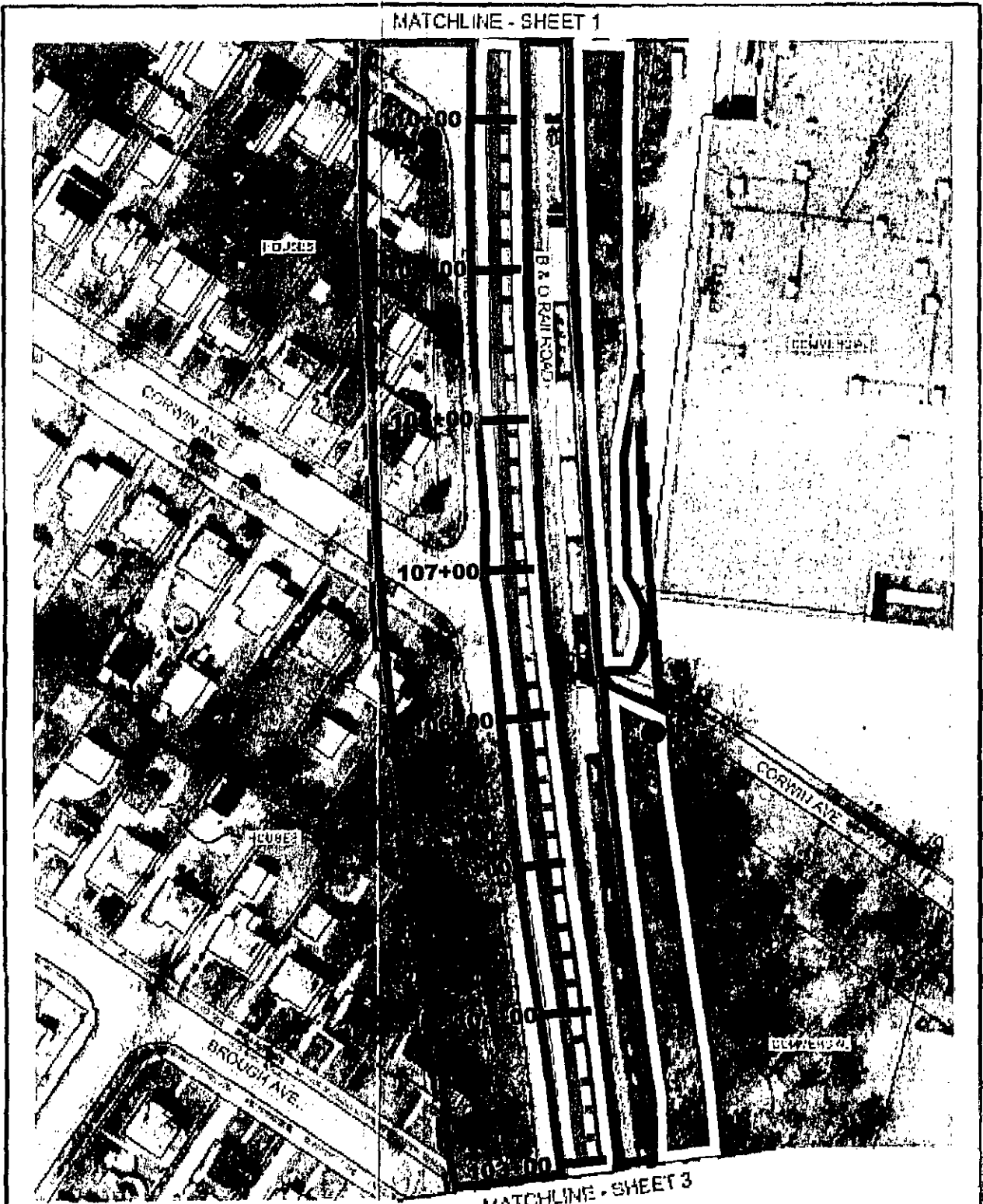
138 KV LONG LINE  
HAMILTON, BUTLER CO., OHIO

Project: 011-11772-E01	Drawn By: NWB
Drawing Date: 1-6-10	Approved By: MES
Last Updated: 1-6-2010	Scale: 1" = 100'

**BBCM**  
Business Building Corp.

138KV Line Hamilton New Route.dwg  
1/6/2010 6:04:06 PM  
Order: 15111772-E01  
1/6/2010 11:11:11

Jan 28, 2010, 3:56pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg



Urban/Forest 37,353.0 Sq. Ft. ☐ Urban/Non-Forest 78,356.0 Sq. Ft.

