City of Danville
427 Patton Street, Suite 208
Danville VA, 24541
Phone: (434) 799-5260

Commission of Architectural Review

AUGUST 24, 2017
3:30 P.M.
FOURTH FLOOR CONFERENCE ROOM

AGENDA

I. WELCOME AND CALL TO ORDER

II. ROLL CALL

III. ITEM FOR PUBLIC HEARING

1. *Request for a Certificate of Appropriateness, PLCAR20170000195, filed Richard Morris to renew an expired Certificate of Appropriateness to lime wash all brick surfaces at 878 Main Street.*

IV. APPROVAL OF MINUTES FROM JULY 27, 2017

V. OTHER BUSINESS

VI. ADJOURNMENT

DANVILLE

COMMISSION OF ARCHITECTURAL REVIEW

POST OFFICE BOX 3300 DANVILLE, VIRGINIA (434) 799-5261

Commission of Architectural Review
Meeting of August 24, 2017

SUBJECT

878 Main Street
VDHR # 108-0056-0149

APPLICANT'S REQUEST

The applicant, Richard Morris, has submitted a request to renew a Certificate of Appropriateness that was granted in September of 2015, to limewash all brick surfaces and replace lime mortar in kind at 878 Main Street. The original application stated that "[a]fter removing existing white paint, it was discovered that the home had previously been coated with a limewash matching the color of the bricks".

STAFF EVALUATION

Section 3 of the Old West End Design Guidelines addresses Historic Building Restoration/Renovation Guidelines states:

> *In general, masonry buildings should not be painted if they are not currently painted. Exceptions would be for buildings which must be repaired where it is not possible to match the existing brick. Buildings that are currently painted should probably remain so because of issues with paint removal, but these will be evaluated on an individual basis.*

Staff believes that the request to apply limewash to all brick surfaces and to replace lime mortar in kind at 878 Main Street does not meet the Guidelines. The Guidelines state that "masonry buildings should not be painted". The Commission will need to decide if this item has an adverse effect on the structure and/or the District.

Although the request does not meet the Guidelines, the Commission granted a Certificate of Appropriateness in September of 2015. The Commission must decide whether the request will have an adverse impact on the community.

Excerpt from 09-24-15 minutes

Mr. Meder stated Michael across the street was mowing it for the last five years because the owner wasn't. I will say I hope you do approve the door for the kitchen. Because without that door the only way I can get out of that house if it is a fire at the front door is to bust through the walls or through one of the windows.

Mrs. Stillwell stated there is not a backdoor unless you go down a little narrow stairway and wind down the stairs into the basement. It is like a little maybe garage door.

Mr. Meder stated yes it's like a little trap door.

Mrs. Stilwell stated it's not a good way out of this house. I'm very familiar with this house.

Mr. Meder stated and the door that is front of that is wood and the ceiling is only about five foot tall.

Mr. Crews stated there is no further input from the applicant and we want to see if the staff believes that all the above mention request do meet the Old West End guidelines.

Mrs. Crews closed the Public Hearing.

Mrs. Stilwell stated would we like to handle these individually?

Mrs. Crews I'm assuming have for consistency?

Mr. Clarke stated well in the event that you all agree that they all meet the guidelines then that's fine. But if you believe there is going to be some division on whether or not it meets the guidelines then you would want do them separate.

Mrs. Stilwell makes a motion that all of the items for 407 Chestnut meet the guidelines. Mr. Weir seconds the motion. The motion was approved by 5-0 vote. Mr. Nicholas abstains from the vote.

Mr. Meder stated the Danville Historical Society will be having a tour of homes this Christmas season the 12th and 13th of December so we would love to see you and this house will be on it. I did apply to join you're a illustrious committee so if a vacancy ever does come up my application has been sitting with the city government for 60 or 45 days something like that.

4. Request for a Certificate of Appropriateness at 878 Main Street to apply lime wash to all brick surfaces.

Mrs. Crews opened the Public Hearing.

