Coal Mining and Reclamation Permit
Incidental Boundary Revision (IBR)

Issued To: AMERICAN ENERGY CORP
43521 Mayhugh Hill Rd.
Twp Hwy 88
Beallsville, OH 43716

Telephone: (740) 926-9152

Permit Number: D-425
Application Number: IBR-425-17
Acreage: 1.80
Effective: 06/24/2009
Expires: 10/21/2009

Type of Operation: Surface
Reason: Air Shaft

LOCATION OF PERMIT AREA

NAME OF LANDOWNERS	T	R	SECTION	LOTS	TOWNSHIP	COUNTY
Raven Rocks Inc.	6	5	8		WAYNE	BELMONT

The issuance of this IBR means only that the application to conduct a coal mining operation meets the requirements of Chapter 1513 of the Revised Code, and as such DOES NOT RELIEVE the operator of any obligation to meet other federal, state or local requirements.

This IBR is issued in accordance with and subject to the provisions, conditions, and limitations of Chapter 1513 of the Revised Code and Chapters 1501:13-1, 1501:13-3 through 1501:13-14 of the Administrative Code.

The approved water monitoring plan for this IBR is:

Quality: N/A
Quantity: N/A

Note: Any previous condition(s) imposed on this permit, or subsequent adjacent areas, also apply to this IBR unless noted otherwise.

Signature: _____ **Date:** 06/24/2009
Chief, Mineral Resources Management

F101 Rev: 07/01/2001

OPERATOR

IBR-0425-17

AEC 07552

Ohio Department of Natural Resources
TED STRICKLAND, GOVERNOR
SEAN LOGAN DIRECTOR

Division of Mineral Resources Management
John F. Husted, Chief
2050 E. Wheeling Avenue
Cambridge, OH 43725-2159
Phone: (740)439-9079 Fax: (740)432-7711

Date: 06/25/2009

To: Appropriate Governmental Agencies

From: John Husted, Chief
Division of Mineral Resources Management

Re: Coal Mine Application Number: IBR-425-17
Coal Mine Permit Number: D-425
Mine Name: Century
Date Issued: 06/24/2009

Applicant: AMERICAN ENERGY CORP
43521 Mayhugh Hill Rd.
Twp Hwy 88
Beallsville, OH 43716

Telephone: (740) 926-9152

Permit Location:

COUNTY	TOWNSHIP	SECTION	LOTS	T	R	Quad
BELMONT	WAYNE	8		6	5	HUNTER

Surface Acres: 1.8

The Division of Mineral Resources Management has issued a coal mining and reclamation permit Incidental Boundary Revision (IBR) to the above named applicant. The permit number and date of issuance is shown above.

The approved water monitoring plan for this permit's IBR is:

Distribution List:

Office of Surface Mining
4605 Morse Road
Room 102
Columbus, OH 43230

U.S. Fish & Wildlife Service
Attn: Mary Knapp, Ph. D.
4625 Morse Rd
Suite 104
Columbus, OH 43230

Ohio Historical Preservation Office
567 East Hudson Street
Columbus, OH 43211-1030

Michael Eggert
Ohio EPA, Division of Drinking & Groundwater
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

Butch Grieszmer
Division of Natural Areas & Preserves
2045 Morse Road, Bldg. F-1
Columbus, OH 43229-6693

Jack A. Hamilton & Associates, Inc.
P.O. Box 471
342 High Street
Flushing, OH 43977

Wayne Township Trustees
c/o Betty Lucas, Fiscal Officer
55709 County Hwy. 92
Beallsville, OH 43716

Dave Clark
Division of Mineral Resources Management
2050 East Wheeling Avenue
Cambridge, OH 43725

Lanny Erdos
Division of Mineral Resources Management
2050 East Wheeling Avenue
Cambridge, OH 43725

Bruce Goff
Ohio EPA, Southeast District Office
2195 Front Street
Logan, OH 43138

Belmont County Commissioners
Courthouse
Main Street
St. Clairsville, OH 43950

Belmont County Planning Commission
Courthouse
Main Street
St. Clairsville, OH 43950

F65 Rev: 07/01/2001

IBR-0425-17

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

APPLICATION FOR INCIDENTAL BOUNDARY REVISION (IBR)
(This form cannot be utilized for the removal of coal)

1. Applicant's Name: **American Energy Corporation**
2. Address: **43521 Mayhugh Hill Road Twp. Hwy. 88**
   City, State, Zip: **Beallsville, OH 43716**
   Telephone: **740-926-9152**
3. Coal Mining Permit Number: **D-0425** Mine Name **Century Mine**
4. Additional acres to be permitted: **1.8** MSHA # **33-01070**
5. Acres to be deleted **N/A**
6. Has this acreage been affected under this permit?
   ☐ Yes, ☒ No If "yes," list violation number(s).

   Has this acreage previously been affected by other activities other than this permit?
   ☐ Yes, ☒ No If "yes," describe:

7. Describe the reason this additional acreage is required.
   A ventilation borehole is proposed to be drilled into the underground mine.

8. Describe the activities to be conducted on this area.
   A ventilation borehole is to be installed for return air (exhaust). A road will be constructed to access the site. The site will contain a sump for drilling and a sump for sedimentation control. See attached addendum.

Revised 05/07
DNR-744-9005

OPERATOR

IBR-0425-17

AEC 07555

Addendum to IBR, Item 8
American Energy Corporation
D-0425

An 18" diameter bore hole will be drilled using a conventional drill, 523 feet deep, to access the mine void. Once completed, this hole will be fitted with a raise bore rig. The borehole will be drilled to a diameter of approximately 6' diameter. This will then be steel lined, ½" thickness, to a finished diameter of 5 feet.

The shaft hole will be utilized for the following:

- The shaft hole will allow AEC to exhaust air from our long wall panel.

The shaft hole is to be installed upon issuance of the IBR. For safety purposes, a fence will be installed around the borehole and a cover placed over the hole. This will be done upon completion of shaft.

When no longer required, the shaft hole will be sealed using non-toxic, non-acidic, impervious material and the disturbed area around the drill hole will be reclaimed. See typical bore hole and sealing plan.

No adverse effects will be encountered as a result of drilling or operations involved with the shaft hole. As far as hydrologic consequences, aquifers will not be dewatered or contaminated during drilling. Aquifer zones below the approximate 1257 elevation will be encountered during drilling. Prior to any drilling, the area will be pre-grouted to seal off any aquifer zones. Water sources DS-9, DW-28, W-25, and W-26 exist within 1000 feet of the shaft hole. However, these sources will not be impacted by the proposed drilling.

Shaft hole information, in the general area of the shaft hole, indicates predominately shale, clay stone, and limestone strata. Toxics in the drill material will be minimal, and will be blended with non-toxics for neutralization, if necessary, when placed.

Addendum to Item 8

The raise drill method will first need a pilot hole drilled. AEC will drill a 17.5" diameter pilot hole into the mine. These cuttings will be brought to the surface and contained in a sump.

When the underground development is complete, along with the pilot hole, the reaming head will be stationed in the entry under the pilot hole. The drill pipe will then be attached to the reaming head and the shaft will be excavated from the bottom to the top.

The tailings will drop to the bottom of the shaft and the material will be stored in the underground area. With the exception of the pilot hole tailings, no other material will come to the surface.

Upon completion of the shaft site and fan, AEC will take sound readings.

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OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT BENNOC, INC. (D-0425-1)

1	Identification No. of sampling Station from Hydrology Map	W-25	W-25	W-25	W-25	W-25	W-25
2	Identification Number 98-	08204	10011	10475	11450	12273	99-01371
3	High (H)/Low (L) Designation (if applicable)		SIX	MONTH	SAMPLING		
4	Surface Elevation for Sampling Station (msl)	1240	1240	1240	1240	1240	1240
5	Depth of Well Below Land Surface (feet)	90'	90'	90'	90'	90'	90'
6	Static Water Level of Well Below Land Surface (feet)	45'	50'	47'	49'	46'	42'
7	Flow for Spring and Stream (gpm or cfs)	---	---	---	---	---	---
8	Date Above Measurements Made	8-21-98	9-28-98	10-26-98	11-27-98	12-15-98	1-27-99
9	Aquifer/Zone Identification For Well/Spring	B	B	B	B	B	B
10	pH (Standard Units)	7.20	7.70	7.50	8.10	7.90	7.50
11	Total Acidity (mg/l CaCO3)	10.00	9.30	8.40	6.20	26.0	8.40
12	Total Alkalinity (mg/l CaCO3)	130.00	130.00	130.0	140.0	130.0	110.0
13	Specific Conductivity (umhos/cm at 25° C)	320.0	310.0	280.0	290.0	290.0	250.0
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	<0.02	0.03	<0.02	<0.02	0.02	<0.02
16	Total Sulfates (mg/l)	33.00	31.00	32.0	28.0	35.0	35.0
17	Total Iron (mg/l)	<0.02	0.75	<0.05	<0.05	0.33	<0.05
18	Total Suspended Solids (mg/l)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
19	Total Hardness (mg/l as CaCO3)	120.0	100.0	130.0	110.0	130.0	130.0
20	Nitrates	0.21	0.26	0.15	0.09	0.15	0.24
21	Date Sampled for Analysis	8-21-98	9-28-98	10-26-98	11-27-98	12-15-98	1-27-99
22	Date Last Precipitation Event Occurred	8-17-98	9-27-98	10-18-98	11-25-98	12-9-98	1-23-99

Laboratory Name TRA-DET, INC.
Address P.O. BOX 2019 City WHEELING
State WEST VIRGINIA Zip 26003-0219

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.

NOTE: For each sample provide data for either item 13 or 14.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT BENNOC, INC. (D-0425-1)

1	Identification No. of sampling Station from Hydrology Map	W-26	W-26	W-26	W-26	W-26	W-26
2	Identification Number 98-	08206	10017	10476	11451	12274	99-0137
3	High (H)/Low (L) Designation (if applicable)		SIX	MONTH	SAMPLING		
4	Surface Elevation for Sampling Station (msl)	1240	1240	1240	1240	1240	1240
5	Depth of Well Below Land Surface (feet)	84'	84'	84'	84'	84'	84'
6	Static Water Level of Well Below Land Surface (feet)	47'	57'	47'	48'	47'	46'
7	Flow for Spring and Stream (gpm or cfs)	---	---	---	---	---	---
8	Date Above Measurements Made	7-14-98	9-28-98	10-26-98	11-27-98	12-15-98	1-27-99
9	Aquifer/Zone Identification For Well/Spring	B	B	B	B	B	B
10	pH (Standard Units)	7.00	7.50	7.50	7.90	7.60	7.80
11	Total Acidity (mg/l CaCO3)	12.00	6.00	13.0	4.60	19.0	9.40
12	Total Alkalinity (mg/l CaCO3)	140.0	140.0	140.0	130.0	130.0	130.0
13	Specific Conductivity (umhos/cm at 25° C)	330.0	360.0	320.0	330.0	320.0	300.0
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.04	<0.02	0.02	<0.02	0.02	0.18
16	Total Sulfates (mg/l)	42.00	38.00	40.00	41.0	43.0	44.0
17	Total Iron (mg/l)	0.59	<0.02	0.36	1.70	0.26	2.70
18	Total Suspended Solids (mg/l)	1.3	<1.0	<1.0	21.0	<1.0	<1.0
19	Total Hardness (mg/l as CaCO3)	150.0	130.00	160.0	160.0	150.0	160.0
20	Nitrates	0.19	<0.10	<0.09	0.11	<0.09	<0.09
21	Date Sampled for Analysis	7-14-98	9-28-98	10-26-98	11-27-98	12-15-98	1-27-99
22	Date Last Precipitation Event Occurred	7-07-98	9-27-98	10-18-98	11-25-98	12-9-98	1-23-99

Laboratory Name TRA-DET, INC.
Address P.O. BOX 2019 City WHEELING
State WEST VIRGINIA Zip 26003-0219

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NOTE: For each sample provide data for either item 13 or 14.

9/88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT BENNOC, INC. (D-0425-1)

1	Identification No. of sampling Station from Hydrology Map	DW-28	DW-28	DW-28	DW-28	DW-28	DW-2
2	Identification Number 98-	08238	10019	10460	12009	12278	99-0215
3	High (H)/Low (L) Designation (if applicable)		SIX	MONTH	SAMPLING		
4	Surface Elevation for Sampling Station (msl)	1220	1220	1220	1220	1220	1220
5	Depth of Well Below Land Surface (feet)	13'	13'	13'	13'	13'	13'
6	Static Water Level of Well Below Land Surface (feet)	11'	12'	12'	12'	12'	11'
7	Flow for Spring and Stream (gpm or cfs)	---	---	---	---	---	---
8	Date Above Measurements Made	8-22-98	9-28-98	10-24-98	11-28-98	12-15-98	1-30-99
9	Aquifer/Zone Identification For Well/Spring	A	A	A	A	A	A
10	pH (Standard Units)	6.5	6.80	6.90	7.20	7.20	6.30
11	Total Acidity (mg/l CaCO3)	38.00	16.00	37.00	17.0	12.0	5.80
12	Total Alkalinity (mg/l CaCO3)	100.00	100.00	100.00	85.0	88.0	11.0
13	Specific Conductivity (umhos/cm at 25 ° C)	200.0	240.0	280.0	210.0	210.0	100.0
14	Total Dissolved Solids (mg/l)	---	---	---	---	---	---
15	Total Manganese (mg/l)	0.61	0.63	0.68	0.56	0.90	0.07
16	Total Sulfates (mg/l)	5.20	3.90	<1.50	7.60	1.30	36.0
17	Total Iron (mg/l)	3.00	4.30	5.10	6.50	6.10	1.00
18	Total Suspended Solids (mg/l)	60.0	130.0	47.0	310.0	51.0	21.0
19	Total Hardness (mg/l as CaCO3)	80.0	100.0	120.0	70.0	100.0	50.0
20	Nitrates	0.28	0.11	0.21	2.50	0.20	0.66
21	Date Sampled for Analysis	8-22-98	9-28-98	10-24-98	11-28-98	12-15-98	1-30-99
22	Date Last Precipitation Event Occurred	8-17-98	9-27-98	10-18-98	11-25-98	12-9-98	1-23-99

Laboratory Name TRA-DET, INC.
Address P.O. BOX 2019
State WEST VIRGINIA City WHEELING
Zip 26003-0219

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.

NOTE: For each sample provide data for either item 13 or 14.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 14A
(HYDROLOGIC MEASUREMENTS AND ANALYSES)

APPLICANT BENNOC, INC. (D-0425-1)

1	Identification No. of Sampling Station from Hydrology Map	DS-9	DS-9	DS-9	DS-9	DS-9	DS-9
2	Identification Number 98-	08207		10012	10466	11452	12275
3	High (H)/Low (L) Designation (if applicable)		SIX	MONTH	SAMPLING		
4	Surface Elevation for Sampling Station (msl)	1199	1199	1199	1199	1199	1199
5	Depth of Well Below Land Surface (feet)	---	---	---	---	---	---
6	Static Water Level of Well Below Land Surface (feet)	---	---	---	---	---	---
7	Flow for Spring and Stream (gpm or cfs)	0.13 GPM	0	0.16 GPM	0.94 GPM	0.22 GPM	0.12 GPM
8	Date Above Measurements Made	7-14-98	8-30-98	9-28-98	10-26-98	11-27-98	12-15-98
9	Aquifer/Zone Identification For Well/Spring	B	B	B	B	B	B
10	pH (Standard Units)	6.70	DRY	7.60	8.50	8.70	8.00
	Total Acidity (mg/l CaCO3)	16.0		8.90	0.00	0.00	1.80
12	Total Alkalinity (mg/l CaCO3)	95.0		85.0	82.0	82.0	90.0
13	Specific Conductivity (umhos/cm at 25° C)	300.0		280.0	310.0	270.0	300.0
14	Total Dissolved Solids (mg/l)	---		---	---	---	---
15	Total Manganese (mg/l)	<0.02		<0.02	<0.02	<0.02	<0.02
16	Total Sulfates (mg/l)	36.0		40.0	39.0	38.0	43.0
17	Total Iron (mg/l)	<0.02		<0.02	<0.05	<0.05	<0.05
18	Total Suspended Solids (mg/l)	<1.0		<1.0	<1.0	<1.0	<1.0
19	Total Hardness (mg/l as CaCO3)	120.0		90.0	130.0	110.0	110.0
20	Nitrates	4.10		4.70	5.30	4.60	5.50
21	Date Sampled for Analysis	7-14-98		9-28-98	10-26-98	11-27-98	12-15-98
22	Date Last Precipitation Event Occurred	7-7-98		9-27-98	10-18-98	11-25-98	12-9-98

Laboratory Name TRA-DET, INC.
Address P.O. BOX 2019 City WHEELING
State WEST VIRGINIA Zip 26003-0219

NOTE: If information required by items 5, 6, and 9 is unobtainable, submit as an addendum to Attachment 14A a statement giving the reasons why the information is unobtainable.
NOTE: For each sample provide data for either item 13 or 14.

9. List all surface and mineral owners within the IBR area.

Surface and Mineral Owner Names	County	Township	Section	Lot	T-	R-
Name **Raven Rocks Inc.** Address **54118 Crum Road** City **Beallsville** State **OH** Zip **43716** Surface ☒ Mineral ☐	**Belmont**	**Wayne**	**8**		**T-6-N**	**R-5-W**
Name **Consolidated Land Co.** Address **29325 Chagrin Blvd.** City **Pepper Pike** State **OH** Zip **44122** Surface ☐ Mineral ☒	**Belmont**	**Wayne**	**8**		**T-6-N**	**R-5-W**
Name Address City State Zip Surface ☐ Mineral ☐						
Name Address City State Zip Surface ☐ Mineral ☐						
Name Address City State Zip Surface ☐ Mineral ☐						

10. Is any owner, holder or purchaser listed in item 9, a business entity other than a single proprietorship?

Yes ☒ No ☐ If "yes," submit Other Business Entities. **See attached**

11. Is any part of this IBR application area adjacent (within 100') to any lands, which are not owned by those persons identified in item 9?

Yes ☒ No ☐ If "yes," submit Adjacent Owners **See attached**

12. Identify the right of entry documentation that is being provided that allows for coal mining operations on this IBR area:

☒ A copy of the right-of-entry documents attached as addenda, or

☒ A Right-of-Entry Affidavit

See addendum to IBR, Item 12 - Valid existing rights

13. Has the private mineral estate (coal) been severed from the private surface estate?

Yes ☒ No ☐ If "yes," indicate which documentation is provided:

See addendum to IBR, Item 12 - Valid existing rights

☐ Surface Owners' Consent

☒ A copy of the document of conveyance that allows the proposed activities

☐ If the document of conveyance does not expressly allow the proposed activities, documentation that under state law the applicant has the legal authority to conduct the proposed activities.

14. Does the IBR application area include any area dedicated as a nature preserve pursuant to Chapter 1517 Ohio Revised Code?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

15. Does the IBR application area include any area within one thousand feet of the waterlines of any wild, scenic or recreational river dedicated pursuant to Chapter 1501 Ohio Revised Code?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

OTHER BUSINESS ENTITIES

Applicant's Name **American Energy Corporation**

A separate attachment is to be submitted for each business entity.

