

10 SUSTAINABLE DESIGN IN STATE PARK MASTER PLANNING

Overview

The N.C. Department of Environment and Natural Resources' Green Building Policy, drafted by the N.C. Department of Environment and Natural Resources Sustainability Team and signed by Secretary Bill Ross, directs the department and its divisions "to take real and permanent steps to integrate sustainable and green building practices for projects in capital construction, facility renovations, facility leasing, land development, landscaping and facility purchases."

All components of the master plan have been evaluated and designed based on principles of sustainable design/green design with reference to the Leadership in Energy and Environmental Design (LEED®) design criteria. LEED® is a rating system for green design first developed in 1999 by the US Green Building Council (USGBC). According to the USGBC, "Green design not only makes a positive impact on public health and the environment, it also reduces operating costs, enhances building and organizational marketability, potentially increases occupant productivity, and helps create a sustainable community" (USGBC, 2005).

Though a project does not have to be rated through the LEED® system to be considered 'green,' the system provides a well-defined baseline from which to begin conversations in design regarding how to develop any new construction project or major renovation in a manner that will be sustainable. The N.C. Division of Parks and Recreation staff directive states, "The Division is to pursue LEED® certification through the US Green Building Council's LEED® Green Building Rating System for all new, or significantly renovated, buildings having 5,000 square feet or more. For buildings less than 5,000 square feet, project team members are to be familiar with the use of LEED® as a tool to help guide the project."

Much of the LEED® system is focused on structures and will be addressed more thoroughly at later design and development phases for buildings.

LEED® accreditation is based on six areas of sustainability. These include sustainable site, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process. They are:

Sustainable Site

For this master plan, specific attention has been focused on selection of sustainable sites for future development. Site selection for buildings and parking areas has been based on areas with the following qualities:

- Slopes less than 10 percent
- Areas more than 50 feet from a water body (construction should not take place within a 100 feet buffer from perennial streams whenever practicable)
- Areas more than 100 feet from a wetland as defined by the National Wetlands Inventory *



LEED® informative display at Fort Macon State Park

* Further design and development will require evaluation for wetlands based on 40 CFR Parts 230-233 and Part 22.



Rain gardens in parking areas filter stormwater

Other focus areas for sustainable sites, elaborated on below, include:

- 1) Use low impact design strategies
 - a) Reduce imperviousness
 - b) Conserve natural resources and ecosystems
 - c) Maintain natural drainage courses
 - d) Reduce use of pipes for stormwater management
 - e) Minimize clearing and grading
- 2) Minimize soil erosion, waterway sedimentation, and airborne particulate/dust generation during construction
- 3) Disperse stormwater management facilities/structures uniformly across a site
- 4) Mimic natural systems for stormwater quality control
- 5) Minimize heat island effects
- 6) Minimize light pollution

During the design and construction phases of any project in the park, special attention will be focused on protecting the site from sedimentation, soil erosion, as well as airborne particulate/dust generation during the construction process. Use of best available technology for sedimentation and erosion control is critical. Devices and structures used for sedimentation and erosion control will be maintained in good working condition at all times during construction.

Appropriate design for stormwater is important in maintaining a sustainable site. Not only should stormwater design meet state and local codes, it should go beyond these regulations to ensure stormwater quality as the water re-enters the surface and subsurface water cycles. Water quantity controls will minimize the potential for downstream flooding and erosion from site development in the future. Water quality controls, performed by structures such as bioretention areas, will help to maximize sequestration of pollutants to the site of creation as well as protect areas downstream from these pollutants. All stormwater should flow through a vegetated upland prior to entering a stream or wetland (N.C. Wildlife Resources Commission, 2002).

During construction, all equipment will be kept out of streams as much as practicable. Also, utility lines and infrastructure will be installed outside of stream buffers.

The heat island effect is defined by USGBC as “thermal gradient differences between developed and undeveloped areas” (USGBC, 2005). This effect can have negative impact on microclimates as well as human, animal, and plant habitats. Heat islands are most often caused by large areas of unshaded pavement and large roof areas. The master plan begins to address this issue through identification of overflow parking areas that use pervious and plantable materials. Additional attention can be focused on this issue in design and construction phases of a development project through, for example, provi-

sion of ample shade in parking areas, use of high reflectance materials for paving (selected with attention to potential glare issues for those with visual disabilities), minimization of structure footprints and therefore roof areas, use of roofing materials with a high reflectance, and/or use of a vegetated roof.

Water Efficiency

Efficient use of water will be considered in every phase of a project for both the site and the buildings. Use of innovative wastewater technologies when possible and water use reduction, through the use of low-flow toilets, showers and other means, also are considered sustainable design practices.

Use of cisterns to harvest rainwater from roof structures can provide water for uses including, but not limited to, landscape irrigation and toilet flushing.

During the design phase of any project at the park, sustainable design principles will dictate design of water efficient landscaping, with an ideal focus toward landscaping requiring no potable water use and no irrigation beyond plant establishment.

Energy Efficiency

Green building practices cost less to operate and maintain. They also provide an opportunity to use natural resources efficiently and responsibly and to reduce the site and building's overall impact on the environment.

Buildings should be optimized for energy-efficiency, including siting buildings with an east-west axis, where practicable, to optimize for passive solar design and the use of broad roof overhangs to block mid-day summer sun. Use of on-site renewable energy sources where possible, including opportunities for solar energy, hydropower, and/or wind power, will make the development more self-sufficient and reduce economic and environmental impacts from fossil fuel use.

Energy-efficient heating and cooling systems, such as geothermal/ground source wells, use the constant earth temperature to heat and cool the workplace.

It is recommended that passive solar design of the environmental education building and solar hot water design for wash houses be studied where practicable.

Another means of ensuring energy-efficiency as defined by LEED® includes increasing energy performance and commissioning of buildings to ensure that systems are designed and perform in an energy-efficient manner.

Materials and Resources

Sustainable design and construction ensures waste reduction through the design of the building and the construction process. When waste is produced, recycling should be a priority. Reuse of existing building material also should be prioritized. In the past, many of the buildings at Long Valley Farm were built of recycled materials from other buildings at the farm. This reuse of building products should continue as the park is developed.

Design for use of new building materials in the construction process should focus on those materials utilizing recycled content. When recycled content is not possible, products made from rapidly renewable products are desirable and resource friendly. Wood certified using the Forest Stewardship Council's Principles and Criteria will promote sustainable forestry practices.

Ideally, materials will be sourced from producers and manufacturers in the surrounding region. A focus on indigenous materials can replicate a 'local vernacular', minimize environmental impacts from transportation, and add to local economic prosperity.

Indoor Environmental Quality

A focus on indoor air quality enhances the health and experience of building occupants. There are many aspects of sustainable indoor air quality performance that can be addressed by a qualified designer, such as adequate ventilation and use of low-emitting material selection (e.g. paints, sealants, adhesives, etc.). Indoor environmental quality also addresses issues related to lighting controls, thermal comfort, daylighting, and views.

Innovation and Design Process

Sustainable design practitioners can be precedent setters for new, innovative practices in design and construction of sites and buildings. The N.C. Division of Parks and Recreation can set guidelines for all new construction at Carvers Creek State Park based on successes displayed and monitored in other projects. The environmental education building proposed in this master plan will provide opportunities for educating the general public about the ecological, cultural, and economic benefits of green design and construction.

Technologies of Particular Interest

The N.C. Division of Parks and Recreation staff directive on sustainable and green building practices indicates a particular interest in sustainable and green building technologies that address the following:

- Ecological site design; on-site erosion control, water purification/pollution reduction, and stormwater management.
- Transportation; promoting bicycle, pedestrian, and transit use where possible.
- Waste reduction; building reuse, job site recycling, and efficient use of materials.

- On-site management of sewage and organic wastes, such as graywater systems and biological wastewater treatment. It is recommended that when the existing wastewater treatment facility at the park reaches the end of its useful life, that a more innovative system, potentially utilizing small constructed wetland systems be considered. This could provide a significant addition to the environmental education program as well.
- Energy efficiency; efficient thermal envelopes, efficient space and water heating, lighting, controls and monitoring, and appliances.
- Renewable energy; photovoltaics, geothermal pumps, and wind turbines.
- Water efficiency, both domestic and irrigation, including rainwater harvesting for irrigation and toilet flushing. Consider waterless urinals in all applications.
- Materials and resources; durable building envelopes and long-lived materials or assemblies, recycled-content materials, safer, less toxic materials, such as alternatives to CCA-treated wood, innovative application of natural materials (characterized by low embodied energy, local availability, good performance, biodegradable, safe, aesthetic), such as straw, earth, and other composites.
- Indoor environmental quality; pollution reduction, worker and occupant safety, air cleaning, humidity control, and thermal comfort.
- Operations and maintenance; monitoring energy, water, waste, air quality, and transportation use along with resource-efficient operation practices.

The Sustainable Sites Initiative is a new set of guidelines and benchmarks to be used exclusively for site development. SITES® is a joint venture of the American Society of Landscape Architects, the Ladybird Johnson Wildflower Center and the US Botanic Garden along with numerous diverse stakeholders. In the pilot program at this time, the new rating system will measure nine areas of site development for up to 250 points for site related sustainability measures. The nine areas of review include Pre-Design Assessment and Planning, Site Design – Water, Site Design – Soil and Vegetation, Site Design – Materials Selection, Site Design – Human Health and Well Being, Construction, Operations and Maintenance, and Monitoring and Innovation. The nine areas focus on the following twelve ecosystem services: global climate regulation, local climate regulation, air and water cleansing, water supply and regulation, erosion and sediment control, hazard mitigation, pollination, habitat functions, waste decomposition and treatment, human health and well being benefits, food and renewable non-food products, and cultural benefits.