**LEGEND**

- PROPOSED ROUTE
- 100' RADIUS
- Roost Tree
- Survey Area

**LONG LINE - SHEET 2**

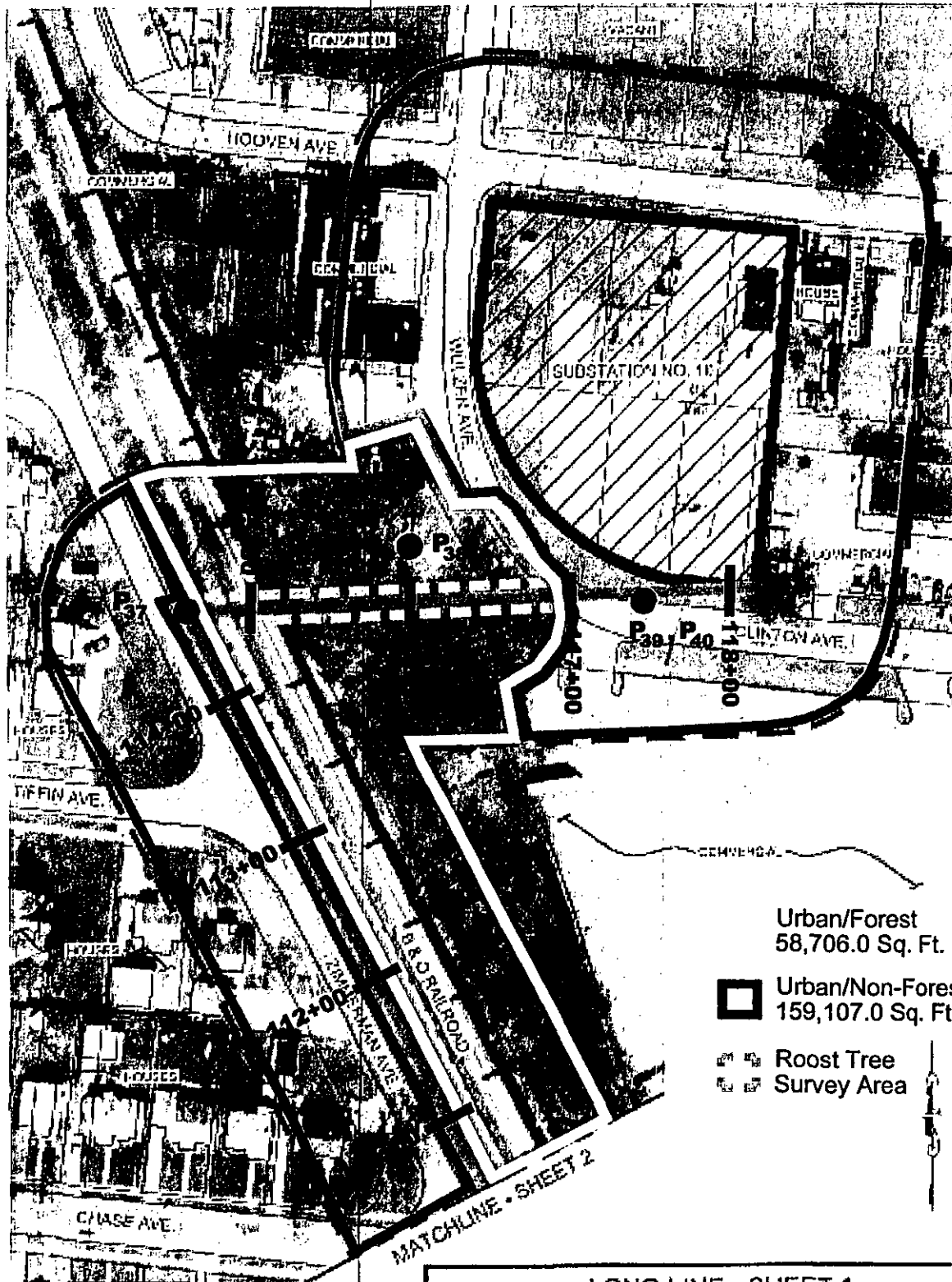
138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: 011-1772-001	Drawn By: NWD
Drawing Date: 1-8-10	Approved By: MFS
Last Updated: 1-8-2010	Scale: 1" = 100'

**BECM**  
 Engineering & Construction Management  
 2200 N. 10th Street  
 Columbus, OH 43219  
 Phone: 614.291.1111

Project: 011-1772-001  
 File: Last Updated: Jan 08, 2010  
 Plot Info: 1-8-2010 3:56pm 50' x 11.69" (11.69" x 50")  
 C:\Program Files\Autodesk\AutoCAD 2010\acadplot.dwg

Jan 28, 2010, 4:05pm  
 Drawing Name: S:\TechDwgs\work\138KV Line Hamilton New Route.dwg



- Urban/Forest  
58,706.0 Sq. Ft.
- Urban/Non-Forest  
159,107.0 Sq. Ft.
- Roost Tree
- Survey Area

**LEGEND**

- PROPOSED ROUTE
- 100' RADIUS

**LONG LINE - SHEET 1**

138 KV LONG LINE  
 HAMILTON, BUTLER CO., OHIO

Project: 011-11/72-EC1	Drawn By: NWD
Drawing Date: 1-6-10	Approved By: MFS
Last Updated: 1-6-2010	Scale: 1" = 100'

