September 12, 1991

# ARCHEOLOGICAL MONITORING OF THE CATOCTIN FURNACE STABILIZATION PROJECT, THURMONT, MARYLAND

## EXECUTIVE SUMMARY

R. Christopher Goodwin & Associates, Inc.
337 East Third Street
Frederick, Maryland

**PREPARED FOR:**

John W. Brawner Contracting Company, Inc.
3312 Paper Mill Road
Phoenix, Maryland 21131

R. CHRISTOPHER GOODWIN & ASSOCIATES, INC.
337 East Third Street, Frederick, MD 21701 • 301-694-0428
5824 Plauche Street, New Orleans, LA 70123 • 504-736-9323
7600 Southland Blvd., Suite 100-306, Orlando, FL 32809 • 407-438-1816

September 12, 1991

Mr. Jeff Bird, Project Manager
John W. Brawner Contracting Company, Inc.
3312 Paper Mill Road
Phoenix, Maryland 21131

**RE: Archeological Monitoring of the Catoctin Furnace Stabilization Project, Thurmont, Maryland: Executive Summary**

Dear Mr. Bird:

R. Christopher Goodwin & Associates, Inc., has completed archeological monitoring of the above-cited project area, located within the Cunningham Falls State Park near Thurmont, Maryland. This investigation was required under the terms of DGS Project No. P-016-741-401, Cunningham Falls State Park/Catoctin Furnace Stabilization. Archeological monitoring was conducted between March and August 1991, during stabilization of the retaining walls and the casting shed at the project area.

**Study Objectives and Methodology**

The objectives of the archeological monitoring program were to identify and to evaluate the significance of cultural remains uncovered during stabilization of the Catoctin Furnace complex, located in Cunningham Falls State Park, near Thurmont, Maryland (Appendix 1:Figures 1 and 2). Project objectives were accomplished through a review of the results of archeological studies previously conducted in the project area and by on-site field inspection.

Monitoring activities included daily visits to the project area during the initial phase of stabilization work; visual inspection of ground-disturbing construction activities; and archeological documentation of stratigraphic and cultural features revealed by construction. When features were discovered, stabilization plans and procedures were modified in consultation with the Maryland Historical Trust.

All artifacts directly related to the operation of the furnace that were recovered from the project area were transported to the laboratory of R. Christopher Goodwin & Associates, Inc., in Frederick, Maryland, to be cleaned, analyzed, and inventoried (Appendix 2). A provenience system, based on previously established site organization systems, was established for the collection (Appendix 1:Figure 3). The collection will be permanently curated with the Maryland Historical Trust.

In addition to on-site monitoring, monthly summaries, incorporating copies of all field notes and drawings resulting from site observations were sent to the State Terrestrial Archeologist at the Maryland Historical Trust.

**Archival Results**

Previous Investigations

The Catoctin Furnace complex (18FR29) and the surrounding areas of the Cunningham Falls State Park have been the subject of numerous historical and archeological studies. Of these, three are most relevant for the present project. Orr (1975) tested the portion of the furnace complex associated with the Isabella Stack, an area that had been investigated previously in 1936 by the Works Progress Administration. In the 1975 study, Orr located several major structural features associated with the operation of the stack, including the furnace hearth, the casting floor, and the foundation of the casting shed.

Orr and Orr (1976) conducted test excavations along the main retaining wall in the furnace yard area, prior to the installation of temporary cleats to stabilize the retaining wall. Their investigations focused on the Deborah Furnace Engine House location, and on the area immediately south of the Bellows Stack. The Engine House excavation exposed portions of the building's foundation and brick flooring; massive amounts of stone rubble from parts of a decomposing retaining wall were found in the area south of the Bellows Stack.

Goodwin & Associates, Inc., (1989) conducted extensive testing in five areas of the furnace complex scheduled for stabilization. No features were discovered in Areas A, B, C, and E during these tests; in Area D, the foundation of the Engine House of the Deborah Furnace was located. Recommendations for further archeological monitoring and mitigation of potential adverse effects, based on the results of those tests, were made for Areas A, C, D, and E. The present program of archeological monitoring was implemented on the basis of these recommendations.

Historic Background

The history of ore extraction and iron making in the Catoctin region dates from the second half of the eighteenth century, when several furnaces operated in the region. The first documented furnace at or near the project area was established around the time of the American Revolution, when Thomas Johnson built a furnace on Little Hunting Creek, reportedly one mile from the present furnace location. Iron-making operations were initiated at the present site ca. 1787; at that time, Johnson & Company's operation consisted of one furnace stack and associated structures. This original furnace stack reportedly was dismantled in about 1890; there is some controversy about the exact location of this first furnace.

The Fitzhugh interests acquired the Catoctin operation in about 1843, and constructed a steam-powered, hot blast furnace. The Isabella Stack and its associated casting shed, and possibly the structure known as the Bellows House Stack, were constructed in the 1840s. These structures were partially dismantled around 1900.