It is recommended that the N.C. Division of State Parks follow the Sustainable Sites Initiative guidelines, as well as seek certification for Carvers Creek State Park as further site development occurs.

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LIFE/SAFETY ISSUES AND CONSIDERATIONS

An important consideration in building design and renovation is to accommodate life safety and security needs. This becomes more complex when dealing with historic structures. Since most historic structures were built before the existence of building, electrical, HVAC, and accessibility codes, they often do not provide adequate life safety and security measures based on today's standards. Extra efforts must be taken to preserve the historic nature of the structure while still providing appropriate, safe facilities. Since historic structures are all unique, careful planning and coordination between many disciplines must take place to ensure that life safety and security needs are met, while still maintaining the historical integrity of the structure.

Building, life safety and security codes provide security and protection for the structure and its occupants. They are intended to protect the health, safety and welfare of all human occupants while additionally protecting the integrity of the historic structure. These codes set minimum requirements for structural, physical, environmental and safety items related to the structure. Common issues that must be addressed include:

- Building egress
- Fire and smoke detection and separation
- Fire suppression
- Emergency exits
- Accessible ramps, handrails and other items to provide equal access for those with disabilities.

The protection of building occupants is always the top priority, but when dealing with historic structures, the protection of historically significant structures and assets must also be considered.

The Americans with Disabilities Act (ADA) is a civil rights legislation that prohibits discrimination against those with disabilities. Since most historic structures were not designed to be accessible, extensive retrofitting is often required in the form of ramps, wider doorways, accessible restroom stalls and handrails. Buildings meant to be viewed externally will also need accessible paths to windows and doors if indoor exhibits are to be installed for viewing.

A change of building use typically means the entire structure must be upgraded to meet current code requirements. The goal is to blend all retrofits into the style of the building in order to keep the additions as unnoticeable as possible, or to make them appear as if they have always been a part of the structure. Due to the uniqueness of each historic structure, each case should be looked at separately in order to mimic the style and building techniques used during the original construction.

Each structure should be looked at holistically with the knowledge that all structures will require a unique plan of action. Careful planning and coordination between many disciplines including park staff/facility managers, the North Carolina State Historic Preservation Office (SHPO), designers and code officials is necessary to address the issues successfully. During building retro-



Example of a historic mill with an accessible ramp

fits, it may be necessary for the plans to accommodate important life safety and security issues, such as locating egress ramps or installing fire/security equipment in concealed locations.

The architectural assessment by Ellen Cassilly (Appendix B) and the FCAP (Appendix E) prepared by the State Construction Office found many related issues after review of the historic structures at Long Valley Farm. These issues include replacement of obsolete electrical, mechanical, plumbing, and HVAC Components, asbestos abatement, and lack of accessible entrances.

A APPENDIX A: STATE PARKS ACT

State Parks Act (North Carolina General Statutes – ARTICLE 2C)

§ 113-44.7. Short title.

This Article shall be known as the State Parks Act. (1987, c. 243.)

§ 113-44.8. Declaration of policy and purpose.

- (a) The State of North Carolina offers unique archaeological, geologic, biological, scenic, and recreational resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendants.
- (b) The General Assembly finds it appropriate to establish the State Parks System. This system shall consist of parks which include representative examples of the resources sought to be preserved by this Article, together with such surrounding lands as may be appropriate. Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.
- (c) The tax dollars of the people of the State should be expended in an efficient and effective manner for the purpose of assuring that the State Parks System is adequate to accomplish the goals as defined in this Article.
- (d) The purpose of this Article is to establish methods and principles for the planned acquisition, development, and operation of State parks. (1987, c. 243.)

§ 113-44.9. Definitions.

As used in this Article, unless the context requires otherwise:

- (1) “Department” means the Department of Environment and Natural Resources.
- (2) “Park” means any tract of land or body of water comprising part of the State Parks System under this Article, including existing State parks, State natural areas, State recreation areas, State trails, State rivers, and State lakes.
- (3) “Plan” means State Parks System Plan.
- (4) “Secretary” means the Secretary of Environment and Natural Resources.
- (5) “State Parks System” or “system” mean all those lands and waters which comprise the parks system of the State as established under this Article. (1987, c.243, s. 1; 1989, c. 727, s. 218(50); 1989 (Reg. Sess., 1990), c. 1004, s. 19(b); 1997-443, s.

11A.119(a).)§ 113-44.10. Powers of the Secretary.

The Secretary shall implement the provisions of this Article and shall be responsible for the administration of the State Parks System. (1987, c. 243.)

§ 113-44.11. Preparation of a System Plan.

- (a) The Secretary shall prepare and adopt a State Parks System Plan by December 31,1988. The Plan, at a minimum, shall:
 - (1) Outline a method whereby the mission and purposes of the State Parks System as defined in G.S. 113-44.8 can be achieved in a reasonable, timely, and cost-effective manner;
 - (2) Evaluate existing parks against these standards to determine their statewide significance;
 - (3) Identify duplications and deficiencies in the current State Parks System and make recommendations for correction;
 - (4) Describe the resources of the existing State Parks System and their current uses, identify conflicts created by those uses, and propose solutions to them; and
 - (5) Describe anticipated trends in usage of the State Parks System, detail what impacts these trends may have on the State Parks System, and recommend means and methods to accommodate those trends successfully.
- (b) The Plan shall be developed with full public participation, including a series of public meetings held on adequate notice under rules which shall be adopted by the Secretary. The purpose of the public meetings and other public participation shall be to obtain from the public:

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- (1) Views and information on the needs of the public for recreational resources in the State Parks System;
 - (2) Views and information on the manner in which these needs should be addressed;
 - (3) Review of the draft plan prepared by the Secretary before he adopts the Plan.
- (c) The Secretary shall revise the Plan at intervals not exceeding five years. Revisions to the Plan shall be made consistent with and under the rules providing public participation in adoption of the Plan. (1987, c. 243.)

§ 113-44.12. Classification of parks resources.

After adopting the Plan, the Secretary shall identify and classify the major resources of each of the parks in the State Parks System, in order to establish the major purpose or purposes of each of the parks, consistent with the Plan and the purposes of this Article. (1987, c. 243.)

§ 113-44.13. General management plans.

Every park classified pursuant to G.S. 113-44.12 shall have a general management plan. The plan shall include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purposes of this Article. (1987, c. 243.)

§ 113-44.14. Additions to and deletions from the State Parks System.

- (a) if, in the course of implementing G.S. 113-44.12 the Secretary determines that the major purposes of a park are not consistent with the purposes of this Article and the Plan, the Secretary may propose to the General Assembly the deletion of that park from the State Parks System. On a majority vote of each house of the General Assembly, the General Assembly may remove the park from the State Parks System. No other agency or governmental body of the State shall have the power to remove a park or any part from the State Parks System.
- (b) New parks shall be added to the State Parks System by the Department after authorization by the General Assembly. Each additional park shall be authorized only by an act of the General Assembly. Additions shall be consistent with and shall address the needs of the State Parks System as described in the Plan. All additions shall be accompanied by adequate authorization and appropriations for land acquisition, development, and operations. (1987, c. 243.)

B APPENDIX B: STRUCTURES AND BUILDINGS AT LONG VALLEY FARM and ASSESSMENT OF EXISTING STRUCTURES AT LONG VALLEY FARM

Structures and Buildings at Long Valley Farm

- * denotes National Register of Historic Places contributing buildings/structures
- ** denotes buildings/structures built during Robert Wall Christian's occupancy
- + The State Historic Preservation Office has identified the following structures as having contributing historic resources to Long Valley Farm: Farm Seat Garage (#3), Garage/Shop (#20), Water Tower Pump House (#35), Overseer's House (#39), Worker's House #2 (#42), Worker's House #2, Garage (#45), and Main Path Tobacco Barn #2 (#50). These resources will be considered for retention and restoration on a case-by-case basis as the park is developed.

Structures and Buildings at Long Valley Farm to Remain (31 total)

Farm Seat

- * (1) Farm Seat (1937-1938) – restored to include exhibit space, visitor contact station, office space, meeting room, rental, storage, working kitchen and restroom. Exhibits about Robert Wall Christian, James Stillman Rockefeller, Overhills and Fort Bragg will be displayed. Existing historic vegetation and fences to remain.
- ** (2) Spring House (1914) – maintained for scenic quality and interpretation. Exhibits about food storage prior to electricity.
- * (8 & 9) Mill Pavilion and Dam Gates (1850-1860, 1920) – restored for rental use, stage, outdoor classroom, scenic interpretation, 200 person occupancy.
- * (10) Pump House (1938) – external viewing only, scenic, storage.
- * (12) Mill House and Gates (1938-1940) – historical quality renovation, but non functioning equipment, controlled tours only. Displays and exhibits about mill technology and the importance of mills in rural society. McDiarmid millstones are located within the building.
- ** (41) Worker's House #1 (1914) Open for controlled views only - the interior will house exhibits that will show the day to day life of a farm manager's family and daily life on a farm.
- (46) Granary (1944) – external viewing only, scenic value – Sally Henry Life estate
- * (51) Worker's House #4 (1925; 1962-64) – Ranger Residence or artist-in-residence
- * (52) Workers House #4 Garage (1930s) – Storage for Ranger Residence or artist-in-residence

Agricultural Complex

- * (15) Granary (1940) – internal exhibits and displays about grain storage, viewed from doorway and windows, informal picnic area under shed roof, storage.
- (16) Tractor Shed (1950) – noteworthy door hardware mechanism. Storage of antique farm equipment and other machinery for exterior viewing only.
- * (17) Pack House (1940) - internal exhibits about tobacco, viewed from doorway and windows, informal picnic

area under shed roof. Building materials from the Christian House were reused when this building was constructed.