**BBCM**  
 Surveying & Mapping

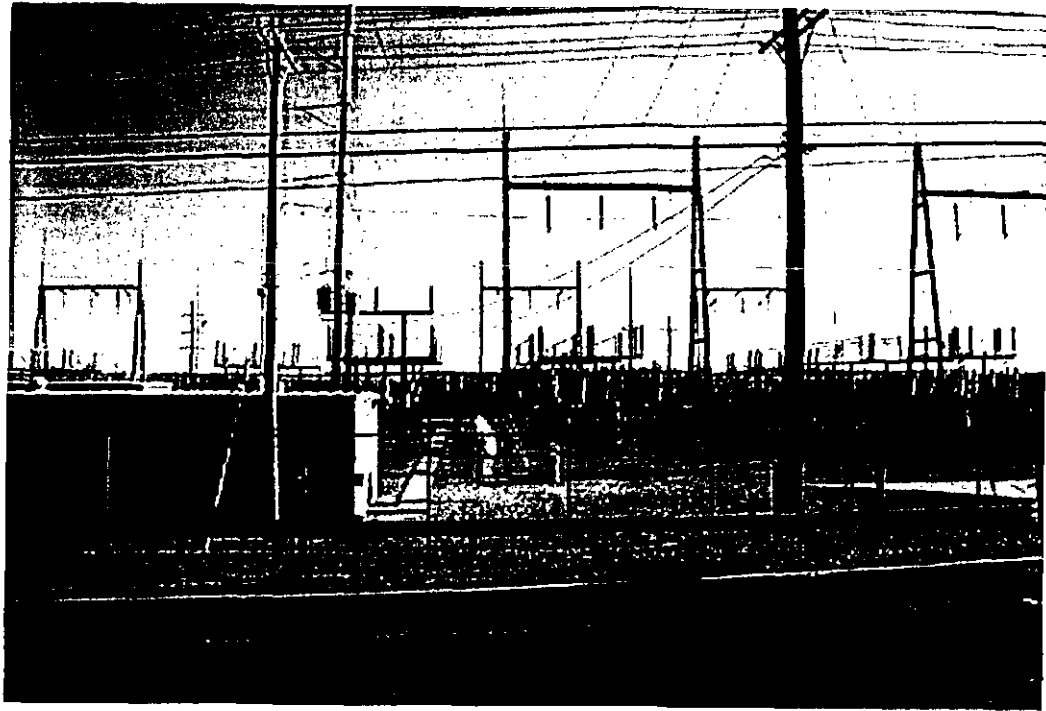
100% Accuracy  
 Guaranteed  
 Licensed Professional  
 Surveyors

**Appendix C: Annotated Photographs of Select Points along the  
Transmission Route and Photo Log**

Hamilton Long Line Project			
Photograph Log			
Photo Number	Station	Direction of Picture	Landscape Description
p1	Sheet 15 0 + 70	N 85 E	Urban Road/ Substation Gilmore Rd. ROW (W)
p2	Sheet 15 0 + 70	Due North	Urban Road / Gilmore Rd. W ROW
p3	Sheet 15 6 + 00	Due South	Urban Road / Gilmore Rd. W ROW
p4	Sheet 15 6 + 00	N 40 E	Looking at Gilmore Ponds Metropark Urban Road / Gilmore Rd. W ROW
p5	Sheet 15 6 + 00	N 80 E	Urban Road / Gilmore Rd. W ROW Looking at Gilmore Ponds Metro Park
p6	Sheet 15 6 + 00	S 70 W	Urban Road / Gilmore Rd. W ROW
p7	Sheet 14 12 + 85	N 40 E	Duke 138 kv ROW at Bohlke Blvd.
p8	Sheet 14 12 + 85	S 70 W	Duke 138 kv ROW at Bohlke Blvd.
p9	Sheet 14 14 + 60	S 50 W	Duke 138 kv ROW near Bohlke Blvd.
p10	Sheet 14 14 + 90 R163	Due S	Bohlke Blvd. Looking SE at Urban Forest
p11	Sheet 14 16 + 00	N 40 W	Duke 138kV looking at Urban Forest
p12	Sheet 14 16 + 70 R15	N/A	Close Up/High Resolution to Assist w/ Tree ID
p13	Sheet 14 16 + 70 R15	N 40 W	Possible Roost Tree
p14	Sheet 14 17 + 35 R105	S 70 E	Tedia Way looking E at Urban Forest
p15	Sheet 12 18 + 35	S 80 W	Tedia Way looking W at Urban Forest
p16	Sheet 11 37 + 30 L100	N 60 E	Between Symmes Rd. and CSX Railroad
p17	Sheet 11 36 + 90	N 50 W	Duke 138kV ROW along CSX Railroad
p18	Sheet 11 41 + 45	S 40 E	Duke 138kV ROW along CSX Railroad
p19	Sheet 10 45 + 65 L40	N 30 W	Duke 138kV ROW along CSX Railroad
p20	Sheet 10 45 + 65 L40	S 45 E	Duke 138kV ROW along CSX Railroad

p21	Sheet 6 76 +45	N 10 W	SR 4 ROW West of GM Plant
p22	Sheet 6 76 +45	N 85 E	SR 4 ROW West of GM Plant
p23	Sheet 6 76 +45	S 85 W	SR 4 ROW West of GM Plant
p24	Sheet 5 81 + 50	Due N	SR 4 ROW Near Bishop Ave Intersection
p25	Sheet 5 81 + 50	S 20 W	SR 4 ROW Near Bishop Ave Intersection
p26	Sheet 5 83 + 85	N 10 E	SR 4/St. Clair/ Huston Intersection
p27	Sheet 5 85 + 65		Possible Roost Tree No. 4/ Huston Road
p28	Sheet 5 87 + 80		Possible Roost Tree No. 4/Huston/Zimmerman
p29	Sheet 4 88 + 85	N 10 W	Zimmerman Ave. ROW at Allen; Possible Roost Tree No. 1 in the background of p29
p30	Sheet 4 88 + 85	N 75 E	Zimmerman Ave. ROW at Allen
p31	Sheet 4 88 + 85	S 10 W	Zimmerman Ave. ROW at Allen
p32	Sheet 3 102 + 75	N 10 W	Brough and Zimmerman in an open area on E Side of Zimmerman at USGS Benchmark
p33	Sheet 3 102 + 75	S 30 E	Brough and Zimmerman in an open area on E Side of Zimmerman at USGS Benchmark
p34	Sheet 3 102 + 75	S 75 E	Brough and Zimmerman in an open area on E Side of Zimmerman at USGS Benchmark
p35	Sheet 2 105 + 80 R80	N 70 W	Corwin ROW E of CSX RR Looking West
p36	Sheet 2 109 + 90 L25	S 30 E	Zimmerman and Chase
p37	Sheet 1 114 + 60 L25	S 20 E	Zimmerman Ave. North of Tiffin
p38	Sheet 1 116 + 00 R10	S 85 W	Urban Forest near Wulzen and Clinton
p39	Sheet 1 117 + 45	S 85 E	Sub 10 at Clinton Ave
p40	Sheet 1 117 + 45	S 85 W	Looking West at Urban Forest Between Wulzen Avenue and CSX Railroad





