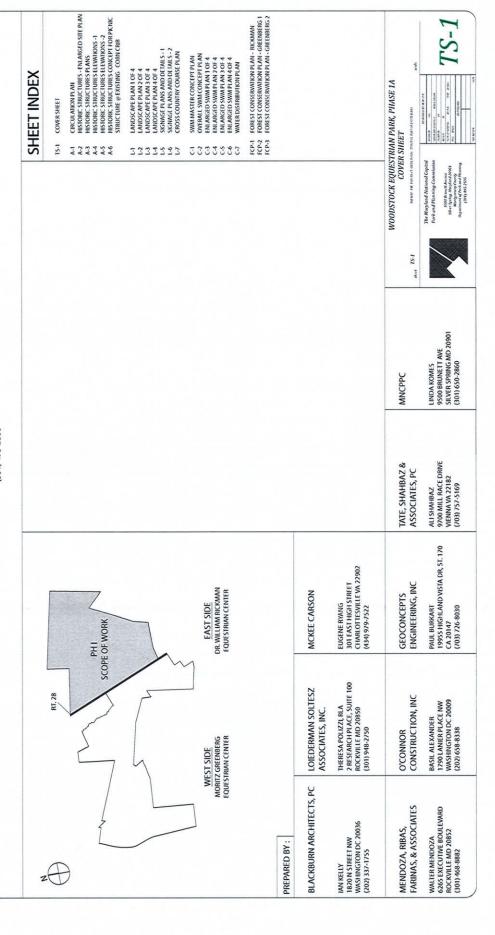
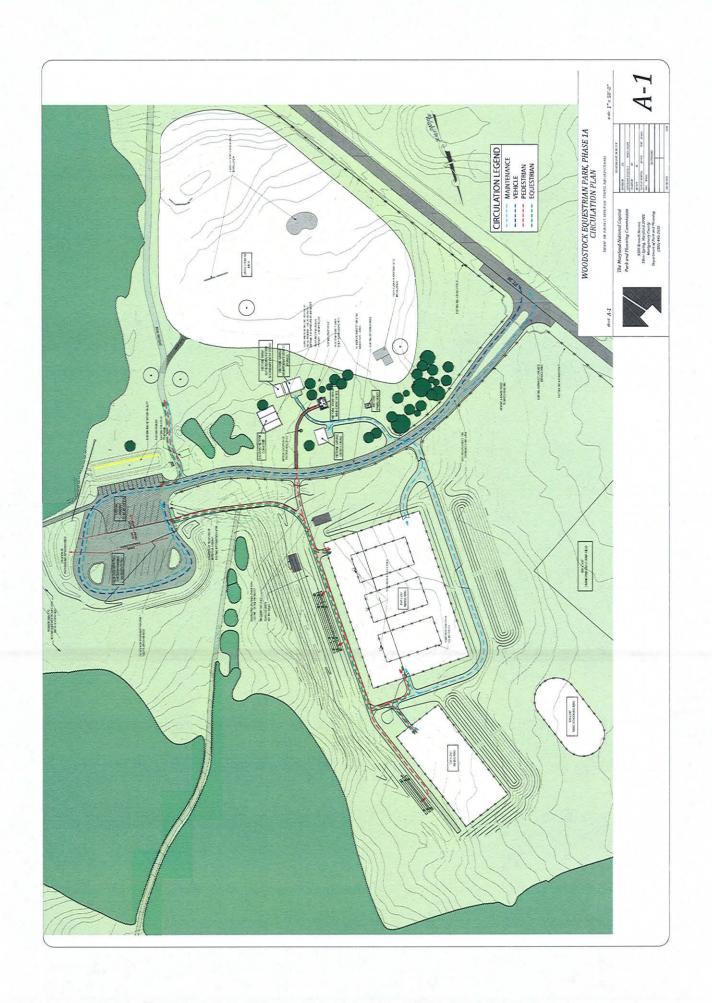
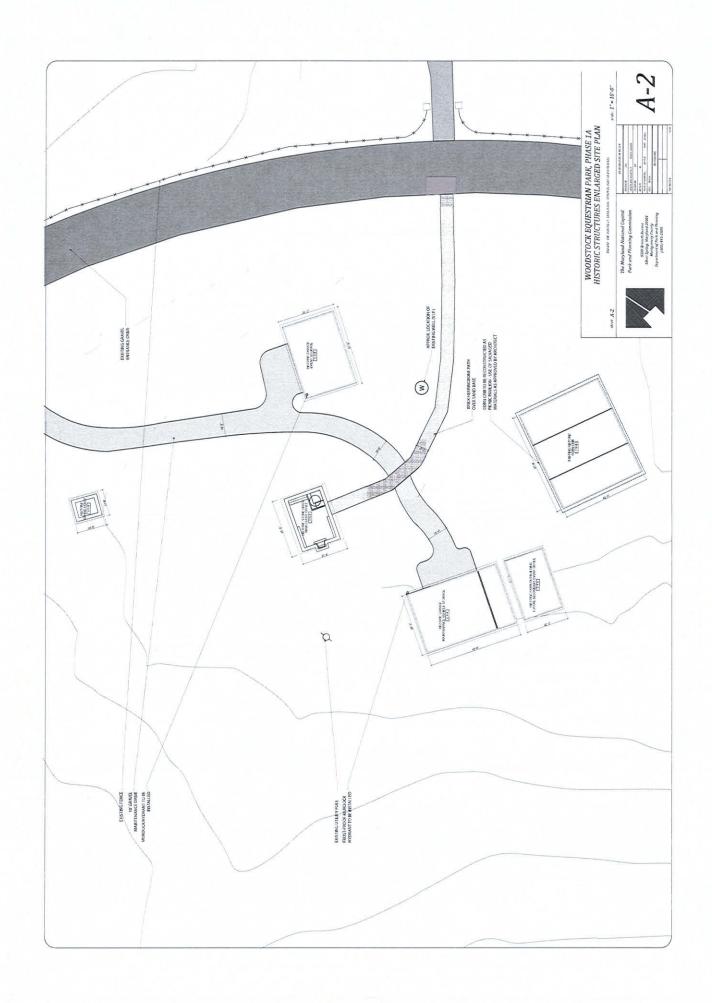
WOODSTOCK EQUESTRIAN PARK