- ** (18) Forge (1914) – internal exhibits, visitors may walk through.
- ** (19) Commissary (1914) - internal exhibits relating to farm communities and farm stores, viewed from door way and windows.
- * (21) Fertilizer House (1942) – scenic, exterior viewing only
- (25) Equipment Shed (1955) – renovated to become a restroom.
- * (26) Great Barn (1940) – Open air rental pavilion with concrete slab. Approximately 250 person capacity. Entry point for all visitors to the Agricultural Complex, indoor and outdoor educational exhibits about farm animals, crops and farm implements.
- (27) Feeder Shed (1952) – Picnic Shelter. Approximately 50-150 person capacity for school groups or reunions.
- * (28) Equipment Barn (1940) – scenic value, storage, indoor primitive classroom.
- * (29) Hay Barn (1940) – agricultural interpretation, scenic, storage for events.
- (30) Silo (1966) – iconic structure of the farm, agricultural interpretation, exterior viewing, exhibits, scenic
- (31) Silo shed (1966) – Agricultural interpretation relating to cattle and silage exhibits, scenic, shelter. Approximately 125 person capacity.
- (32) Grain Bin (1976) – scenic, exterior viewing, controlled viewing of inside only.

Other:

- (33) New Farm Manager's House – Park Ranger Residence (currently occupied)
- * (34) Water Tower (1940) – Scenic value only
- (38) Storage Shed (1945) – Maintenance Complex, storage.
- * (47) Pack House (1940) – scenic value, event storage
- ** (49) Main Path Tobacco Barn #1 (1925) – scenic value, exterior viewing only.
- * (57, 58) North Pasture Tobacco Barns 1 and 2 (1939-1940) – scenic value and interpretation, renovated to become a restroom and shower facility for group camping area.

Buildings/Structures to be Demolished, Recycled or Surplused (26 Total)

- *+(3) Farm Seat Garage (1939) – Investigate if materials can be reused or recycled
- (4) Woodshed (1976) - Demolish
- (5) Kennel (1980) – Demolish

- (6) Boathouse – built with materials from old mule barn. Could be used as boat storage, other storage, scenic, material reclamation. Use materials for construction of new boathouse - Recycle
- (7) Gazebo (1985) – Exact replica of gazebo built by Christian, rebuilt to match existing by Miles Williams. This structure could be documented by pictures, etc for exhibit, etc. prior to demolition.

Boardwalks – replace with safe boardwalk, recycle materials from original boardwalk

- (13) Farm Manager’s Residence (1970) – Williams’s life estate – Surplus
- (14) Pump House (1970) (investigate if pump house can be utilized prior to demolition)
- *+(20) Garage/Shop (1942) - Investigate if materials can be reused or recycled
- (22) Playhouse (1972) - Demolish
- (23) Cooler (1980) - Demolish
- (24) Cooking Pit (1980) - Demolish
- *+(35) Water Tower Pump House (1940) (investigate if pump house can be utilized prior to demolition)
- (36) Hog Shelter/Feeding House (1966) - Demolish
- (37) Machine Shed (1969) - Demolish
- **+(39) Overseer’s House (1914) - Investigate if materials can be reused or recycled
- (40) Overseer’s House Garage (1970) - Demolish
- **+(42) Worker’s House #2 (1914) Sally Henry Life estate, investigate if materials can be reused or recycled
- *(43) Worker’s House #3 Fragment (1925) - Demolish
- (44) Worker’s House #2 Pump House (1964) (investigate if pump house can be utilized prior to demolition)
- *+(45) Worker’s House #2 Garage (1939) - Investigate if materials can be reused or recycled
- (48) Bulk Tobacco Barn (1970) - external viewing only, scenic
- **+(50) Main Path Tobacco Barn #2 (1925)
- (53) Worker’s House #4 Pump House (investigate if pump house can be utilized prior to demolition)
- (54) Worker’s House #5 (1947) - Investigate if materials can be reused or recycled
- (55) Worker’s House #5 Pack House (1968) - Investigate if materials can be reused or recycled
- (56) Worker’s House #5 Garage (1974 or 1975) - Investigate if materials can be reused or recycled

CARVER CREEK STATE PARK

ASSESSMENT OF EXISTING STRUCTURES

at Long Valley Farm



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METHODOLOGY, SUMMARY AND GENERAL NOTES

Methodology

Our method for creating this document was as follows:

1. We reviewed the documents given to us by the park service which included but is not limited to:
 - Development Options Checklist for Existing Structures Document # 59 (06.11.08)
 - National Register of Historic Places Document # 16 (12.20.93)
 - FCAP Plan Document #24 (3.9.09)
2. We met with Susan Hatchell and two park officials on site and discussed each building quickly to determine whether we would assess that structure specifically. A number of buildings were culled during this process for a number of reasons (see page 3: List of Structures Not Assessed for more information)
3. We went to each building took notes, assessing the physical condition, connection to utilities (water, power, etc.), its ADA accessibility, its possible uses and general relationship to the surroundings.
4. We compiled site photographs, notes, and information given to us from the park service and made an assessment of logical actions and repair costs necessary to allow new uses.
5. All building numbers reference back to the National Park Services original numbering system.
6. There are 29 contributing structures (see map on page 4) and 29 non-contributing structures (see map on page 5).
7. The maps on pages 6 & 7 show enlarged areas of the farm seat and agricultural complexes, respectively.

Summary

As a general conclusion, given its location and existing historic structures (most notably the Long Valley Farm Seat (#1), the Mill Pavilion (#8,9), the Mill House and Gates (#12), the Great Barn (#26) and the Agricultural Complex) we feel there is significant potential for the site to become a unique addition to the park system which engages a broad spectrum of user groups from school children to families to military personnel.

Our analysis is a first step in that assessment of overall programming and thus we have given multiple suggestions for potential new uses whenever possible and appropriate. We do not preference one suggestion over another because each suggestion is equally possible and often requires the same cost. Therefore, this assessment should be utilized as a tool in a more specific and directed attempt to program the entire park. For instance, we made a map of the Farm Seat and Agricultural Complex which shows the occupancy limits of each building. This map can test possible scenarios and uses for that complex to begin organizing the arrangement of those uses most effectively. In other words, we have attempted to provide a thorough, clear, and concise summary of the buildings so that the park can do a rigorous cost-benefit analysis for its planning.

There could be a number of open-air educational, rental or camping shelters or depending on the eventual layout and maintenance plan, the facility might require one or multiple maintenance structures. Likewise, depending on the organizational/staffing plan one or multiple staff offices might be required.

At this time the general direction we are headed is to have the agricultural complex be used as a collection of buildings for visiting school groups. The main Rockefeller house at the farm seat would have a more cultural/historical/museum emphasis. It could also be used as a rental locations for events such as weddings and family reunions.

General Notes

1. Many of the structures have dirt floors and depending on the new use may require a poured in place concrete slab. A rough estimate of cost for providing this base concrete floor is \$5.00 a square foot.
2. Occupancy numbers have been calculated for the structures within the Farm Seat and the Agricultural Complex and are denoted on the maps on page 6 and 7. Occupancy numbers deemed important for other structures are noted in the text.
3. The following are excerpts from an email dated May 27, 2010 from Ted Hazen.

The records of the Campbell Water Wheel Company (1920-1960) are at the Hagley Museum and Library in the Soda House building in Greenville, Delaware.

Mailing address: Hagley Museum and Library, PO Box 3630, Wilmington, DE 19807-0630

Phone: (302) 658-2400.

“The starting point to determine if a mill can be restored is an onsite inspection of the mill. I normally charge 40 dollars an hour or 350 a day, plus expenses (from Central Pennsylvania). Then I can put together as part of that charge a document to suit your needs.

There are only about 6 to 8 mills in the US that have been restored to look like they did in any part of there history. A number of mills have been restored incorrectly because of lack of proper knowledge or technical information. This has even happened as far back as the 1930’s when mill restoration began. The problem is you have this mindset of “replace in-kind” rather than rip it out and begin again.

My web site: Pond Lily Mill Restorations. I have supplied extensive, illustrated information on the history and technology of flour milling in America, and the restoration of watermills, with bibliography. There is over 78MB of information on such topics as: Old Mills & Mill Restoration; The History of Flour Milling in Early America; Oliver Evans & the Automation of Flour Mills in America; Millstone Dressing Tools; The Technology of Mills; Artifacts Found in Early American Mills; A History of the Fitz Water Wheel Company; A Miller’s Tale & Folklore of the Mill; Interpretation for Old Mills and Historical Places; The Millwright & His Trade; Historically: How to Site a Mill; Readings from the Miller’s Bookshelf & Additional Sources; The Reconstruction of Esom Stone’s Mill in Virginia’s Explore Park (now closed); A Guide to Old Mills and Mill Restoration; How to Construct a Traditional Wooden Water Wheel, and Water Wheel Albums; plus other additional useful information.”