John B. Kunkel acquired the Catoctin Furnace operation in 1873. He added a third furnace, the Deborah Furnace, to the complex. Various ancillary buildings, including an engine house, comprised this additional complex; Neumann (1989:24) suggested that the massive stone retaining wall also was built in the 1870s. The entire Catoctin Furnace operation was closed in 1903; materials from the Deborah Furnace were salvaged for use at other furnaces in the region.

**Results of the Monitoring Program**

Four areas of the Catoctin site were monitored during the project. These included all of Area A, behind the main retaining wall system; the furnace yard at the extreme southeastern end of the retaining wall (Area C); and portions of the main furnace yard (Area E)(Neumann 1989:Figure 3). Stabilization work conducted at the base of the slope immediately west of the Isabella Casting Shed and along the eastern perimeter of the Isabella Casting Shed also was monitored. Nine previously unidentified archeological features were discovered during the stabilization activities (Appendix 1:Figure 4).

Area A: Main Retaining Wall

Excavation for the installation of cribbing behind the main retaining wall (Areas A-1 to A-3) exposed the previously identified successive fill episodes documented by Balter's (1974) test borings and by Goodwin and Associates, Inc. (Neumann 1989:65). Stratigraphy observed within the first 4.8 m (13.16 ft) of excavation consisted of successive layers of 5YR2/3-4/3 dark reddish brown sandy loam with ash lenses; 10YR5/6-6/6 yellow brown clay with brickbats and stone; 10YR3/2-4/2 dark greyish brown clinker and slag; and 5YR3/2 dark olive grey ashy clay. Below this level, alternating deposits of slag and reddish brown furnace sand were observed to a depth of 6.67 m (22 ft). These successive fill layers were thicker in the southern portion of Area A, suggesting that the fill was introduced from an area north and west of the main retaining wall.

A previously unrecorded unmortared dressed stone retaining wall, designated as Feature 1, was located approximately 3 m (10 ft) north of the northern end of the main retaining wall in Area A-1. This wall extended to a depth of approximately 4.5 m (15 ft) below the existing grade. Stratigraphy between the two walls primarily consisted of deposits of red casting sand and clay fill. No artifacts were recovered from the fill excavated from this area.

The alignment of Feature 1 deviates from that of the main retaining wall by 20°, and roughly approximates the alignment of Stack No. 1/the Bellows House. Feature 1 also is perpendicular to the raceway foundation located immediately north of Stack 1/the Bellows House. The similarity in the alignments of these features suggests that Feature 1 may have been constructed in association with Stack #1/Bellows House. If so, Feature 1 was constructed around 1843, when the Isabella Furnace was installed.

Feature 8 (Area A-1) represented a severely deteriorated northern extension of the existing main retaining wall. Its relationship to other features in Area A-1 could not be ascertained.

An unmortared, roughly-dressed stone wall in Area A-3 was designated as Feature 3. This feature abutted the southern end of the main retaining wall. A concentration of unconsolidated broken stone, probably debris created by dressing the interior lining of the main retaining wall, was noted in the angle formed by the juncture of the two walls. No other cultural material was recovered from within or around Feature 3. A shovel blade, a mattock head, an unidentified piece of machinery, and part of a twentieth century machine-made patent medicine bottle were recovered from the successive deposits of slag and furnace fill behind Feature 3.

Feature 3 appears to have been an auxiliary retaining wall, possibly installed to inhibit erosion of the deposits behind the wall. With the approval of the Maryland State Terrestrial Archeologist, Feature 3 was removed after it had been documented.

Area C: Sediment Control Area

Excavation of a sediment trap in area C-2, approximately 6.12 m (20 ft) southwest of the southern terminus of the main retaining wall, exposed two basic strata: a 16 cm (.5 ft) layer of 10YR2/2-3/2 dark brown loam underlaid by a 1.1 m (3.5 ft) stratum of 7.5YR4/6-5/6 strong brown sandy loam containing brick and cut stone rubble. No intact features were observed within Area C-2, nor were any artifacts directly related to the operation of the furnace recovered from Area C-2.

Area E: Furnace Yard and Associated Structures

Area E-1: Stabilization activities conducted within Area E-1 revealed four features (Figure 4). Feature 4 was a previously undocumented entrance into the western facade of the Isabella Stack. This entrance led into a passageway inside the base of the stack. The interior walls of this passageway were constructed of stone, brick, and firebrick; the entrance was surmounted by a sectioned metal lintel. A 5" - 6" pipe with a spin valve spanned the top of this passageway in a north-south direction. Artifacts recovered from the vicinity of Feature 4 included nails, a kettle handle, and a hinge fragment. Because Feature 4 was not scheduled for disturbance, it was cleared, recorded, and photographed.

Feature 5 represented part of a collapsed stone retaining wall located 1.5 m (4.92 ft) west of the west face of the Isabella Stack. This feature is a continuation of the retaining wall that extends behind the north face of the Isabella Stack. Unconsolidated fill and stone rubble had eroded from behind Feature 5. A variety of metal artifacts were recovered by construction crews during clearing operations in this vicinity; none retained any specific provenience. The truncated end of this section of the retaining wall was repointed as part of the stabilization project.