Name of business entity **Raven Rocks, Inc.**

Statutory agent **Richard A. Stratton**

Street Address **Sandy Ridge Road**

City **Barnesville** State **Ohio** Zip **43713**

Person's name **Donald E. Hartley** Position **President**

Street Address **54118 Crum Road**

City **Beallsville** State **Ohio** Zip **43716**

Person's name **Mary B. Sidwell** Position **Secretary**

Street Address **54118 Crum Road**

City **Beallsville** State **Ohio** Zip **43716**

Person's name **Richard F. Sidwell** Position **Treasurer**

Street Address **54118 Crum Road**

City **Beallsville** State **Ohio** Zip **43716**

Person's name Position

Street Address

City State Zip

Part 1: Section C

Revised 02/06
DNR-744-9012

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

ADJACENT OWNERS

Applicant's Name **American Energy Corporation**

Name of owner **Dale E. and Lisa Jo Jenewein**

Address **47601 E. Captina Hwy.**

City **Jacobsburg** State **OH** Zip **43933**

☒ Surface, ☐ Coal, ☐ Non-Coal Mineral

Name of owner **Consolidated Land Co.**

Address **29325 Chagrin Blvd.**

City **Pepper Pike** State **OH** Zip **44122**

☐ Surface, ☒ Coal, ☐ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Name of owner

Address

City State Zip

☐ Surface, ☐ Coal, ☐ Non-Coal Mineral

Revised 02/06
DNR-744-9013

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

RIGHT-OF-ENTRY AFFIDAVIT

Applicant's Name **American Energy Corporation**

RIGHT-OF-ENTRY AFFIDAVIT

State of **Ohio**, **Belmont** County, ss. **James R. Turner, Jr.** being first duly sworn, says that the following described documents convey to the applicant the legal right explained below and is a subject of litigation as shown below.

Type of document **Lease**

Execution Date **February 1, 2002**

Expiration Date **Until the exhaustion of all of the subject merchantable and minable coal**

Parties: From **Consolidated Land Company** to **American Energy Corporation**

Description of land: Number of Acres **154.7**

County **Belmont** Township **Wayne**

Section **8** Lot

Explanation of legal rights claimed **See addendum to Right of Entry Affidavit**

Pending litigation Yes ☐ No ☒

Signature of Affiant	Date	Position
	4/20/09	TREASURER

Sworn to before me and subscribed in my presence this 20th day of, April, 2009

Notary Public

NOTARIAL SEAL STATE OF OHIO

KATHY J. ROE
Notary Public, State of Ohio
My Commission Expires Dec. 14, 2009

Part 1: Section C

02/06
DNR-744-9060

quarter section line 20 rods and 8 links; thence north 40 rods; thence east 20 rods and 8 links to the township line; thence south with said township line 40 rods to the place of beginning, containing 5 acres.

Fourth Tract

Situated in the Township of Washington County, County of Belmont and State of Ohio, to-wit: The west half of the west half of the southwest quarter of Section 33, in Township 5, of Range 4, containing 40 acres, more or less.

Fifth Tract

Situated in the Township of Washington, County of Belmont and State of Ohio, and known as Jacob Moore's tract, and further described as follows: Known as and being the northwest quarter of the northwest quarter of Section 32, Township 5, Range 4, of the land formerly subject to sale at Marietta, Ohio, and containing 40 acres, be the same more or less.

EXCEPTING THEREFROM 25 acres off the south part thereof, sold and conveyed by Adam T. Moore and wife to Hiram Mantle, by deed dated April 4, 1891, recorded in Volume 100, page 450, and bounded and described as follows: Commencing at the southwest corner of the said northwest quarter of the northwest quarter; thence north 50 rods; thence east to the north and south line in the middle of said quarter section; thence south 50 rods along said line; thence west to the place of beginning, containing 25 acres.

PARCEL NO. 27 (34) - WAYNE TOWNSHIP

First Tract

Known as and being a part of the southwest quarter of Section four, Township six, Range five, beginning for the same at the southeast corner of said quarter section; thence running west 160 poles to the southwest corner of said quarter section; thence north 54 poles to Captina Creek; thence North 86¼° east 160.6 poles; thence south 67 poles to the place of beginning, containing sixty and one-half (60½) acres, more or less.

Second Tract

Situated in the Township of Wayne, County of Belmont and State of Ohio, and being the northwest quarter of Section three, Township six, Range five, containing one hundred and sixty (160) acres, more or less.

Third Tract

Situated in the Township of Wayne, County of Belmont and State of Ohio, and being a part of the southeast and southwest quarters of Section three, Township six, Range five, commencing at the southeast corner of lands formerly owned by Eli Garretson, and formerly owned by M. E. Moore; thence east to Piney Run; thence down Piney Run with its meanderings to the mouth of Long Run; thence up said Long Run to the line of M. E. Moore; thence with said line to the place of beginning, containing fity-one (51) acres, more or less.

Fourth Tract

13-66

Situated in the Township of Wayne, County of Belmont and State of Ohio and known as and being the northeast quarter of Section eight, Township six, Range five, containing one hundred and fifty-seven and one-half (157½) acres, more or less.

AEC 07567

Fifth Tract

Situate in the Township of Wayne, County of Belmont and State of Ohio, and known as and being the southwest quarter of the southeast quarter of Section nine, Township six, Range five, also a part of the southeast quarter of the southwest quarter of Section nine, Township six, Range five; beginning for the part in said southeast quarter of said southwest quarter of Section nine at the southeast corner of said quarter section; running thence west with the south boundary of the same to the southwest corner of the said southeast quarter; thence north to the Long Run of Piney; thence down said run with the meanderings of the same to the east boundary of said quarter section; thence south with said east boundary to the place of beginning; said fifth tract contains in all sixty and one-half (60½) acres, more or less.

Sixth Tract

13-68

Situate in the Township of Wayne, County of Belmont and State of Ohio, and being a part of the southwest quarter of the northwest quarter of section two, Township six, Range five, described as follows: Beginning for the same at the southwest corner of said northwest quarter at a stone marked letter "J"; thence running east 45 rods to the run; thence up the run in a northwest direction 45 rods to the north and south line of the lands formerly owned by James Stewart, and formerly owned by Harvey Danford; thence south 35 rods to the place of beginning, containing four and one-half (4½) acres, more or less.

Seventh Tract

13-69

Being the north 120 acres of the northwest quarter of Section 8, Township 6, Range 5, Wayne Township, Belmont County, Ohio.

PARCEL NO. 28 (35) - WASHINGTON TOWNSHIP, AND WAYNE TOWNSHIP

First Tract

Situated in the Township of Washington, County of Belmont and State of Ohio, and bounded and described as follows: Known as and being the east half of the northeast quarter of the southeast quarter of Section thirty-two (32), Township five (5), Range four (4), containing twenty acres more or less.

Second Tract

Situated in the Township of Wayne, County of Belmont and State of Ohio, and known as the northeast part of the southeast quarter of Section one (1), Township six (6), Range five (5), beginning for the same at the northeast corner of said quarter section; thence south 2½° west 5.21 chains to the center of the B. Z. and C. Railroad track; thence with the center of said track south 52° west 3.81 chains; thence south 47½° west fifty links, south 48-3/4° west one chain, south 28-3/4° west 1.50 chains, south 24½° west four chains to a stake; thence north 39¼° west 6.05 chains to a stake in the county road; thence with said road north 56¼° east, 6.10 chains to a stake; thence north 2½° east 5.50 chains to a stake in the quarter section line; thence south 87½° east 5.25 chains to the place of beginning, containing six (6) acres, be the same more or less.

Third Tract

Situated in the Township of Wayne, County of Belmont and State of Ohio and known as and being part of the southeast quarter of the northeast quarter of Section one, Township 6, Range five, and being in the south east corner of said quarter of quarter section, and bounded and described as follows: Commencing at the south east corner of said quarter section; thence west 32 rods; thence north 20 rods; thence east 32 rods to a B walnut tree on

AEC 07568

district of lands formerly for sale at Marietta, Ohio, containing 20 acres, more or less, and being the same lands conveyed by Martha Kirkbride to Ebenezer Taylor by deed dated July 1, 1849, and recorded in Volume 33, at page 444.

Fourth Tract

Being a part of the southwest quarter of the southeast quarter of Section 32, Township 5, Range 4, together with a part of the northwest quarter of the northeast quarter of Section 31, Township 5, Range 4; beginning for the same at the northwest corner of said southwest quarter of the southeast quarter of Section 32; thence east with the north boundary of said quarter 42 poles to a corner on the east side of a small run; thence down said run to its junction, with a larger run, and to a large sand rock in a small drain near the top of the first bank on the south side of said larger run; thence on a straight to a White Oak tree on the east and west line dividing in the center the said northwest quarter of the northeast quarter of Section 31; thence west with said center line 68 poles to a corner on the west boundary of said last mentioned quarter of quarter; thence north 120 poles to the place of beginning; containing 40 acres more or less.

PARCEL NO. 62 (82) - WAYNE TOWNSHIP

PARCELS NO. 62 THROUGH 71 LEFT INTENTIONALLY BLANK.

Said tracts of coal hereinabove described under the headings "PARCEL NO. 1" to "PARCEL NO. 71", inclusive, being the same tracts of coal respectively described under the headings "PARCEL NO. 1", to "PARCEL NO. 71" inclusive, in the deed from The Cleveland Trust Company, Trustee under the Last Will and Testament of William D. Rees, deceased, to S. H. Robbins, dated July 1st, 1918, recorded in Volume 218, Page 2 et seq. of the Deed Records of Belmont County, Ohio; which tracts of coal are respectively referred to under the headings "PARCEL NO. 1" to "PARCEL NO. 71", inclusive, in said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, as having been conveyed to Peter M. Hitchcock and William D. Rees from the various grantors therein respectively named, by the various deeds therein respectively specified by date and by volume and page of record; to which deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, and to each of which deeds from various grantors to Peter M. Hitchcock and William D. Rees, therein mentioned, reference is hereby made.

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Together with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July 1st, 1918, under said headings, "PARCEL NO. 1" to "PARCEL NO. 71", inclusive, thereof, which easements, options, rights and privileges are therein defined as being those described in the respective deeds from the various grantors to Peter M. Hitchcock and William D. Rees, above referred to, and as being contained in said various deeds in form and language as follows:

"Together with the free and uninterrupted rights of way into, upon and under said described land, at such points, and in such manner as may be useful for the purpose of digging, draining and ventilating, and mining and removing said coal, together with the privilege of mining and removing through said described premises other coal belonging to said Grantees, their heirs and assigns, or which may hereafter be acquired, together with the right and privilege to make drains on the surface, and air holes, and change the same as the convenience of mining may require, together with all mining privileges on said surface or under it necessary for the removal of all of the Pittsburgh Vein underlying the same and neighboring properties now owned, or hereafter acquired by said Grantees, their heirs and assigns; and

said Grantees, their heirs and assigns, shall in no wise be liable for damages for failure to support the overlying surface, or for the sinking or falling in of said surface, or for destroying any spring or well of water, or for diverting any water flow or natural stream by reason of the removal of said coal or the exercise of any of the above mining privileges."

"It is expressly understood and agreed that the enumeration herein is in enlargement and not in restriction of the incidental rights accruing to said Grantees, by virtue of the within grant of coal and mining privileges."

"And together with the right to use and occupy such amount of surface of the above described land as may in the opinion of said Grantees, their heirs and assigns, from time to time, be useful for the purpose of mining said coal or exercising any rights incidental thereto, or that may be useful for the deposit of gob or refuse from said mines, or for carrying on the coal business and for the erection of buildings and machinery and tenant houses, and all other buildings needful or useful to carry on the coal business, or for the construction thereon of tracks, shafts, mine openings and other structures, and for the operation of railroads; and the said Grantors do, for themselves and their heirs, executors, administrators and assigns, covenant and agree that Grantors will upon demand and payment of, at the rate not exceeding One Hundred Dollars per acre, by the Grantees, their heirs and assigns, execute and deliver unto said Grantees, their heirs, and assigns, a good and sufficient deed of General Warranty, (and furnish therewith a complete Abstract of Title showing said lands to be free and clear of liens and encumbrances), conveying in fee simple, clear of liens and encumbrances, such amount of the above described land as Grantees in their opinion may require for the purposes herein next above set forth, And said Grantees agree to purchase the same at not exceeding said above stipulated price per acre."

"The Grantors reserve the rights to bore or dig through said vein of coal for oil or gas, but such boring or digging shall not interfere with the mining or removal of said coal."

It being expressly understood and agreed that the words "Grantor" or "Grantors", as used in the foregoing grant of rights and options, refer to the Grantors of Peter M. Hitchcock and William D. Rees, and not to The Cleveland Trust Company, Trustee, as Grantor in said deed to S. H. Robbins, or to said S. H. Robbins, as Grantor in former deed, and that in the execution and delivery of the former deed, said S. H. Robbins did assign and make over to The Cleveland Trust Company, as Grantee therein, only the interest which said S. H. Robbins had in such rights and options.

PARCEL NO. 72 (2) - WASHINGTON TOWNSHIP

Known as and being the northwest quarter of the northwest quarter of Section twenty-six (26) and the northeast quarter of the northeast quarter of Section thirty-two (32), in Township Five (5), of Range four (4), in the district of Marietta and State of Ohio, containing eighty acres, more or less.

Being the same tract of coal described under the heading "PARCEL NO. 72" in the deed from The Cleveland Trust Company, Trustee, to S. H. Robbins, dated July, 1918, recorded in Vol. 218, Page 2, et seq., of the Deed Records of Belmont County, Ohio; and being therein referred to as having been conveyed by Elizabeth Myers (unmarried) to Peter M. Hitchcock and William D. Rees, by deed dated April 9, 1903, and recorded in Vol. 145, Page 201 of the Deed Records of Belmont County, Ohio; to which deeds reference is hereby made.

TOGETHER with all easements, options, rights and privileges described in, and granted by, said deed from The Cleveland Trust

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section line; thence by same North 29.95 rods (494.18 feet) to the place of beginning; containing 26¼ acres, being the same coal lands conveyed by Mary E. Sampson et al to A. A. & H. A. Caldwell as appears in Volume 256, Page 265 of the Deed Records of Belmont County, Ohio.

TOGETHER with the free and uninterrupted use and enjoyment of right of way into, upon and under said land, at such points and in such manner as may be considered proper and necessary for the advantageous and economical operation thereof, and in the digging and mining of said coal, and without liability therefore and hereby waiving any and all damages that might or could arise therefrom by reason of such digging, mining and carrying away all of said coal, together with the privilege of carrying, transporting and removing through the described premises, this and other coal now owned or acquired by said Grantee, its successors or assigns, generally freed, clear and discharged of any servitude whatever to the overlying land or anything therein or thereon. The said Grantors reserved, however to them, their heirs and assigns, the right to drill through said coal for oil and gas, and water, etc. The said Grantee, its successors and assigns, have the right to purchase at any time as much of the surface (reserving three acres around the buildings, if any buildings are on the land) of said land as may be necessary in mining, manufacturing, or marketing said coal, at the price of $150.00 per acre, which payment shall entitle them to a deed in fee simple for the same. Said grantee shall have the right to enter upon said farm to drill and test said coal without liability for damages, except as to growing crops.

THIS agreement shall apply to the legal representatives and assigns of all the parties hereto.

BEING the same coal and mining rights as conveyed by Cloyd L. Barricklow, to The Monbel Company in the 51st Tract in Sheriff's Deed dated March 19, 1946, and recorded in Volume 357, Page 639, in the Records of Deeds, Belmont County, Ohio.

ALL the coal contained in the vein commonly known as the Pittsburgh vein and geologically known as Seam No. 8 and underlying the following Parcels Nos. 52, 53, 54, 55, 56, 57, 58, 59, 60, 61 and 62.

PARCEL NO. 52

SITUATED in the Township of Wayne, County of Belmont and State of Ohio and being a part of the Northwest Quarter of Section 8, Township 6, Range 5, beginning for the same at the Southwest corner of said quarter section; thence North with the West boundary line of said Section 10.77 chains (710.82 feet); thence East 20.15 chains (1329.90 feet); thence South 10.77 chains (710.82 feet) to the South boundary line of said quarter section; thence West with said South boundary line 20.15 chains (1329.90 feet) to place of beginning, containing 21.70 acres, more or less.

5.26

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 53

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being in the Southeast corner of the Southwest quarter of Section 7, Township 6, Range 5, beginning at a stone in the section line between Monroe and Belmont Counties and the Southeast corner of the lands of Mary Walters; thence with said section line South 85½° East 20 rods (330 feet) to a stake; thence North 13° East 20.5 rods (338.25 feet) to a stone; thence North 5½° East 23 rods (379.50 feet) to a stone; thence North 85½° West 20 rods (330 feet) to a stake; thence South 31½° West

6.5 rods (107.25 feet) to a stone; thence South 4½° West 40 rods (660 feet) to a stone in section line; the place of beginning, containing 6.12 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 54

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being part of the Southwest Quarter of the Southeast quarter of Section 7, Township 6, Range 5, beginning for the same at a stone by the public road and run North 86½° East 180 rods and 15 links (2929.90 feet) to a stone; thence North 4½° East 43 rods (709.50 feet) to center of run; thence North 70° West 42 rods (693 feet) to a stake; thence with the meanderings of the run South 50° West 31.5 rods (519.75 feet); thence North 44° West 20.8 rods (343.20 feet); thence South 41° West 17.7 rods (292.05 feet); thence South 39½° West 7.7 rods (127.05 feet); thence South 63½° West 7.5 rods (123.75 feet); thence South 88½° West 15.25 rods (251.63 feet); thence North 88° West 22.5 rods (371.25 feet); thence South 34½° West 15.5 rods (255.75 feet); thence South 49½° West 10.4 rods (171.60 feet); thence North 67° West 10 rods (165 feet); thence North 82½° West 23 rods (379.50 feet); thence South 11½° East 23 rods and 21 links (392.61 feet) to the beginning; containing 44.68 acres more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 55

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being part of Section 7, Township 6, and Range 5. BEGINNING at the Northeast corner of the section; thence by the section line South 4½° West 175.48 rods (2895.42 feet) to a run; thence by same North 70° West 42 poles (693.00 feet); thence South 50° West 31.5 poles (519.75 feet); thence North 44° West 20.8 poles (343.20 feet); thence South 41° West 17.7 poles (292.05 feet); South 39½° West 7.7 poles (127.05 feet); South 63½° West 7.5 poles (123.75 feet); South 88½° West 15.25 poles (251.63 feet); thence North 88° West 22.5 poles (371.25); South 34½° West 15.5 poles (255.75 feet); South 40½° West 10.4 poles (171.60 feet); thence North 67° West 6 poles (99.00 feet) to the quarter section line; thence by same North 4½° East 60 poles (990.00 feet) to the section center; thence by quarter line North 85½° West 13.4 poles (221.10 feet); thence North 4½° East 60 poles (990.00 feet); thence South 85½° East 148.4 poles (2448.60 feet) to a stone; thence North 4½° East 104 poles (1716.00 feet) to section line; thence by same South 86° East 27 poles (445.50 feet) to the beginning, containing 108.19 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 56

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being the Northeast corner of the Northeast quarter of Section 7, Township 6, Range 5, beginning for the same at a stone in the section line West of the Northeast corner of said section; and run South 4½° West 104.5 rods (1724.25 feet) to a stone; thence North 85¼° West 135 rods (2227.50 feet) to a stone; thence North 4½° East 48.5 rods (800.25 feet) to a stake; thence South 86° East 64.5 rods (1064.25 feet) to a stake; thence North 4½° East 24 rods and 21 links (409.86 feet) to a stake; thence North 4½° East 15 rods and 16 links (258.06 feet) to a stake; thence North 75½° West 17 rods (280.50 feet) to a stake; thence North 4½° East 9 rods (148.50 feet) to a stake; thence South 86° East

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87.5 rods (1443.75 feet) to a stone, the place of beginning, containing 68.53 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 57

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being a part of the West half of the Northeast quarter of Section 7, Township 6, Range 5, and beginning for the same at a stake 27 rods and 16 links (486.60 feet) South of a stone (the Northwest corner of the Northeast quarter) and running South 86° East 64.5 rods (1064.25 feet) to a stake; thence South 4½° West 24 rods and 21 links (409.86 feet) to a stake; thence North 86° West 64.5 rods (1064.25 feet) to a stake; thence North 4½° East 24 rods and 21 links (409.86 feet) to place of beginning, containing 10 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 58

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being the Northwest corner of the Northeast quarter of Section 7, Township 6, Range 5, and beginning for the same at the Northwest corner (stone) of the Northeast quarter and running South 4½° West 27 rods and 16 links (456.06 feet) to a stake; thence South 86° East 64.5 rods (1064.25 feet) to a stake; thence North 4½° East 15 rods and 16 links (255.75 feet) to a stake; thence North 75½° West 17 rods (280.50 feet) to a stake; thence North 4½° East 9 rods (148.50 feet) to a stake; thence North 86° West 47.5 rods (783.75 feet) to the place of beginning, containing 10 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 59

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being a part of the Southwest quarter of Section 8, Township 6, Range 5, and beginning for the same at a stake in the quarter section line 40 rods north of the quarter corner between Section 7 and 8 and run North 85½° West 48.5 rods (800.25 feet) to a stone; thence North 4½° East 103 rods (1699.5 feet) to a stone; thence North 85½° West 32.5 rods (536.25 feet) to a stone; thence North 4½° East 61.6 rods (1016.40 feet) to a stake; thence South 85½° East 30.4 rods (501.60 feet) to a stake; thence South 4½° West 11 rods (181.50 feet) to a stake; thence South 85½° East 50.4 rods (831.60 feet) to a stake; thence South 4½° West 158 rods (2607.00 feet) to the place of beginning, containing 58.92 acres, more or less.