Pond Lily Mill Restorations

<http://www.angelfire.com/journal/pondlilymill/index.html>

<http://www.angelfire.com/journal/pondlilymill/menu.html>

- 4.. Possible granting institutions, also from Mr. Hazen.

“I would try the Kellogg Foundation, all of the big flour mill companies foundations, like General Mills, Pillsbury, down to the Martha White and that flour milling company in Statesville, North Carolina. And don’t forget the Rockefeller Foundation.

Basically you need a non-profit foundation 501(c), and have the site on the State and Federal Register of historic places. So in today’s world you might be better off to have some one form a “friends of the mill group” (with a non-profit status & cooperating agreement with the state), and have them apply for money rather than the state park system ask for money. “

GLOSSARY

Contributing: An integral part of a historic complex of buildings. While not all contributing structures are historically significant by themselves, each played an integral role in the daily functioning of the farm seat or agricultural complex.

Non-Contributing: A non-integral or latter addition to a historic complex of buildings which if removed would not detract from the historical significance of the site.

Terms used describing the physical condition of structures:

Pull-Out: Horizontal or vertical wood siding which has begun to come loose from the supporting structure and no longer fully protects the structure or sub-layers from weather.

Rot: Moisture damage to wood which causes it to break down and become structurally unsound and also no longer weather tight.

Terms Used Describing Possible New Uses of Structures:

Artisan Studio: Rental studio used by a local artisan working in an appropriate medium and opened to the public during designated hours for educational purposes.

Educational: Has significant educational value that requires entering the structure, although portions of the inside can be cordoned off for controlled viewing and safety reasons.

Camping Shelter: Open-air shelter suitable for small groups of 2 -5 people camping overnight who have brought all necessary equipment other than a tent or other shelter.

Maintenance: Structure for the storage of tools and equipment necessary to maintain the park grounds.

Material Reclamation: Removing materials from a structure before demolition to re-use on another building.

Park Offices: Office space for park employees.

Park Residence: Permanent residence for park employees.

Pavilion: Open-air shelter for free public daily or seasonal use. This refers specifically to Building 8, the Mill Pavilion.

Rental Shelter: Open-air shelter suitable for family picnics, school field-trips, business or organizational outings, weddings and other large parties depending on size of shelter.

Rental Facility: Fully enclosed, conditioned space suitable for all season gatherings.

Scenographic: Contributes aesthetically to the surrounding complex of buildings and unless otherwise indicated would not be entered.

Scenographic - Educational: Contributes aesthetically to the surrounding buildings and also serves as a historical artifact of particular interest which can be used for teaching purposes.

Storage: Storing materials that need to be locked when not in use or are not used on a regular basis such as chairs, table coverings, lights, maintenance equipment and materials.

Visitor Contact Station: An ancillary park building that may serve a number of smaller or singular purposes such as: visitor information packets, bathroom facilities, water fountains, and staff offices and parking.

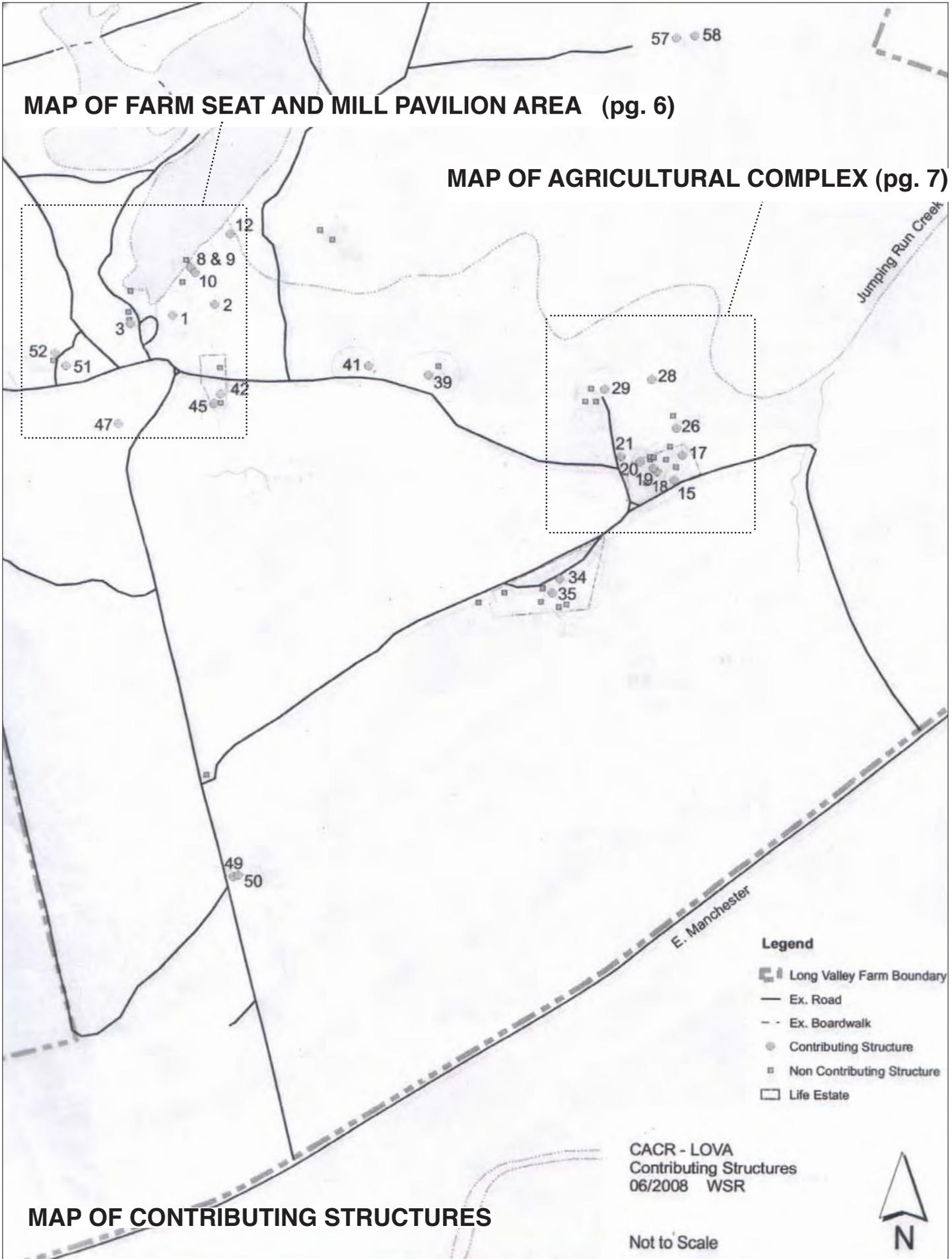
Visitor Center: The main park building which could provide information, rental space, bathroom and water facilities, exhibit space, meeting rooms, kitchen, staff offices and parking.

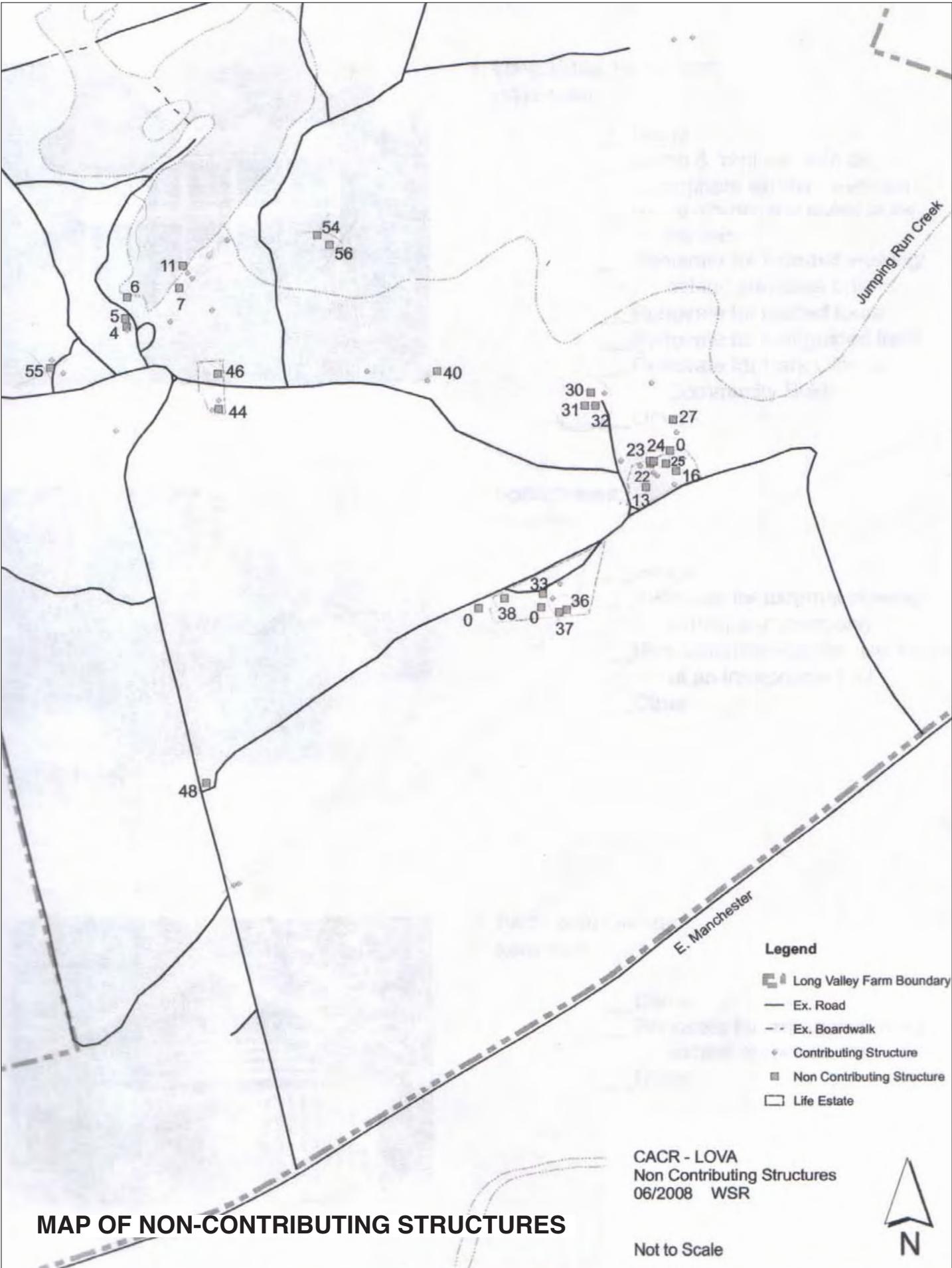
NOTE REGARDING PHASING OF WORK.