A corner of an unidentified unmortared stone foundation exposed by erosion after the collapse of the retaining wall west of the Isabella Stack was designated as Feature 6. Feature 6 was located north of the Bellows House Stack and slightly west of the Bridge House (see Neumann 1989:25). The unidentified foundation was located on the upper terrace level of the Isabella Furnace complex. The foundation was covered over as part of the stabilization project.

Feature 7 was a stone wall that represented an eastern extension of the Bellows House wall. Feature 7 and Feature 5 apparently were part of a single retaining wall system that collapsed during the 1970s. Feature 7 was left intact and repointed to retard further structural disintegration.

Mechanical excavation of a footer trench, 4 ft wide and 10 ft long, was undertaken to accommodate the reconstruction of the eastern wall of the Isabella Casting Shed. Basic stratigraphy in this area (Figure 5) consisted of a 20 - 50 cm (.66 - 1.64 ft) level of 10YR3/1 very dark gray sandy loam that overlay a sterile subsoil of 10YR4/6 dark yellowish brown silty clay. At the northern end of the footer trench, these two strata were separated by a shallow level of 10YR6/6-6/8 brownish yellow clay. Towards the southern end of the footer trench, three intervening strata were noted: a 40 cm (1.31 ft) pocket of 5YR4/3 dark reddish brown sandy loam; a 15 cm (.49 ft) layer of 10YR5/4 yellowish brown sand; and a 10 cm (.33 ft) layer of 5YR4/3 dark reddish brown sandy loam containing large pieces of glassy furnace slag. The location of Orr and Orr's (1975) Trench 2, which was cut perpendicular to the wall of the Isabella Casting Shed, was identified as a pocket of mixed soil matrices during this phase of construction.

Disarticulated stone rubble was encountered throughout the fill removed from this location. The excavation appears to have disturbed only the previously reconstructed east wall line of the Isabella Casting Shed. One artifact, identified as a farrier's file, was recovered from the surface level in Area E-1.

Area E-2: A section of a mortared stone wall, located east of the Engine House and 14.9 m (49 ft) south of the main retaining wall, was designated as Feature 2. The top course of this feature lay immediately below the ground surface, and the wall extended to a depth of 1 m (3.28 ft) below the surface. Stratigraphy associated with Feature 2 consisted of consecutive layers of 2.5YR4/6 silty clay loam and silty clay. No artifacts were recovered in association with Feature 2. This wall feature was covered with protective material. It is likely that Feature 2 represented part of the foundation of one of two small outbuildings located south of the main Deborah Furnace building (see Neumann 1989:27).

A section of a mortared stone wall, located 15.5 m (50.85 ft) east and 13.9 m (45.6 ft) southeast of the northeastern corner of the main retaining wall, was designated as Feature 9. This wall line, whose top course was found at a depth of 30 cm (.98 ft) below the surface, was oriented east-west. Surrounding stratigraphy consisted of a 20 cm (.66 ft) surface layer of 10YR6/4 light brown silt, followed by a 10 cm (.33 ft) layer of 7.5YR3/0 very dark grey ash and slag, and a 45 cm (1.48 ft) stratum of 2.5YR4/4-4/6 dark reddish brown clay mottled with 10YR7/8 yellow clay. A pocket of 7.5YR8/0 pulverized white lime, approximately 25 cm (.82 ft) thick, was noted at a depth of 60 cm (1.97 ft). No artifacts were recovered in association with Feature 9.

Feature 9 probably was associated with the Bellows House (Orr and Orr 1976), alternatively identified by Anderson as the "Stack No. 1 and Casting House." If the former interpretation is applied, then Feature 9 dates from the mid-nineteenth century Fitzhugh expansion of the complex; acceptance of the latter interpretation would imply a date of 1787 for the feature.

**Recommendations**

Based on the above observations and on consideration of previous work done at the Catoctin Furnace project area, it appears that the most sensitive areas for location of archeological resources are the furnace yard, east of the main retaining wall complex, and the upper terrace area north of the Isabella Stack and Casting Shed. It is recommended that a Phase II archeological test program be conducted in these areas if further stabilization or other ground-disturbing activity is contemplated for these sections of the project area. No further archeological work is recommended or warranted for those portions of the project area located west of the present retaining wall system.

Thank you for this opportunity to work with Brawner Contracting Company. If you have questions about this project or this executive summary letter, please feel free to contact our office. We are at your service.