S-33

TOGETHER with all mining rights necessary and useful in mining and carrying away all of said coal. The same being the mining rights reserved in deed recorded in Volume 149, Page 152, of Belmont County Deed Records.

PARCEL NO. 60

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being a part of the West half of the Southwest quarter of Section 8, Township 6 and Range 5, also a part of the Southeast quarter of Section 14, Township 6, Range 5, beginning for the same at a stone at the Southwest corner of said Section 8, Township 6, Range 5, thence East 80 rods (1320.00 feet) to a stone; thence North 65 rods (1072.50 feet) to a stone; thence North 27½° West 107.84 rods (1779.36 feet) to a stone; thence

West 31.09 rods (526.35 feet) to a stone; thence South 125.22 rods (2066.13') to a stone; thence West 22 rods (363.00 feet) to a stone; thence South 14° East 49.80 rods (821.70 feet) to a point in Section line between Sections 13 and 14; thence East with Section line 10 rods (165.00 feet) to a stone, the place of beginning, containing 70 acres, more or less.

EXCEPTING therefrom the following described tract: Beginning at a stone the Southeast corner of said Southeast quarter of Section 14; thence West along the South line of said Section 10 rods (165 feet) to a point; thence North 14° West 49.80 rods (821.70 feet) to a stone; thence East 22.00 rods (363.00 feet); thence South along the east line of said Section 14 to the place of beginning, containing 4.85 acres, more or less, and leaving in this parcel 65.15 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 61

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being the West half of the Northwest quarter of Section 7, Township 6, Range 5, and beginning for the same at a stone, the quarter corner between Sections 7 and 13 to a stake; thence North 5° East, 20 rods along the line between Sections 7 and 13 to a stake; thence still along said line N. 4-3/4° E. 143 rods (2359.50 feet) to a stone; thence South 85½° East 81 rods (1336.50 feet) to a stone; thence South 4½° West, 161 rods (2656.50 feet) to a stake; thence North 86° West, 81 rods (1336.50 feet) to a stone the place of beginning, containing 82 acres, more or less.

TOGETHER with the identical mining rights as set forth after Parcel No. 62.

PARCEL NO. 62

SITUATED in the Township of Wayne, County of Belmont and State of Ohio, being the West part of the Southwest quarter of Section 7, Township 6, Range 5 in the district of lands subject to sale at Marietta, Ohio, beginning for the same at the Southwest corner of said section; thence with the section line North 3° 35' East 40.25 chains (2656.50 feet) to a stone; thence with the quarter section line South 86° East 18 chains (1188 feet) to a stone; thence South 3½° West 40.25 chains (2656.50 feet) to a stone in the Section line; thence with said Section line North 86½° West 18.25 chains (1204.50 feet) to the place of beginning, containing 72.95 acres, more or less.

Mining Rights for both parcels

TOGETHER with the free and uninterrupted right of way into, upon and under the above described Parcels of land numbered from 52 to 62 both inclusive, at such points and in such manner as may be proper and necessary for the purpose of digging, mining, coking, draining and ventilating and carrying away said coal, hereby waiving all surface damages or damages of any sort arising therefrom or from the removal of all of said coal, together with the privilege of mining and removing through said described premises other coal belonging to the grantee, its successors and assigns, or which may be hereafter acquired by said grantee, its successors and assigns.

PARCEL NO. 63

ALL the coal of the No. 8 Pittsburgh or Wheeling vein only in and underlying the following described parcel of land: Situated in the Township of Wayne, County of Belmont and State of Ohio, being the East half of the Northwest quarter and a part of the Southwest Quarter of Section 7, Township 6, Range 5, and beginning for the same at a stone, the quarter corner between

16. Does the IBR application area include any area within the boundaries of the following systems: national park, national wildlife refuge, national trails, national wilderness preservation, national recreational areas or wild and scenic rivers or river corridors including those rivers under study?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

17. Does the IBR application area include any federally owned lands within the boundaries of any national forest?

Yes ☐ No ☒ If "yes," submit approval of U.S. Secretary of Interior or proof of valid existing rights.

18. Will operations conducted within this IBR adversely affect any publicly owned park or places included on the National Register of Historic Places?

Yes ☐ No ☒ If "yes," submit joint approval from the chief and the federal, state or local agency with jurisdiction over the park or places or proof of valid existing rights and describe the measures to be used to prevent or minimize these impacts.

19. Will operations conducted within this IBR affect land within one hundred feet of the outside right-of-way of a public road or result in mining through a public road?

Yes ☐ No ☒ If "yes," list the public road(s) in the space below and submit Public Road Consent or proof of valid existing rights.

20. Will operations conducted within this IBR affect land within three hundred feet of any occupied dwelling?

Yes ☐ No ☒ If "yes," list the name of the owner(s) in the space below and submit Occupied Dwelling Consent or proof of valid existing rights.

21. Will operations conducted within this IBR affect land within three hundred feet of any public building, school, church, community or institutional building or public park?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights.

22. Will operations conducted within this IBR affect land within one hundred feet of a cemetery?

Yes ☐ No ☒ If "yes," submit proof of valid existing rights or appropriate authorization to relocate the cemetery.

23. Is this IBR application area within an area designated unsuitable for coal mining operations or under study for designation in an administrative proceeding?

Yes ☐ No ☒

If "yes," did the applicant make substantial legal and financial commitments in this IBR application area prior to January 4, 1977? Yes ☐ No ☐ If "yes," provide documentation supporting the assertion that the commitments were made prior to January 4, 1977.

24. In order to address the nature of cultural, historic and archeological resources, submit Archeology - Surface.

25. Describe the uses of the land existing at the time of the filing of this IBR application area and provide a map delineating the area and acreage of each land use.

The proposed IBR is composed of 1.6 acres of Cropland and .2 acres of Undeveloped Land.

26. Describe the use of the land, including the creation of permanent impoundments, that is proposed to be made of the land following reclamation, including information regarding the utility and capacity of the reclaimed land to support a variety of alternative uses. Provide a map that delineates the area and acreage of each proposed land use, and submit assurance of maintenance for each permanent impoundment.

This site will be reclaimed as close to original contours as possible. The site will be used, following reclamation, in the same manner as it was originally.

27. Submit Surface Owner Comments from the legal or equitable owner(s) of record of the IBR application area concerning the proposed land use.

See Surface Owner Comments - Raven Rocks, Inc.

28. Is the post-mining land use to be different from the pre-mining land use?

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

SURFACE OWNER COMMENTS

TO: American Energy Corporation

FROM: Raven Rocks

Location of Proposed Permit Area:

County/Twp: **Belmont/Wayne**	Lot/Section: **8**

The proposed postmining land use(s) for your property is/are checked below:

- [x] Cropland
- [ ] Pasture Land
- [ ] Grazing Land
- [ ] Industrial Land Use
- [ ] Commercial Land Use
- [ ] Developed Water Resources
- [ ] Residential Land Use
- [x] Forest
- [ ] Undeveloped Land Use
- [ ] Fish & Wildlife
- [ ] Recreation Land Use

Pursuant to 1501:13-4-05(G)(2) of the Ohio Administrative Code, surface owner comments concerning the proposed postmining land use(s) for the proposed permit area are required. Please check the appropriate box below.

- [x] *I concur with the proposed postmining land uses identified by the mine operator.*
- [ ] *I DO NOT concur with the proposed postmining land uses.*

COMMENTS:

Donald E. Hartley, President — 4-20-09

SIGNATURE OF SURFACE OWNER — DATE

Please check each (if any) of the following listed wildlife enhancements that you would be interested in having on your property. **PLEASE NOTE:** Checking a box does not require the operator to provide any or all of selected enhancements. This form is a tool to help landowners better understand options that may be available through the coal company.

- [ ] Tree/Shrub Plantings
- [ ] Ponds/Wetlands
- [ ] Brushpiles
- [ ] Rockpiles
- [ ] Small Depressions
- [ ] Perching/Nesting Structures
- [ ] Other:
- [ ] Other:

WAIVER STATEMENT (Optional for Surface Owner): I, the above named surface owner, waive my right to comment on any revision to the permit application during the application review process that results in a change in the postmining land use(s) from those shown above. (NOTE: I DO NOT WAIVE MY RIGHT TO COMMENT ON ANY PROPOSED POSTMING LAND USE CHANGE AFTER PERMIT ISSUANCE.)

SIGNATURE OF SURFACE OWNER — DATE

Part 2: Section F

Revised 02/06
DNR-744-9048

Addendum to Item #28

(D) An alternative postmining land use may be approved by the chief of the division of reclamation, after consultation with the landowner or the land management agency having jurisdiction over state or federal lands, if the following criteria are met.

(1) The proposed land use is compatible with adjacent land use and where applicable, with existing local, state, or federal land use policies and plans.

Yes

(2) The plans show the feasibility of the postmining land use and include a schedule showing how the proposed use will be developed and achieved within a reasonable time.

Cropland will be restored to cropland and will be planted to minimize erosion.

Forestland will be planted according to enclosed planting plan at the time of site reclamation.

(3) The plans include letters of commitment from other parties to provide for necessary public facilities that are required for the proposed use.

NA

(4) The proposed use or uses will neither present actual or probable hazard to public health or safety, nor will they pose any actual or probable threat of water flow diminution or pollution.

The proposed land use will not significantly change the water flow regime for the site. No public health or safety hazards will be introduced.

(5) The use or uses will not involve unreasonable delays in reclamation.

All land uses will be planted concurrently with site reclamation.

(6) The proposed postmining land use identifies measures to prevent or mitigate adverse effects on fish and wildlife, and threatened or endangered plants or animals or their critical habitats, and an opportunity to comment has been provided in accordance with rule 1501:13-9-11 of the Administrative Code to appropriate state and federal fish and wildlife management agencies.

No endangered plants, animals, or critical habitat will be affected by this project.

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

ARCHEOLOGY - SURFACE

1. Applicant's Name **American Energy Corporation**

   Address **43521 Mayhugh Hill Road**

   City **Beallsville** State **OH** Zip **43716**

2. Contact Person **Dennis Dubiel** Phone **740-926-9152 x689**

3. Location and Acreage Information

   County **Belmont** Township **Wayne**

   Section **8** Lot(s) T-**6-N**, R-**5-W**

   USGS Quadrangle **Hunter** Acreage **1.8**

4. Application Map Attached: (area described in 3 above is to be outlined on the map)

5. Previous Disturbance:

   ☐ present; ☒ absent within application area only (Note: previous disturbance is any type of natural or human made disturbance to the topsoil and subsoil in the application area prior to submittal. Examples include, but are not limited to, slides, severe erosion, previous mining activities, clear cut logging, recreational activities, etc., but not agricultural plowing and discing.)

   If previous disturbance is present, list below and clearly delineate the extent of each type of disturbance on the application map to be sent to the SHPO by the division. Attach addendum, if necessary.

Type of Disturbance	Date Occurred	Percent of Application	Map Symbol

Revised 02/06
DNR-744-9039

AEC 07579

6. Current Land Use: (describe land use and percent of land in that use)

Agricultural: **Cropland 1.6 acres - 89%**

Residential:

Mining:

Pasture:

Secondary Forest Growth:

Has area been clear cut logged? Yes ☐, No ☒
If "yes," indicate approximate date(s) of logging.

Other: **Undeveloped Land .2 acres - 11%**

7. Historic and Prehistoric Structures:

Definitions

A historic or prehistoric structure is a work made up of interdependent and interrelated parts in a definite pattern of organization. Constructed by humans, and 50 years or older, it is usually an engineering project.

Types

Historic structures include, but are not limited to dwellings, buildings, barns, farmstead outbuildings, bridges, culverts, churches, schools, halls, iron furnaces (and associated buildings), canals, forts, abandoned coal mine buildings, mine entrances, tipples and related structures, etc.

Prehistoric structures include, but are not limited to, earthworks, mounds, rockshelters, etc.

List all known historic and prehistoric structures below and locate each one on the application map to be sent to the SHPO including corresponding labeled black and white, front and rear photographs of each structure. Attach addendum, if necessary.

Structure Type	Construction Date	Map Reference	Photo # Front	Photo # Rear

8. Previous Historic and/or Archeological Surveys: (describe any surveys known to applicant on the application area or adjacent areas)

Application area: **None**

Adjacent areas: **None**

9. **SHPO please send this form to:**
Division of Mineral Resources Management
Attn: Division Archeologist
2045 Morse Road, Building H-3
Columbus, Ohio 43229-6693

FOR USE BY THE STATE HISTORIC PRESERVATION OFFICE ONLY

(check appropriate space)

A. ☐ This is a recommendation for an archeological survey of the application based on the following reasons (attach addendum, if necessary):

A SHPO review of the area shown on the application map has provided a listing below of all known historic and prehistoric properties listed and eligible for listing on the "National Register of Historic Places" and known historic and prehistoric sites on the application area and adjacent areas (in a 1.5 mile radius). The listing includes, when appropriate, those historic and prehistoric structures identified by the applicant in items 7 and 8 above.

Listed and Eligible National Register Sites

Site Name (#)	Type	Application Area	Adjacent Area

Known Historic and Prehistoric Sites

Site Name (#)	Type	Application Area	Adjacent Area

B. ☐ A SHPO review of the area shown on the application map and information contained in this form finds that the proposed mining does not have a reasonable probability of affecting any properties listed or eligible for listing on the "National Register of Historic Places." Therefore, no further coordination will be necessary with this office unless the scope of the application area changes.

State Historic Preservation Officer _____

SHPO # _____

Date _____

Part 2: Section A

Yes ☒ No ☐ If "yes," submit Land Use Change Notification.

29. Submit Negative PFL Determination for areas within this IBR application area that are not prime farmland.

    Having considered the negative determinations, does this IBR application area include any land that is prime farmland? Yes ☐ No ☒

    If "yes," submit PFL Restoration Plan or describe how this area will be avoided.

30. Are any of the variances listed below being requested?

    Yes ☒ No ☐ If "yes," identify the variances and submit the applicable request(s) as an addendum.

    ☐ Stream buffer zone ☒ Small area drainage exemption

31. Will the proposed IBR area result in diversions of overland flow away from the disturbed area?

    Yes ☐ No ☒ If "yes," provide the required engineering designs.

32. Will the proposed IBR area result in construction of diversions to direct runoff through a sediment pond or a series of sediment ponds?

    Yes ☒ No ☐ If "yes," provide the required engineering designs.

33. Indicate which of the following are proposed to be constructed within this IBR application area, and provide the required engineering designs for each.

    ☐ Sedimentation pond(s) (submit Pond/Impoundment Plan)

    ☐ Water impoundments, including wetlands that impound water (submit Pond/Impoundment Plan)

    ☒ Sumps

    ☒ Other (specify) **Silt Fence**

Ohio Department of Natural Resources
Division of Mineral Resources Management

LAND USE CHANGE NOTIFICATION

TO: U.S. Fish and Wildlife
Division of Ecological Services
6950-H Americana Parkway
Reynoldsburg, Ohio 43068

Division of Wildlife
2045 Morse Road
Building G-2
Columbus, Ohio 43229-6693

Note: This form is to be completed only if a land use change is to occur.

1. Is a copy of the coal mine permit application currently on file with the Division of Mineral Resources Management? ☒ Yes, ☐ No.

2. Coal mine permit application no. or mine name **Century Mine**

3. Application to revise permit no. **D-0425**

4. Applicant **American Energy Corporation**

   Address **43521 Mayhugh Hill Road**

   City **Beallsville** State **OH** Zip **43716**

   Phone no. **740-926-9152**

6. Application Location

   County **Belmont** Township **Wayne**

   Section **8** Lot Acres **1.8**

   Township **6-N** Range **5-W** Quadrangle **Hunter**

Note: only list land uses below that will change from the premining use

7. Pre-mining Land Use type and acreage:

   Cropland 1.6 acres and Undeveloped .2 acres

8. Post-mining Land Use type and acreage:

   Cropland 1.7 acres and Forest Land .1 acres

9. Revegetation Plan (SPECIES AND AMOUNTS)

   See Attached

10. Stream Variance Request ☐ Yes, ☒ No If "yes," indicate the percentage of tree cover within the 100' buffer zones.

Notifications to U.S. Fish and Wildlife and Division of Wildlife must include a location map, and a map of the mine site showing where land use changes will occur. If "yes" to item 10 above, enclose a copy of Stream Buffer Zone Variance Request with each notification.