Present on behalf of this request is Mark Willard, stated I'm here representing the homeowners Tom and Carla Minosh. What they are looking to do and I know Mrs.

Minosh sent you a lot of paperwork. The house has six different boards as well as five different bricks that have occurred from 1874 through the 1940's. They are wanting to apply a lime wash which is historically correct. It was on the house originally in the 1880's to make the facade uniform. That's what they are wanting to do. They know it doesn't meet the guidelines but it is historically correct. Do you guys have any questions? I know she sent quite a bit of information.

Mr. Nicholas stepped out at 4:25PM.

Mrs. Crews stated there is a statement from staff that stated that the request to apply lime wash to the brick at 878 Main Street does not meet the guidelines. The guidelines state that the Main Street building should not be painted the committee will decide if it has an adverse affect on the structure and or the district. Is there any further input from you right now?

Mr. Willard stated, Mrs. Burton they did get all the pictures correct?

Mrs. Burton stated I believe so.

Mr. Willard stated if you refer to the picture showing the brick. There are two pictures of that one from the 1874 and the 1880's it's just a close up of the brick. There is residue showing that there was lime wash present at one time from both the 1874 and the 1880's addition. So it is historical. I know it's being presented as paint because it's nothing in the guidelines for lime wash. However, it is not going to adversely affect the brick it will actually create continuity for the building as well as protect the brick as it does breathe.

Mrs. Stilwell stated I'm surprised the lime wash isn't in it because it is defined as paint.

Mrs. Burton stated yes. Lime wash is not specially addressed in our guidelines. We have not addressed it at all, in at least my time here we haven't. So it has never come before the commission so it is just defined as paint in the general context. So that is why staff decided that it doesn't meet the guidelines.

Mr. Willard stated the Department of Historical Resources has approved this. They know that this is historically accurate for this building and well as previous so it's in a new formula that we are doing.

Mr. Weir stated, Mr. Willard does this actually change the color of the brick?

Mr. Willard stated No; well it makes it more uniform. And if you look at this picture in the black and white it just makes it more uniform. I know that you can't really tell. One thing is the bay window removed on the first floor where that awning is toward the front of the

building. There was a bay there originally that had to tooth the brick back in when they removed the latex paint that was added probably in the 70's.

Mrs. Stilwell stated it was painted white in 1985 I know that.

Mr. Willard stated when they removed that all that became clear. Plus there was a lime wash on it. To answer your question, Bob, it does make it uniform but it will be a reddish color as the brick is now. It just covers all the mortar lines and its patch work. If you guys would go over there and look at any side of it, I mean, it's a patch work with brick as well as mortar.

Mrs. Stilwell stated because architectural trends change and people add things and subtract things. This is probably brick because it was done by the Fitzgerald's. Then when they went out-of-business you couldn't get the same kind of brick anymore. If they are still in business, they might not be able to get the same kind of clay to make the brick. So it doesn't match.

Mr. Willard stated we got wire cut brick on the back that is just as smooth and opposed to handmade brick that was original to the property. There are so many different kinds of brick on there. It would just help to create that continuity look to the whole house.

Steve Wilson present on behalf of 918 Main Street stated, I think the whole confusion by the committee on what is paint and what is lime wash is similar to the confusion of what vinyl siding is and what wood siding is. I think when we have the decisions on revised the guidelines, I think either the committee or the city staff can actually get some educational classes through the Department of Historical Resources that can teach you about historical materials. Lime wash is absolutely not paint. So if it's in the guidelines as paint we can get someone to fix that.

Ms. Sonya Ingram stated, did he say this was approved by DHR?

Mr. Willard stated yes it was.

Ms. Ingram stated is that through the text code?

Mr. Meder stated I think I heard that once this is applied the brick are still going to be red and that the mortar joints are going to look uniform.

Mr. Willard stated that is right.

Mrs. Stilwell stated and the brick can still breathe?

Mr. Meder stated it sounds like something I need to do on my house because of all the windows and brick that have come out on the front of the house.

