Blue Ball Properties Master Plan

FEASIBILITY STUDY FOR THE STABILIZATION OF HISTORIC STRUCTURES

prepared for

Wallace Roberts & Todd

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by

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The George Murphy House

CHAPTER TWO

THE GEORGE MURPHY HOUSE

2.1 HISTORICAL OVERVIEW AND SIGNIFICANCE:

The George Murphy House is a small, Greek Revival-style farmhouse located at the northeast corner of Rockland Road and Old Murphy Road. The house was originally constructed in the 1840s by George Murphy for his father William, who lived in the house until his death in 1870. After his father's death, George Murphy rented the farmhouse to tenants and eventually the property was sold to the DuPont family in 1889. The Murphy House was remodeled several times during the latter half of the nineteenth century, and currently stands (Figures 1-3) as a rectangular stone farmhouse with a rear wood-frame ell addition and wraparound porch (Walker, J., L. DeLeonardis, and Gardner, W.M. 1997:11-12).

The significance of the George Murphy House is three-fold. First, the house is one of only a handful of nineteenth-century farmhouses that survives in the area. Second, the house is a relatively intact example of vernacular Greek Revival architecture in New Castle County, and exhibits the methodology of adding to buildings during the nineteenth century. Third, the history of the George Murphy House, now listed in the Nemours Historic District, is tied to the agricultural traditions of the region, and the specific history of Alfred I. DuPont's estate Nemours, where it once served as employee housing for the DuPonts (Walker Walker, J., L. DeLeonardis, and Gardner, W.M 1997:1).

2.2 CONDITIONS ASSESSMENT AND RECOMMENDATIONS:

A. General Building Description:

The George Murphy House consists of a two-and-one-half story, three-bay, gable-roofed stone house with a two-and-one-half story, two-bay, gable-roofed, rear frame addition. The stone portion of the house has a small wood entrance porch (Figures 3 & 4). The rear addition has a large, wraparound wood porch (Figures 5 & 6). The house was constructed in the Greek Revival style and displays Greek Revival proportions, features, and finishes.

B. Exterior Walls and Foundations:

The Murphy House has a rubblestone foundation. The walls of the original, front section of the house are load bearing and also constructed of rubblestone coated with an exterior finish of smooth, pink stucco. The rear wing is coated in pink stucco to match that of the original section of the building, but is of wood-frame construction. The stucco is in good-to-fair condition. The house has lost approximately 10-15% of the outer pink stucco layer, leaving the lower, brown scratch coat visible, but the building's wood and stone load-bearing walls are still protected from the elements. While it would be desirable to patch the sections of missing stucco with new stucco to match the existing, this is not required for stabilization purposes.

The stone section of the house has a small, wood entrance porch with a gabled roof, supported at the corners by chamfered wood columns (Figure 7). A wood lattice encloses the east and west sides of the porch. Two wood benches are set against the inside face of each lattice panel. The wood elements of the entrance porch have suffered over the years from water damage and lack of maintenance. Paint is peeling off of the wood lattice and benches, and the lattice is beginning to warp. The porch floorboards and soffit have lost their protective paint covering as well, and have begun to decay. The damage to the floorboards is most evident at the base of the east porch downspout that terminates approximately ten inches above grade (Figure 8). It is recommended that the existing downspout be extended down to grade to conduct water away from the porch and building foundations. It is also recommended that the soffit and fascia be repaired and painted to prevent damage to the porch roof framing.

The one-story, wood porch that wraps around the frame section of the house has a hipped roof supported by seven chamfered wood columns (Figure 9). Like the front entrance porch, the wraparound rear porch shows moderate water damage including peeling paint, warped ceiling boards, and stained wood framing members. There also appears to be evidence of termite damage to the wood joists that frame the porch roof. The ends of several of the porch rafters have been sistered in recent years and appear to be structurally sound, as do the porch columns (Figure 10). The existing roof and downspout/gutter system on the porch should help to protect it from further damage.

Recommendations:

Level One – Imperative:

- Repair soffit of wood front entrance porch and repaint. Assume soffit is 26' x 8" high.
- 2. Repaint floorboards of front entrance porch. Assume 169 sf to be painted.
- 3. Extend existing downspout at front entrance porch approximately 12" to grade.
- 4. Have the building examined by a certified company for signs of active insect infestation, and take necessary steps if evidence is found.