Part 2: Section F

Revised 02/06
DNR-744-9049

USDA

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

1119 East Main
ST. Suite 3
Barnesville, OH
43713

Ofc 740-425-1100
Fax 740-425-2664

April 20, 2009

Dennis B. Dubiel
American Energy Corporation
43521 Mayhugh Road, TWP Hwy. 88
Beallsville, Ohio 43716

Dennis B. Dubiel,

Enclosed please find the Prime Farmland Determination for the area you requested, in Belmont County Ohio. According to the Belmont County Soil Survey this area contains Prime Farm Land.

If you have any questions please feel free to contact me at 740-425-1100, ext. 3.

Sincerely yours,

Jeffery P. Bettinger
District Conservationist

Cc: File

The Natural Resources Conservation Service
works in partnership with people to conserve
and sustain natural resources.

An Equal Opportunity Provider and Employer

Response to Item 26 and 28:

Forest Planting Plan

Growth medium will consist of the top 3-4 feet of the surface containing the natural topsoil and subsoil, due to better survival and growth rates found when natural soils are used. Soil replacement techniques will consist of minimizing soil compaction during application of the rooting medium. Soil will be placed with end dump trucks that do not drive upon the soils, followed by final grading with low pressure bulldozers. Alternately, deep soil ripping to a depth of 4 feet will be employed to reduce compaction after restoration of the root zone. Temporary cover will consist of 10-15 lbs/acre of annual rye grass. Tree compatible ground cover will include, but are not limited to the following:

Permanent Grasses/Legumes

10 lbs/ac. Perennial Ryegrass
10 lbs/ac. Ladino Clover
10 lbs/ac. Appalow Lespedeza

Soil will be tested for fertilizer requirements recommended for an area to be planted in trees. The following native upland forest tree species will be utilized:

Tree Species

Red Oak
White Oak
Sugar Maple
Red Maple
Shagbark Hickory
Tulip Poplar

A minimum of 600 species/acre will be planted.

NOTE: Tree species selection may be altered based on soil sample analysis prior to planting. Plantings shall be conducted in late winter to early spring with planting to be completed prior to April 15, unless weather conditions are suitable to extend plantings times. Trees will be kept in cold storage prior to planting. Seedling stock roots may be dipped in a hydrogel to obtain higher survival rates. Stratification or scarification, if recommended, shall be done. Trees will be planted at the proper depth and firmly into the ground by an experienced crew by utilizing hydroseeding, mechanical planters, hand planting or a combination of these methods, depending upon the species established.

Cropland Planting Plan

Temporary cover will consist of a combination mixture of rye/oats and/or wheat at 3 bushels/acre.

Permanent cover will consist of:

8 lbs/acre Orchard Grass
7 lbs/acre Timothy
5 lbs/acre Alsike Clover
5 lbs/acre Ladino Clover

After resoiling is completed, the area will be disced, swept, rocks removed, redisced and grain drilled. Species will be planted by hydroseeding. Areas will be mulched with hay or straw at a rate of 2 tons/acre with a mulching machine or manually.

U. S. Department of Agriculture
Natural Resources Conservation Service

OH-CPA-65
Rev. 9/94

Certification of Prime/Nonprime Farmland

Name of Mine Operator American Energy Corporation

Location of Permit Application Area Sect 8 T-6-N R-5-W, Belmont Co. Ohio

Size of Permit Area (Acres) ≈ 1.7 Acres

Check Appropriate Block:

1. ☐ I have determined that this permit application DOES NOT contain prime farmland in accordance with the edition of the current county Prime Farmland Map Unit List found in the county Field Office Technical Guide.

2. ☒ I have found that this permit application CONTAINS prime farmland in accordance with the edition of the Prime Farmland Map Units for Ohio and for the current county Prime Farmland Map Unit List, whichever is more current.

A soil map has been attached and prime unit(s) are as follows:

Soil Map Symbol	Map Unit Name
CuB	Culleoka Silt Loam, 3 to 8 percent slopes

Signature: Jeff C. Bett

Jeff Bettinger, Natural Resources Conservation Service
1119 East Main St., Barnesville, OH 43713 (740) 425-1100 Ext. 112

AMERICAN ENERGY CORPORATION

43521 Mayhugh Hill Road • Twp. Hwy. 88 • Beallsville, OH 43716

PHONE: (740) 926-9152
FAX: (740) 926-9138

April 20, 2009

Mr. Jeffery P. Bettinger
Natural Resources Conservation Service
Barnesville Service Center
1119 East Main Street, Suite 3
Barnesville, Ohio 43713-9102

Mr. Bettinger:

Pursuant to the Ohio Department of Natural Resources, DMRM Policy/Procedure Directive Regulatory 90-1, Please review and provide a prime farmland determination on SCS form OH-CPA-65 for the proposed IBR application outlined on the attached map.

Applicants Name:	**American Energy Corporation**
Location of Permit Application Area:	**Section 8, T-6-N R-5-W** **Wayne Township** **Belmont County, Ohio**
Size of Permit (Acres):	**Approximately 1.7 Acres**

Also provide a soils map, list, and productivity potential for the proposed area.

Please return the form and additional information to the address above.

Sincerely,

Dennis B. Dubiel 4/20/2009

Dennis B. Dubiel
Project/Environmental Engineer
American Energy Corporation

EXHIBIT MAP - ADDENDUM TO IBR, ITEM 29

AMERICAN ENERGY CORP.
CENTURY MINE

PRIME FARMLAND DETERMINATION

SECTION 9, WAYNE TOWNSHIP, T-6-N R-6-W, BELMONT COUNTY, OHIO

SCALE 1" : 400'

TAKEN FROM SOIL SURVEY OF BELMONT COUNTY, OHIO
SHEET NUMBER 74

JUN 25 2003

AEC 075889

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

NEGATIVE PFL DETERMINATION

Applicant's Name **American Energy Corporation**

Check (X) the appropriate item numbers and attach the documents used to make the demonstration.

☐ 1. Lands within the application area have not been historically used for cropland.

☐ 2. The slope of the land within the application area is greater than eight percent.

☐ 3. The total prime farmland soil unit (inside **and** outside of the application area) is less than three acres.

☐ 4. On the basis of a second order soil survey meeting the standards of the National Cooperative Soil Survey, there are no soil map units within the application area that have been designated prime farmland by the U.S. Natural Resource Conservation Service.

☐ 5. On the basis of a first order soil survey commissioned by the applicant and meeting the standard of the National Cooperative Soil Survey, there were found to be no prime farmland map units as designated by the NRCS within the application area (see PFL Restoration Plan, item 2 for 1st order survey criteria).

Attached form OH-CPA-65 completed by Jeffrey Beittinger. District Conservationist for Belmont county Natural Resources conservation Service has found this area to contain prime farmland units. American Energy Corporation claims valid existing rights based on deeds executed prior to 1977. which include mining and surface rights. Therefore . American Energy Corporation. under Section1501: 13-4-12 (F)(1) of the Ohio Revised Code, is exempt from the Prime Farmland Regulation.

Revised 02/06
DNR-744-9029

AMERICAN ENERGY CORPORATION

43521 Mayhugh Hill Road • Twp. Hwy. 88 • Beallsville, OH 43716

PHONE: (740) 926-9152
FAX: (740) 926-9138

June 3, 2009

Mr. John Husted, Chief
ODNR - Division of Mineral Resources Management
2045 Morse Road, Building H-3
Columbus OH 43229-6693

Dear Chief Husted

The American Energy Corporation respectfully requests a small area drainage exemption for the shaft site located on the Raven Rocks property. The total area is 1.8 acres. The road and construction pads will be covered with geo-textile fabric and stone. All other areas will be seeded and mulched to prevent erosion. Runoff will be diverted around the site with ditches to limit the amount of water that the sumps will handle. Hay bale dikes and silt fence will be used to control sediment from leaving the sites. A berm will prevent site runoff from entering the streams without first passing through a sump. Site drainage will pass through sumps and then will be directed through hay bale dikes and will enter the receiving streams. Drainage directed to the streams will meet effluent limitations. All sumps and silt fence will be inspected regularly and cleaned when needed.

Sincerely,
THE AMERICAN ENERGY CORPORATION

Dennis B. Dubiel 6/3/09

Dennis B. Dubiel
Project/Environmental Engineer

cc: File

APPROVED ☒
DISAPPROVED ☐
DATE: 6/12/09
SIGNED John R. Husted
Chief

OPERATOR

IBR-0425-17

AEC 07591

34. Are any roads to be constructed, used or maintained within this IBR application area?

Yes ☒ No ☐ If "yes," provide the required description and engineering designs.

Roads will be eliminated upon final reclamation.

35. Are there any conveyor or rail systems to be constructed, used or maintained within this IBR application area?

Yes ☐ No ☒ If "yes," provide the required description and engineering designs.

IBR-0425-17

I, the undersigned authorized representative of the permittee, hereby attest that no coal has been or will be removed from the acreage identified in this application and verify the information in this application as true and correct to the best of my information and belief.

Printed Name: **James R. Turner**

Signature: _____

Title: **Treasurer**

Date Signed: April 20, 2009

Sworn before me and subscribed in my presence this 20th day of April, 2009.

NOTARIAL SEAL STATE OF OHIO

KATHY J. ROE
Notary Public, State of Ohio
My Commission Expires Dec. 14, 2009

Kathy J. Roe
Notary Public

FOR DIVISION USE ONLY

This application is hereby ☒ issued, ☐ disapproved

☒ The acreage identified in Item 4 of this application is now part of permit D-0425.
☐ The acreage identified in Item 5 of this application has been deleted from permit _____.

Date: 6/24/09 Signed: _____
Chief, Division of Mineral Resources Mgmt.

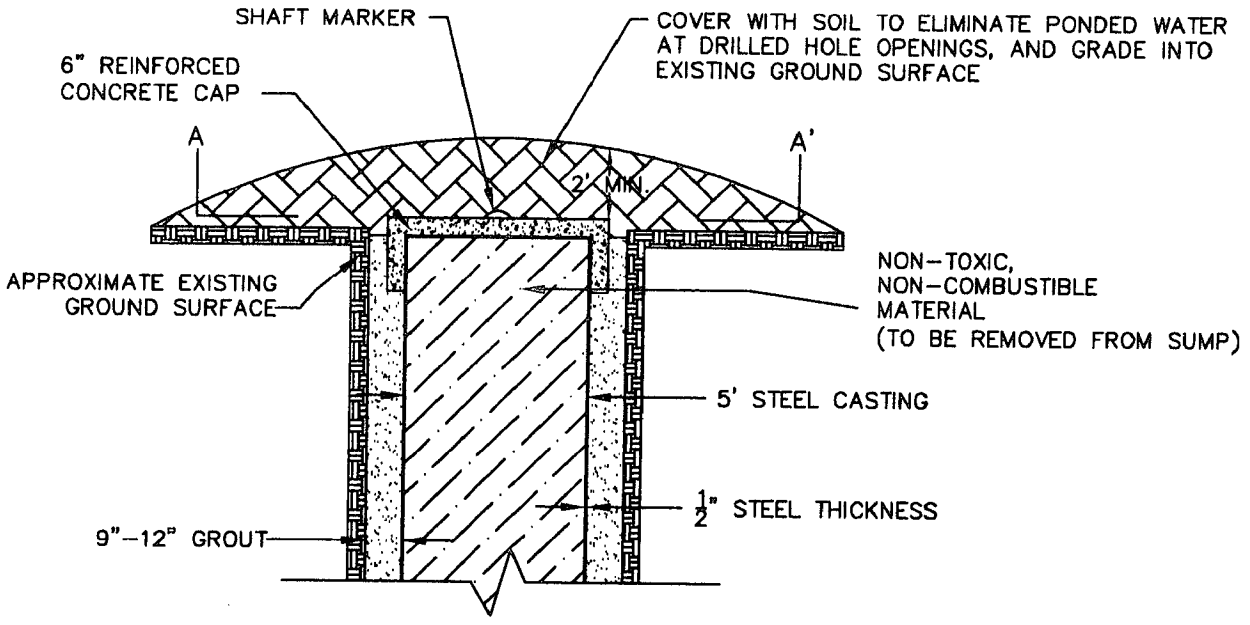
$ 4,500 of performance security received on 6/24/09.

Revised 05/07
DNR-744-9005

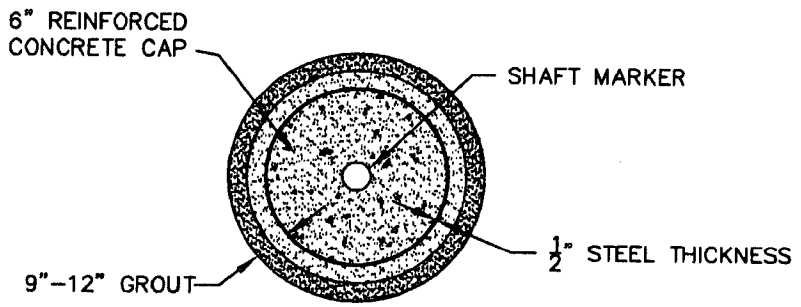
OPERATOR

IBR-0425-17

AEC 07593



PLAN VIEW



SECTION A-A'

ADDENDUM TO I.B.R. APPLICATION, ITEM 33 SHAFT SEALING PLAN		
Applicant: AMERICAN ENERGY CORPORATION		
Township: WAYNE		County: BELMONT
Contour Interval: N/A		Scale: N.T.S.
Date: 04/20/09	Date Rev:	Comm #

Copyright 1998 -2007 Pamela J. Schwab

American Energy Corporation
Raven Rocks Site

25 Yr. 24 Hr. Storm Event
Sump 001

David Barone

Jack A. Hamilton & Associates
342 High St., Box 471
Flushing, OH 43977

Phone: 740-968-4947
Email: www.hamiltonandassoc.com

Copyright 1998 -2007 Pamela L Schwab

General Information

Storm Information:

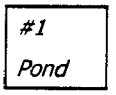
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	4.200 inches

AEC 07596

Copyright 1998 -2007 Pamela L Schwab

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	sump



AEC 07597

Copyright 1998 -2007 Pamela L Schwab

Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	0.500	0.500	1.34	0.11
	Out			1.31	0.11

Structure Detail:

Structure #1 (Pond)

sump

Pond Inputs:

Initial Pool Elev:	1,248.50 ft
Initial Pool:	0.10 ac-ft

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,248.50	5.00	2.00:1	2.00:1	6.00

Pond Results:

Peak Elevation:	1,248.67 ft
Dewater Time:	0.50 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,243.00	0.010	0.000	0.000		
1,243.50	0.010	0.005	0.000		
1,244.00	0.010	0.010	0.000		
1,244.50	0.010	0.015	0.000		
1,245.00	0.010	0.020	0.000		
1,245.50	0.015	0.026	0.000		
1,246.00	0.020	0.035	0.000		
1,246.50	0.020	0.045	0.000		
1,247.00	0.020	0.055	0.000		
1,247.50	0.025	0.066	0.000		
1,248.00	0.030	0.080	0.000		
1,248.50	0.035	0.096	0.000		Spillway #1
1,248.67	0.037	0.102	1.313	12.05	Peak Stage
1,249.00	0.040	0.114	3.804		
1,249.50	0.045	0.136	20.514		
1,250.00	0.050	0.159	43.174		

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,243.00	0.000	0.000
1,243.50	0.000	0.000
1,244.00	0.000	0.000
1,244.50	0.000	0.000
1,245.00	0.000	0.000
1,245.50	0.000	0.000
1,246.00	0.000	0.000
1,246.50	0.000	0.000
1,247.00	0.000	0.000
1,247.50	0.000	0.000
1,248.00	0.000	0.000
1,248.50	0.000	0.000
1,249.00	3.804	3.804
1,249.50	20.514	20.514
1,250.00	43.174	43.174

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.500	0.024	0.000	0.000	86.000	M	1.34	0.113
	Σ	**0.500**						**1.34**	**0.113**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	1.25	1.00	80.00	0.890	0.024
#1	**1**	**Time of Concentration:**					**0.024**

AEC 07601

Ravens Rock Shaft site

Diversion Ditch 001

10 year - 24 Hour

JPD

AEC 07602

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	3.700 inches

AEC 07603

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Channel	#1	==>	End	0.000	0.000	

AEC 07604

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	0.800	0.800	1.82	0.15

AEC 07605

Structure Detail:

Structure #1 (Vegetated Channel)

Triangular Vegetated Channel Inputs:

Material: Grass mixture

Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
2.0:1	2.0:1	3.5	D, B				5.0

Vegetated Channel Results:

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	1.82 cfs		1.82 cfs	
Depth:	0.70 ft		1.15 ft	
Top Width:	2.80 ft		4.61 ft	
Velocity:	1.87 fps		0.69 fps	
X-Section Area:	0.98 sq ft		2.66 sq ft	
Hydraulic Radius:	0.313 ft		0.516 ft	
Froude Number:	0.56		0.16	
Roughness Coefficient:	0.0687		0.2612	

AEC 07606

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	0.800	0.060	0.000	0.000	86.000	M	1.82	0.151
	Σ	**0.800**						**1.82**	**0.151**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.54	7.00	276.00	1.270	0.060
#1	**1**	**Time of Concentration:**					**0.060**

AEC 07607

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

Mine Plan (Performance Security) Summary

Permittee Name: American Energy Corporation Permit Number: IBR-425-17

1. **Permit Acreages:**

a.	Total Area for Permit/IMU:	1.8	acres
b.	Area of Slurry/Refuse:		acres
c.	Area required for Prep Plant Facilities:		acres
d.	Area for Permanent Primary Roads:		acres
e.	Area Revegetation Not Required:		acres
f.	Maximum Operational Area (MOA):	1.8	acres
g.	Area Proposed Not to be Affected:		acres

2. **Maximum Pit Dimensions:**

a. Pit Sizes: (measured from bottom of pit)

Pit #	Length *(ft)*	Width *(ft)*	Depth *(ft)*	Type *(1 or 2)*[a]	WT[b] *(ft)*
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

[a] *Enter 1 for contour mining or 2 for area mining.*

[b] *Enter a depth of the water table for area mining.*

b. Maximum unreclaimed length of augered highwall: feet

3. **Channel Construction/Rock Required:** **N/A** ☐

a.	Total of rock larger than D50 of 18 inches:	0	CYD
b.	Total of rock between D50 of 18 to 6 inches:	83	CYD
c.	Total of rock smaller than D50 of 6 inches:	20	CYD
d.	Total length of grass lined channels and stone centered waterways	80	feet

4. **Resoiling Parameters:**

a.	Average depth of resoiling material needed:	33	inches
b.	Enter area of resoiling with close on site materials: (Condition 1) *(<500')*	1.8	acres
c.	Enter area of resoiling with distant on site materials: (Condition 2) *(>500')*		acres
d.	Average depth of PRIME FARMLAND resoiling material needed:		inches
e.	Enter area of resoiling for PRIME FARMLAND: (Condition 1)		acres
f.	Enter area of resoiling for PRIME FARMLAND: (Condition 2)		acres

5. **Utilities:** N/A ☒

a.	Length of any active utility line (gas, water, etc.) to be affected:	feet
b.	Number of active oil or gas wells in mining area:	#

6. **Phase Releases:** N/A ☒

Attach an addendum and list the various Phase Releases and their respective acreages.