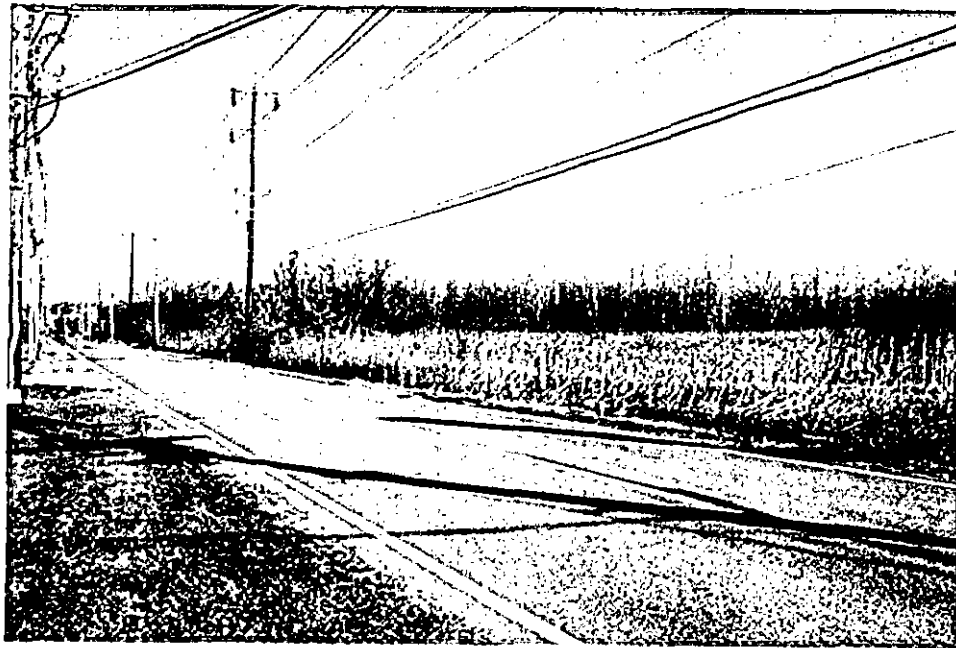
**P1: Station 0 + 70 Sub 11 Looking North 85° East**