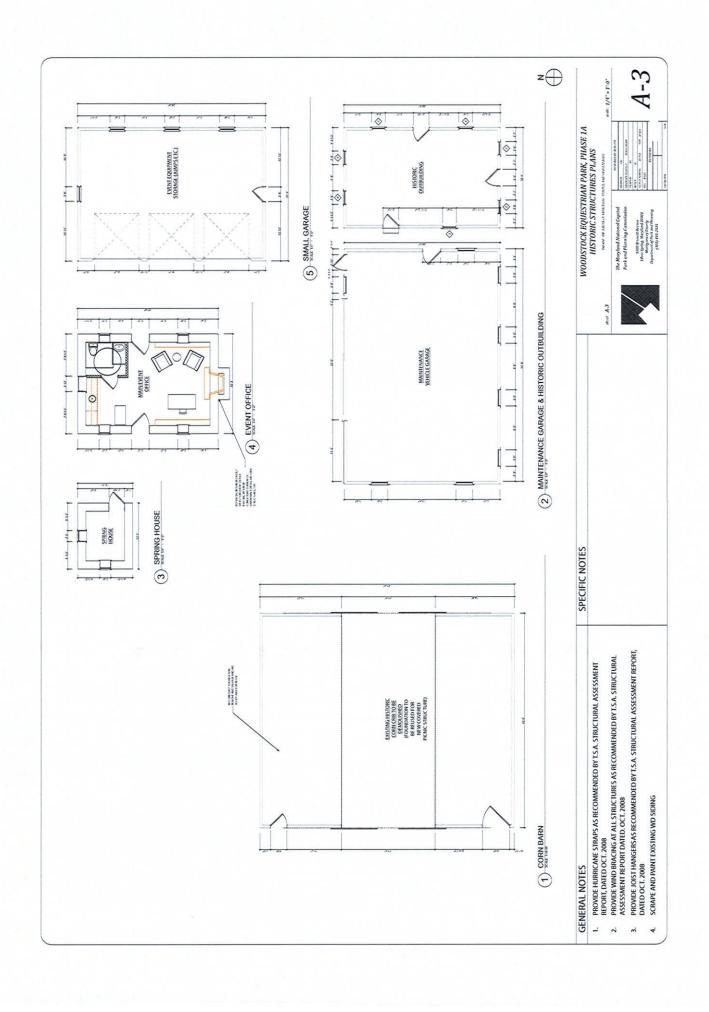
PHASE I FACILITY PLAN
COMMISSIONED BY: MARYLAND NATIONAL PARK & PLANNING COMMISSION

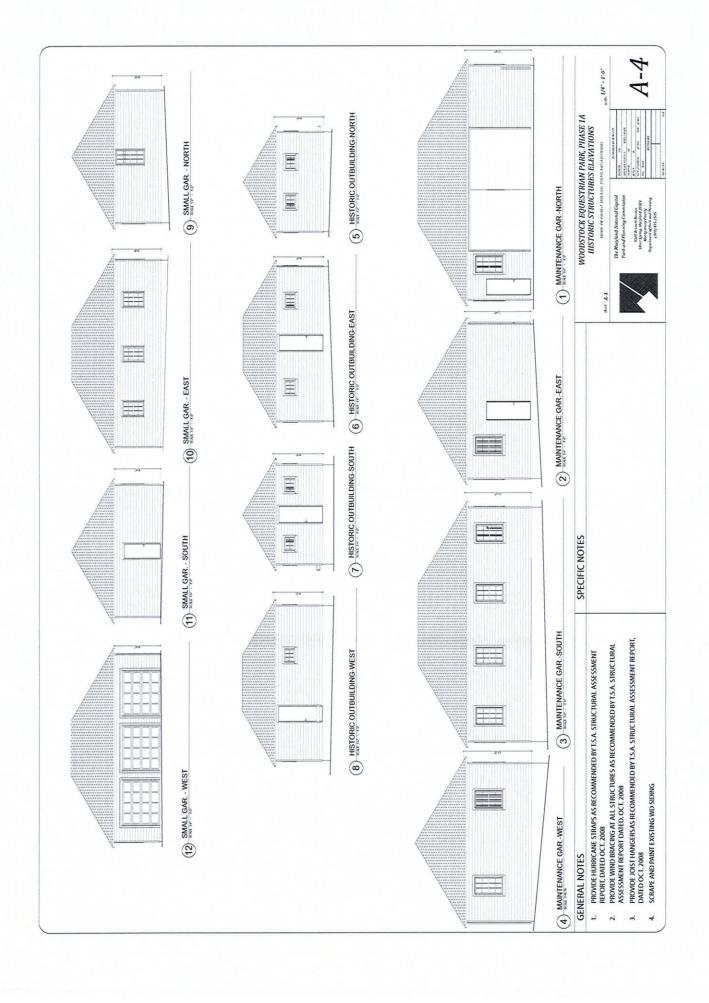
9500 BRUNETT AVENUE
SILVER SPRING, MARYLAND 20901
MONTGOMERY COUNTY
DEPARTMENT OF PARK AND PLANNING
(301) 495-2535