7. **Impoundments/Wetlands:**

a. Impoundments:

Impoundment ID	Volume Below Principle Spillway *(Acre-Feet)*	Impoundment ID	Volume Below Principle Spillway *(Acre-Feet)*
Sump 001	**.096**		

b. Area of wetlands within the permit limits to be affected: acres

8. **Haulroad or Miscellaneous Earthwork:** N/A ☒

Structure ID	Avg. Height *(feet)*	Top Width *(feet)*	Bot. Length *(feet)*	U/S Slope *(H:1 V)*	D/S Slope *(H:1 V)*	R. Abut Slope *(H:1 V)*	L. Abut Slope *(H:1 V)*	Available for Refuse Cap? [1]	Misc.[2] Earthwork *(CYD)*	Volume *(CYD)*
Fill									**6800**	
Stone (Pad)										**270**
Stone (Road)										**180**

[1] *If applicable.*

[2] *Provide an addendum with a detailed calculation.*

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9. **Slurry/Refuse:** N/A ☒

a. Depth of resoiling and topsoil for cap: feet

b. Depth of clay material for cap: feet

c. Onsite resoiling material available: CYD

d. Onsite clay material available: CYD

e. Tons per acre of lime for neutralization: tons/acre
(assumed 30 tons per acre if left blank)

f. List Phases or Cells for refuse :

Identification	Slurry or Coarse Refuse *(S or C)*	Surface Area to cover *(SQFT)*

10. **Substantial Known Events:** **N/A** ☒

Attach an addendum describing any other information that will impact the cost of reclamation. (Items include, but are not limited to road reconstruction, underground mine seals, landowner agreements, unrepaired slips, slides, etc.)

11. **Prep Plant Facilities:**

Does mine site have facilities for the purpose of processing coal? Y ☐, N ☒
If yes, fill out Item 12.

12. Prep Plant/Buildings Data:

a. Environmental Assessment and Remediation Estimate Supplied: Y ☐, N ☒
(If no Assessment, the state will assume lead, asbestos and hazardous materials are present at the facility. If the Assessment shows lead, asbestos, or hazardous materials are present and no Estimate is supplied, the state will estimate the cost of removal based on the information supplied.)

b. Nearest EPA approved hazardous waste receiving facility: miles

c. Distance to steel scrap facility: miles

d. Distance to appropriate disposal site: miles

e. Buildings:

Building Name or Number	**Structure Type** *(Steel, Concrete Masonry, Mix)*	**Dimensions** *(feet)*			**Floor Material** *Estimate thickness and type of steel reinforcement*[1]	**Footer**		**Foundation Wall**		
		Length	*Width*	*Height*		**Type** *Estimate thickness, width*[2]	**Reinforcing** *Heavy or Average*[1]	**Wall Type** *Block or Concrete*	**Reinforcing** *Vertical or horizontal and Heavy or Average*[1]	**Wall Height** *(ft)*
Example	*Steel*	*150*	*20*	*10*	*6" w/RWM*	*1' T, 2'W*	*H*	*Block*	*V, AR*	*2*

1 RWM = Reinforced Wire Mesh, RR = Reinforced Rods, HR = Heavy Reinforcing, AR = Average Reinforcing, V = Vertical Reinforcing, H = Horizontal Reinforcing
2 T = Thickness, W = Width

AEC 07613

f. Storage Bins: N/A ☐

		ID	Structure Type	Dimensions *(feet)*			Floor Material	Footer	
				Length	Width	Height	*Estimate thickness and type of steel reinforcement*[1]	Type *Estimate thickness, width*[2]	Reinforcing *Heavy or Average*[1]
SB1	*Back Wall*	**MCC Room**	**Concrete Block**	**12**	**12**	**10**			**Slab**
	Sides								
	Floor								
SB2	*Back Wall*								
	Sides								
	Floor								
SB3	*Back Wall*								
	Sides								
	Floor								

1 RWM = Reinforced Wire Mesh, RR = Reinforced Rods, HR = Heavy Reinforcing, AR = Average Reinforcing, V = Vertical Reinforcing, H = Horizontal Reinforcing
2 T = Thickness, W = Width

AEC 07614

g. Concrete Silos: N/A ☐

	ID	Avg. Diameter *(ft)*	Wall Thickness *(ft)*	Height *(ft)*
CS #1	**Steel Liner**	**5**	**.5 inches**	**530**
CS #2				
CS #3				
CS #4				
CS #5				

h. Conveyors: N/A ☒

	ID	Length *(ft)*
Conveyor #1		
Conveyor #2		
Conveyor #3		
Conveyor #4		
Conveyor #5		

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i. Concrete Pavement: N/A ☐

	ID	Concrete Reinforcement *(Plain or Reinforced)*	Length *(ft)*	Width *(ft)*	Thickness *(ft)*
CP Area #1	**Fan Pad**	**Reinforced**	**20**	**20**	**1**
CP Area #2	**MCC Building Pad**	**Reinforced**	**12**	**12**	**1**
CP Area #3					
CP Area #4					
CP Area #5					

j. Asphalt Pavement: N/A ☒

	ID	Length *(ft)*	Width *(ft)*	Thickness *(ft)*
AP Area #1				
AP Area #2				
AP Area #3				
CP Area #4				
CP Area #5				

AEC 07616

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT

POND/IMPOUNDMENT PLAN

Applicant's Name **American Energy Corp** Pond/Impoundment # **001**

Type of pond/impoundment **Incised** Permanent ☐ Temporary ☒

1. DRAINAGE AREA DATA:

   a) Drainage area **0.5** acres
   b) Disturbed area **0.5** acres
   c) Ave. land slope **1.25** %
   d) Hydrologic soil group **C**
   e) Hydraulic length **80** ft.
   f) Cover/condition of the undisturbed area **Pasture/Fair**

2. DESIGN STORM CRITERIA:

   a) Method:

      1) Design method(s) including computer programs: **SEDCAD 4.0**

      2) NRCS curve number **86**

   b) Rainfall Amount/Peak Flow

		Rainfall, in.	Peak flow, cfs.
1)	10 year, 24 hour =	**3.70**	**0.925**
2)	25 year, 24 hour =	**4.20**	**1.12**
3)	50 year, 6 hour = (if permanent)		
4)	100 year, 6 hour = (if 20/20 size)		

3. SIZE:

   a) Dimensions: **N/A POND IS TOTALLY INCISED**

1)	Dam height	ft.	4)	Dam downstream slope	%
2)	Dam width	ft.	5)	Dam upstream slope	%
3)	Dam length	ft.	6)	Core length ft. ft. ft.	

   b) Sediment storage volume **0.0576** ac. ft. is provided below the **1247** foot elevation.

   c) Stage/Area Data:

		Elevation ft.	Surface Area ac.	Volume Ac. ft.
1)	Bottom of pond/impoundment	**1243.0**	**0**	**0**
2)	Streambed at upstream toe:	**N/A**	**N/A**	**N/A**
3)	Principal spillway inlet:	**N/A**	**N/A**	**N/A**
4)	Emergency spillway crest:	**1248.5**	**0.035**	**0.102**
5)	Top of embankment:	**1250.0**	**0.05**	**0.159**

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4. PRINCIPAL SPILLWAY:

   a) Pipe length **N/A** ft.
   b) Pipe diameter in.
   c) Pipe slope %
   d) Riser diameter in.
   e) Riser height ft.
   f) Type of pipe
   g) Number of anti-seep collars ; spacing along pipe ft.
   h) Does the design include a trash rack? ☐ Yes, ☐No.
   i) Does the design include an anti-vortex device? ☐ Yes, ☐ No.

5. EMERGENCY SPILLWAY/EXIT CHANNEL:

   a) Base width **6** ft.
   b) Design flow depth **0.12**ft.
   c) Exit slope **4.2**%
   d) Exist velocity **2.1** fps
   e) Channel lining **RipRap**
   f) Side slopes **2:1**
   g) Freeboard **1.0** ft.
   h) Entrance slope **50** %
   i) Length of level control section **10** ft.

6. The minimum static factor of safety for this impoundment is **1.5**

7. Provide as an addendum to this attachment a detailed plan view or 2 cross sections of the impoundment.

8. COMMENTS:

   ITEM 3. a) IS NOT APPLICABLE SINCE POND IS TOTALLY INCISED.

9. Is this an MSHA structure? ☐ Yes ☒ No. If "yes," provide the MSHA ID number if one has been assigned

10. If this is to be retained as a permanent impoundment, submit an addendum to this attachment demonstrating compliance with 1501:13-9-04 of the Administrative Code.

11. I hereby certify that this impoundment is designed to comply with the applicable requirements of 1501:13-9-04 of the Administrative Code using current, prudent engineering practices.

Signature

6-12-09
Date

STATE OF OHIO
FARLEY R. WOOD
#E-57587
REGISTERED
PROFESSIONAL ENGINEER
SEAL

Part 3: Section A/H

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JUN 12 2009

AEC 07618

#608

Professional Archaeological Services Team

Phase I Cultural Resource Management Survey of a .7 ha (1.8 a.) American Energy Corporation IBR Application IBR-0425-17 in Wayne Township, Belmont County, Ohio

Craig S. Keener, Ph.D.
Joshua Niedermier

June 2009

Professional Archaeological Services Team
"Interpreting the Past, Envisioning the Future"

AEC 07619

Phase I Cultural Resource Management Survey of a .7 ha (1.8 a.) American Energy Corporation IBR Application IBR-0425-17 in Wayne Township, Belmont County, Ohio

Craig S. Keener, Ph.D.
Joshua Niedermier

Prepared for:

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Lead Agency: **Ohio Department of Natural Resources-Division Of Mineral Resources Management**

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Craig S. Keener P.I.

6.9.09

AEC 07620

Abstract

Professional Archaeological Services Team conducted a Phase I Cultural Resource Management (CRM) survey for a proposed .7 ha (1.8 a.) American Energy Corporation IBR Application IBR-0425-17 in Wayne Township, Belmont County, Ohio. The proposed survey was conducted in June at the request of Jack Hamilton & Associates, Inc. The cultural resource work is investigating the survey area under the Federal SMCRA archaeology requirements and ORC 1513 as they pertain to archaeological and historical resources within select areas of the IBR.

The project area is represented by a ridgetop landform situated south of Township Road 804. The test area is mostly represented by a grass covered field and pine tree area. Located in the Unglaciated Plateau the project area is situated in a rural area southeast of the Village of New Castle. Three soil types that represent the test area include: Culleoka (CuB) silt loam, Westmoreland (WmB) silt loam, and Westmoreland-Upshur Complex (WoC). The test area of the project has slope gradients that range from 3 to 8%. Shovel test units/probes were used to test the project. Fieldwork identified no archaeological sites.

To conclude, the results of the Phase I survey of the IBR application IBR-0425-17 enable PAST to **conclude that no additional investigation is warranted for the surveyed portions of the permit.**

AEC 07621

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Figures

1. Map of Ohio Political Boundaries showing the project area.
2. Portion of the USGS *1961 (Photorevised 1975) Hunter Quadrangle 7.5 Minute Series (Topographic) map* showing the IBR permit boundary.
3. Portion of 1888 *Atlas of Belmont County, Ohio* (Lathrop and Penny 1888) showing the estimated location of the project area.
4. Portion of the 1905 *Woodsville, Ohio 15 Minute Series (Topographic)* map showing the location of the project area.
5. Fieldwork map showing the locations of shovel test units/probes and previously recorded OHI structures BEL-1352-14 and BEL-1353-14.

Plates

1. View of the north end of the project area, facing southwest.
2. View from the south end of the project area, facing north.
3. Profile view of test unit 0E, 30S.

Tables

1. Shovel test/probe information for the test area.

AEC 07623

Introduction

Professional Archaeological Services Team conducted a Phase I Cultural Resource Management (CRM) survey for a proposed .7 ha (1.8 a.) American Energy Corporation IBR Application IBR-0425-17 in Wayne Township, Belmont County, Ohio (Figures 1-2). The permit is located in Section 8 of Wayne Township and will be impacted by surface disturbance associated with mining. The proposed project was conducted at the request of Jack Hamilton & Associates, Inc. This survey is investigating any cultural resources evident inside the areas of the IBR that were denoted by the client. The report and field testing follow the guidelines provided by the Ohio Historic Preservation Office [OHPO] 1994 guidelines and the Secretary of Interior's 1983 guidelines for survey reports. The archaeological work is investigating the survey area under the Federal SMCRA archaeology requirements and ORC 1513 as they pertain to archaeological and historical resources within select areas of the IBR.

The irregularly shaped project area is situated on top of a ridgetop landform that is located south of Township Road 804. The test area is mostly represented by a grass covered field and pine tree area. Slope ranges exhibited across the test location ranged from 3 to 8%. Some disturbances were found within the area of the pine trees. This may be due to the planting of the trees within the last five years.

The project area is located in the Unglaciated Appalachian Plateau, on colluvium derived from local bedrock (Pavey et al. 1999). The project contains three soil types that include: Culleoka (CuB) silt loam, Westmoreland (WmB) silt loam, and Westmoreland-Upshur Complex (WoC). The project is located in a rural setting to the southeast of the Village of New Castle.

The Adjacent Area/Area of Potential Effect (AA/APE) for the IBR was considered to not extend beyond the permit boundary. The client did not denote any AA/APE concerns or testing beyond the permit boundaries. All of the immediate surrounding landscape is represented by steep side slopes and/or woods. The survey is only looking at the footprint of the project.

The various test areas were examined through shovel test units/shovel probes. Dr. Craig Keener served as the principal investigator for this project. Kevin Nye and Joshua Niedermier served as field technicians. The report and figures were completed by C. S. Keener, Joshua Niedermier, and Kevin Nye.

Background Investigation

Professional Archaeological Services Team (PAST) conducted an archaeological literature review of records at the Ohio Historic Preservation Office (OHPO) in June of 2009. Research was focused on obtaining archaeological information associated with the proposed project area. A 3 km (1.8 mi) study radius was utilized for the study area. Records that were checked included the National Register of Historic Places (NRHP)

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files, the Mills Atlas, the Ohio Archaeological Inventory (OAI), the Ohio Historic Inventory (OHI), Cultural Resource Management (CRM) survey files, historic atlases and maps, and county histories.

Mills' (1914) atlas was consulted to determine if any prehistoric earthworks/mounds, villages or burials were reported in the project area or study radius. Mills hand plotted most of these sites on county maps from the recollections of postmen or local individuals who knew or had heard of such sites in these vicinities. The vast majority of these sites were not field checked, so the accuracy of a given site's position or its actual existence is questionable unless field checked. Mills' atlas is a useful planning tool, however, since it is reliable in giving a researcher a general idea of where earthworks/mounds may be located. Analysis of the Belmont County Mills' map showed no sites within or adjacent to the project area. No sites are indicated in the study radius.

The USGS *1961 (Photorevised 1975) Hunter Quadrangle 7.5 Minute Series (Topographic) map* of the Ohio Archaeological Inventory (OAI) identified no archaeological sites within or immediately adjacent to the project area. A total of six archaeological sites have been recorded in the study radius and are listed below.

Site#	Temporal Period	Type of Site
33BL9	Unassigned Woodland	mound
33BL52	Late Woodland and 20th Century Historic	rockshelter
33BL252	Unassigned Prehistoric	isolated find
33BL343	Unassigned Prehistoric	isolated find
33BL339	mid 19th to 20th century historic	structure remains
33BL340	mid 19th to mid 20th century historic	log cabin and historic scatter

Except for 33BL9, the Thomas Mound, and 33BL52, the Raven Rocks rock shelter, the prehistoric sites are unassigned and typically isolated finds. Historic sites have been typically related to residential sites. 33BL9, the Thomas Mound is located approximately 1.8 miles to the southeast of the project and 33BL52, the Raven Rocks rockshelter is located approximately 1 mile to the east of the project.

Five CRM surveys have been conducted in the study radius (Biehl 2002; Duerksen 1996; Keener 2008; Pecora 2000; Weller 2003).

Examination of the NRHP files failed to identify any buildings, sites or structures within or immediately adjacent to the project area.

The Ohio Historic Inventory has no recorded houses in or immediately adjacent to the project area. Two structures recorded on the Ohio Historic Inventory (BEL-1352-14 and BEL-1353-14) are within 1,000 feet of the project. The structures were examined and evaluated by Ohio Valley Archaeological Consultants (Biehl 2002). Both structures

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were recommended eligible to the National Register of Historic Places by OVAC, but the Ohio Historic Preservation Office did not concur with their recommendations for BEL-1352-14 and recommended that it is not eligible to the National Register.

The Belmont County histories indicate no historical events or historical significance associated with the historic property owners or immediate vicinity of the project area. George Powell was listed as a township trustee in 1881 (Jones 1985; McKelvey 1903).

The 1888 *Atlas of Belmont County, Ohio* was analyzed and shows one possible land owner of the project (Lathrop and Penny 1888) (Figure 3). The property owner is listed as Harvey Danford. No houses are shown in the test areas.

The 1905 *Woodsville, Ohio 15 Minute Series (Topographic)* map (Figure 4), shows no houses lie inside the test areas.

The USGS *1961 (Photorevised 1975) Hunter Quadrangle 7.5 Minute Series (Topographic) map* shows no structures inside or immediately adjacent to the project area.

Cultural History

The subsequent text is a summary of cultural developments that have occurred over time in the Ohio Region. This description of various cultural manifestations is presented in a broad and regional manner in order to provide an interpretative framework from which general research questions/hypotheses can be applied to a project area.

During the end of the Pleistocene the glacial retreat produced drastic changes in regional faunae and florae populations. Most of the so-called "megafauna" became extinct and broad regional vegetational changes occurred as the temperature increased (Shane 1994). The Native American groups to first inhabit the Ohio region had to cope with the rapidly changing subarctic climates. Some have argued (e.g., Martin and Klein 1984) that Paleoindian populations relied extensively or exclusively on hunting big game animals such as the mammoth, mastodon, and herd animals (e.g., long horned bison). Recent findings of a mastodon at the Burning Tree site in Licking County support this premise that Paleoindian populations were big game hunters (Fisher et al. 1994). However, while there is little doubt that Paleoindian populations hunted big game, this was not the only food resource option. Others have suggested that Paleoindian populations relied more extensively on smaller game animals and plant resources, employing a more balanced subsistence strategy (Bamforth 1988; Lepper 1988). Consequently, Paleoindian populations in Ohio have been viewed as highly mobile/nomadic with their sites reflecting transitory behavior with evidence of seasonal use of available animal and plant resources.

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The artifact assemblage of the Paleoindian Period (14,000 B.C. to 8,000 B.C.) is characterized by the Clovis projectile point types, steep edged scrapers, blades, and utilized flakes and tools (Justice 1987; Tankersley 1994). Although not well documented for eastern North America, bone and wood tools were presumably commonly used as well. The Clovis point is a fluted lanceolate with a ground concave base and parallel or slightly convex sides. Unfluted Plainview types are also common to this period, but infrequently reported in Ohio.