**P2: Station 0 + 70 Looking Due North**



**P3: Station 6+00 Looking Due South**



**P4: Station 6+00 Looking N40E**



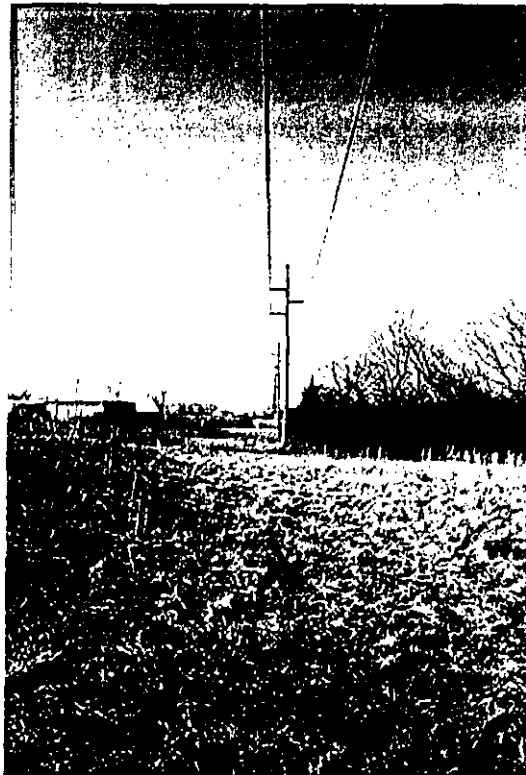
**P5: Station 6+00 Looking N80E**



**P6: Station 6+00 Looking S70W**



**P7: Station 12+85 Looking N40E**



**P8: Station 12+85 Looking S70W**



**P9: Station 14+60 R28 Looking S50W**



**P10: Station 14+90 R163 Looking Due S**



**P11: Station 16+00 Looking N40W**



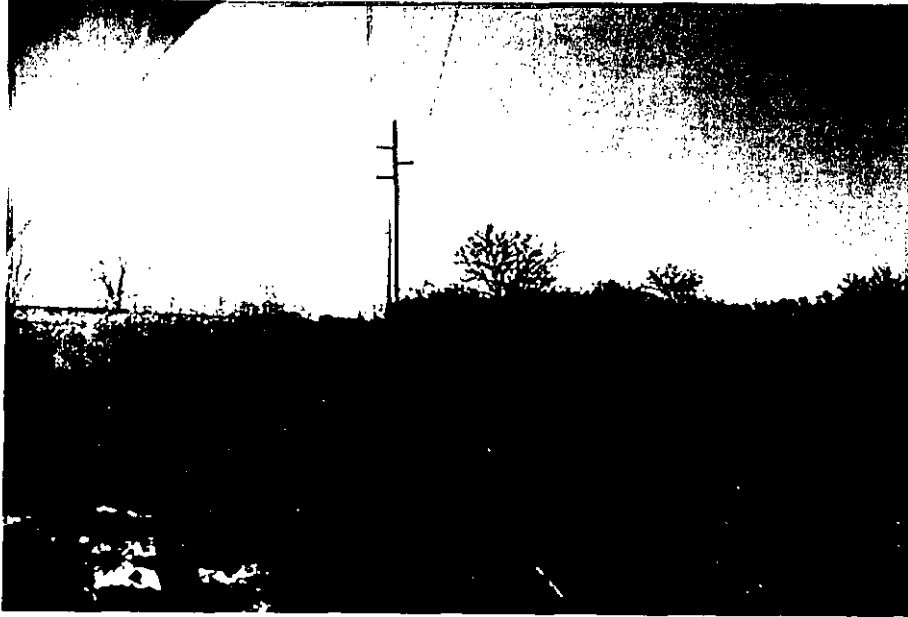
**P12: Station 16+70 R15 Possible Roost Tree**