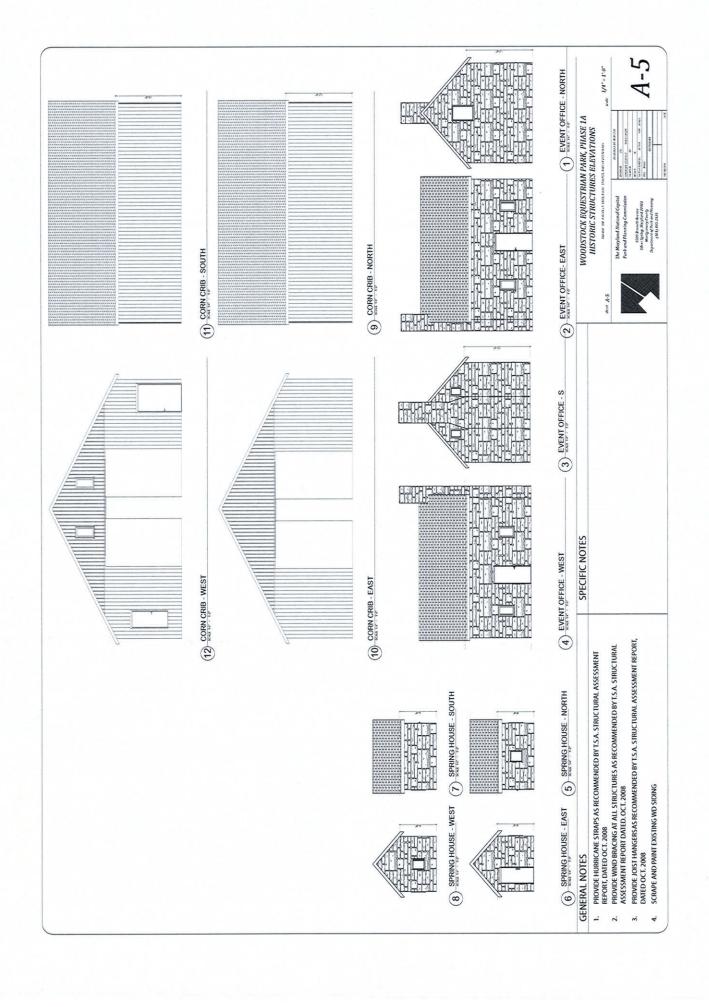


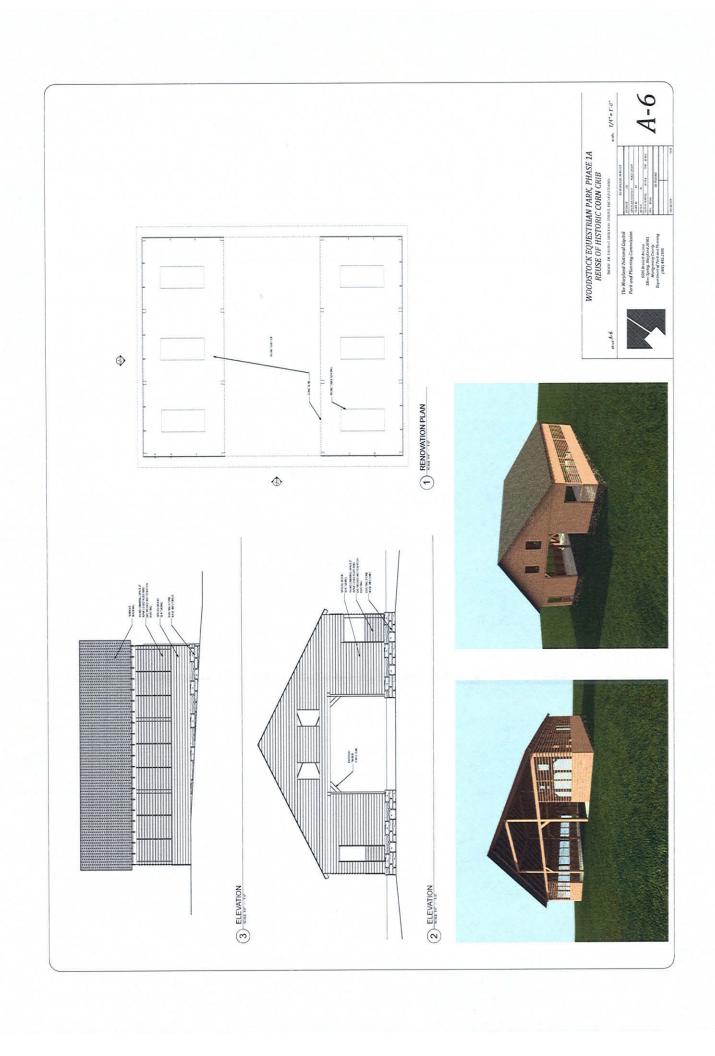


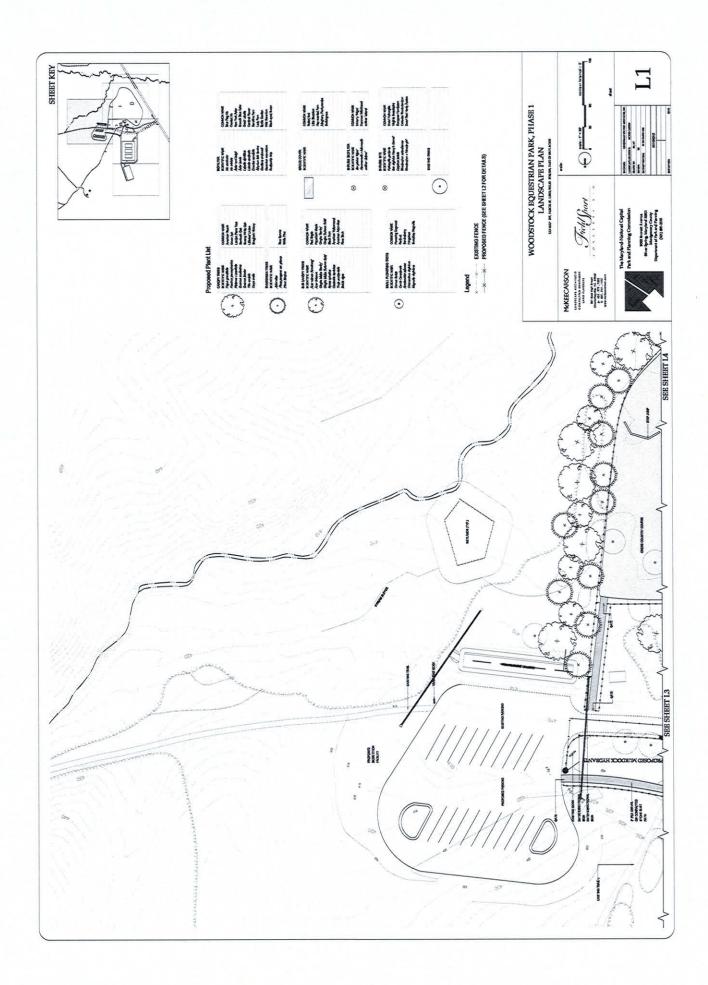


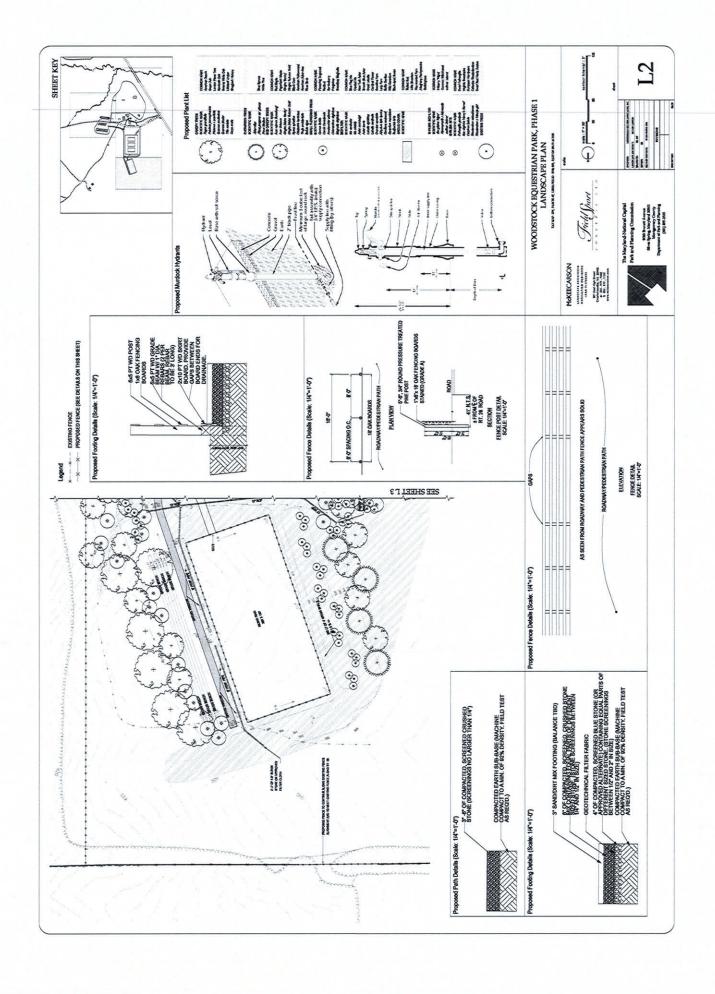


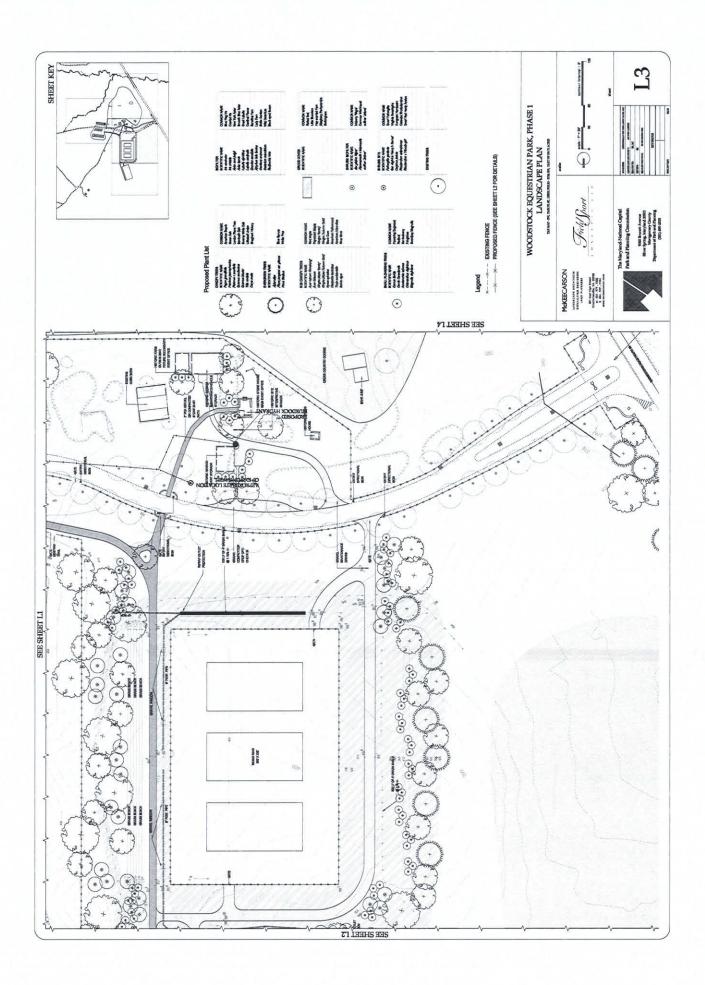


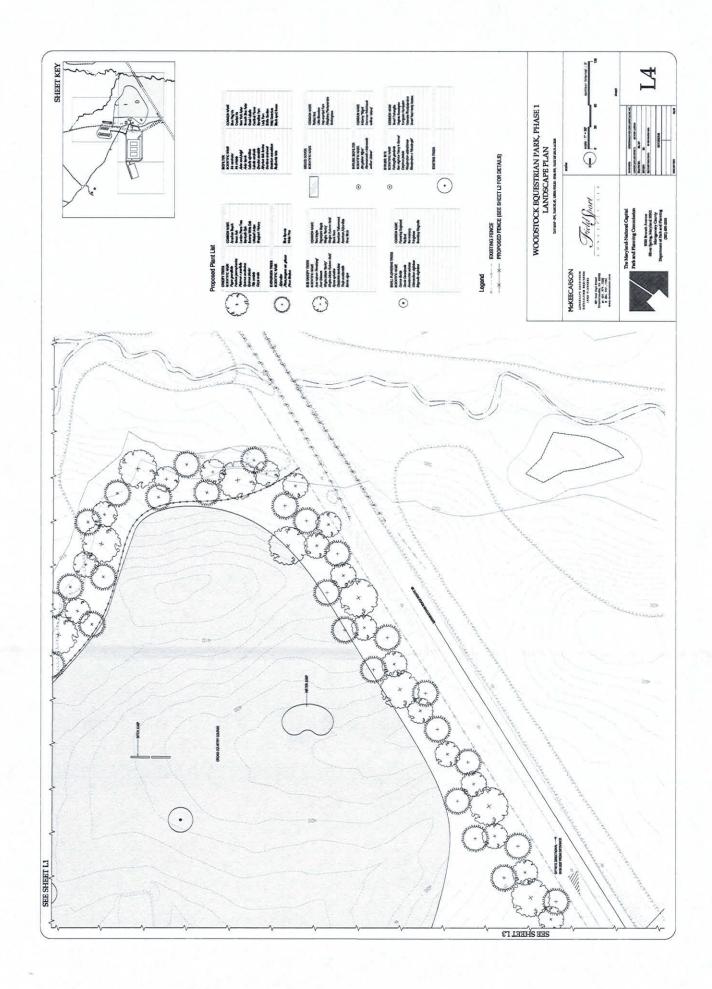


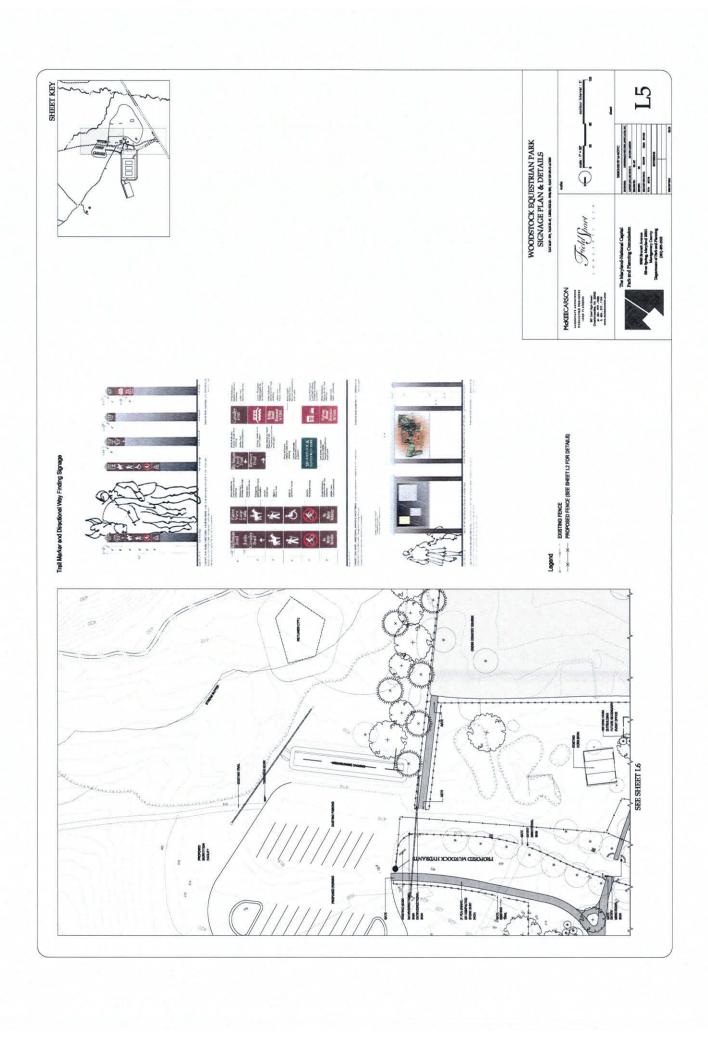


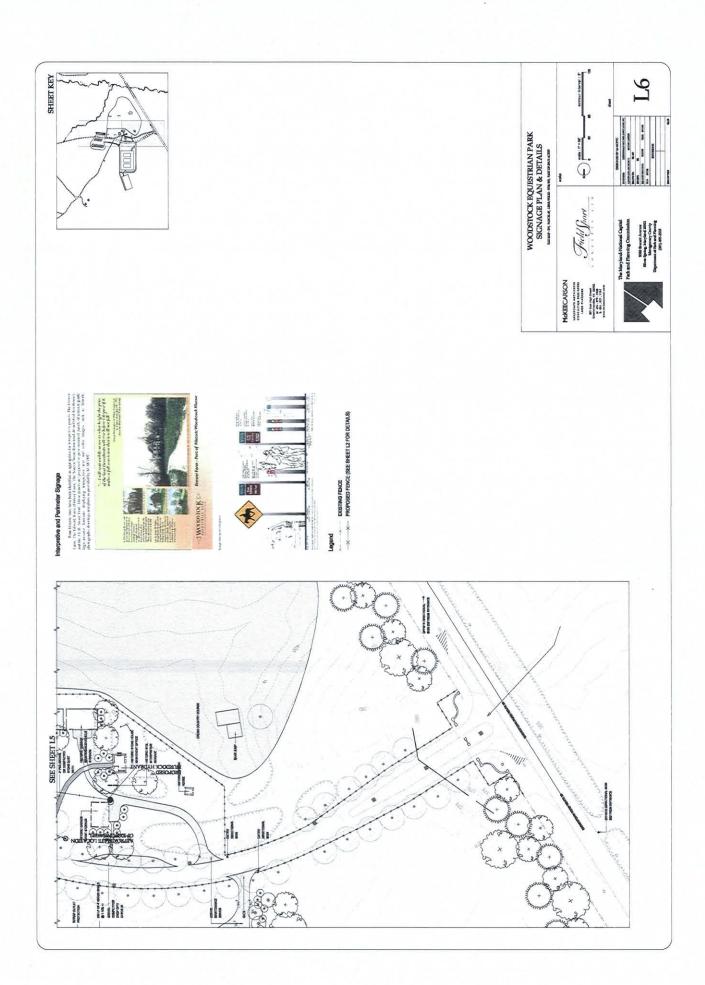












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October 24, 2008

John Blackburn Blackburn Architects 1820 N Street, N.W. Washington, DC 20036

RE: Woodstock Equestrian Park Rte. 28, Darnestown Road, Beallsville, MD Structural Assessment Report

Mr. Blackburn:

Pursuant to your notice to proceed, we visited the above referenced property on Oct. 22nd 2008, and performed a non-intrusive visual inspection of the existing buildings. The purpose of this inspection is to evaluate the structural integrity of the buildings and the framing components, and to identify any structural problems that may exist and require correction. Following is a report of our findings, opinion, and recommendations:

Background Information:

Property is located on the east side of Darnestown Road (MD Rte. 28) in Beallsville, Maryland, and within the jurisdiction of Montgomery County. The subject structures studied in this site visit are:

- 1- <u>The Historic Barn</u>: This building is composed of wood-framed structure, supported on stone foundation.
- 2- The Historic Garage Maintenance/Vehicle Storage: This is a wood-framed structure, supported on concrete foundation. This appears to be one of the older buildings in the group.
- 3- The Historic Garage Event Storage: This is also a wood-framed structure, supported on concrete foundation. This building appears to be fairly newer than the previous garage building.
- 4- <u>The Historic Farm Out-Building</u>: This is a wood-framed structure supported on concrete foundation, adjacent to the older Historic Garage.

5- <u>The Historic Stone House</u>: This is a two-story wood framed structure, possibly supported on concrete or stone foundation.

All five buildings are located in a fairly flat green area, south of the access road connecting the park to Darnestown Road. Condition of each building is discussed in detail.

Structural Inspection & Assessment:

Framing components and other structural elements of buildings were inspected during our visit, and evaluated for condition, integrity, and/or adequacy. The following are our findings and opinions:

The Historic Barn:

1- <u>Stone Foundation</u>: The stone foundation comprises of a continuous 8" to 12" wide strip on either side of the barn, with individual 20"x60" stone pier footings in 2 rows in between. There are a total of 12 individual intermediate pier footings supporting the barn structure. Examination of the stone foundation showed that the continuous strip stone foundation on the north side of the barn is in acceptable condition. We observed some mortar joints that require re-pointing. Additionally, some minor vertical cracks were noticed on the exterior face of the stone foundation, which do not impact the structural integrity of the foundation at this time. There is general deterioration in the stone units, which has occurred due to weathering and aging of stone. The depth of the foundation is not known and could not be verified.

The strip foundation on the south side is severely damaged due to the pressure imposed by an existing tree, abutting the foundation. The pressure caused by the growth of the tree, has shifted the strip stone foundation inwards, dislocating the stone units and causing misalignment and damages to the super structure. Mortar joints in this strip are deteriorated and damaged due to this movement. Complete structural rehabilitation and stabilization must be performed prior to start of work on the super-structure.

Examination of the 12 individual stone piers between the two exterior strip footings, showed that these pier footings are in generally acceptable conditions, with some signs of weathering and aging, which is acceptable when considering the age of the building. Some mortar joints require re-pointing but no structural rehabilitation is required. The depth of the pier footings could not be verified in field, but is not believed to meet the frost depth requirements in accordance with the governing local codes. All stone foundations appear to require underpinning to meet the frost depth requirements.