With best regards, I remain

Yours faithfully,

R. Christopher Goodwin, Ph.D.
President & CEO

RCG:MRW/sal

R. CHRISTOPHER GOODWIN & ASSOCIATES, INC.

# APPENDIX I

# FIGURES

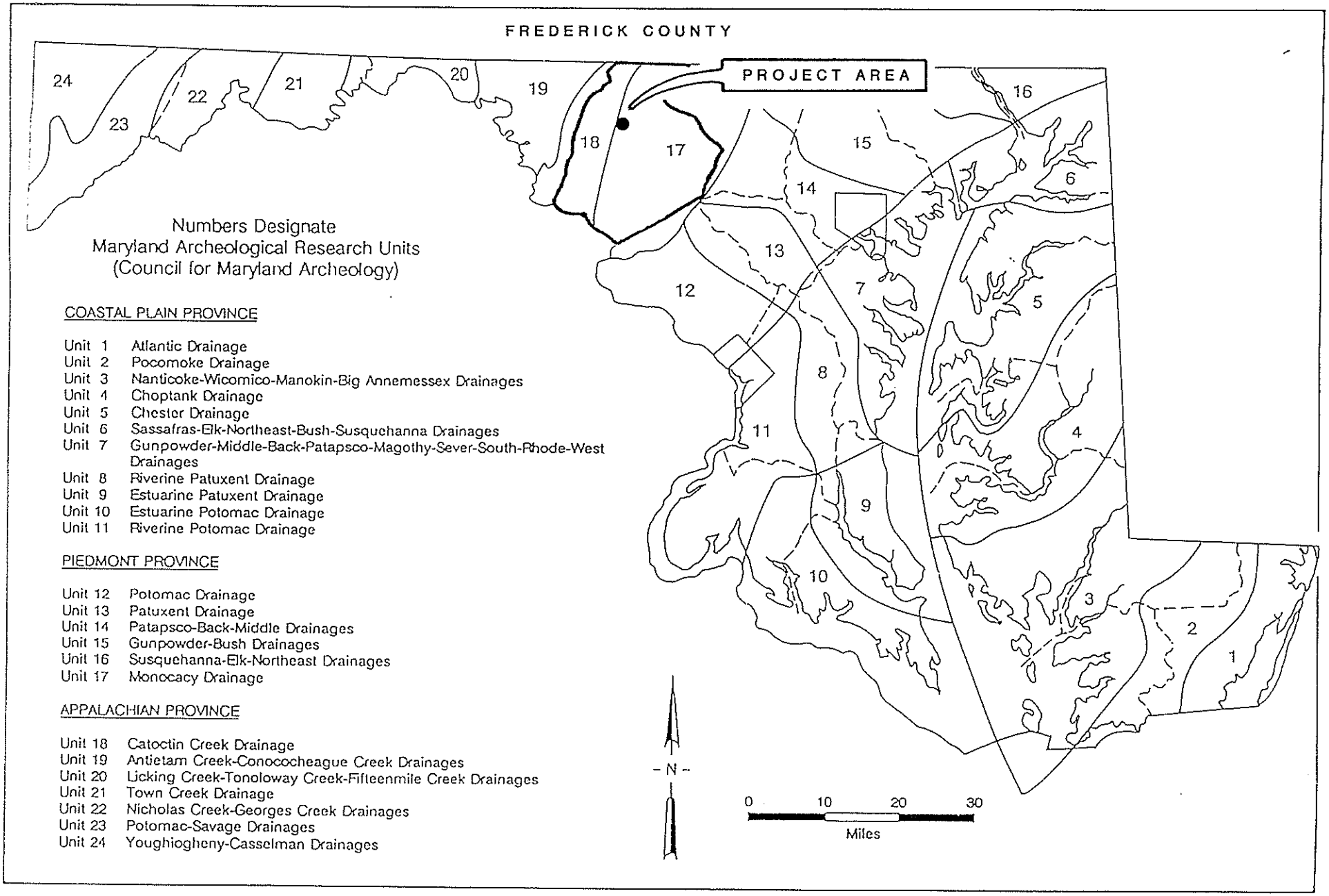



Figure 1: Location of the project area

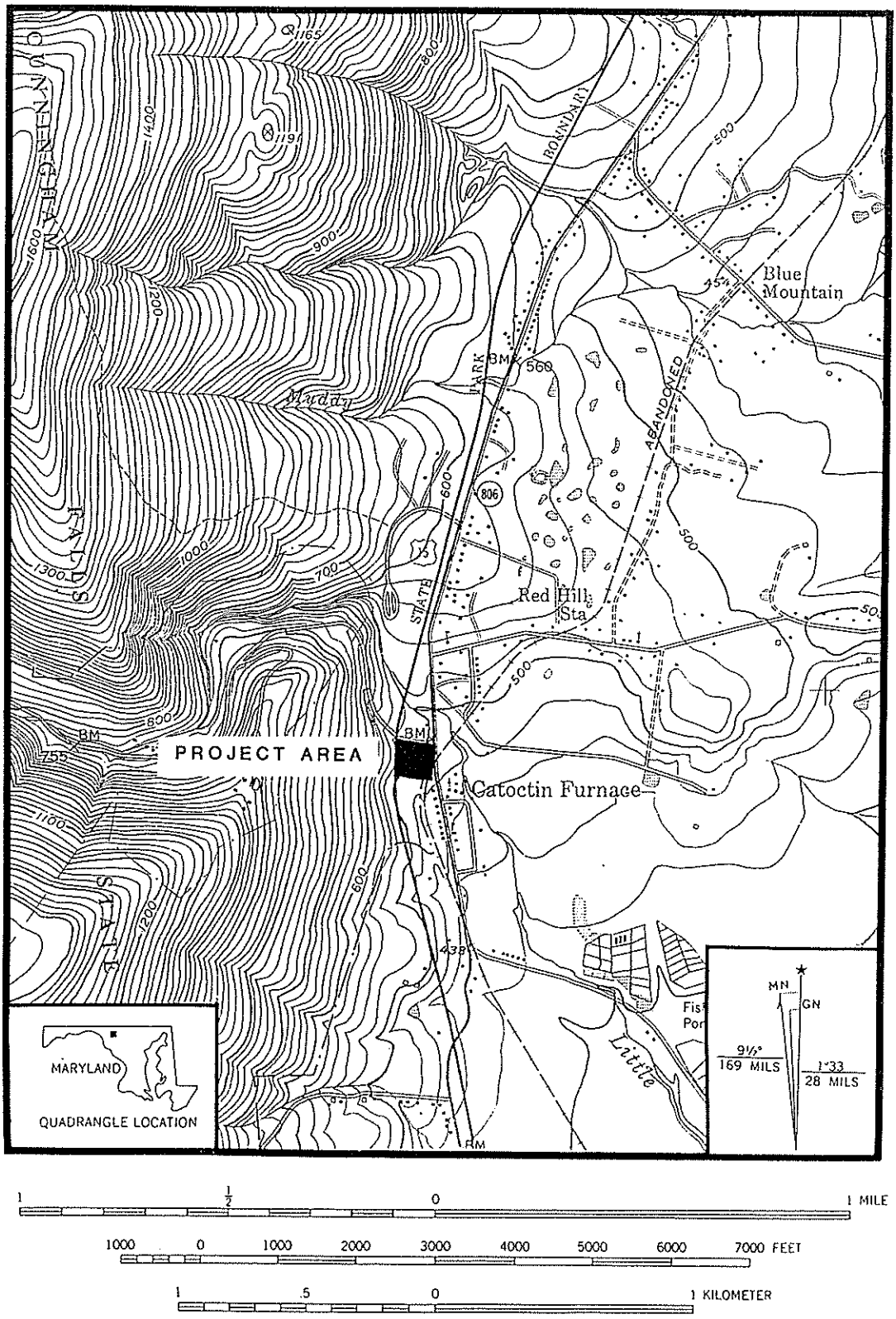



Figure 2: Portion of 1985 photorevised USGS 7.5' Catoctin Furnace, Maryland, Quadrangle, showing location of the project area