Please keep in mind that project work should be grouped whenever possible to save on transportation costs and benefit from scales of economy in terms of materials and demolition material removal costs.

MAP OF FARM SEAT AND MILL PAVILION AREA (pg. 6)

MAP OF AGRICULTURAL COMPLEX (pg. 7)

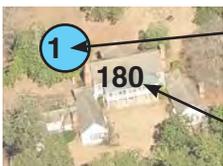






MAP OF FARM SEAT AND MILL PAVILION AREA WITH OCCUPANCY NUMBERS

- Potential Open-Air Pavilion / Shelter
(no bathrooms or mechanical)
- Potential Enclosed Shelter / Storage / Park Maintenance (refer to assessments)
(no bathrooms or mechanical)
- Potential Visitor Contact Point / Welcome Center / Offices (refer to assessments)
(conditioned space / possible bathrooms)



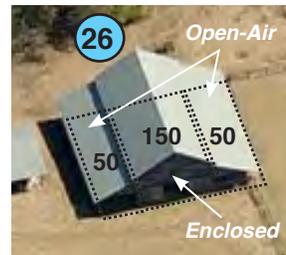
Building Designation Number (keyed to both contributin and non-contributing maps and building assessments)

Approximate seating capacity (standing capacity is twice sitting capacity)



MAP OF AGRICULTURAL COMPLEX WITH OCCUPANCY NUMBERS

- Potential Open-Air Shelter (no bathrooms or mechanical)
- Potential Visitor Contact Point / Welcome Center / Office (conditioned space / possible bathrooms)



100 — Approximate seating capacity (standing capacity is twice sitting capacity)

28 — Building Designation Number (keyed to both contributin and non-contributin maps and building assessments)

LIST OF STRUCTURES THAT WERE NOT ASSESSED DURING THIS REVIEW

Reason for not assessing structure (as discussed on site with Department of Natural Resources representative):

- A. Currently owned or utilized by a private resident
- B. Non-Contributing
- C. Beyond repair or unuseable
- D. Decision had already been made by the Department of Natural Resources on structure's renovation or use

Structures at the Farm Seat

- 4. WOODSHED (NON-CONTRIBUTING 1976) - B

Structures at the Agricultural Complex

- 13. FARM MANAGER'S RESIDENCE - A,B
- 14. PUMP HOUSE - B, C
- 22. PLAYHOUSE (NON-CONTRIBUTING 1972) - A,B
- 23. COOLER (NON-CONTRIBUTING 1980) - B
- 24. COOKING PIT (NON-CONTRIBUTING 1980) - B
- 25. EQUIPMENT SHED (NON-CONTRIBUTING 1955) - B

Structures near existng Maintenance/Storage Shed #38

- 33. NEW FARM MANAGER'S HOUSE (NON-CONTRIBUTING 1992) - B
- 34. WATER TOWER (CONTRIBUTING 1940) - C
- 35. WATER TOWER PUMP HOUSE (CONTRIBUTING 1940) - C
- 36. HOG SHELTER / FEEDING HOUSE (NON-CONTRIBUTING 1966) - A,B
- 37. MACHINE SHED (NON-CONTRIBUTING 1969) - A,B
- 39. OVERSEER'S HOUSE (NON-CONTRIBUTING 1914) CHRISTIAN'S HOUSE - A,B,

Other Structures

- 40. OVERSEER'S HOUSE GARAGE (NON-CONTRIBUTING 1970) - A,B,D
- 41. WORKER'S HOUSE #1 (CONTRIBUTING 1914, MOVED & EXPANDED 1938) - A
- 42. WORKER'S HOUSE #2 (CONTRIBUTING 1914) - A
- 43. WORKER'S HOUSE #3 FRAGMENT (NON-CONTRIBUTING 1925, PARTIALLY DISMANTLED) - A,B
- 44. WORKER'S HOUSE #2 PUMP HOUSE (NON-CONTRIBUTING 1964) - A,B
- 45. WORKER'S HOUSE #2 GARAGE (CONTRIBUTING 1939) - A
- 46. GRANARY (NON-CONTRIBUTING 1944) Isolated from farm. - B
- 49. MAIN PATH TOBACCO BARN #1 (CONTRIBUTING 1925) - C
- 50. MAIN PATH TOBACCO BARN #2 (CONTRIBUTING 1925) - C
- 53. WORKER'S HOUSE #4 PUMP HOUSE (NON-CONTRIBUTING 1960) - B
- 54. WORKER'S HOUSE #5 (NON-CONTRIBUTING 1947) - B
- 55. WORKER'S HOUSE #5 PACK HOUSE (NON-CONTRIBUTING 1968) - B
- 56. WORKER'S HOUSE #5 GARAGE (NON-CONTRIBUTING 1974 OR 1975) - B

1. LONG VALLEY FARM SEAT

CONTRIBUTING
1937-1938

James Rockefeller Residence



Accessibility: Entries and bathrooms on ground floor are not ADA compliant but could easily be made compliant. Stair railing encroaches into stair path and would require new handrail (treads are compliant).

Historical Value: As the preferred vacation home of James Rockefeller and its prior use on a farmstead utilizing scientific methods the house has significant value. See "National Register of Historic Places Form" 12-20-93 #16 for additional information.

We had a preliminary conversation with Jeff Adolphsen, Restoration Specialist, from the State Historic Preservation Office. From our conversation it appears that they would be in favor of restoring as many buildings as possible. He would appreciate a meeting at our earliest convenience to discuss the entire project with both he and Renee Gledhill-Earley, Environmental Review Coordinator for SHPO.

Foundation System:

Brick and concrete block, concrete slab floor
Condition: fair

Notes: standing water in basement, potential water issue on north-east brick terrace at wall connection (trapped leaves and moisture between brick terrace and house)

Structural System: wood frame

Condition: fair
Notes: areas of rot

Cladding System: Horizontal masonite board (painted)

Condition: good
Notes: possible asbestos

Roof System: wood frame and asphalt shingles

Condition: fair to poor
Notes: moss growth in areas

Hazardous Materials:

Check for asbestos in siding, plumbing, HVAC systems, and flooring (kitchen especially)

Plumbing: functioning, upgrades likely in areas

Electrical: functioning, needs further upgrades

HVAC: radiators (untested), no AC

Possible Use:

- Park offices
- Educational / Museum
- Meeting Room
- Rental facility
- Park Visitor Center

Other notes:

- 3 large and 1 small chimney, fair condition with plant growth
- Some fire detection and alarm system
- No exit lights or signs
- Fence in disrepair with areas of collapse

G-1. FCAP Recommendation: renovate and restore to

1. LONG VALLEY FARM SEAT

period architecture; full asbestos abatement if necessary; full replacement of all electrical, mechanical, plumbing HVAC components.

FCAP Cost: \$650,000

FCAP: Priority: 5 Years

M-1. FCAP Recommendation: replace fuel oil fired burner and electric hot water heater and check underground fuel oil tank for leaks

FCAP Cost: \$300,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

DETAIL NOTES

- 1. overgrowth and deterioration to chimneys
- 2. moss growth on roof
- 3. overgrowth and siding deterioration

- 1. Renovate exterior and interior (including plumbing, electrical, mechanical, and HVAC), add offices and rental facilities w/ public restrooms: \$670,000 - \$900,000
- 2. Upfit for catering kitchen: \$90,000 - \$150,000
- 3. Upfit for museum: requires museum specialist for costing. Could be upward of \$200,000 depending on the level of interpretive displays
- 4. Structural review only if used for assembly: \$2,000
- 5. Review with State Historic Preservation Office.

- 4. stair and main hallway
- 5. basement door at stairs with moss, standing water and vine growth
- 6. large kitchen

1.