2- <u>Super-Structure</u>: The super-structure is comprised of wood posts supporting wood beams along the interior pier foundation grid-lines, which in turn support roof rafters. The super-structure is deteriorated entirely and is on the verge of collapsing, and therefore can not be repaired or rehabilitated. As per project documents, the super-structure will be completely demolished and re-built anew.

The Historic Garage (Maintenance/Vehicle Storage):

1-. <u>Framing Components</u>: The roof structure is composed of 2x6 rafters, spaced at approximately 24", and toe-nailed to the ridge beam and valley beams without any hangers. We recommend that new hangers be added to the connections of roof rafters and ridge/valley beams. There are 3 garage doors on the north side of the building, with double 2x12 headers, supported on 4x6 wood posts. Roof rafters are resting on the perimeter 2x4 stud walls, spaced at 24", and garage door headers.

No hurricane ties were observed at the bearing points of rafters. We recommend installation of proper hurricane ties at all roof rafters. Additionally, there are 2x10 ceiling joists, spaced at 24", nailed to roof rafters and resting on the perimeter stud walls and garage door headers in the majority of the garage area. One of the ceiling joists has an 8' longitudinal through-thickness crack, which requires repair and reinforcement. (Refer to drawing 2/S-1 for location of broken ceiling joist.)

Perimeter stud walls are in overall good condition with minor deterioration, and are resting on continuous 4x6 sill plates anchored to the foundation wall by ½" diameter anchor bolts. Continuous sill plates are in overall good condition, however; the spacing between anchors is excessive at some locations. Installation of additional intermediate anchor bolts in such areas is necessary.

Door and window openings do not have structurally adequate headers and posts, and the existing flat 2x headers do not have adequate load capacity to effectively support the loads. Installation of new headers and posts at all door and window openings is necessary.

There are corner braces in both directions to resist wind. These corner braces extend from corner posts to sill plate at approximately 45 degree angles and interrupt the wall studs. The building does not have adequate wind-resisting mechanism in accordance with the current building code; IBC-2006, and requires updating this system.

2-. <u>Concrete Foundation Walls, Garage Slab & Apron</u>: We observed two major cracks on the foundation walls, on the south side of the building (Refer to drawing 1/S-1 for location of cracks). These cracks appear to be in the range of 3/32" to 1/8", and require repair. Other parts of the concrete foundation wall appeared to be in good condition

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without any severe damages or deterioration. The depth of the concrete foundation could not be verified in field, but is believed to not extend to the frost depth, as required by the governing local codes and requires underpinning.

The concrete slab inside garage appears to be placed in two segments. One thickened slab area, which is intended to support heavier equipment. Other slab areas appeared to be of smaller thickness, intended for storage of normal weight equipment, machinery or vehicles. The thickened slab is separated from adjacent slab areas by cold joints, which have settled and caused cracks in the concrete slab. Other areas of the concrete slab also show signs of cracks. (Refer to drawing 1/S-1 for location of cracks and settled areas.)

The concrete apron along the north wall of the building is damaged, due to continuation of the cracks which have started from inside the garage and have extended to the apron. Additionally, a portion of the concrete apron on the northwest side is broken and missing.

- 3-. Non-Structural Components:

- Wood siding is deteriorated and paint is peeled and separated from wood siding in most areas. The wood siding can be re-conditioned and painted.
- II) Roof decking is in acceptable conditions. It appears that the roof sheathing plywood has been placed in recent years. Roof shingles also appear to have been replaced in recent years and are in acceptable condition.
- III) No gutters and downspouts exist around the perimeter of the building. It is recommended that new gutters and downspouts be installed to allow for proper discharge of water and avoid damp conditions in eave and wall components.

The Historic Garage (Event Storage):

1-. <u>Framing Components</u>: The roof structure is composed of 2x6 rafters, spaced at 24", and toe-nailed to the 2x8 ridge beam and 2x8 valley beams without any hangers. We recommend that new hangers be added to the connections of roof rafters and ridge/valley beams. There are no collar ties installed to enhance the structural performance of the existing roof rafters. It is recommended that new collar ties be added to the rafters for better performance.

There are 3 garage doors on the west side of the building, with double 2x12 headers, supported on 4x6 wood posts. Roof rafters are resting on the perimeter 2x4@24" on center stud walls and garage door headers. (Refer to drawing 3/S-2).

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No hurricane ties were observed at the bearing points of rafters. We recommend installation of proper hurricane ties at all roof rafters. Additionally, there are 2x6@24" oc ceiling joists, nailed to roof rafters and sitting on the perimeter stud walls and garage door headers in the majority of the garage area. (Refer to drawing 2/S-2 for location of ceiling joists).

Perimeter stud walls are in overall good condition with some minor deterioration. Wall studs rest on continuous 4x6 sill plates, anchored to the foundation wall by ½" diameter anchor bolts. Continuous sill plates are in overall good condition, however; the spacing between anchors is excessive in some locations. Installation of additional intermediate anchor bolts in such areas is necessary.

Door and window openings do not have structurally adequate headers and posts, and the existing flat 2x headers do not have adequate load capacity to effectively support the loads. Installation of new headers and posts at all door and window openings is necessary.

The wind-resisting system for the building does not conform to the current code requirements and standards, and requires updating in accordance with IBC-2006.

2-. <u>Concrete Foundation Walls, Garage Slab & Apron</u>: The concrete foundation walls appeared to be in good conditions without any cracks, damages or deteriorations. The concrete slab inside garage is also in acceptable conditions, however; due to presence of excessive amounts of debris inside garage, a thorough visual inspection of the concrete slab was not possible.