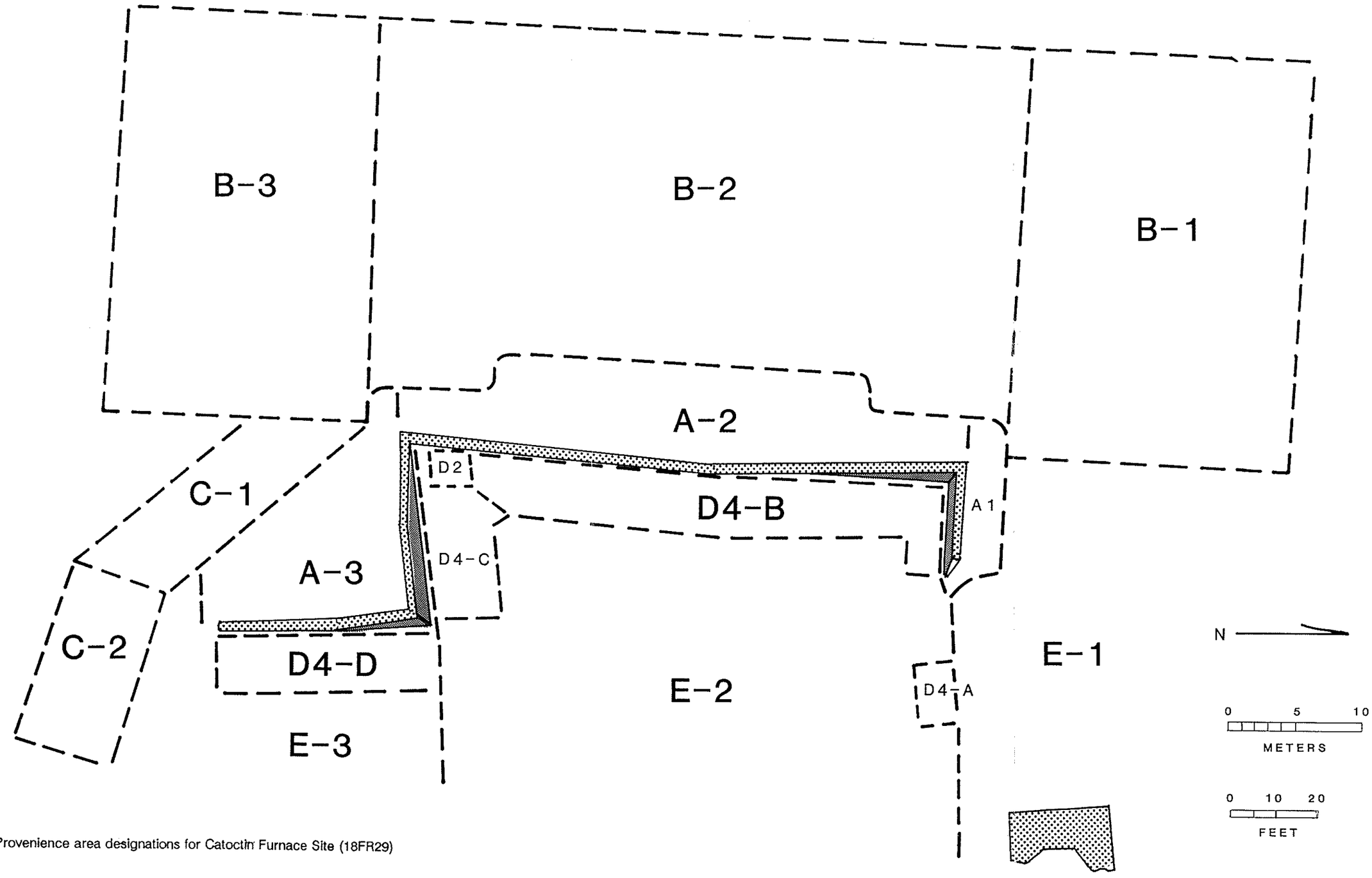



Figure 3: Provenience area designations for Catoctin Furnace