Level Two - Desirable:

1. Patch existing stucco with new stucco to match existing. Assume 250 sf to be patched.

C. Roof Structure and Drainage:

The stone and wood frame sections of the house share a new asphalt-shingled roof and new aluminum gutters and downspouts (Figures 5 & 11). The two porches also have new asphalt-shingled roofs and gutters. All of the roofs and gutters on the building are in excellent condition. The replacement of the old wood-shingle roofs on the building with new asphalt shingle roofs, new flashing, and new gutters have helped to effectively stabilize the building. While puddles of water were found on all levels of the house, very little of this water appears to have entered the structure through the roof. Only one minor roof leak was detected in the attic (Figure 12) below a valley where the roof of the frame

section of the house met the roof of the stone portion of the building. The flashing in this section of the roof should be checked and repaired as required. To ensure that the roof continues to function effectively, it is recommended that the house's gutters be periodically cleared of debris and checked to ensure that they are performing as designed and draining water away from the eaves and foundations of the structure.

Recommendations:

Level One - Imperative:

 Examine roof at valley above attic leak. Repair flashing and shingles as required.

D. Exterior Openings, Windows, and Doors:

The windows on the Murphy House are, for the most part, single windows with wood six-over-six, double-hung sashes, although some of the gable windows are four-pane casements, and the basement windows are single-sash casements. Originally, wood shutters framed all of the windows on the house. These have been removed in recent years and stored in the house's cellar, although the shutter hardware remains visible on the exterior of the building. The window openings on the house have been appropriately stabilized. They have been boarded up on their exteriors with vented plywood panels (Figure 13), and on their interiors with wooden braces (Figure 14). The panels are held in place by a series of metal bolts that anchor the exterior panels to the interior braces, but which do not disturb the existing historic building fabric. The two existing door openings on the Murphy House have been stabilized with bolted wood infill panels in a similar fashion to the windows.

Most of the existing window sashes have been removed from the structure. The sashes that remain and the historic jambs that are all still intact appear to be in fair condition and will not further deteriorate as they are now protected from the weather. The plywood panels that shield the window openings are in fair-to-poor condition. They appear to have been cut from standard rather than marine-grade plywood and are not holding up well to the effects of the weather. They are delaminating, warping and even slipping out of position (Figure 15). Also, some of the plastic vents in the panels are losing their louvers and are in need of replacement (Figure 16). Most critical, however, is the fact that water appears to be blowing into the building through the louvered openings. Water has soaked the floors of several rooms in the house (Figures 1, 2 & 17), and has caused floorboards to warp and mold to grow. Since wet wood floors and floor joists create an attractive environment for termites and carpenter ants, these wood elements should not be allowed to remain damp. It is recommended that the existing plywood panels be replaced with vented, painted, marine-grade plywood panels. It is also recommended that metal hoods be placed above the existing vents to help prevent further water from entering the building.

Recommendations:

Level One - Imperative:

1. Replace existing plywood window and door panels with vented, painted, marine-grade plywood panels. Assume 18 windows at 30" x 48", 8 windows at 24" x 24," and three doors at 34" x 84". Install metal vent covers over panel vents.

E. Masonry Chimneys:

There are three masonry chimneys projecting through the roof of the Murphy House. While the chimneys appear to have been recently flashed, water infiltration and damage at the attic level suggests that more work is required to make these structures watertight. Spalled brick and stucco and puddles of water can be found at the base of the chimneys (Figure 18). The face of one chimney was also wet, as was the ceiling around it. To prevent further water damage to the Murphy House by way of the chimneys, it is recommended that all three chimneys be capped and repointed. The flashing at the bases of the chimneys should be checked and, if necessary, replaced.

Recommendations:

Level One - Imperative:

- 1. Cap three masonry chimneys. Assume each chimney is approximately 24" x 30" x 36" high.
- 2. Repoint same three chimneys.
- 3. Repair base flashing at same three chimneys.

F. Interior Building Fabric:

The interior finishes of the Murphy House are in fair to poor condition. Most of the visible damage to the building's interior can be attributed to past and present water infiltration. Paint is peeling from all surfaces including walls, ceilings, and window and door trim. Sections of plaster ceiling and ceiling lath have collapsed (Figure 19). The floors in the attic and many of the rooms on the first and second floors were wet at the time that the survey was conducted. The basement contained eleven inches of standing water (Figure 20). While it is not necessary to perform any repairs to the interior building finishes as part of the stabilization effort, steps should be taken to prevent further water damage. As discussed above, the roof should be checked above the area where water was entering the attic, repairs should be made to the masonry chimneys, and vents should be installed over the louvers in the plywood window panels. It is also recommended that a sump pump be installed in the basement complete with a water alarm that would inform the building's owners should the sump pump fail.