Most reported Paleoindian sites in Ohio are surface finds recovered from elevated rises, hill/ridge tops, or along terraces within valley floors (Prufer and Baby 1963). Recent findings in the past two decades have resulted in additional information on site composition. Along the Ohio River, excavations at the Manning site revealed three distinct Late Paleoindian occupations that exhibited tool clusters and possible residential and/or activity areas (Lepper 1994). Evidence of hunting and/or hunting locations have been found near remnant glacial ponds, bogs, or along river valleys (e.g., Burning Tree Mastodon, Nobles Pond, and Sandy Springs) (Dancey 1994). Research on quarries and flint acquisition in Central Muskingum River valley (Lepper 1986; Tankersley 1990) and the Midwest as a whole has produced new information on land use patterns and workshop sites. These sites and/or investigations have produced significant information, nonetheless, the picture of the Paleoindian Period within Ohio is incomplete and the scarcity of recorded sites make any newly identified Paleoindian site of potential interest.

Cultural developments in the Archaic Period reflect the impact of post-Pleistocene climatic changes in which moderate and temperate climates replaced the subarctic conditions of the glacial period. A wider range of natural resources became available, and based on the presence of ground stone tools, it appears that plant foods became a significant part of subsistence. Populations appear to become less transitory, with sub-regional lithic assemblages composed of greater percentages of local flint resources. The Archaic spans a broad time period and is broken up into three stages: Late, Middle, and Early.

The Early Archaic Period (8,000-6,000 B. C.) is marked by a greater variety of tools, in particular projectile points. Thebes, Kirk, and Palmer point types are just a few of many new variations being created during this period (Justice 1987). Most of these points are basally notched, bifurcates, or corner notched, and many exhibit ground bases, beveled blades, and/or serrated edges. Early Archaic sites are more commonly found on outwash terraces within the river and stream valleys of the Till Plains and Allegheny Plateau. The predominance of projectile type tools may indicate a greater reliance on hunting strategies, however, seasonal exploitation of plant foods and use of river biomes certainly were important aspects of subsistence. Other tools that characterize this period include end scrapers, utilized flakes, and some ground stone tools.

Little is known about the Middle Archaic Period (6000-3000 B. C.) in Ohio. Few undisturbed sites have been recorded. The climate continued to change during this period and the majority of Middle Archaic sites are found on terraces and floodplains of stream valleys (Genheimer 1980). Projectile points of this era are generally represented by

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heavy stemmed or side notched varieties. There is also an apparent increase in ground stone tools such as atlatl bannerstones (both cylindrical and winged), slate pendants, and full grooved axes.

The Late Archaic (3,000-1,000 B.C.) represents a period of diversification and localization of pre-Woodland populations (Dragoo 1976; Pratt 1981). Tool assemblages are typically composed of flint from nearby (local) outcrops. A wide array of drills, scrapers, knives, and groundstone items are associated with this assemblage. Projectile points of this period are generally crude, stemmed types (e.g., McWhinney), but include many varieties. Burial goods, such as bannerstones and other slate goods, and flint items suggest the development of more elaborate ceremonial customs that would continue to grow in the Woodland period. The presence of some exotic goods, such as flint from distant outcrops suggests the development of long distance trade. Sites are usually large in size and generally reflect continual use of an area. The variety of site types is indicative of a specialization to seasonal exploitation of localized environments and an increase in reliance on plant foods that would carry over into the Woodland Period, resulting in the domestication of several wild species. Site locations along terraces suggest that during the spring and summer aquatic and plant resources in river valleys were heavily utilized, while during the fall and winter the uplands were focused upon for nut harvest (e.g., hickory and walnut) and wild game hunting. Vickery (1980) has suggested that two types of settlements occurred during this period, the local base camp affiliated with a restricted territory, and larger scale camps indicative of the use of regional resources.

The Early Woodland Period (1,000 B.C. to 100 B.C.) represents a continuation and elaboration of cultural manifestations developed in the Late Archaic. The Early Woodland Period is set apart from the Archaic by the intensification of its mortuary practices with the construction of burial mounds and extensive exchange networks for burial/ritual goods, use of ceramic vessels, and the use of indigenous or non-indigenous domesticated cultigens such as chenopodium and sunflower (Dragoo 1976). The introduction of pottery is important because is suggests the greater reliance on food processing and storage (e.g., for nuts), and may indicate a greater emphasis on gathering of plant foods versus hunting. This change also marks a shift towards the development of cultivation and later agriculture, which would occur in the Late Woodland. Pottery first appears in the Ohio Valley between 1,000 to 100 B.C. and is characterized as plain surfaced, thick, grit tempered and typically possessing a flat based and conical vessel form (e.g., Fayette Thick type).

Early Woodland settlements are characterized by small hamlet/village sites generally located on low terraces and floodplains of stream valleys. Little work has been conducted at these sites. Evidence of circular structures has been found at several sites, suggesting semi-permanence of the inhabitations. Projectile points found at Early Woodland sites are generally large ovate-based or stemmed varieties (Justice 1987). The mortuary complex of Adena sites is characterized by conical mounds generally small in size. Mounds usually are found isolated but may be accompanied by surrounding enclosures. Burial mounds are typically found along high terrace or bluffs overlooking

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stream valleys of the Ohio River. Examples of large Early Woodland mounds include the the Sentinel Mound (Harrison County), the Miamisburg Mound (Montgomery County), the Adena Mound (Ross County), and the Cemetery Mound (Washington County). Burials are often, but not always, placed in the center of the mound floors. Some burials are lined with logs, and often contain exotic goods such as high quality flint projectile points, copper bead necklaces, and slate and ground stone items.

The Middle Woodland period (100 B.C. to A.D. 400) exhibited a continuity of Early Woodland traits with similar habitation and mortuary site locations along major stream valleys. Subsistence strategies continued to rely heavily on food supplies attained from hunting and gathering (e.g., nut varieties, deer, berries, fish, seeds, and small mammals). There is however, an apparent greater reliance on seed food such as chenopodium, sunflower, and maygrass, known as the Eastern Agricultural Complex (Wymer 1996). Corn also makes it first appearance during this period, but only in small quantities, indicating it was not a major part of the diet.

Settlement patterns of the Middle Woodland appear to center around small hamlets which in turn appear to be grouped near earthwork complexes (Pacheco 1996). Information on "hamlets" is still formative, however, excavations at such notable sites as Jennison Guard (Blosser 1996), Murphy (Dancey 1991, 1992) and Twin Mounds (Fischer 1969, 1970) have found that they are located in larger stream valleys and are the focus of many specialized activities (e.g., bladelet manufacture). Secondary encampments have been found in the uplands, indicating exploitation of seasonal plant (e.g., nuts) or animal (e.g., deer) resources. Ceremonial complexes were also the scene of possible communal activities, and rectangular structures and workshop areas have been found at many of the sites (e.g., Seip and Ft. Ancient [Connolly 1996]). However, no clear evidence of villages or hamlets have been found within the earthwork complexes themselves (Dancey 1996; Prufer 1965).

A distinction from the Early Woodland is the development of extensive and elaborate geometric earthwork complexes. Most archaeological work has been conducted upon these earthworks and associated mounds (e.g., Shetrone 1926). Some of the more notable Middle Woodland complexes include Hopewell, Mound City, High Banks, Newark, Seip, Harness, Stubbs, and Marietta. Hill top enclosures tend to be more common in the southwest Ohio area and are exemplified by such sites as Fort Ancient, Pollock, Fort Hill, and Miami Fort. From these sites excavations have revealed an elaborate mortuary-oriented culture, with evidence of preburial and postburial activities, and concentrated and large amounts of exotic grave goods, indicating well established trade connections or long distance acquisition. While Middle Woodland populations have been viewed as egalitarian the focus of exotic goods in the earthwork complexes indicates that some individuals did possess higher status.

The artifact assemblage of the Middle Woodland is dependent on its context. Exotic trade goods are generally concentrated in mortuary sites, while more utilitarian artifacts such as ceramics and lithic workshops, are located at hamlets or encampments. Middle Woodland ceramics are typically manufactured with grit temper and possess

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cordmarked or plain exterior surfaces. Some ceramics are decorated with stamped, punctated or zoned designs, with a few rare items containing iconography (Greber and Ruhl 1989). Vessels generally have thinner walls than the Early Woodland ceramics, and are globular in form. Lithic artifacts include bladelets, polyhedral cores, expanding base projectile points (e.g., Snyder type), drills, and a variety of ground stone tools. The mortuary type items, also found in workshops, include materials found over long distances from several regions of North America. These include chlorite and mica from the Southeast, in the southern Appalachians; marine shell, alligator and shark teeth, and turtle shell from the Gulf Coast; obsidian from the Yellowstone area in the Rockies; copper from the Great Lakes; silver from Ontario; meteoric iron; and non-local fine quality flint from North Dakota (Knife River), and southeast Indiana (Harrison County [Indiana Hornstone] flint). Other items made from non-local or local material include platform pipes, copper axes/adzes and plates, copper skull caps, copper and silver earspools, large predatory animal canine teeth, and leaf shaped flint cache blades (Griffin 1978).

The Late Woodland period (A.D. 400 to A.D. 900) is characterized by the continuation of some Middle Woodland traits such as similar tool complexes (e.g., Chesser type points, ceramic manufacture, and continuation of exotic trade goods in some areas). However, the large ceremonial complexes of the Middle Woodland do not occur in the Late Woodland, changing instead to rather small burial mounds and/or stonebox graves. Distinct subregional expressions also appear during this period, such as Cole and Newtown (Baby and Potter 1965; Prufer and McKenzie 1966). Ceramic assemblages in southern Ohio are typically cordmarked, and either contain chert or limestone tempering agents (e.g., Peters and Chesser series). In central Ohio ceramics are generally cordmarked and grit tempered (e.g., Cole series). The lithic assemblage is characterized by Chesser-side notched points, Raccoon notched, triangular side-notched points, and triangular points (Justice 1987). Ground stone tools such as three quarter groove axes, pestles, and metates are common. There is also an increase of representative bone tool artifacts (e.g., awls, punches, etc.) during this period (e.g., Philo site).

Settlement patterns change during the Late Woodland, with populations aggregating into village sites typically located within major river valleys along the base of bluffs or terraces. The amalgamation of people into villages appears to correspond with the introduction of corn, bean, and squash agriculture. The greater reliance on cultivated plants required a larger work force for planting and harvesting, making a permanent settlement more advantageous. The advent of agriculture also corresponds with an apparent increase or threat of warfare. Large groupings of people provided better defensive capabilities to a community. Towards the end of the Late Woodland, villages began to be placed on more easily defendable terrain and palisades began to be constructed. It also appears that upland locations were selected for temporary encampments in the autumn and winter in order to exploit seasonal food resources.

The Mississippian/Late Prehistoric period (A.D. 900 to 1685) represents a continuation of most of the cultural manifestations that occurred in the Late Woodland. Settlements are still found in river valleys, although villages tend to be situated on more

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highly defendable terrain such as bluff or terrace edges. They also tend to be larger, and many are ringed by defensive palisades, suggesting that warfare was a factor in site selection. There is an increased reliance on corn agriculture and consequently, populations become more sedentary. Ceramic assemblages contain both grit and shell tempered varieties. Lithic assemblages are dominated by triangular points and knives. There is also extensive use of bone and shell for tools or ceremonial items. Some decorative motifs on shell artifacts or ceramics suggest influence from both southeastern and Mississippian cultures (e.g., weeping eye motif at Ft. Ancient sites) (Griffin 1978). Several distinct sub-regional groups (e.g., Ft. Ancient, Monongehela, Whittlesey, and Western Basin) develop across Ohio, with each containing unique developmental phases.

The project area falls within an area affiliated with Monongehela assemblages. Monongehela sites, particularly village sites, are commonly found on ridgetops away from main drainages. Ceramics are typified by collarless, limestone and shell tempered jars and are found with plain or cordmarked surface treatment. Circular house structures sometimes associated with attached storage pits (petal shaped) are common (Nass and Hart 2000).

The Historic Period begins in the Ohio region during the early 1680s with recorded accounts of Iroquois war parties driving out indigenous tribes of the area. Little historical information is known about the indigenous seventeenth century inhabitants of the Ohio region or the specifics of the Iroquois intrusion into this area, except that the Iroquois were successful in dispersing or defeating several tribes from this region, including the Shawnee, Erie, and Fire Nation (Keener 1998). Eastern Ohio remained vacant between 1685 and 1720 and served as a hunting area for the Iroquois and various tribes (Ottawa, Mississaugi, and Wyandot) located near Detroit (O'Callaghan 1856; Wheeler-Voegelin 1974).

Between 1720 and 1780s the Delaware, Shawnee, and Iroquois settled along the Ohio River and its secondary drainages. No major villages were established in the county although they used the area for hunting. In 1774 a group of Virginia militia attacked several Indians at the mouth of Captina Creek. This was one of several events that precipitated Lord Dunmore's War. During the Revolutionary War Indian attacks were focused on Fort Henry located across from Bellaire. In 1782 a large Indian/English force laid siege to the site. In the Indian Wars of 1790 to 1794 Ft. Kirkwood was attacked by Indians and several Americans were killed. With the Greenville Treaty of 1795 all Indian claims to the county were relinquished (Wheeler Voegelin 1974; Tanner 1987).

The first Euroamerican settlements to occur in Belmont County began in the 1780s with squatter settlements at Martin's Ferry, Concord, Kirkwood, and other locations north of the Ohio River. This was at that time still considered land owned by several Ohio Indian tribes, and was notable cause of the Indian Wars that began in 1789 (Keener 1998; O' Callaghan 8156; Tanner 1987; Wheeling 1974). The Indians, however, were defeated at Fallen Timbers in 1794 and the Treaty of Greenville in 1795 led to

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relinquishment of all Indian claims to eastern Ohio, including Belmont County (Jones 1985; McKelvey 1903).

Once the county officially opened to settlement settlers poured in from Pennsylvania and Virginia and set up cabins along the Ohio River and its tributary streams. The majority of the settlers were farmers who produced crops and livestock for subsistence and cash. Agriculture remained an important economy for the county throughout the nineteenth century and is still a source of income for most property owners in rural areas today. In addition to agriculture, tobacco was an important cash crop as was ginseng. Belmont County was officially organized in 1807 (Jones 1985; Mckelvey 1903).

Roads and the Ohio River served as the earliest transportation routes of the county in the early nineteenth century. The National Road (current State Route 40) was finished in 1825. In the 1850s and 1860s railroads were built, the first of which was the Central Ohio. The railroads appear in conjunction with the growing coal mine industry in the county. Major coal mines began to appear adjacent to tracks for easy shipment of goods during the late nineteenth century. Industry related to coal grew in most of Belmont County's towns, particularly at Martin;s Ferry and Bellaire. By 1900 Belmont County had become the second leading extractor of coal in Ohio (Crowell 1995). The National Road and railroads also led to the growth of existing towns and the expansion of industry particularly that which was associated with coal. While mineral extraction, such as coal and limestone, became a dominate industry of the county in the late nineteenth and early twentieth century other industries also developed and flourished. The city of Bellaire became a leader in glass manufacture and also possessed a nail factory. However, between 1930 and 1980 commercial and industrial growth declined throughout the county. Coal mining also declined in importance. Although strip mining and some deep mining still occur the industry has suffered greatly because of new governmental regulations that require lower sulfur content in coal, which limits what coal fields can be utilized. Since most of Ohio coals have high sulfur content less of the material is mined, and it is also worth less (Crowell 1995; Jones 1985; McKelvey 1903).

The 1990s has seen a slight resurgence of economic growth in the county with business development occurring along Interstate 70 (I-70), particularly near the City of St. Clairsville. The majority of these new businesses are not associated with coal mining. This has resulted in greater employment possibilities. Coal mining in the form of strip mining and deep mining still occurs and the county has become the number one extractor of coal in the state (Crowell 1995).

The earliest settlers arrived in Wayne Township in the 1780s and 1790s with many settling along Captina Creek. Agriculture was important in the 19th century, in particular the cultivation of tobacco. New Castle and Hunter are the only villages in the township. New Castle contained a cigar factory. In the late 19th century up to the 21st century coal mining has become important (McKelvy 1903).

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Environmental Section

Physiography

Belmont County is situated within the Unglaciated Allegheny Plateau. The terrain is hilly, steep and heavily dissected. Underlying bedrock is represented by limestone, sandstone, shale, siltstone, coal, of the Pennsylvanian and Permian systems. Major drainages of the county include the McMahon Creek, Captina Creek, Leatherwood Creek, Wheeling Creek, and Stillwater Creek (Pavey et al. 1999; USDA, SCS 1981).

The project area is located in the south central portion of Belmont County. The elevation within the project area is 385 m (1,263 ft.) in elevation. Long Run is located approximately 329 m (1,079 ft.) to the north of the project.

Soils

Soil types in the project area are important, for they can help determine the likelihood/potential for cultural activities or archaeological sites. Soil types also help us understand the process of taphonomy and how sites are preserved or changed from depositional factors, erosion, or soil acidity. A total of three soil types are located within the tested area and are listed below:

Culleoka (CuB) silt loam, 3-8% slope
Westmoreland (WmB) silt loam, 3 to 8% slope
Westmoreland (WoC) Upshur Complex, 8-15% slope

These soils are well drained types (USDA, SCS 1981). The lower percent slope soils have a greater potential to contain sites if present.

Fauna

The clearance of most of Ohio's presettlement forest resulted in the extinction of many species which could have been used by prehistoric populations. The most useful species found in archaeological assemblages of prehistoric and early Euroamerican populations include deer, elk, bison, black bear, wolf, beaver, turkey, passenger pigeon, mountain lion, ruffed grouse, cottontail rabbit, squirrel, water fowl, fish, and mussels. This variety of faunal resources supplied the seasonal food needs of indigenous populations and provided raw materials for tools (e.g., bone awls, shell hoes) and/or ceremonial artifacts (e.g., canine teeth, deer antler skull caps) (Cleland 1966).

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Flora

Presettlement vegetational patterns in Ohio have changed dramatically with the arrival of Euroamerican populations because of the impact of agriculture and industrial and urban developments. Large swaths of indigenous forests were cut down for use as lumber, fuel for the coal and iron industries, a source for heating (e.g., fire), and to clear fields for agricultural uses. Marshes, wetlands and prairies were also altered by post settlement populations with most wet areas having been drained for agriculture, and prairies replaced by cultivated fields. The presettlement vegetational patterns of Ohio have been classified by Gordon (1966). In eastern Ohio forests were once dominated by mixed mesophytic segregates such as broad leaved deciduous species and evergreen varieties. The project area was once dominated by ash, elm, beech, maple, and walnut. Nut bearing varieties provided a seasonal source of food for prehistoric populations.

Formulation of a Research Design

The development of the research design incorporates information obtained from the archival review, culture history, and environmental context, which are used to identify objectives and questions to apply when testing a designated project area. The information obtained from the local and regional area help in the assessment of any identified building/site when determining its potential eligibility for nomination to the NRHP. A summary of the background findings and how this information may relate to the testing and evaluation of the project is provided below.

The survey area is situated in the Unglaciated Plateau that is characterized by a ridgetop landform. Slope ranges from 3 to 8% across the test area. Three soil types represent the project that include: Culleoka (CuB) silt loam, Westmoreland (WmB) silt loam, and Westmoreland-Upshur Complex (WoC) (USDA, SCS 1981). The surface area for the test area is mainly a tall grass covered field and pine tree area. Limited disturbance was noted within the pine tree area probably due to the planting of the trees and/or previous logging.