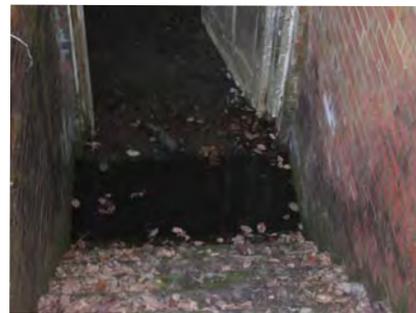
4.



2.



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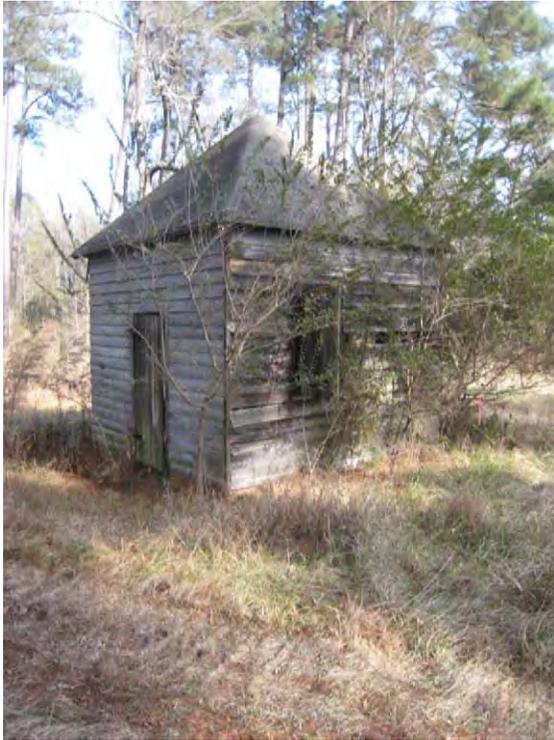


6.



2. SPRINGHOUSE

CONTRIBUTING
1914



Foundation System: concrete footing, masonry apron
Condition: fair
Notes: overgrowth on both inside and outside

Structural System: 2x4 wood frame
Condition: fair
Notes: none

Cladding System: 2x6 horizontal wood lap board
Condition: poor
Notes: significant siding pull-out and rot, corner boards need replacing

Roof System: pyramidal hip roof with asphalt shingles
Condition: fair
Notes: none

Plumbing: none (unknown whether this is an active spring or if water is simply standing water)

Electrical: none

HVAC: none

Accessibility: none, door threshold is raised, door opening may be too narrow as well

Historical Value: As an original part of homestead and what appears to be a working natural spring, this building has significant historical value.

Possible New Use:

- Scenographic
- Educational: opportunity to teach about water conservation, springs, aquifers, and water degradation

FCAP Recommendation: drain water from concrete box, install cover; reattach and replace siding; trim back vegetation outside and inside

FCAP Cost: \$6,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:
1. Restore exterior, verify water tightness, make secure:
\$6,000

3. FARM SEAT GARAGE

CONTRIBUTING
1939



Foundation System: concrete apron perimeter footing with a dirt floor
Condition: fair
Notes: cracks and plant growth

Structural System: 2x4 wood frame
Condition: good
Notes: one leak, but no major flaws

Cladding System: horizontal wood lap board
Condition: fair
Notes: some pull out

Roof System: joists and rafters with metal roofing
Condition: fair
Notes: one visible leak

Plumbing: none

Electrical: none seen

HVAC: none

Accessibility: yes

Historical Value: As a contributing building to the original homestead it has significance and its rustic aesthetic adds general character to the site.

Possible New Use:

- Scenographic
- General Storage
- Boat Storage
- Boat Rental Office

Footprint: 18' x 14'

Other notes: Doors on garage are attached on hinges but no longer structurally rigid. To maintain aesthetic coherence we suggest reusing current boards to make new doors, adding wheels to non-hinge end of doors and adding a concrete slab just outside the building

FCAP Recommendation: renovate and restore to historical quality

FCAP Cost: \$12,000

FCAP: Priority: 3 years

ECA Recommendation & Opinion of Project Cost:

1. Repair exterior siding, reinforce roof and patch, fix door: \$12,000

5. KENNEL

NON CONTRIBUTING
1980



Foundation System: concrete slab

Condition: fair

Notes: some cracking

Structural System: 2x4 wood frame

Condition: fair

Notes: none

Cladding System: vertical wood board and batten

Condition: fair

Notes: areas of rot and pull out

Roof System: exposed wood joists with metal roofing

Condition: fair

Notes: hole in north end

Plumbing: yes, (working pump outside)

Electrical: yes

HVAC: none

Accessibility: none, door thresholds are very close to ground and could easily be made ADA compliant

Historical Value: As a non-contributing building it doesn't have any historical value.

Possible New Use:

- Park offices
- Bathroom shelter
- Material reclamation
- Storage

FCAP Recommendation: demolish structure and grade site to safe condition

FCAP Cost: \$3,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Demolish and reclaim siding for use on new building. Add new restroom building in same location to re use existing water lines, use reclaimed siding (200 SF): \$40,000
2. Demolish and build new restroom and office building in same location, use reclaimed siding (400 SF): \$70,000

6. BOATHOUSE

NON CONTRIBUTING
1978



Foundation System: cinder block on ground
Condition: poor
Notes: some blocks falling off (see image above)

Structural System: 2x4 wood frame
Condition: fair
Notes: none

Cladding System: vertical wood board and batten
Condition: fair
Notes: none

Roof System: joists with asphalt shingles
Condition: fair
Notes: none

Plumbing: none

Electrical: none

HVAC: none

Accessibility: yes

Historical Value: As a non-contributing building it has minimal intrinsic historic value, though it does fit in visually with the farm seat garage and thus appears to be an integral part of the farmstead.

Possible New Use:

- General storage
- Boat storage with rolling boat trailer
- Material Reclamation

Footprint: 18' x 12'

FCAP Recommendation: demolish structure and grade site to safe condition

FCAP Cost: \$3,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Demolish and reclaim siding: \$4,000
2. Repair foundation, mold damage, and shingles for use as boat or general storage: \$3,000

7. SUMMER HOUSE GAZEBO

NON CONTRIBUTING
1985



Foundation System: none

Structural System: 4x4 wood posts

Condition: fair

Notes: none

Cladding System: 2x4 gap board

Condition: poor

Notes: some boards falling in, plant growth

Roof System: 2x4 pyramidal roof and gap board

Condition: poor

Notes: some boards falling in, plant growth

Plumbing: none

Electrical: none

HVAC: none

Accessibility: yes

Historical Value: none

Possible New Use: Its use would remain a shade shelter but with ample tree coverage and the mill pavilion close by it is unnecessary.

FCAP Recommendation: none

FCAP Cost: none

FCAP: Priority: none

ECA Recommendation & Opinion of Project Cost:

1. Demolish: \$250

8,9. MILL PAVILION + DAM GATES

CONTRIBUTING
1850-1860; reworked 1920's



Foundation System: board form concrete piles
Condition: good
Notes: none

Structural System: timber frame
Condition: fair
Notes: uprights are 14" square, cross beams are 12"x14"

Cladding System: horizontal wood lap board
Condition: poor
Notes: significant holes and pullout

Roof System: joists and rafters with asphalt shingles
Condition: poor
Notes: significant bows in roof and flitch splicing on inside

Floor System: overspanned wood boards on joists
Condition: fair
Notes: though structurally intact, the floor is unsafe for high occupancy

Plumbing: none

Electrical: electrical box in southeast corner (untested)

HVAC: none

Accessibility: none, easily made ADA accessible

Historical Value: As a contributing structure over 150 years old which shows historic dam technology, this pavilion has significant historical value aesthetically and educationally.

Possible New Use:

- Rental Pavilion (200 person occupancy)
- Public Pavilion
- Educational Programs
- Scenographic

FCAP Recommendation: trim vegetation back; repair or replace deteriorated siding, flooring, railing, and structural members; re-grade perimeter to prevent erosion; upgrade and rewire electrical systems

FCAP Cost: \$87,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Structural analysis for safety: \$2,000
2. Repair siding and roof, rebuild floor, trim vegetation, re-grade perimeter, upgrade electrical, make ADA accessible: \$110,000

8. MILL PAVILION

DETAIL NOTES:

1. foundation with moss growth
2. flitch splicing roof rafter
3. electrical box

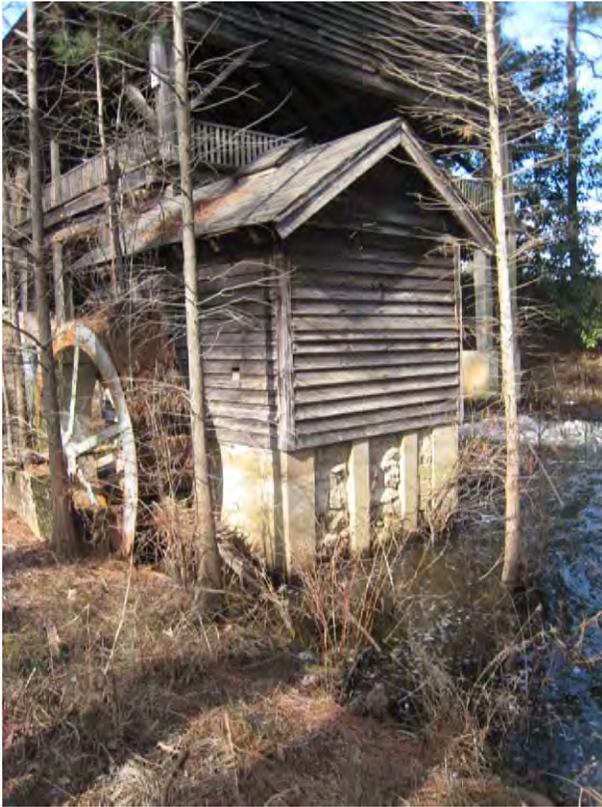
4. concrete pile foundation
5. lever arm for dam gate



10. PUMP HOUSE

CONTRIBUTING
1938

GENERAL OBSERVATIONS



Foundation System: poured concrete

Condition: fair

Notes: none

Structural System: 2x6 wood frame

Condition: fair

Notes: none

Cladding System: horizontal wood lap board

Condition: fair

Notes: none

Roof System: rafters and asphalt shingles

Condition: fair

Notes: some debris and stains on roof

Plumbing: none

Electrical: yes

HVAC: none

Accessibility: none, ADA accessibility is possible but may require a structure large enough that it significantly diminishes the rustic aesthetic.