The wood interior framing of the Murphy House is in poor condition and exhibits signs of extensive deterioration due to water damage and termite activity. Signs of termite infestation can be traced from the basement framing to the valley beams at attic level. Without removing the plaster finishes within the structure, it is difficult to determine the extent of the damage at the attic- and second-floor

levels. However, it was determined that 90% of the first-floor joist bearings are deteriorated, five of the timber lintels that support the first and second-floor framing are severely deteriorated, and several of the second floor joist bearings and at least one window lintel were deteriorated. It is estimated that as much as half of the concealed wood framing members may be severely damaged. (See Appendix A, Structural Consultant's Report.)

It is recommended that the Murphy House be inspected by a certified company for signs of current insect infestation as part of the stabilization effort. If any signs are found, the building should be properly treated. While it is not necessary to replace the structure's framing at this time as part of the stabilization effort, the house should be sealed after it is treated for termites. No one should be permitted inside the building until its framing is fully assessed and, if necessary, replaced and made structurally sound.

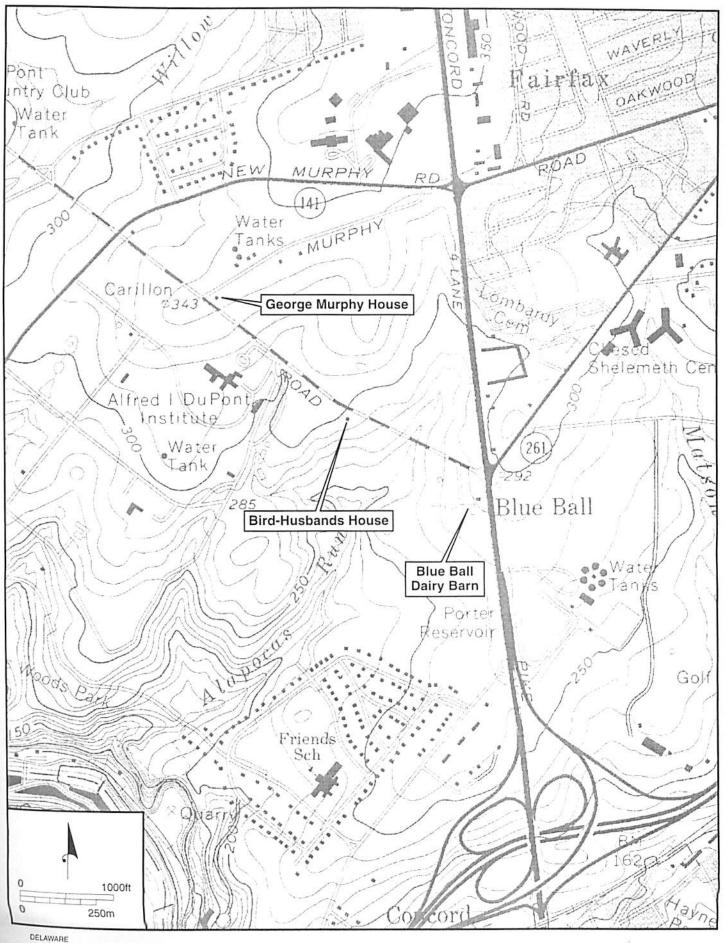
Recommendations:

Level One – Imperative:

- 1. Install sump pump at basement level complete with remote-dial water-sensing alarm.
- 2. Have the building examined by a certified company for signs of active insect infestation and take necessary steps if evidence is found.

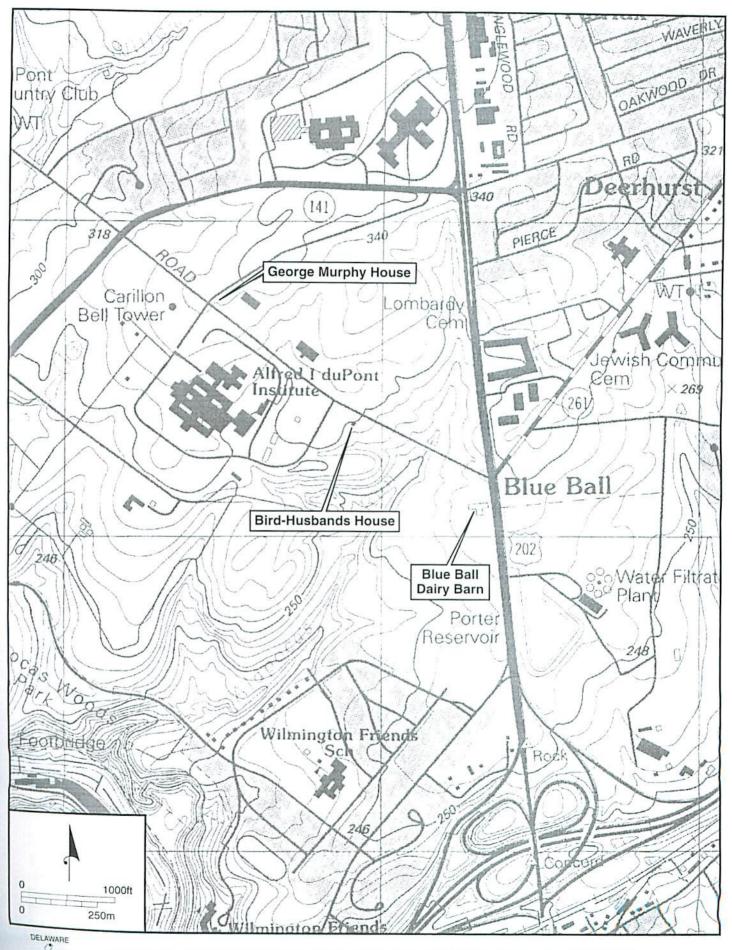
Level Two- Desirable:

- 1. Remove and salvage first-floor flooring. Replace deteriorated first-floor wood joists. Reinstall flooring. Assume 1,000 sf.
- 2. Remove and replace deteriorated wood lintels. Assume five 3" x 7 ½" lintels at 21 If ea.
- 3. Remove and salvage second-floor framing. Replace deteriorated second-floor wood joists. Reinstall flooring. Assume 1,000 sf.



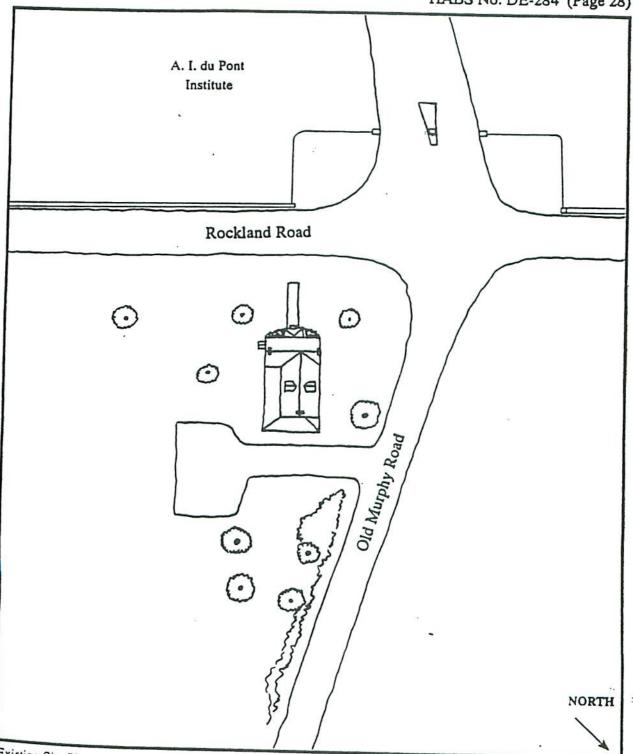
Site Plan 1. Detail of Wilmington North, DEL.-PA. (USGS 7.5-minute series quadrangle 1967, photorevised 1973), showing the locations of the Blue Ball Dairy Barn, the George Murphy House and the Bird-Husbands House.

Quadrangle Location



Site Plan 2. Detail of *Wilmington North, DEL.-PA*. (USGS 7.5-minute series quadrangle 1993), showing the locations of the Blue Ball Dairy Barn, the George Murphy House and the Bird-Husbands House.