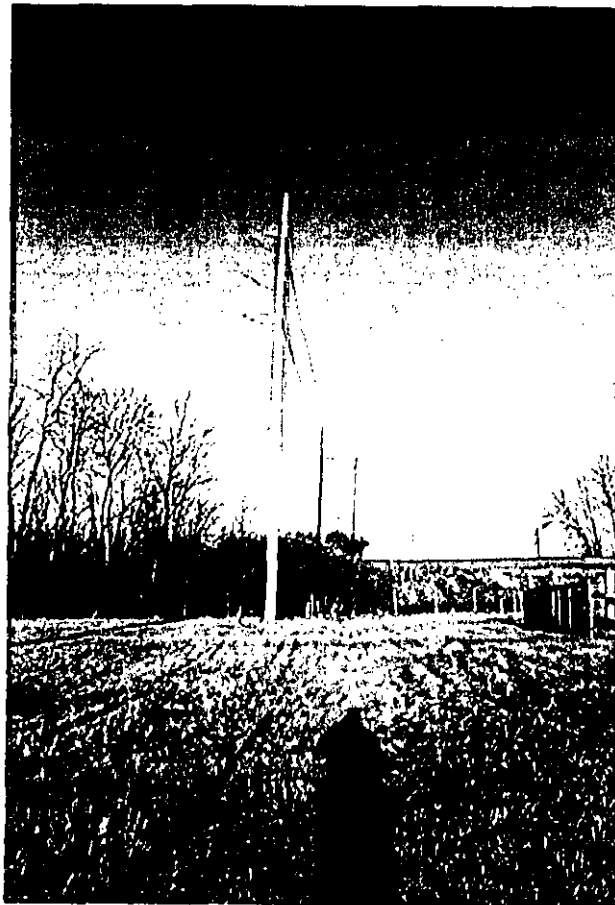
**P13: Station 16+70 R Looking N40W**



**P14: Station 17+35 R105 Looking S70E**

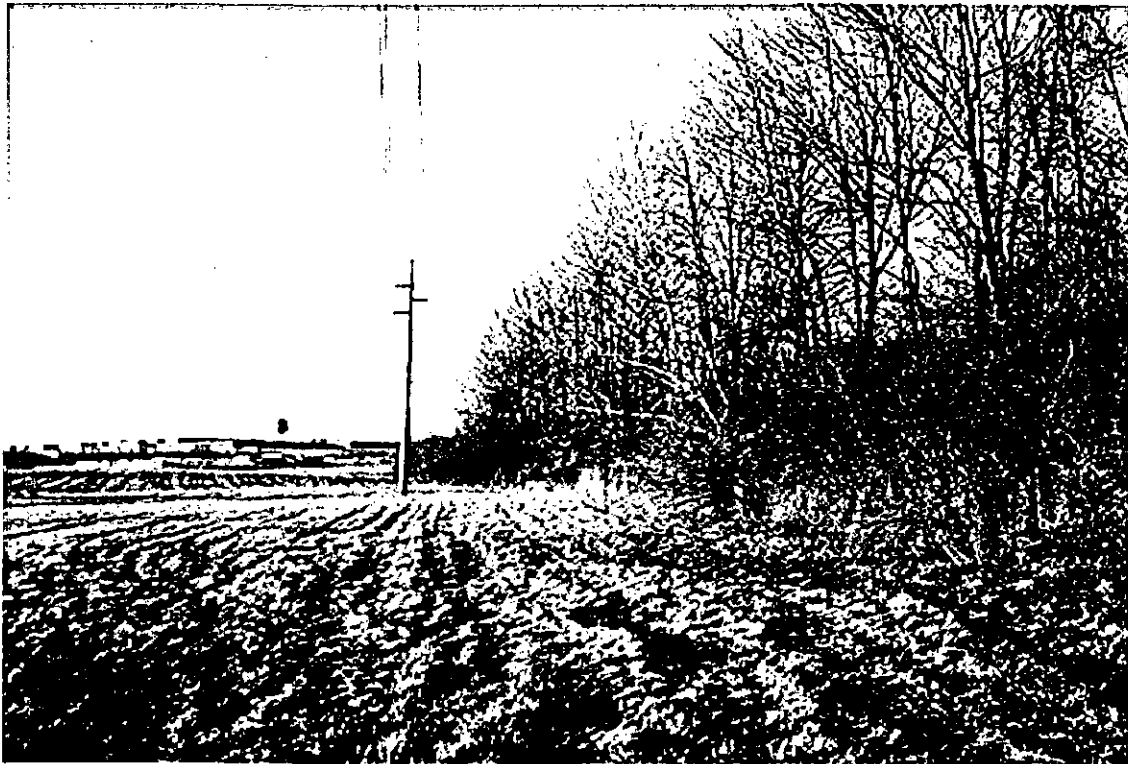


**P15: Station 18+35 Looking S80W**



**P16: Station 37+30 L100 Looking N60E**

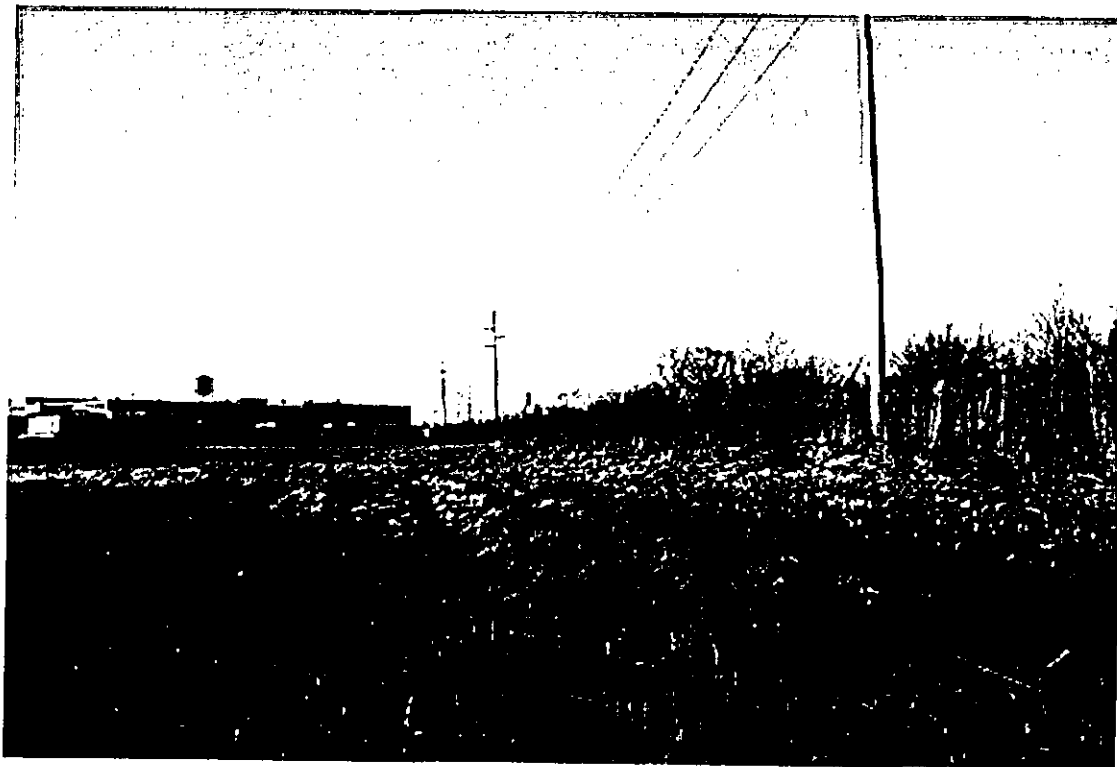




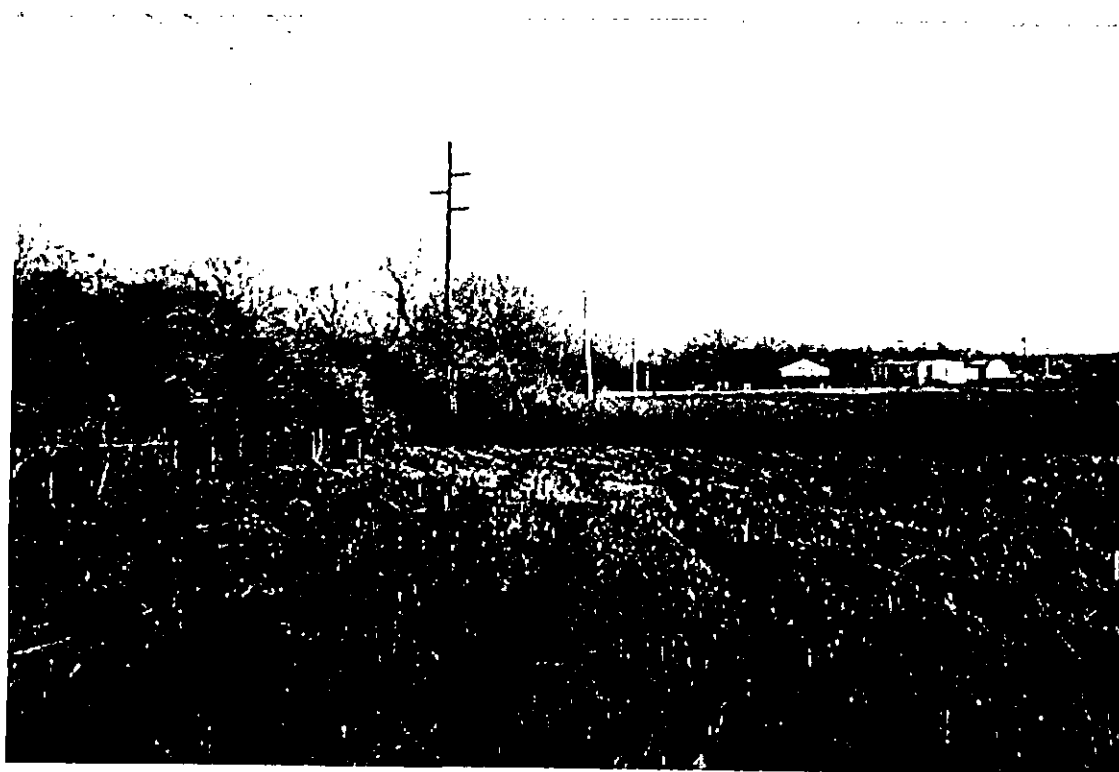
**P17: Station 36+90 Looking N50W**



**P18: Station 41+45 S40E**



**P19: Station 45+65 L40 Looking N30W**



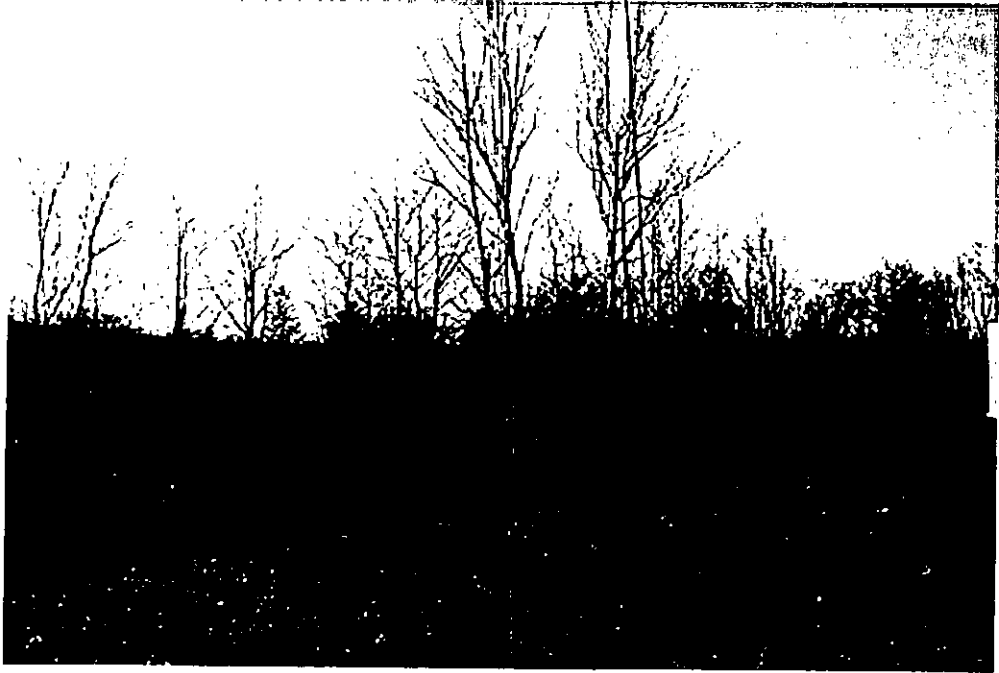