Site (18FR29)

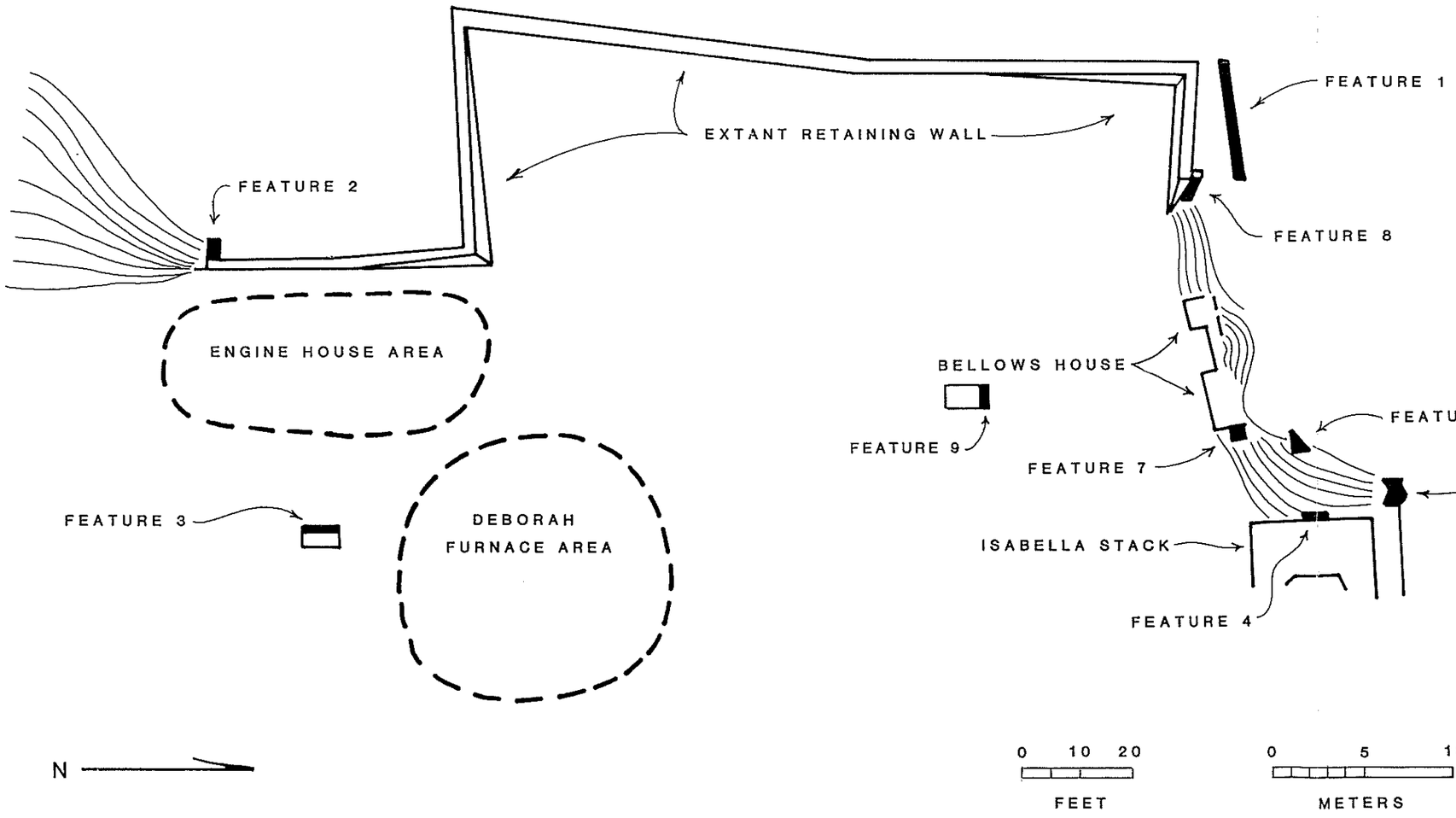
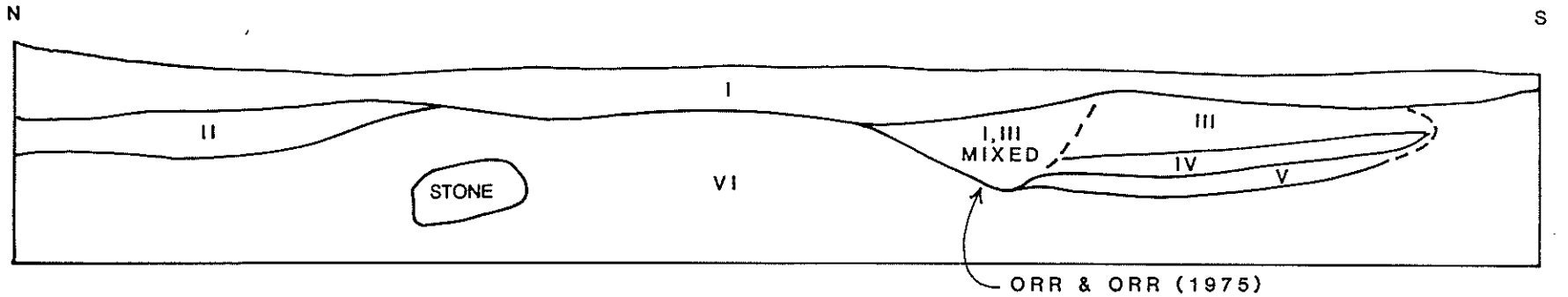