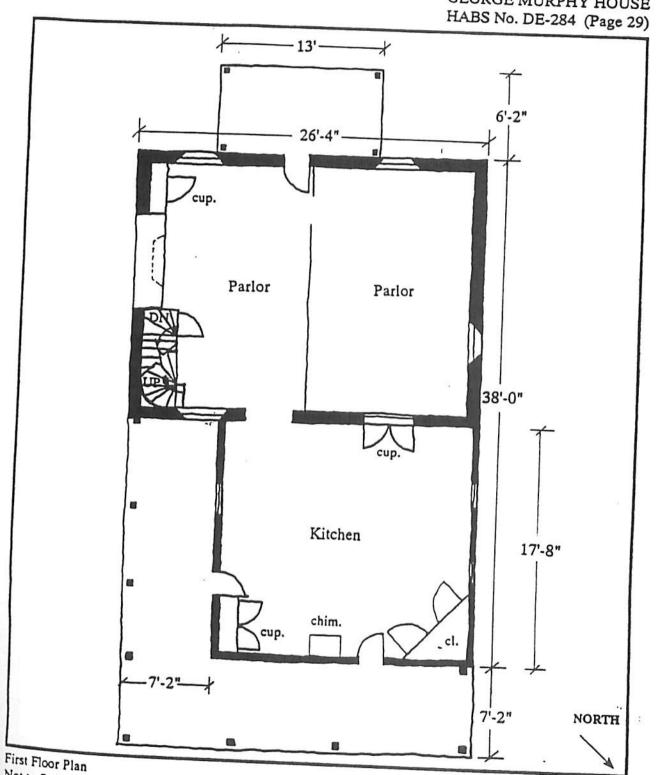
Quadrangle Location



Existing Site Plan Not to Scale Date Drawn: 1993 Prepared By: Jill Cremer

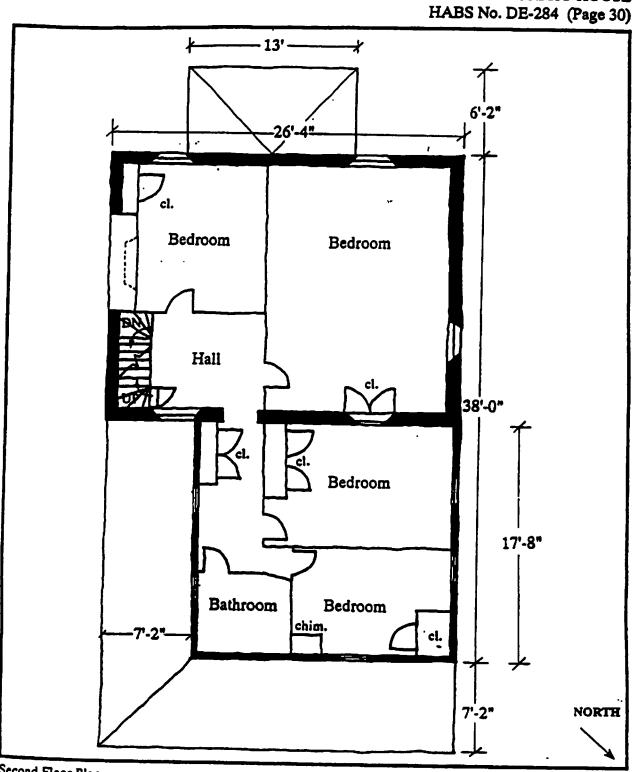
Source: Delaware Department of Transportation Concept Improvement Plan, Contract No. 84-106-01, 1992.

Site Plan 3. Site plan of the George Murphy House (Walker, DeLeonardis & Gardner 1997).



Not to Scale Date Drawn: 1993 Prepared By: Jill Cremer Source: Physical inspection

Figure 1. First-floor plan of the George Murphy House (Walker, DeLeonardis & Gardner 1997).



Second Floor Plan Not to Scale Date Drawn: 1993 Prepared By: Jill Cremer Source: Physical inspection

Figure 2. Second-floor plan of the George Murphy House (Walker, DeLeonardis & Gardner 1997).



Figure 3. South elevation, the George Murphy House. View of the original stone portion of the structure.



Figure 4. East elevation, the George Murphy House. View of the original stone portion of the structure and the frame addition with its wraparound wood porch.



Figure 5 West elevation, the George Murphy House. The stone portion of the structure is to the right of the photograph, the frame ell is to the left.



Figure 6. West elevation, the George Murphy House. The frame addition to the house is in the foreground.



Figure 7. View of the wood entrance porch to the Murphy House looking north.

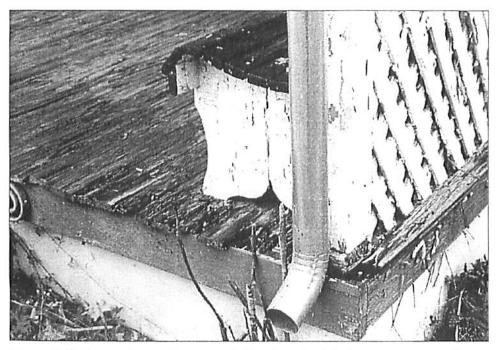


Figure 8. Evidence of water damage to the floorboards of the front entrance porch.

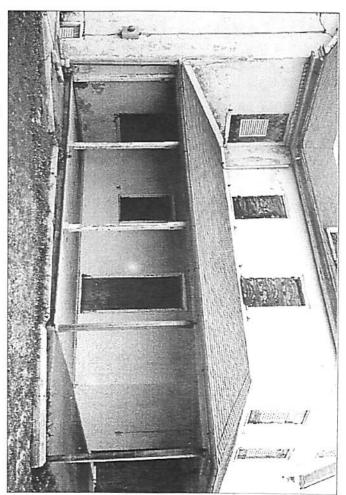


Figure 9. View of the wraparound wood entrance porch on the east elevation of the house.