The archival review indicated that no previously recorded sites are located in the project area. Ridgetop landforms in eastern Ohio have a potential to contain prehistoric sites if they have not been negatively impacted by mining, logging, and/or erosion. Most prehistoric sites recorded in the study area have, however, been unassigned isolated finds; except for 33BL9, the Thomas Mound, and 33BL52, the Raven Rocks rockshelter. Historic residential deposits are not expected as no houses are indicated in the test areas on historic atlas/maps.

Test units/shovel probes will be used to analyze the project area.

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Methodological Approach

The project area was tested using shovel test units/probes. The testing methodology is described below. Sites, if identified, are inventoried by Field Site #s (FS #). Each sequential site identified follows in numerical order and is recorded within the field notes and field maps and discussed accordingly within this report.

Subsurface testing will involve the excavation of a series of shovel test units within areas with <50% surface visibility. Test units are placed 15 m apart in a 15 m by 15 m grid. If a shovel test unit is identified as positive, four radial shovel test units will be excavated in the four cardinal directions from the positive test unit (within the project boundaries). Radial shovel test units will be spaced 7.5 m (25') from the positive shovel test unit. Radials are not excavated in slope, disturbed locations, wet/saturated locations or between positive test units. Radial shovel test units are used to help identify site boundaries within the project area for any site identified. Shovel test units and radial shovel test units are .25 m^2 ($2.69'^2$) in size and are excavated by natural stratigraphic layers to a depth of approximately 5 cm (2") below subsoil. The soil matrix from each stratigraphic level will be dry screened through .6 cm (.25") hardware mesh. Any recovered artifacts are provenienced and placed in bags. Any features found on the subsoil floor of a shovel test unit will be drawn to scale with a plan view and photographed. A representative photo of the floor of a shovel test unit will be provided for the project area to exhibit a typical shovel test unit encountered during the survey.

Excavated areas, which reveal complete disturbance to the subsoil or exhibit excessive erosion (less than 5 cm of A horizon) are labeled shovel probes which possess 30 cm diameters or smaller. Those test units which are deemed shovel probes are not screened and are back filled when determined to be disturbed. Areas which exhibit wet soils (with standing water or saturated soil) or disturbance at the surface will be labeled as such on the fieldwork map, and will not be excavated (unless noted by field supervisor). In these areas the test grid may expand to 30 m (100'). If surface conditions are clearly disturbed or wet then field methods will shift to visual inspection

Artifact Analysis

Prehistoric and historic artifacts recovered in the field are washed and then inventoried for report purposes. Prehistoric artifacts are inventoried according to physical appearance (e.g., core, primary decortication flake, secondary thinning flake, granite hammerstone, bone awl, grit tempered pottery, etc.). The material from which artifacts are made from is identified in the inventory, such as flint type. Reference books (e.g., Justice 1987) are used when analyzing diagnostic artifacts. Specific studies on identified prehistoric assemblages are dependent upon what hypotheses or questions have been developed, if any, for the project area and the make-up of the assemblage. If a study on distribution or physical attributes of prehistoric artifacts is conducted, an entire section of the report is devoted to this endeavor. Prehistoric artifacts from each site are listed following the description of the site from which they were recovered or listed in a table in

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the back of the report. How the prehistoric assemblage was categorized into individual artifact classes is listed below. Attributes of flakes and tools is based on a number of references (e.g. Andrefsky 1994, 1998; Crabtree 1982; Kooyman 2000; Odell 2004, Pecora 2002), coursework and experience. Most of these artifact classes are commonly used by other CRM firms. While similar terms may be used by different companies it should be noted that classification of lithic debris is very subjective. In more advanced studies (e.g. Phase II or III) PAST may use a more refined technique that has been advocated by Pecora (2002).

Lithic Classification

Flake/Debitage

Primary Decortication: These flakes exhibit 100% cortex on the dorsal surface. Typically, but not always these flakes are large and thick and representative of the early stage of raw material reduction.

Secondary Decortication: Flakes have less than 100% of the dorsal surface represented by cortex. Like primary decortication flakes this flake debris represents the initial stage of material reduction.

Primary Flakes: Typically exhibit a triangular platform and have a bulb of percussion at proximal end. These flakes are typically associated with the shaping of cores and/or tool production.

Secondary Flakes: These flakes are generally longer than they are wide and possess a single lenticular platform. These flakes tend to lack a bulb of percussion and are smaller in size and thinner than primary flakes. These flakes are reflective of an intermediate stage of core and/or tool reduction process.

Thinning Flakes: These flakes typically exhibit an acute, lipped multifaceted platform. The flakes tend to be small, thin and slightly curved. They can possess multidirectional or dorsal surface scars. These flakes are related to biface production tend to represent the intermediate and/or late stages of this process.

Finishing/Pressure Flakes: These flakes represent the late/final stages of biface production related to sharpening and/or trimming of a biface. They are very small in size, thin and slightly curved in cross-section and typically possess numerous mult-directional scars on the dorsal surface.

Flake Fragments/Broken Flakes: These are flakes which lack a distinguishable platform/proximal end.

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Shatter/Blocky Irregular: These flake fragments are angular or square shaped pieces that have no distinguishable ventral or dorsal sides. These pieces are a related byproduct of raw material reduction and/or biface manufacture.

The physical attributes of debitage, such as flint type and whether a flake has been heat treated are listed for artifacts recovered at each site. If nearby flint resources can be identified through the use of identified quarry/outcrops (Stout and Schoenlaub 1945) this will be noted.

Tools

Cores: Prepared nodules of flint. These can include systematic reduction cores, multi- directional reduction, and bipolar core. Cores are made for the purpose of obtaining flakes or to be further modified into other tools.

Unifaces: Tools that have a working edge on one side only. Flake scars are on one side only. Scrapers are commonly found as unifaces.

Bifaces: Tools that have a working edge on both sides. These can come in many forms such as blanks and preforms and typically indicate a stop in the reduction stage that may be related to the creation of items suitable for transport. These pieces are then worked into a more formal tool at a later time.

Modified Flakes: Includes retouched flakes, and utilized flakes. Typically the flake is used for scraping or cutting.

Ground Stone Tools: Includes ground stone tools such as stone axes, adzes, celts, hammerstones, bannerstones, and any other shaped pieces.

Fire Cracked Rock (FCR): FCR is rock cracked by intense heat associated with thermal activities. Not all FCR has to be cracked, however, to be termed FCR. Some stones in feature context show signs of heat alteration with color change (e.g. blackening or reddening). FCR in Ohio is made of a number of materials associated with igneous (e.g. granite), metamorphic (e.g. gneiss), and sedimentary rocks (sandstone, limestone, etc.). In Phase I surveys these items are counted but not curated. In more advanced studies (Phase II and III) the FCR is counted, weighed and may be size graded depending upon the research questions.

Historic artifacts are inventoried using a modified version of Stanley South's (1977) artifact categorization system, which places artifacts into the following functional groups: Kitchen, Architectural/Residential, Arms, Activities, and Personal. Each of these groups has several subcategories which allows for variation, and those artifacts that do not fit in a particular group are placed in a Miscellaneous category. Various

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ceramic/historic artifact source books are used when determining identity, age, function, and possible economic status of an historic assemblage. These books include: Cushion (1980), Dalrymple (1989), Fitting (1970), Hume (1991), Kovel and Kovel (1995 [1953]), Majewski and O'Brien (1987), Manson and Snyder (1997), McConnell (1990), Miller (1980), Miller et al. (1991), Newman (1970), Ramsay (1976), Sussman (1977, 1997), and Turnbaugh (1985).

Curation

Following the acceptance and clearance of the report, the property owner/client from whose land an archaeological site was identified is notified (via letter or phone conversation) that artifacts were found. The property owner/client will be informed that they can donate artifacts to a curational facility. Professional Archaeological Services Team (PAST) encourages property owners to donate recovered archaeological material because of the importance in the interpretation of the archaeological record and for the present and future research potential by fellow archaeologists. If donation is denied and the artifacts are claimed by the property owner/client, PAST will house field notes and photographic negatives, and return all recovered artifacts to the property owner.

Field Work

The field work portion of the Phase I CRM survey was conducted on June 8th 2009. One field datum was used to examine the test area (see Figures 5). In all a total of 8 test units and 9 shovel probes were used in the test area (see Table 1). Plate 3 shows a profile view of one of the test units within the project area. Most of the test area possessed Ap horizons that ranged from 15 cm to 29 cm (5.9" to 11.4") in depth and one shovel probe location exhibited eroded soils. The rest of the shovel probes exhibited disturbed soils. The Ap horizon was typically a brown to light brown over a yellow brown to a light yellow brown sub soil. Disturbance appears to be related to the planting of the pine trees as the soils in portions of this area were heavily mottled. Testing found no archaeological material.

Conclusions and Recommendations

Professional Archaeological Services Team completed a Phase I Cultural Resource Management survey in Wayne Township, Belmont County, Ohio. The survey was conducted at the request of Jack Hamilton & Associates, Inc. The survey area entails .7 ha (1.8 a.) of an American Energy Corporation IBR Application IBR-0425-8. The survey area was tested through the use of test units and shovel probes. The survey was successful in documenting areas of disturbance, erosion as well as areas of intact soil.

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To conclude, the results of the Phase I survey found no evidence of archaeological material and enable PAST to **conclude that no additional investigation is warranted for the surveyed portions of the IBR.**

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AEC 07646

STATE OF OHIO
George V. Voinovich, Governor
DEPARTMENT OF NATURAL RESOURCES
Donald C. Anderson, Director
DIVISION OF GEOLOGICAL SURVEY
Thomas M. Berg, Chief

Figure 1. Map of Ohio Political Boundaries showing the location of the project area.

This map is intended to show the majority of townships that currently exist or have existed in the past. Especially in urban areas, all or parts of some townships may have been incorporated into cities or villages. Boundaries are based primarily on U.S. Geological Survey and county engineers' maps.

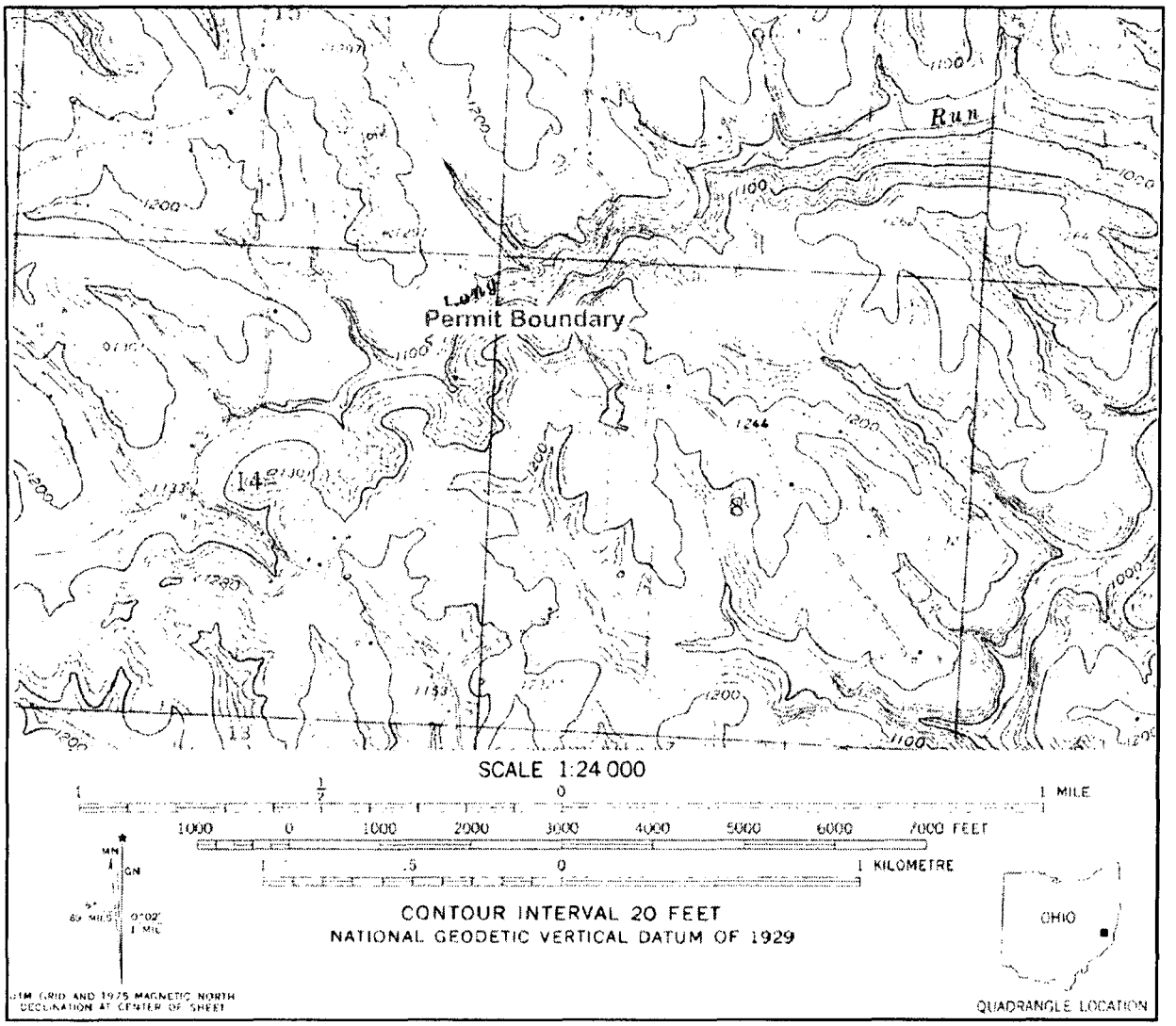


Figure 2. Portion of the USGS 1961 (Photorevised 1975) *Hunter Quadrangle, Ohio, 7.5 Minute Series (Topographic)* map showing the IBR permit boundary.

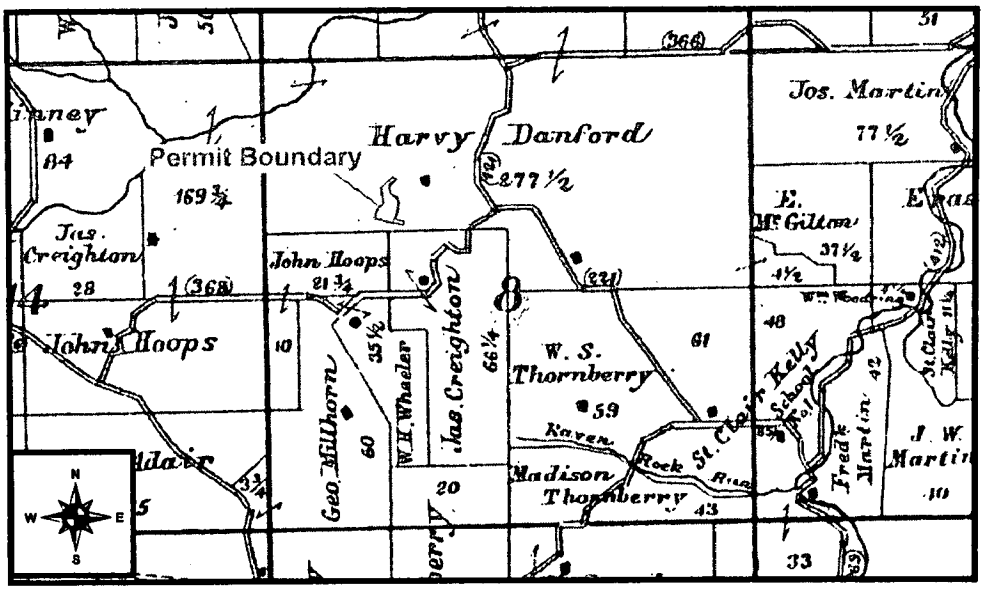


Figure 3. Portion of 1888 Atlas of Belmont County, Ohio (Lathrop and Penny 1888) showing the estimated location of the project area.

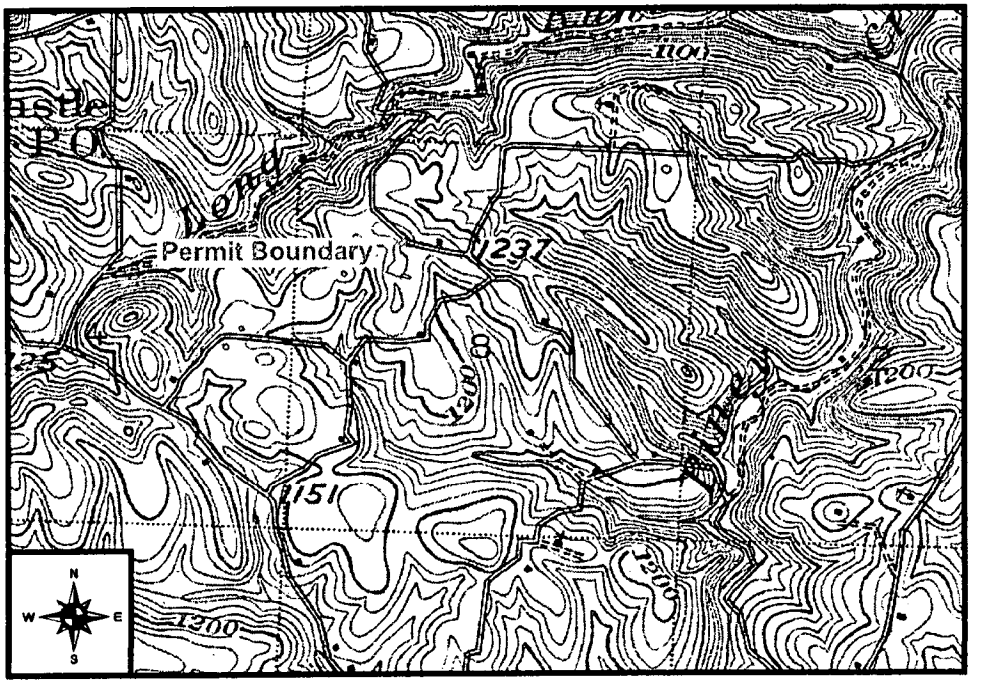


Figure 4. Portion of the USGS 1905 *Woodsfield, Ohio 15 Minute Series (Topographic)* map showing the location of the project area.