Figure 4: Location of discovered features at Catoctin Furnace Site (18FR29)




I 10YR3/1 VERY DARK GRAY SANDY LOAM
II 10YR6/6-6/8 BROWNISH YELLOW CLAY
III 5YR4/3 DARK REDDISH BROWN SANDY LOAM (Remains of Orr Trench #2 [1975])
IV 10YR5/4 YELLOWISH BROWN SAND
V 5YR4/3 DARK REDDISH BROWN SANDY LOAM WITH SLAG INTRUSIONS
VI 10YR4/6 DARK YELLOWISH BROWN SILTY CLAY STERILE SUBSOIL)

0 50 100
cm

Figure 5: Profile of excavated footer trench, eastern perimeter of Isabella Casting Shed

# APPENDIX II

# ARTIFACT INVENTORY

CATOCTIN FURNACE
MONITORING
ARTIFACT INVENTORY

| FS# | FUNCTIONAL GROUP | MATERIAL CLASS | ARTIFACT TYPE | DESCRIPTION | COMMENTS | COUNT | DATE RANGE |
|---|---|---|---|---|---|---|---|
| ** | 18FR29 | | | | | | |
| * | A-2 LEVEL 1, TOP OF WALL | | | | | | |
| 7 | Kitchen | Ceramic | Whiteware | Transfer-Printed, Blue/Black/Brown | BLUE | 1 | 1820-PRESENT |
| 7 | Kitchen | Glass | Machine Made Bottle | Embossed | "2 1/2 OZ. 5313", CLEAR | 1 | 1898-PRESENT |
| * | Subsubtotal * | | | | | 2 | |
| * | A-2 SURFACE | | | | | | |
| 6 | Architecture | Metal | Construction Hardware | Other | ROD | 1 | |
| 6 | Activities | Metal | Storage Item | Container Fragment | | 1 | |
| 6 | Activities | Metal | Tool | Unidentified | POSS. TOOL OR MACHINE PART | 1 | |
| 6 | Activities | Metal | Tool | Shovel Part | BLADES | 2 | |
| 10 | Activities | Metal | Miscellaneous Hardware | Other | IRON BAR | 1 | |
| * | Subsubtotal * | | | | | 6 | |
| * | A-3 LEVEL 2 | | | | | | |
| 4 | Activities | Metal | Miscellaneous Hardware | Miscellaneous Machine Part | LG. BRONZE CURVED BAR, INCISED "3" | 1 | |
| * | Subsubtotal * | | | | | 1 | |
| * | A-3 SURFACE | | | | | | |
| 5 | Kitchen | Glass | Machine Made Bottle | Embossed | "DR. W.B.CALDWELL'S/SYRUP PEPSIN" | 1 | 1898-PRESENT |
| 5 | Activities | Metal | Tool | Shovel Part | SPADE | 1 | |