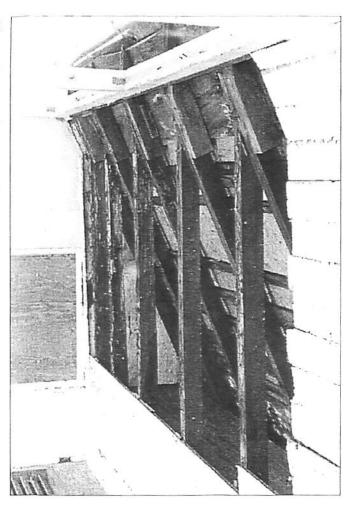


Figure 10. View of the underside of the ceiling of the wraparound porch. Note the sistered porch roof rafters and the insect damage on the roof joists.



Figure 11. View of the new asphalt-shingle roof and new gutters.

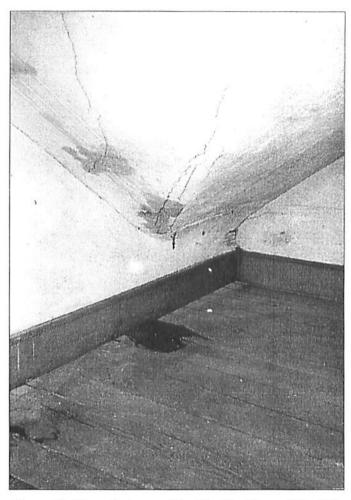


Figure 12. View of minor roof leak in attic. The roof should be examined above this leak and repaired.



Figure 13. The window and door openings on the Murphy House were sheathed with vented plywood panels. This was an appropriate stabilization procedure.

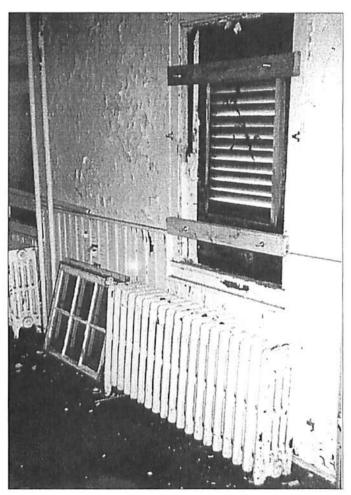


Figure 14. Pairs of metal bolts and wood 2 x 4s on the interior of the house hold the exterior plywood window panels in place.

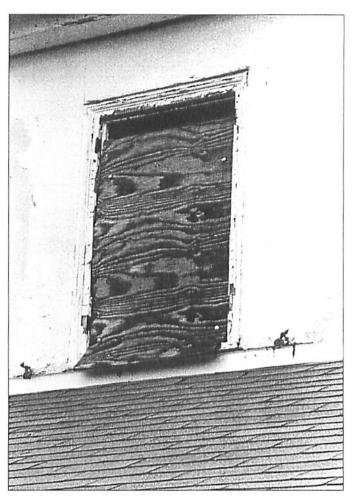


Figure 15. View of a plywood window panel that has warped and slipped. The existing panels should be replaced with painted, marine-grade plywood panels if the building is to remain vacant for an extended period of time.



Figure 16. View of a broken louver on one of the plywood window panels. Replace plywood panels.



Figure 17. Water has infiltrated the interior of the building through the window louvers and wet the existing carpeting and flooring. Damp wood is appealing to insects and should be avoided.



Figure 18. View of a chimney base at the attic level. The chimneys on the house should be capped and repointed and their flashing checked to prevent further water from entering the building through them.



Figure 19: Water damage has caused sections of ceiling plaster and lath to collapse.



Figure 20. At the time of the survey, there was eleven inches of standing water in the basement. A sump pump and alarm system should be installed in the basement to prevent further water damage to the structure.



April 14, 2000

Philip E. Yocum, AIA John Milner Associates, Inc. The Barclay 535 North Church Street West Chester, PA 19380-2397

WO 2442 GEORGE MURPHY HOUSE BLUE BALL PROPERTIES ROCKLAND ROAD WILMINGTON, DE

Phil

In accordance with our proposal dated September 18, 1999 and your verbal authorization to proceed, we have completed our review of the George Murphy House. Our findings are based on the historical documentation you have provided and our observations in the field. The extent of our observations was limited to those areas where finishes had been previously removed. The recommendations of this report are directed toward stabilizing those structural elements that exhibit signs of deterioration, distress and misalignment. We understand that future studies will address issues relating to preservation and restoration once the finishes have been removed.