**P20: Station 45+65 L40 Looking S45E**



**P21: Station 76+45 Looking N10W**



**P22: Station 76+45 Looking N85E**



**P23: Station 76+45 Looking S85W**



**P24: Station 81+50 Looking Due North**



**P25: Station 81+50 Looking S20W**



**P26: Station 83+85 Looking N10E**



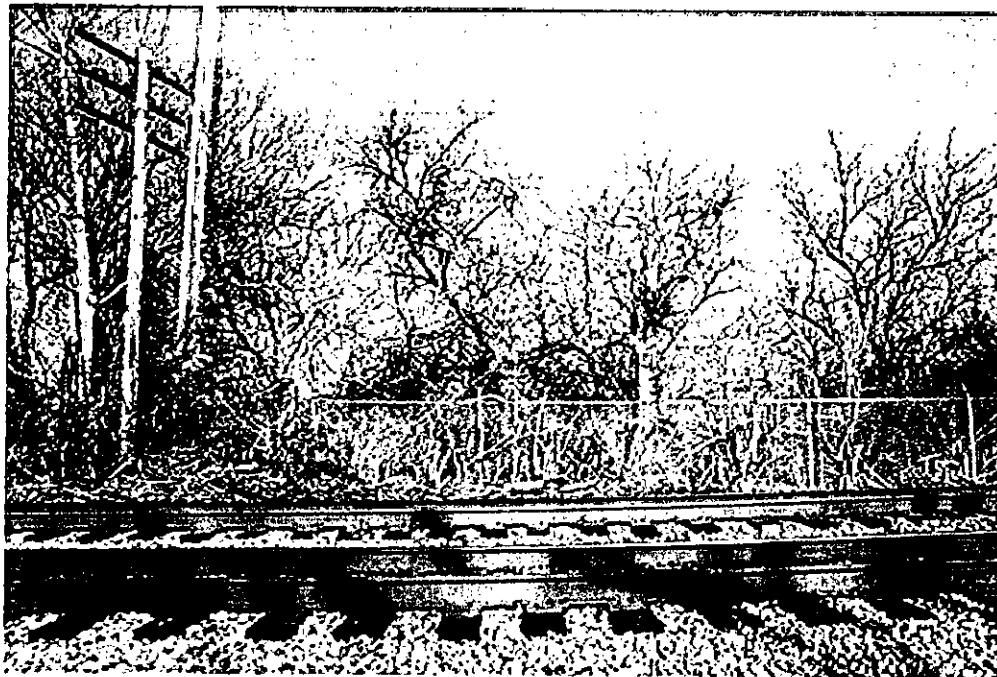
**P27: Station 85+65 Possible Roost Tree**