Historical Value: As a contributing member of the homestead and an interesting piece of historic technology the building and attached water-wheel have significant historical value.

Possible New Use:

- Scenographic
- Storage
- Education

FCAP Recommendation: trim back vegetation; reattach or replace deteriorated siding and door; sandblast water-wheel and finish both wheel and housing

FCAP Cost: \$15,000

FCAP: Priority: Immediate

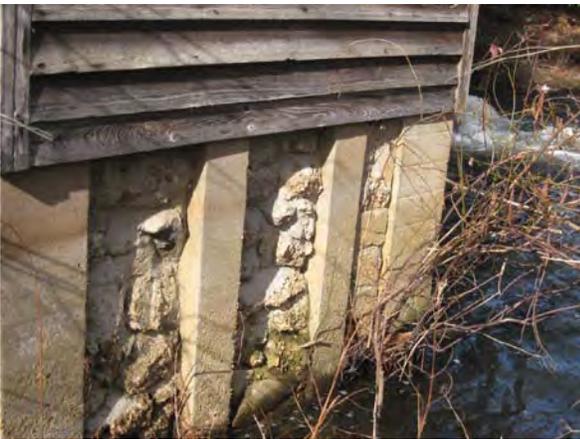
ECA Recommendation & Opinion of Project Cost:

1. Trim vegetation, repair exterior, remove screen door, make secure, sandblast and refinish water-wheel (non-operational) \$15,000

10. PUMPHOUSE

DETAIL NOTES:

1. foundation
2. eletrical connection



1



2

11. DIVING PLATFORM

NON CONTRIBUTING
1960s



Foundation System: none

Condition: none

Notes:

Structural System: wood timber

Condition: fair

Notes: though stable, the timbers are immersed in water

Cladding System: none

Condition: none

Notes: none

Roof System: none

Condition: none

Notes: none

Plumbing: none

Electrical: none

HVAC: none

Accessibility: none

Historical Value: As a non-contributing structure built in the 1960's its historic value is tied mostly to the story of Rockefeller using it every morning to swim across the lake.

Possible New Use:

- None: not appropriate for use and making it scenographic would require so much railing it would ruin its scenic quality

FCAP Recommendation: none

FCAP Cost: none

FCAP: Priority: none

ECA Recommendation & Opinion of Project Cost:

1. Document and demolish.

12. MILL HOUSE & GATES

CONTRIBUTING
1938-1940



Foundation System: poured concrete slab
Condition: fair
Notes: some cracking, chipping, moss growth on inside

Structural System: 2x6 wood frame
Condition: fair
Notes: none

Cladding System: horizontal wood lap board
Condition: very poor
Notes: holes, pull out, and moisture damage

Roof System: joists and rafters with metal roofing
Condition: good
Notes: new roof (unknown date), minor repairs needed

Plumbing: none seen

Electrical: cut off (see lower left image above)

HVAC: none

Accessibility: none, could be made ADA accessible with significant effort

Historical Value: As a contributing structure and still possibly functioning mill this building has both aesthetic and technological historical significance.

Possible New Use:
- Scenographic
- Educational: some work required to get mill working again

FCAP Recommendation: renovate structure to historical quality, fence area to prevent unauthorized entry
FCAP Cost: \$600,000
FCAP: Priority: 5 years

ECA Recommendation & Opinion of Project Cost:
1. Repair exterior for exterior viewing only, non-functioning mill machinery, with ropes/fences to cordon off: \$100,000
2. Same as FCAP: Minimum of \$600,000 for historical quality renovation, still non functioning machinery.
3. Structural and historical review needed whether restored for exterior viewing only or for interior tours and operations: \$5,000. Please see note number 3 on page 2.

12. MILL HOUSE & GATES

DETAIL NOTES:

1. mill
2. foundation detail
3. water-wheel

4. basement, mill mechanical system

1



2



3



4



15. GRANARY

CONTRIBUTING
1940



Foundation System: concrete piers
Condition: good
Notes: none

Structural System: 2x4 wood frame
Condition: good
Notes: none

Cladding System: horizontal wood lap board
Condition: poor
Notes: paint peeling, corner boards missing, openings without glass

Roof System: joists and rafters with metal roofing
Condition: good
Notes: none

Plumbing: unknown

Electrical: none

HVAC: none

Accessibility: none, though could easily be made ADA compliant

Historical Value: A contributing structure to the original, working farmstead.

Possible New Use:

- Scenographic
- Storage
- Park offices
- Educational
- Visitor Contact Station with ADA accessible bathrooms: \$70,000

FCAP Recommendation: replace front entry platform, reattach or replace deteriorated siding; scrape, sand, clean, and paint siding; reattach and seal metal roof

FCAP Cost: \$15,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Same as FCAP: \$15,000
2. Structural analysis for inhabiting: \$1,000
3. Visitor contact station with ADA accessible bathrooms: \$80,000

15. GRANARY

DETAIL NOTES:

1. foundation
2. paint peeling from siding
3. entry porch damage, siding damage



1



2



3

16. TRACTOR SHED

NON CONTRIBUTING
1950



Foundation System: concrete block skirt
Condition: fair
Notes: some cracking

Structural System: 2x4 wood frame
Condition: good
Notes: none

Cladding System: metal siding
Condition: fair
Notes: small holes, window with missing pane

Roof System: wood truss and metal roofing
Condition: good
Notes: none

Plumbing: none

Electrical: none seen

HVAC: none

Accessibility: yes

Historical Value: Non-contributing member of farmstead, however, noteworthy door hardware mechanism.

Possible New Use:

- Scenographic
- Rental Shelter
- Educational Shelter (capacity approx. 25 people)

FCAP Recommendation: no repairs or renovations recommended due to good condition

FCAP Cost: \$0

FCAP: Priority: none

ECA Recommendation & Opinion of Project Cost:

1. Repair siding as needed: \$1,000
2. Cracked existing concrete slab could be replaced: \$2,000.
3. Additional electrical service and fans so that building could be rented or used for environmental education classes: \$6,000

17. PACK HOUSE

CONTRIBUTING
1940



Foundation System: masonry skirt and masonry pier
Condition: fair to poor
Notes: caving in at portions (upper right photo)

Structural System: 2x4 wood frame
Condition: fair
Notes: none

Cladding System: corrugated metal (vertical)
Condition: fair to poor
Notes: windows in poor condition, missing panes

Roof System: joists and rafters with metal roofing
Condition: fair to poor
Notes: east roof is giving way at corner

Plumbing: unknown

Electrical: none seen

HVAC: none

Accessibility: none, could easily be made ADA accessible

Historical Value: Has value both as a contributing member of original farmstead and as a rustic looking building.

Possible New Use:

- Storage
- Artisan Studio
- Scenographic
- Education/Interpretation shelter area (capacity approximately 30)

Footprint: 20' x 24'

FCAP Recommendation: restore or replace entire structure

FCAP Cost: \$30,000

FCAP: Priority: 5 years

ECA Recommendation & Opinion of Project Cost:

1. Repair exterior: \$15,000
2. Renovate interior, replace windows and doors: \$15,000
3. Add power, lighting, plumbing and HVAC if used for people: \$80,000

18. FORGE

CONTRIBUTING
1914



Foundation System: none

Condition: none

Notes: none

Structural System: 2x8 wood frame directly into ground

Condition: fair

Notes: building is leaning over, though appears stable

Cladding System: horizontal wood gap board

Condition: fair

Notes: the gap boarding allows wind to blow through the structure and has likely kept it from being blown over in high winds.

Roof System: joists and rafters with metal roofing

Condition: fair

Notes: none

Plumbing: none

Electrical: none

HVAC: none

Accessibility: yes

Historical Value: As a rustic, contributing member of original farmstead the building has significant historical value.

Possible New Use:

- Rental Pavilion
- Public Pavilion

Capacity is approximately 100 people but they would possibly be in four different sections of the building depending on how many structural adjustments were made.

Footprint: approx. 40' x 50'

FCAP Recommendation: reattach or replace deteriorated siding and supports, scrape, sand, and refinish siding; install bracing between structural members to secure building.