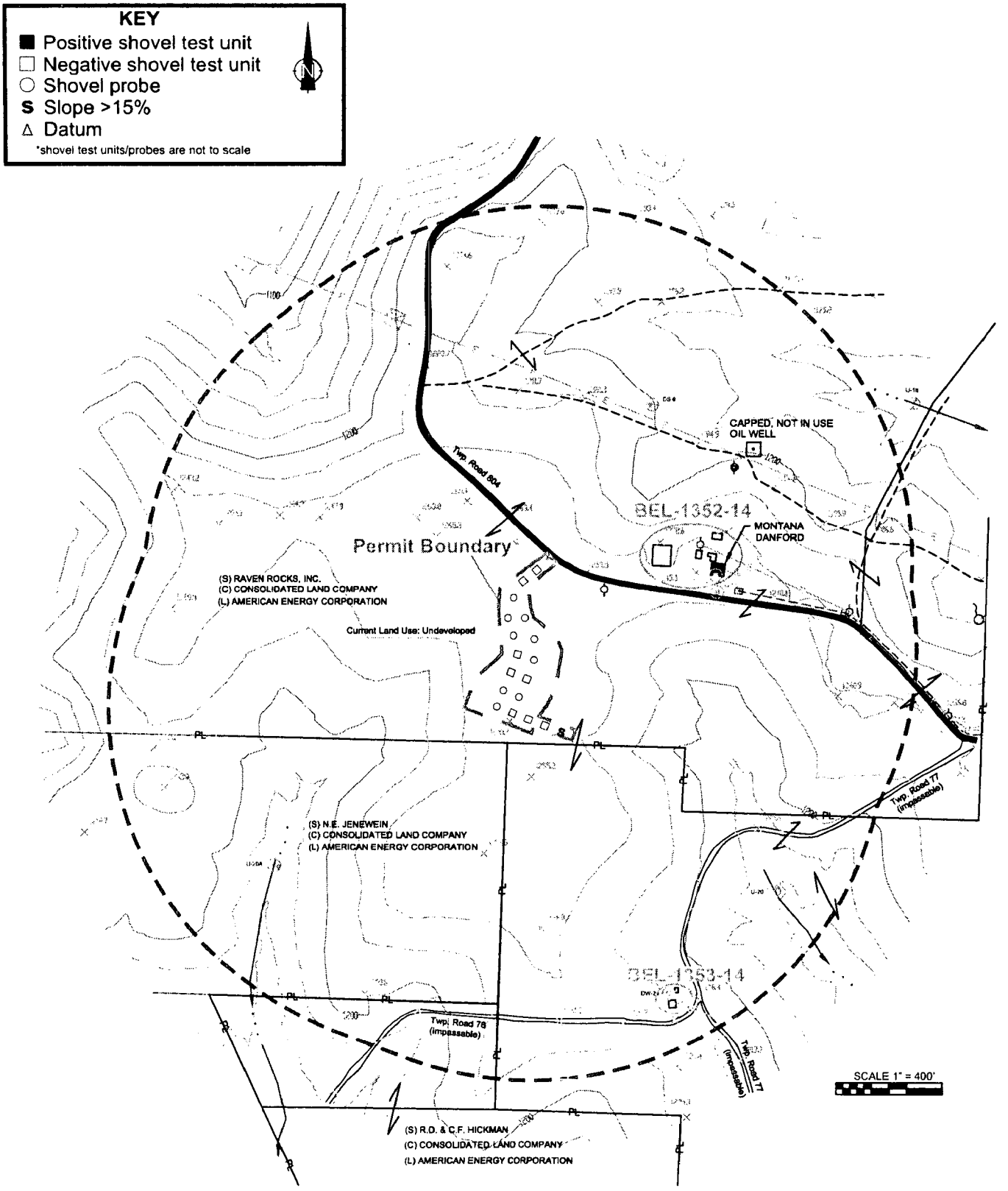


Figure 5. Fieldwork map of the project area showing the location of shovel test units/probes and previously recorded OHI structures BEL-1352-14 and BEL-1353-14.

Plate 1. View of the north end of the project area, facing soutwest.

Plate 2. View from the south end of the project area, facing north.

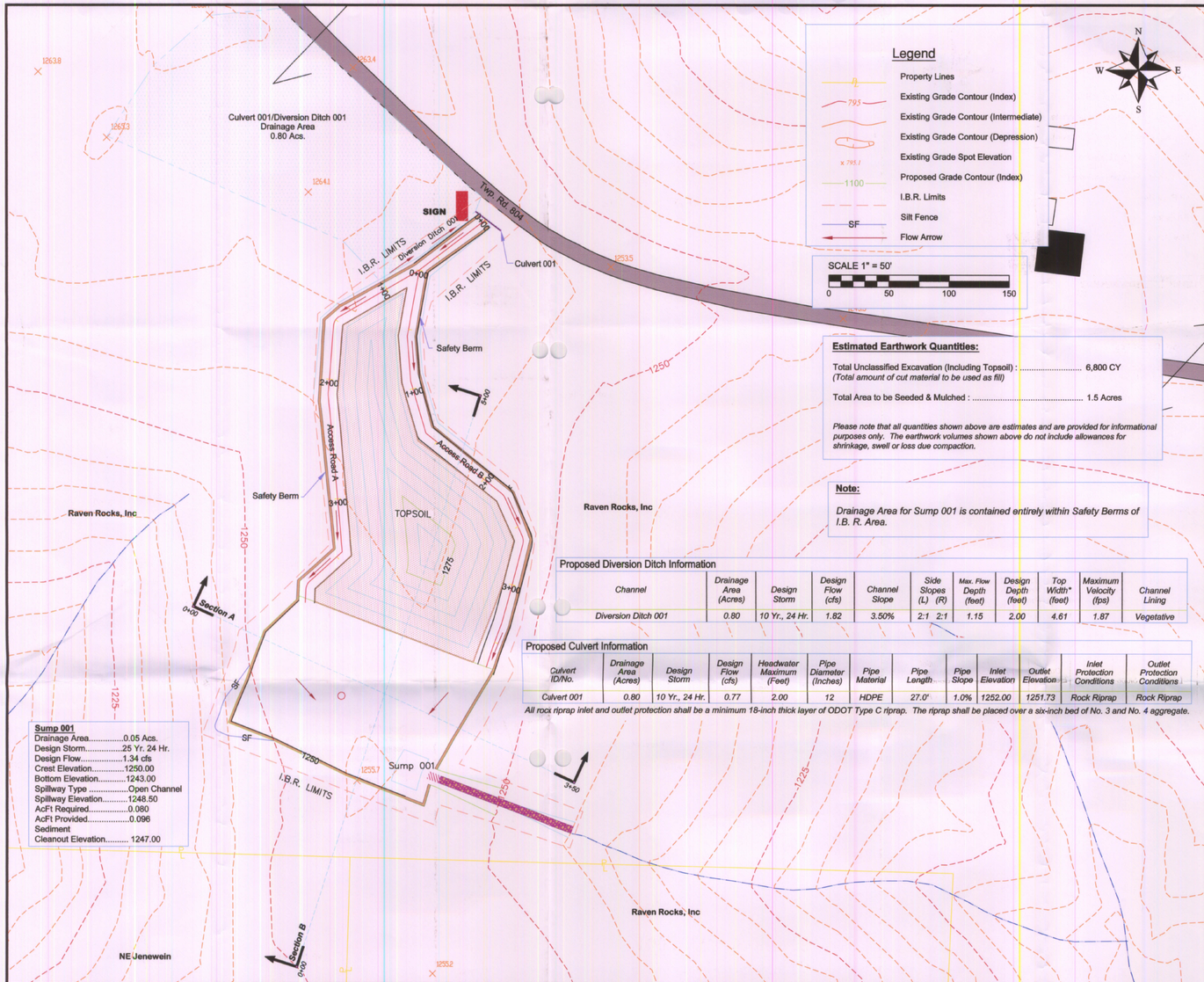
Plate 3. Profile view of test unit 0E, 30S.

Table 1. Shovel test/probe information for the test area.

Provenience		Area*	Depth (cm)*	Color (A horiz/ sub)	Text (A horiz/ sub)	+/- CM
E/W	N/S					
0	15S		20	brown/ yellow brown	silt loam clay/ clay	-
0	30S		22	brown/ yellow brown	silt loam clay/ clay	-
0	45S		sp disturbed			
0	60S		sp disturbed			
15E	60S		sp disturbed			
0	75S		sp disturbed			
15E	75S		sp disturbed			
0	90S		29	light brown/ light yellow brown	silt loam clay/ clay	-
15E	90S		sp disturbed			
0	105S		25	light brown/ light yellow brown	silt loam clay/ clay	-
15E	105S		22	light brown/ light yellow brown	silt loam clay/ clay	-
0	120S		sp disturbed			
15E	120S		sp disturbed			
0	135S		sp eroded			
15E	135S		15	light brown/ light yellow brown	silt loam clay/ clay	-
30E	135S		26	light brown/ light yellow brown	silt loam clay/ clay	-
45E	135S		26	light brown/ light yellow brown	silt loam clay/ clay	-

*sp=shovel probe

AEC 07653



Sump 001
Drainage Area.....0.05 Acs.
Design Storm.....25 Yr. 24 Hr.
Design Flow.....1.34 cfs
Crest Elevation.....1250.00
Bottom Elevation.....1243.00
Spillway Type .....Open Channel
Spillway Elevation.....1248.50
AcFt Required.....0.080
AcFt Provided.....0.096
Sediment
Cleanout Elevation..... 1247.00

Estimated Earthwork Quantities:

Total Unclassified Excavation (Including Topsoil) : ..... 6,800 CY
(Total amount of cut material to be used as fill)

Total Area to be Seeded & Mulched : ..... 1.5 Acres

Please note that all quantities shown above are estimates and are provided for informational purposes only. The earthwork volumes shown above do not include allowances for shrinkage, swell or loss due compaction.

Note:

Drainage Area for Sump 001 is contained entirely within Safety Berms of I.B. R. Area.

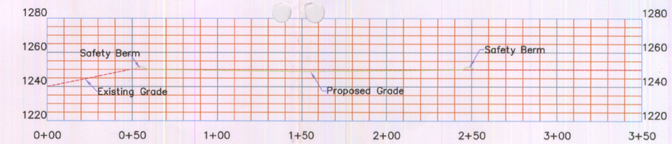
Proposed Diversion Ditch Information

Channel	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Channel Slope	Side Slopes (L) (R)	Max. Flow Depth (feet)	Design Depth (feet)	Top Width* (feet)	Maximum Velocity (fps)	Channel Lining
Diversion Ditch 001	0.80	10 Yr., 24 Hr.	1.82	3.50%	2:1 2:1	1.15	2.00	4.61	1.87	Vegetative

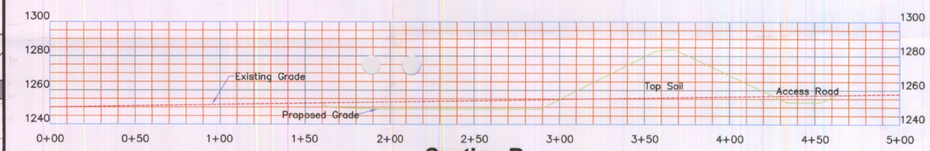
Proposed Culvert Information

Culvert ID/No.	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Headwater Maximum (Feet)	Pipe Diameter (Inches)	Pipe Material	Pipe Length	Pipe Slope	Inlet Elevation	Outlet Elevation	Inlet Protection Conditions	Outlet Protection Conditions
Culvert 001	0.80	10 Yr., 24 Hr.	0.77	2.00	12	HDPE	27.0'	1.0%	1252.00	1251.73	Rock Riprap	Rock Riprap

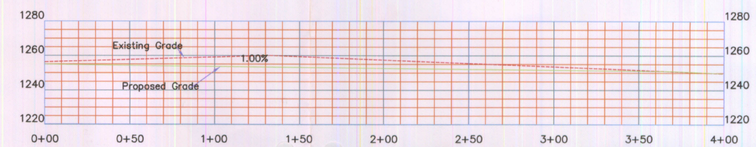
All rock riprap inlet and outlet protection shall be a minimum 18-inch thick layer of ODOT Type C riprap. The riprap shall be placed over a six-inch bed of No. 3 and No. 4 aggregate.



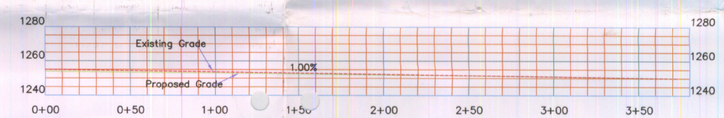
Section A
Scale: 1" = 40'



Section B
Scale: 1" = 40'



Access Road A
Scale: 1" = 40'



Access Road B
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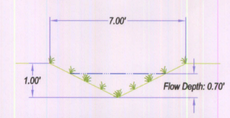
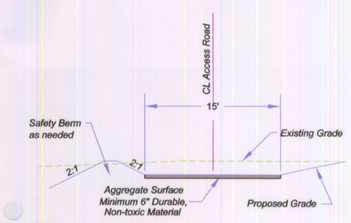
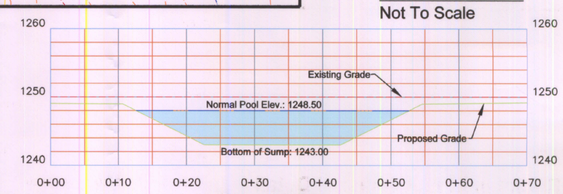


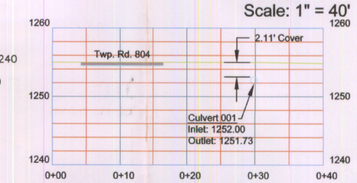
Diversion Ditch 001 Cross Section
Not To Scale



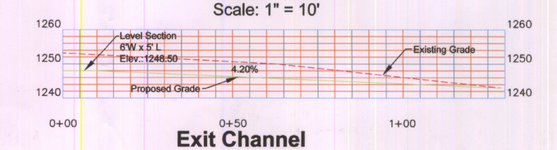
Typical Access Road Section
Scale: 1" = 40'



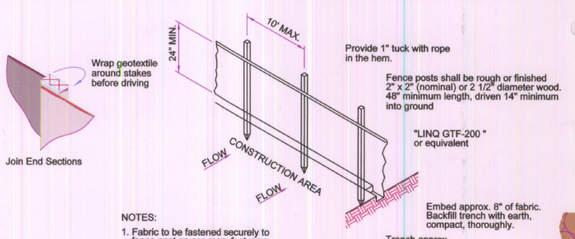
Sump 001
Scale: 1" = 10'



Culvert 001 - Cross Section
Scale: 1" = 10'

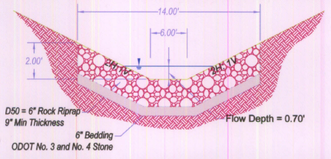


Exit Channel
Scale: 1" = 20'

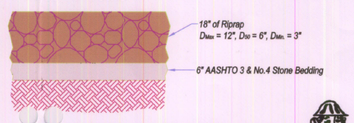


NOTES:
1. Fabric to be fastened securely to fence post as per manufacturers rcommendations.
2. Ends of individual rolls of fabric shall be overlapped by 3" Min. and securely fastened to a post.

Standard Silt Fence Detail
Not To Scale



Trapezoidal Rock Lined Exit Channel Detail
Not To Scale



Typical Rock Riprap Detail
Not To Scale

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BEALLSVILLE, OHIO 43716

RAVEN ROCKS SHAFT SITE
APPLICATION #IBR-0425-17

SECTIONS: 8	T. - 6 R. - 5	TOWNSHIP: WAYNE
COUNTY: BELMONT		SCALE: As Noted
Drawn by: DJB	Raven Rocks Shaft Site.dwg	MINE NO.
Checked by:	Date prepared: April, 21, 2009	CENTURY
JACK A. HAMILTON & ASSOC., INC. BOX 471, 342 HIGH STREET FLUSHING, OHIO 43977	Revised: April 30,2009;June 03,2009	DRAWING NO. 1 of 1

OPERATOR
IBR-0425-17
JUN 12 2009

AEC 07654

Notes:

1.) Buildings and structures shown hereon are from photography and aerial mapping provided by American Energy Corporation.

2.) SADE area encompasses entire IBR area.

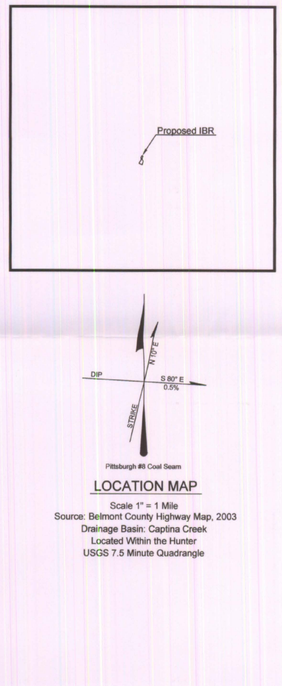
POST-MINING LAND USE

Post-Mining Land Use: Cropland : 1.7 Ac.
Post-Mining Land Use: Forest : 0.10 Ac.

LEGEND

- Seep, Seepage Zone, Swamp
- U- Upstream Sampling Station
- D- Downstream Sampling Station
- WL- Drilled Well (Log Available)
- W- Drilled Well (No Log Available)
- DW- Dug Well
- DS- Developed Spring
- S- Undeveloped Spring
- P- Water Impoundment
- S- Seep
- Background Sampling Station
- Monitoring Station
- Overhead Electric Lines
- Single pole unless otherwise noted
- Buried Cable
- Cemetery
- Cistern
- Swimming Pool
- Hydrologic Boundary (1000')
- Public Water Line (Connection to Dwelling)
- Dry Hole
- Dry Hole with Gas Show
- Dry Hole with Oil and Gas Show
- Gas Well with Oil Show
- Unknown Status
- (S) Surface Owner
- (C) Coal Owner
- (L) Lessee
- (L) Lessor
- AEC (L) American Energy Corporation (Lessee)
- Occupied Dwelling
- Unoccupied Dwelling
- High Voltage Tower
- School
- Church
- Commercial/Business Building
- Well (Gas/Oil)
- Well (Gas/Oil - Dry Hole)
- Roads
- Trails
- Property Line
- Test Boring
- Existing Water Impoundment
- Perennial Stream
- Intermittent Stream
- AREA TO BE INCLUDED UNDER I.B.R. 1.8 ACRES.
- TOPSOIL STORAGE
- ENTRANCE SIGN
- PEDESTAL
- CROPLAND
- UNDEVELOPED
- FOREST

SCALE 1" = 200'



LOCATION MAP

Scale 1" = 1 Mile
Source: Belmont County Highway Map, 2003
Drainage Basin: Captina Creek
Located Within the Hunter
USGS 7.5 Minute Quadrangle

I, the undersigned, hereby certify that this map is correct, and shows to the best of my knowledge and belief all the information required by Chapter 1513 of the Revised Code and Rules adopted thereunder.

_____ _____
REG. SURVEYOR #

ACKNOWLEDGED BEFORE ME A NOTARY PUBLIC THIS _____ DAY OF _____

_____
NOTARY PUBLIC

RECEIVED
JUN 25 2009
DIVISION OF MINERAL RESOURCES
CAMBRIDGE

American Energy Corporation

Application #IBR-0425-17

Located in: Section 8
Wayne Township, T-6-N R-5-W, Belmont County, Ohio

I.B.R. Application Map

Scale:	1" = 200'	Contour Interval:	20'
Drawn By:	JMC	Comm. #:	02001
Date: 04-21-2009		Rev. Date: 4-30-09, 5-28-09, 6-01-09, 6-08-09	
SPC NAD83 Horizontal Datum		NAVD88 Vertical Datum	
Current Land Use: Cropland/Undeveloped			

Jack A. HAMILTON
342 High St., Box 47
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.c

OPERATOR

IBR-0425-17

AEC 07655