The George Murphy House is a residential structure, facing west, consisting of two blocks: The house originally constructed circa 1840 and currently stands as a rectangular stone farmhouse (west) measuring 26' (north-south) by 20' (east-west). At the rear of the stone section is a two story timber frame addition measuring 19' (north-south) and 18' (east-west). A 7' wide timber frame porch with shed roof extends from the rear addition on the south and east elevations. The entire house is constructed over a basement.

We visited the building on the morning of April12, 2000. The purpose of the visit was to review the structural condition of the building. The review consisted of visual observations and selective probing of those portions of the structure which were safely accessible without staging or removal of building finishes. Based on our observations, we offer the following findings and recommendations (italicized) for stabilization and repair:

The western block of the house rises above the basement on 18" thick rubblestone
masonry walls which are finished with a cementitious parge coating. The walls
appear to be in good structural condition.

- 2. The first floor in the western stone block is framed with 2-½" x 9-½" sawn lumber, spanning east-west, set at 20" centers. In the timber frame addition, the floor is framed with a combination of 8" tree joists and 3" x 7-½" sawn members spanning north-south and bearing on the stone masonry walls. Although the sectional properties of these joists meet the minimum recommendations of the building code for residential use (40 psf), the bearings are rotten in 90% of the members. Carefully remove the first floor decking for reuse. Remove and replace the first floor framing with members of size and section required to meet the programmed use selected for the building.
- 3. In addition to the rot in the bearings of the timber joists, several of the timber lintels were observed to be rotten.

 Remove and replace 5 timber lintels that support first and second floor framing.
- 4. The second floor of the structure is framed in a similar manner to the first floor with the strength of the members meeting and exceeding the minimum requirements of the code 30 psf in the stone block and 50 psf in the rear frame addition.
- 5. The rot has been caused by a combination of moisture and termite activity. Although we are unable to determine whether the termites are active, infestation has adversely affected the structure of the timber framing from the basement and extending to the attic where termite tracks can be seen on the valley beam at the southeast corner of the stone block. Without uncovering, we are unable to determine the extent of the activity. However, some of the second floor joist bearings and the lintel above the window next to the stairway are completely deteriorated. It appears that vertical access was achieved by the termites through the stone since no deterioration can be seen in the wall framing of the rear addition.

We are unable to determine the extent of the damage in the second floor and attic joists as well as the timber wall framing without having the finishes removed. However, for purposes of establishing cost for this feasibility study, we estimate that approximately half the framing at these levels requires replacement. Actual conditions can be determined once finishes are removed.

Once you have had the opportunity to review this information, please call in order that we might discuss how you plan to proceed with review and documentation of those portions of the structure which are presently concealed by plaster finishes.

GREDELL & ASSOCIATES

Gary W. Gredell, P.E.

BLUE BAL	NER ASSOCIATES, INC LL PROPERTIES MASTER PLAN ATION OF HISTORIC STRUCTURES ON, DELAWARE - ORDER OF MAGNITUDE COST ESTIMATE					ICI #: Prep: Date: Page:	,99798 mcf 4/24/00 3
Account	Description		Quantity	Unit	1	Unit Cost	 Amount
1.0	THE BLUE BALL DAIRY BARN continued)						
1.2.F	The Milk House						
2 3 4 5 6	Level One - Imperative: - Dismantle/Reconstruct TC & Stucco Walls - Remove Slate Roof - Replace Sheathing & Install New Slate Shingles - Replace 2x12 Rafters - Replace Fascia - Install L.C. St. Stl. Gutters/Downspouts		500 1,200 1,200 10 100 140	SF SF EA LF LF	\$	32.50 1.63 14.30 325.00 22.75 14.95	\$ 16,250 1,950 17,160 3,250 2,275 2,093
7	- Install Vented Plywood Infill @ Openings	Subtotal	15	EA		260.00	\$ 3,900 46,878
1	The Rear Wing Level One - Imperative: - Document Structure - Demolish Rear Wing	Subtotal	1 1,476	LS SF	\$	1,300.00 7.80	\$ 1,300 11,513 12,813
	The Courtyard Walls Level One - Imperative: - Install Plywood Cap @ Wall	Subtotal	190	LF	\$	16.25	\$ 3,088
2	Level Two - Desirable - Install Concrete Cap @ Wall - Repoint Masonry & Replace Deteriorated Stucco - Rebuild Misaligned Section of Wall	Subtotal	190 1,000 150	SF	\$	52.00 19.50 39.00	\$ 9,880 19,500 5,850 35,230
	TOTAL - THE BLUE BALL DAIRY BARN						\$ 395,325
2.0 2.2 B	THE GEORGE MURPHY HOUSE Exterior Walls & Foundations						
1 2 3	Level One - Imperative: - Repair Soffit @ Front Entry - Repaint Floor Boards @ Porch - Extend Downspout - Examine Building for Insect Infestation	Subtotal	169 1	LF SF LS LS	\$	32.50 1.95 195.00 975.00	\$ 845 330 195 975 2,345
1	Level Two - Desirable - Patch Stucco	Subtotal	250	SF	\$	13.00	\$ 3,250 3,250