The concrete apron along the west wall of the building is damaged, due to the pressure imposed by an existing tree, at the northwest corner of the building. We believe continued pressure from this tree will impose more damage to the structure in future, especially to the adjacent foundation walls and concrete slab.

3-. Non-Structural Components:

- I) Wood siding is in overall good condition and new paint can increase its life.
- Roof decking material appeared to be in good conditions. Roof plywood and shingles also appeared to be in acceptable conditions without severe damages or deteriorations.
- III) Gutters are present around the building, and are clogged and need cleaning. We did not observe any downspouts, and recommend installation of new ones to direct the rain water properly.

- IV)..... We observed signs of termite inside the garage, but the extent of damage could not be determined. We recommend utilizing professional services to study this issue and determine required actions.
- V)..... Two of the garage doors are broken and need repair/replacement.

The Historic Farm Outbuilding:

1- Framing Components: The roof structure is composed of 2x4@24" on center rafters, toenailed to the 2x6 ridge beam and 2x6 valley beams without any hangers. We recommend that new hangers be added to the connections of roof rafters and ridge/valley beams. There are no collar ties installed to enhance the structural performance of the existing roof rafters. It is recommended that new collar ties be added to the rafters for better performance. We noticed minor warping and moisture damage in roof rafters.

Perimeter stud walls are in overall good conditions with some deterioration, such as minor cracks at bottom, where they are toe-nailed to the continuous sill plate. Nails used to connect the studs to the continuous sill plate are rusted due to moisture. The sill plates are anchored to the foundation wall by ½" diameter anchor bolts. Continuous sill plates are in overall good condition, however; the spacing between anchors is excessive in some locations. Installation of additional intermediate anchor bolts in such areas is necessary.

Door and window openings do not have structurally adequate headers and posts, and the existing flat 2x headers do not have adequate load capacity to effectively support the loads. Installation of new headers and posts at all door and window openings is necessary.

The wind-resisting system for the building does not conform to the current code requirements and standards, and requires updating in accordance with IBC-2006.

No hurricane ties were observed at the bearing points of rafters. We recommend installation of proper hurricane ties at all roof rafters to comply with current code. There are also three 2x6 ceiling joists which appear to be in acceptable conditions. Installation of additional collar-ties is also recommended.

2-. <u>Concrete Foundation Walls, Garage Slab</u>: The concrete foundation walls appeared to be in good conditions except for one location where a 3/16" wide vertical crack was observed on the foundation wall. We recommend repairing the crack with method of epoxy injection. Additionally, a concrete step at the side entrance door has settled and is separated from the foundation wall. The concrete slab inside the building is also in acceptable conditions.

3- . Non-Structural Components:

- Wood siding is severely deteriorated, and there are signs of water damage. Siding requires major repair and reconditioning or replacement.
- II) Roof decking material appeared to be in good conditions. It appears that new plywood has been installed in recent years. Roof shingles also appeared to be in acceptable conditions without severe damages or deteriorations, however; they're approaching the end of their efficient life and might need replacement in the coming years.
- III) Gutters are present around the building, and are clogged and need cleaning and repair. We did not observe any downspouts, and recommend installation of new ones to direct the rain water properly.

The Historic Stone House:

1-. <u>Framing Components</u>: This building is a two story structure with wood roof and floor members, supported on stone walls at perimeter. Roof is composed of 2x6@24" on center rafters, with 2x6 collar-ties toe-nailed to the ridge beam without any hangers. We recommend that new hangers be added to the connections of roof rafters and ridge beam. The interior surfaces are covered with plaster, and due to limited visibility, conditions of roof rafters and collar ties could not be thoroughly determined. They are believed to be in acceptable condition with some moisture and age related deteriorations.

Upper floor framing system is composed of 4" diameter tip and 8" diameter butt timber joists, shaved flat at top for support of floor decking. Timber joists are supported by the stone wall at perimeter of the building, and appear to be in good condition without any noticeable damages, cracks or deterioration.

- 2-. <u>Stone Walls</u>: The perimeter stone walls appeared to 16" thick, with signs of weathering. Some mortar joints are deteriorated and require re-pointing. The stone walls appear plumb and structurally adequate.
- 3- . <u>Foundation & Concrete slab</u>: The foundation of this building was not visible from inside and out, and therefore we could not determine its material and conditions. Based on the overall conditions of this building, we believe the existing foundation should be in acceptable conditions. We also could not determine the conditions of the interior concrete slab due to presence of vinyl flooring.

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4-. Non-Structural Components:

- Gutters are present around the building, and are clogged and need cleaning. We
 did not observe any downspouts, and recommend installation of new ones to
 direct the rain water properly.
- II) Upper floor decking appears to be 2-1/2"x3/4" T&G hardwood decking which appeared to be in good conditions.

Conclusion:

Based on the results of the inspection and analysis of the information gathered, it is our opinion that the majority of buildings, except for the historic barn, are in structurally acceptable condition and no major repair/reinforcement work is required. Most deficiencies noticed include absence of hangers at connections of roof rafters to ridge and valley beams, absence of hurricane ties where roof rafters are resting on perimeter stud walls, and absence of structurally adequate headers at door and window openings. Correction of these deficiencies is not considered to be material or labor intensive.

Additionally, in order to bring all buildings up to the current requirements of governing building codes, proper wind-bracing systems must be installed. Wind-bracing systems are designed to withstand lateral pressure imposed on buildings due to wind or hurricane loads and are required by almost all current building codes.

We hope that this report provides you with adequate information for planning the renovation of the subject buildings. Thank you for the opportunity to be of service, and if you have any questions about the contents of this report, please do not hesitate to call me.

Truly yours.

Alireza Shahbaz,

Principal