CATOCTIN FURNACE
MONITORING
ARTIFACT INVENTORY

| FS# | FUNCTIONAL GROUP | MATERIAL CLASS | ARTIFACT TYPE | DESCRIPTION | COMMENTS | COUNT | DATE RANGE |
|---|---|---|---|---|---|---|---|
| * Subsubtotal * | | | | | | 2 | |
| * B-2 SURFACE | | | | | | | |
| 14 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | FLAT FRAGMENT | 1 | |
| 14 | Activities | Metal | Miscellaneous Hardware | Miscellaneous Machine Part | STRAP OR LEVER | 1 | |
| 14 | Activities | Metal | Tool | Unidentified | POSS. TOOL OR MACHINE PART | 1 | |
| * Subsubtotal * | | | | | | 3 | |
| * B-3 SURFACE | | | | | | | |
| 12 | Activities | Metal | Tool | Shovel Part | SHOVEL BLADE | 1 | |
| * Subsubtotal * | | | | | | 1 | |
| * D-4D SURFACE | | | | | | | |
| 13 | Activities | Metal | Tool | Other | WRENCH | 1 | |
| * Subsubtotal * | | | | | | 1 | |
| * E-1 | | | | | | | |
| 1 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | PIG IRON | 1 | |
| 1 | Activities | Metal | Miscellaneous Hardware | Miscellaneous Machine Part | IRON BARS W/HOLES | 2 | |
| 1 | Activities | Metal | Storage Item | Container Fragment | LG. CAST IRON CONTAINER FRAGMENT | 1 | |
| 1 | Activities | Metal | Tool | Unidentified | POSS. LARGE FILE | 1 | |
| * Subsubtotal * | | | | | | 5 | |

CATOCTIN FURNACE
MONITORING
ARTIFACT INVENTORY

| FS# | FUNCTIONAL GROUP | MATERIAL CLASS | ARTIFACT TYPE | DESCRIPTION | COMMENTS | COUNT | DATE RANGE |
|---|---|---|---|---|---|---|---|
| * | E-1 FEATURE 4 | | | | | | |
| 2 | Architecture | Metal | Machine Cut Nail, Common | 2-4" | | 4 | 1815-1890 |
| 2 | Architecture | Metal | Machine Cut Nail, Common | Fragment | | 9 | 1815-1890 |
| 2 | Architecture | Metal | Unidentified | Cut/Wrought Nail | UNUSUAL, POSS. HANDWROUGHT | 1 | |
| 2 | Architecture | Metal | Construction Hardware | Spike | CUT | 1 | |
| 2 | Architecture | Metal | Construction Hardware | Hinge | LARGE | 1 | |
| 2 | Architecture | Metal | Construction Hardware | Handle, Miscellaneous | CURVED HANDLE | 2 | |
| 2 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | PIG IRON | 2 | |
| * | Subsubtotal * | | | | | 20 | |
| * | E-1 ISABELLA SHED | | | | | | |
| 8 | Transportation | Metal | Stable Item | Miscellaneous Horse Care Item | BLACKSMITH'S FILE | 1 | |
| * | Subsubtotal * | | | | | 1 | |
| * | E-1 SURFACE | | | | | | |
| 11 | Architecture | Metal | Construction Hardware | Spike | LARGE HEAD | 1 | |
| 11 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | FLAT FRAGMENTS | 2 | |
| 11 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | PIG IRON | 4 | |
| * | Subsubtotal * | | | | | 7 | |
| * | E-2 SURFACE | | | | | | |
| 15 | Architecture | Metal | Construction Hardware | Spike | MACHINE CUT | 3 | |
| 15 | Architecture | Metal | Machine Cut Nail, Common | 2-4" | | 2 | 1815-1890 |
| 15 | Architecture | Metal | Unidentified | Nail | | 1 | |
| 15 | Architecture | Metal | Construction Hardware | Hook | LARGE HOOK END | 1 | |
| 15 | Kitchen | Biological | Food Related | Tooth | PIG | 1 | |

CATOCTIN FURNACE
MONITORING
ARTIFACT INVENTORY

| FS# | FUNCTIONAL GROUP | MATERIAL CLASS | ARTIFACT TYPE | DESCRIPTION | COMMENTS | COUNT | DATE RANGE |
|---|---|---|---|---|---|---|---|
| 15 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | SMALL BAR | 1 | |
| 15 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | | 1 | |
| 15 | Personal | Glass | Personal Use | Perfume/Cosmetic Bottle | MACHINE MADE "NOXEMA" JAR, COBALT | 1 | |
| 15 | Transportation | Metal | Miscellaneous | Railroad Spike | | 1 | |
| 15 | Activities | Metal | Miscellaneous Hardware | Other | 2" DIAM. RING | 1 | |
| * Subsubtotal * | | | | | | 13 | |
| * GENERAL SURFACE | | | | | | | |
| 3 | Miscellaneous | Metal | Unidentified Object | Iron/Steel | POSS. LARGE HANDLE | 1 | |
| 3 | Activities | Metal | Miscellaneous Hardware | Miscellaneous Machine Part | IRON BAR W/HOLES | 1 | |
| 3 | Activities | Metal | Tool | Other | PICKAXE | 1 | |
| 9 | Activities | Metal | Miscellaneous Hardware | Miscellaneous Machine Part | | 1 | |
| 9 | Activities | Metal | Miscellaneous Hardware | Other | POSS. PIPE | 1 | |
| * Subsubtotal * | | | | | | 5 | |
| ** Subtotal ** | | | | | | 67 | |
| *** Total *** | | | | | | 67 | |