FCAP Cost: \$6,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Structural assessment: \$1,000
2. Repair exterior siding, make structurally secure: \$10,000
3. Electrical and lighting upgrades: \$4,000
4. If desired, new slab with slope to grade for ADA accessibility: \$10,000

19. COMMISSARY

CONTRIBUTING
1914



Foundation System: concrete piers and wood skirt
Condition: fair
Notes: none

Structural System: 2x4 wood frame
Condition: fair
Notes: none

Cladding System: vertical wood board and batten
Condition: fair
Notes: none

Roof System: rafters with metal roofing
Condition: fair
Notes: entry awning falling apart, shed rafters over spanned

Plumbing: none seen

Electrical: none, cut off

HVAC: none

Accessibility: no, could be made ADA accessible with some effort but could be visually distracting

Historical Value: Has historical value as a contributing structure to original farmstead.

Possible New Use:

- Scenographic
 - Public Shelter (under canopy only)
 - Education Shelter (under canopy only)
- (Capacity approx. 20 people)

Footprint: 20' x 16'

FCAP Recommendation: none given

FCAP Cost: none

FCAP: Priority: none

ECA Recommendation & Opinion of Project Cost:

1. Repair and repaint exterior, brace overhang, make secure: \$7,000
2. Repair interior and add fans (no HVAC) additional: \$3,000

20. GARAGE / SHOP

CONTRIBUTING
1942



Foundation System: cement block skirt on three sides, slab on grade
Condition: fair
Notes: none

Structural System: 2x4 wood frame
Condition: fair
Notes: 4' O.C. framing

Cladding System: corrugated metal (vertical)
Condition: fair
Notes: none

Roof System: wood truss and metal roofing
Condition: fair
Notes: 4' O.C. framing

Plumbing: none seen

Electrical: wired (untested)

HVAC: none

Accessibility: yes

Historical Value: As a contributing structure to farmstead the building has historical value. It is not particularly rustic looking however and does not contribute to the scenographic quality of the farmstead.

Possible New Use:

- Rental Shelter
 - Public Shelter
 - Education
- Capacity approx. 80 people

Footprint: approx. 40' x 30'

FCAP Recommendation: replace wood frame windows; scrape, sand, clean, and repaint siding; reattach and seal metal roof

FCAP Cost: \$5,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Repair exterior, clean, remove tools, add lighting (assuming wiring works) and ceiling fans (no HVAC): \$10,000 This would still be a very rustic pavilion.
2. Demolish: \$2,000

21. FERTILIZER HOUSE

CONTRIBUTING
1942



Foundation System: brick and sprayed concrete piers
Condition: fair
Notes: slab on grade adjacent to building approx. 10'x20'

Structural System: 2x4 wood frame walls and trusses
Condition: fair
Notes: wall and roof at 36" O.C., floor is 2x10 at 15" O.C.

Cladding System: horizontal wood lap board
Condition: poor
Notes: many pieces missing or rotten

Roof System: wood truss with metal roofing
Condition: good
Notes: none

Plumbing: unknown

Electrical: unknown

HVAC: none

Accessibility: none, could be made ADA accessible at great difficulty and would reduce the charming appearance.

Historical Value: Has value only as a contributing part of the farmstead group.

Possible New Use:

- Scenographic
 - Education - for exterior only.
- If made accessible it could only hold 15 people. ADA ramp not recommended by Architect.

Footprint: 30' x 12'

FCAP Recommendation: replace front entry steps; re-attach or replace siding and doors; replace and seal metal roof where necessary; scrape, sand, clean, and repaint siding

FCAP Cost: \$10,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Repair exterior, add siding, make secure: \$10,000

26. GREAT BARN

CONTRIBUTING
1940



Foundation System: poured concrete base (barn) and pyramidal concrete piers (sheds)

Condition: fair

Notes: cracking (see photo #4), needs french drain along shed drip line (see photo #3)

Structural System: 2x4 wood frame

Condition: fair

Notes: none

Cladding System: horizontal wood lap board

Condition: poor

Notes: some boards missing or pulling out

Roof System: 2x8 joists and rafters (16" O.C.) with metal skip sheathing

Condition: fair to poor

Notes: portions have significant damage (see photo #2)

Plumbing: none

Electrical: none, wires cut

HVAC: none

Accessibility: yes

Historical Value: Has significant value not only as part of original farmstead, but as one of the larger and more iconic buildings on the site.

Possible New Use:

- Rental Shelter
- Public Shelter (under flanking sheds only)
- Park Visitor Center

Approximate Dimensions: 60' x 30' main barn
60' x 15' flanking sheds (2)

Capacity:

Approximately 150 people in the main central space and additional 50 people in each wing, for a total of 250 people. This is not taking into consideration any sort of support or office facilities.

FCAP Recommendation: rebuild structure, reuse current materials if possible; fence off structure to prevent unauthorized entry

FCAP Cost: \$250,000

FCAP: Priority: 5 years

26. GREAT BARN

ECA Recommendation & Opinion of Project Cost:

1. Structural analysis: \$4,000
2. Repair exterior only: \$250,000
3. Open air rental pavilion with slab, power, lighting, and bathrooms: \$315,000
4. Welcome center with conditioned offices, meeting areas, displays, and restrooms (one flanking shed to remain open air with slab and perceable septic site assumed nearby): \$650,000

DETAIL NOTES:

1. shed covering
2. metal roof damage
3. fence and shed
4. foundation cracks
5. inside, roof
6. underside of roof



27. FEEDER SHED

NON CONTRIBUTING
1952



Foundation System: concrete slab
Condition: fair, some cracks, structurally good
Notes:

Structural System: poles
Condition: fair, structurally good
Notes: one pole has come unattached but doesn't appear to effect stability at this date

Cladding System: none (open air)
Notes:

Roof System: wood rafters and joist, metal roofing
Condition: very good
Notes:

Plumbing: none

Electrical: none seen

HVAC: none

Accessibility: yes (access will need to be provided)

Historical Value: Though not part of original farmstead, the shed is visually integrated and adds general character to the site.

Possible New Use:
- Rental Shelter
- Public Shelter accomodating 50 -150 people
- Educational Shelter

Approximate capacity: 50-150 people Note that the capacity varies so much because of the odd proportions of the building which would limit certain types of activities.

Approximate dimensions: 25' x 50'

FCAP Recommendation: replace or renovate entire structure

FCAP Cost: \$10,000

FCAP: Priority: 5 years

ECA Recommendation & Opinion of Project Cost:

1. Repair concrete slab and poles: \$6,000
2. Electrical and lighting updgades: \$10,000

28. EQUIPMENT BARN

CONTRIBUTING
1940



Foundation System: concrete block skirt and dirt floor
Condition: fair
Notes: none

Structural System: 2x4 wood frame
Condition: good
Notes: none

Cladding System: metal siding
Condition: good
Notes: a few small holes in metal siding, rear doors in major disrepair

Roof System: wood trusses with metal roofing
Condition: good
Notes: none

Plumbing: none

Electrical: none seen

HVAC: none

Accessibility: yes

Historical Value: Has value as a contributing structure to the farmstead. In and of itself it is not functionally nor aesthetically noteworthy but it is in good condition.

Possible New Use:

- Scenographic
- Rental Shelter
- Storage
- Restroom

Approximate capacity: 100 people

FCAP Recommendation: replace damaged metal siding and roof panels; repair or replace rear doors; trim back foliage adjacent to structure

FCAP Cost: \$3,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Repair exterior and rear door: \$3,000
2. If a rental shelter were desired, utility services will be required. Over \$250,000 for a conditioned space, with restrooms lighting and finishes including concrete floor.

29. HAY BARN

CONTRIBUTING
1940



Foundation System: poured concrete and dirt floor

Condition: fair

Notes: none

Structural System: 2x4 wood frame

Condition: fair to good

Notes: appears structurally sound, old repairs apparent

Cladding System: metal siding

Condition: fair

Notes: doors were untested but likely require some repairs to work properly

Roof System: trusses with metal roofing

Condition: good

Notes: small hole on west side of roof

Plumbing: none

Electrical: none

HVAC: none

Accessibility: yes

Historical Value: Important piece of the silo complex in the Northwest corner of the farmstead.

Possible New Use:

- Scenographic
- Rental Shelter
- Storage
- Educational Shelter

Approximate dimensions: 54' x 30'

Approximate capacity: 100 people

FCAP Recommendation: reattach or replace damaged metal siding and roof panels; repair livestock doors and gates; trim back foliage adjacent to structure

FCAP Cost: \$3,000

FCAP: Priority: Immediate

ECA Recommendation & Opinion of Project Cost:

1. Same as FCAP: \$3,000
2. Electrical upfit (lighting and fans only, no AC, no plumbing): \$10,000
3. Slab: \$8,000

30. SILO

NON CONTRIBUTING
1966



Foundation System: boardformed concrete

Condition: fair

Notes: none

Structural System: pre-cast concrete panels, metal tension rings

Condition: fair to good

Notes: none

Cladding System: (see structural system)

Roof System: metal dome

Condition: poor

Notes: rust covering entire roof

Plumbing: none

Electrical: none, wires cut

HVAC: none

Accessibility: none

Historical Value: Although not a contributing structure to the original farmstead, it is an integral part of the farm and has a strong iconic value as a recognizable farming structure.

Possible New Use:

- Scenographic - Educational

- Educational: allow controlled viewing inside silo

Approximate dimensions: 24' diameter, 50' high

FCAP Recommendation: replace roof

FCAP Cost: \$5,000

FCAP: Priority: 5 years

ECA Recommendation & Opinion of Project Cost:

1. Repair metal roof, restore concrete panels, and create secured viewing: \$12,000