JOHN MILNER ASSOCIATES, INC BLUE BALL PROPERTIES MASTER PLAN STABILIZATION OF HISTORIC STRUCTURES WILMINGTON, DELAWARE DETAILS - ORDER OF MAGNITUDE COST ESTIMATE					ICI #: Prep: Date: Page:	,99798 mcf 4/24/00 4		
Account	Description		Quantity	Unit	Unit Cost		Amount	
2.0	THE GEORGE MURPHY HOUSE (continued)	The second secon						
	Roof Structure and Drainage Level One - Imperative: - Repair Flashing @ Valley	Subtotal	1	LS	\$	1,560.00	\$	1,560 1,560
	Exterior Openings, Windows and Doors Level One - Imperative: - Install Vented Plywood Infill @ Openings		21	EA	\$	260.00	<u>\$</u>	5,460 5.460
1 2	Masonry Chimney Level One - Imperative: - New Cap @ Chimney - Repoint Chimney - Repair Flashing @ Chimney	Subtotal	3 3 3	EA EA EA	\$	975.00 845.00 487.50	\$	2,925 2,535 1,463 6,923
1	Interior Building Fabric Level One - Imperative: - Install Sump Pump & Alarm in Basement - Examine Building for Insect Infestation	Subtotal	ĭ	LS	\$	1,950.00 See Exterior \	\$ Wa <u>ll/Fo</u> \$	1,950 undations 1,950
2	Level Two - Desirable - Rem. 1st Fl. Flooring, Replace Framing, Install F - Remove/Replace Lintels - Rem. 2nd Fl. Flooring, Replace Framing, Install I		1,000 5 1,000	EA	\$	22.75 2,437.50 22.75	\$	22,750 12,188 22,750 57,688 79,175
1 2 3	THE BIRD - HUSBANDS HOUSE Exterior Walls & Foundations Level One - Imperative: - Remove Vines - Clear Vegetation Within 20' - Patch Clapboard - Scrape/Paint Exterior Woodwork		250 1 25 3,200	LS SF	\$	2.60 6,500.00 39.00 2.28	\$	650 6,500 975 7,280
3.2.C	Roof Structure and Drainage Level One - Imperative: - Repair/Replace Soffit - Install L.C. St. Stl. Gutters/Downspouts	Subtotal Subtotal	160 272	LF	\$	32.50 14.95	\$ \$	5,200 4,066 9,266

Newspaper Articles

1999

[all articles by Dawn Ang]

7 September

Blue Ball planners seek community input: Firm assembles team of specialists to address various facets of project. News Journal (Wilmington).

14 October

Blue Ball plans get scrutiny: Residents look at variety of options. News Journal (Wilmington).

17 October

Pink, stucco house [Murphy House] may have a future. {Helping Hand} News Journal (Wilmington).

4 November

Panel wants U.S. 202 site to be open space: reservoir also is an option for land acquired in the AstraZeneca deal. *News Journal* (Wilmington).

5 November

New site for proposed library considered: Resident says his lawsuit was not the reason for the decision. News Journal (Wilmington).

28 December

Deadline near on Blue Ball: Working committees meet one more time. News Journal (Wilmington).

2000

6 January

Survey results to be announced Monday: Blue Ball committees lean toward Diamond option. News Journal (Wilmington)

11 January

Committee recommends Diamond plan: Blue Ball project clears hurdle. News Journal (Wilmington).

12 January

Blue Ball residents worried by options to ease traffic: Favored Diamond plan needs improvement, some insist. News Journal (Wilmington)

14 January

Policy committee wants Augustine Cut-off relocated: Some Wilmington residents oppose idea. *News Journal* (Wilmington).

23 January

Town meeting postponed: Carper's Blue Ball proposal awaited. News Journal (Wilmington).

25 January

Carper to decide on Blue Ball this week: Despite delay AstraZeneca remains on schedule for building new campus. *News Journal* (Wilmington).

27 January

State may intervene in Blue Ball dispute: Two companies claim a stake in 81-acre Weldin Tract. News Journal (Wilmington).

4 March

Blue Ball plan OK'd by Carper: Community's choice wins out. News Journal (Wilmington);

17 March

Blue Ball panels to discuss design: Remaining project issues on agenda. News Journal (Wilmington).