**P28: Station 87+80 Possible Roost Tree**



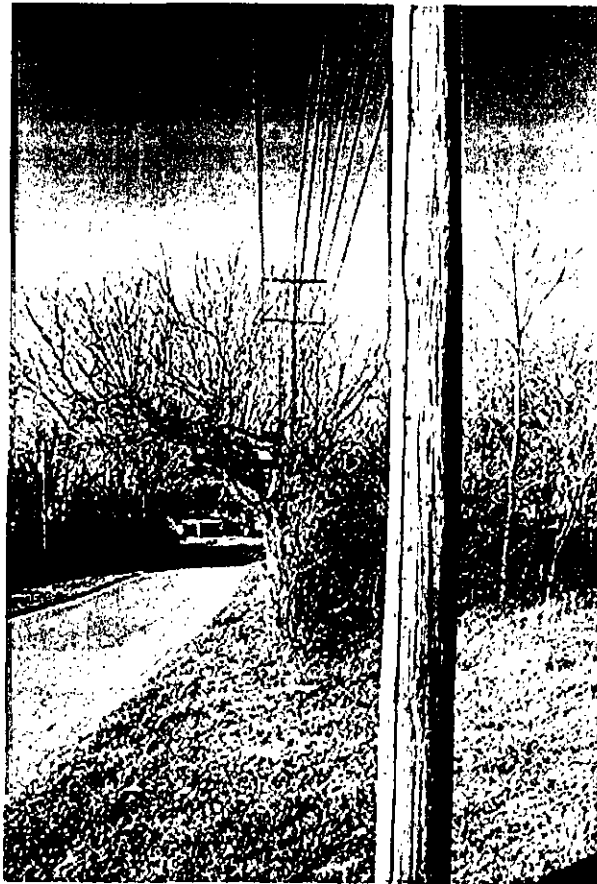
**P29: Station 88+85 Looking N10W**



**P30: Station 88+85 Looking N75E**



**P31: Station 88+85 Looking S10W**

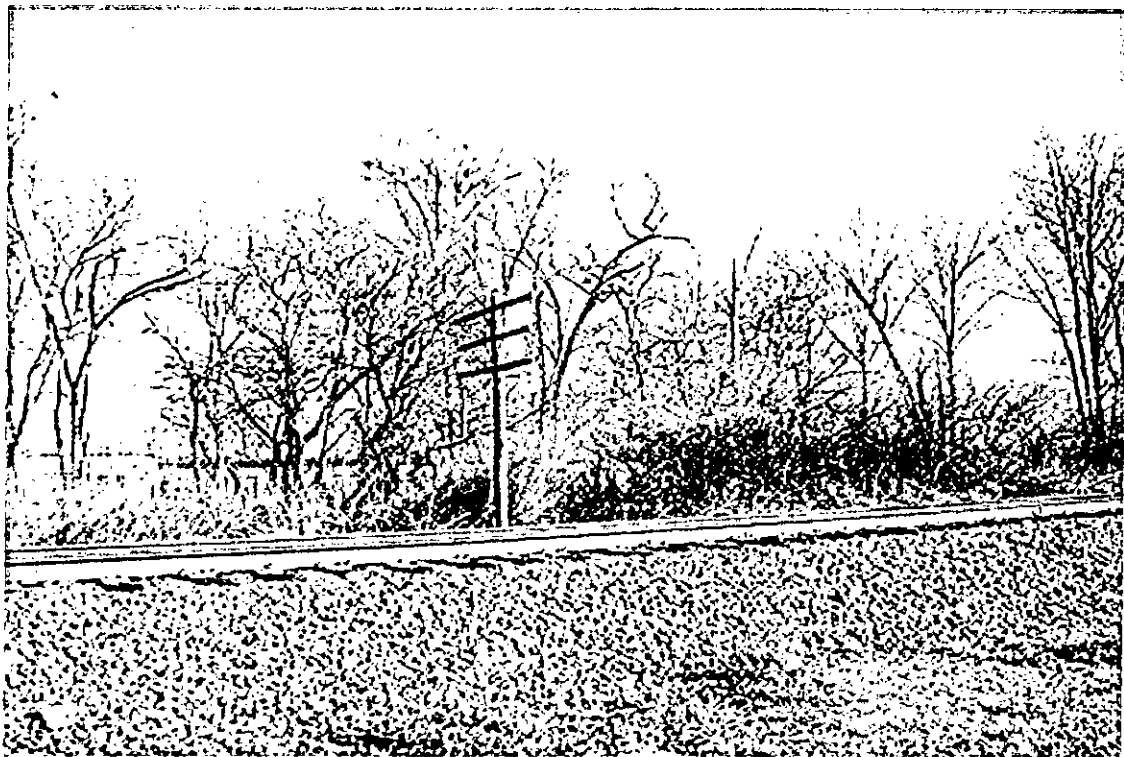


**P32: Station 102+75 Looking N10W**





**P33: Station 102+75 Looking S30E**



**P34: Station 102+75 Looking S75E**



**P35: Station 105+80 R80 Looking N70W**



**P36: Station 109+90 L25 Looking S30E**



**P37: Station 114+60 L25 Looking S20E**



**P38: Station 116+00 R10 Looking S85W**



**P39: Station 117+45 Looking S85E**



**P40: Station 117+45 Looking S85W**