Mr. Fred Meder stated this is a no brainer. Its historical material and it was approved by the DHR. Now, if anybody has dealt with DHR, you have to hire someone to do that so you don't strangle them through the phone. They have no idea what other branches of the government do; they just do their own thing. The thing is to not give away the money so they make it as difficult as possible so that you can't capture those tax credits. I have been going around and around and so has Mark. I think if this has been approved by the DHR then this is a no brainer for us here in Danville.

Mr. Whitfield stated a no brainer which way?

Mr. Meder stated so I would move to approve the lime wash.

Mrs. Crews closed the Public Hearing.

Mrs. Stilwell makes a motion that it does meet the guidelines. Mr. Weir seconds the motion. The motion was approved by a 5-0 vote.

5. Review Guidelines

Mrs. Burton stated as far as the guidelines what we are looking to do; hopefully you had the information in your packet. Where I have gone through the guidelines and look at areas that specifically mention vinyl, PVC or maybe something that was contradictory of its self, things of that nature. So, I have tried to pull all of those out for you. If you don't have it I probably have one in a folder that we can go through where they are up here on the projector. This is open for public comment. But we want to go through this and I have also included the minutes from the last meeting where this was adopted by the CAR. I do ask if we could please when we go through this that we are not finger pointing and blaming other organizations or boards or committees or people for anything that was in this. This was a group effort. Many individuals worked hard on this project and if we could avoid any of that finger pointing that would be great.

Mr. Davis arrives at 4:36pm.

Mrs. Crews stated looking at the minutes from the November 6, 2014, pointing fingers at only myself, I think I stirred the discussion about not accepting anything pertaining to vinyl. I can in essence tell you that I was fully supportive of not eliminating everything and simply treating items on a case by case basis. Out of all respect and efforts to anyone else I do not believe we can eliminate hard wash, vinyl and other modern material.

Mrs. Stilwell stated I need to ask looking at this what's the difference is between not recommended and not allowed?

of Architectural Review. The Commission meets once a month on the fourth Thursday of the month at 3:30 P.M. in the fourth floor City Council Conference Room located in the Municipal Building. All questions or applications should be submitted to the Planning Division, located on the second floor of the Municipal Building, 427 Patton Street, Room 207, Danville, VA 24541; (434)-799-5260. As of July 1, 2009 a $25.00 fee will be required for each application submitted for review.

INFORMATION TO BE PROVIDED BY APPLICANT

Important-Please read before completing application

a) All questions on this application must be fully answered
b) The application must be signed by the property owners or representative with written authorization by the owner
c) A drawing, photo, plan or sketch of proposed project with dimensions

Have you read and understand the Design Guidelines for the Historic Overlay District of Danville, Virginia? yes

Are you aware of the federal/state tax credits and Real Estate Abatement program available for potential reimbursement/credit of money used during substantial rehabilitation projects? yes

Would you like more information about these programs? no

Which one(s)? _____

Property Location: 878 Main St.

Name of Applicant: Richard Morris

Applicant's Address: 15125 River Rd

Applicant's Phone Number: 434-228-1171 Email Address: virginia.architect@gmail.com

Work Proposed (please circle one): Alteration/addition/rehabilitation/new construction/sign

Replace lime mortar in kind, lime wash exterior as approved in August 2015

Type of material(s) to be used: lime mortar & lime wash

_____ R C Morris

Signature of Property Owner (if not applicant) Signature of Applicant

I. History

Upon removal of the white paint on the house, it was discovered that there was a layer of limewash beneath the paint. Most of this limewash was removed along with the paint in the paint removal process, however enough was left behind to provide a record for the presence and approximate color of the limewash. The color was an approximate match to the bricks on the front of the home.

II. Old West End Guidelines

Under the Old West End Design Guidelines for the City of Danville, section C. Guidelines for Residential Structures, Subsection 5 states that "maintaining or restoring original material for the exterior walls is required, with certain exceptions." As such, we are attempting to restore the original limewash on the exterior walls.

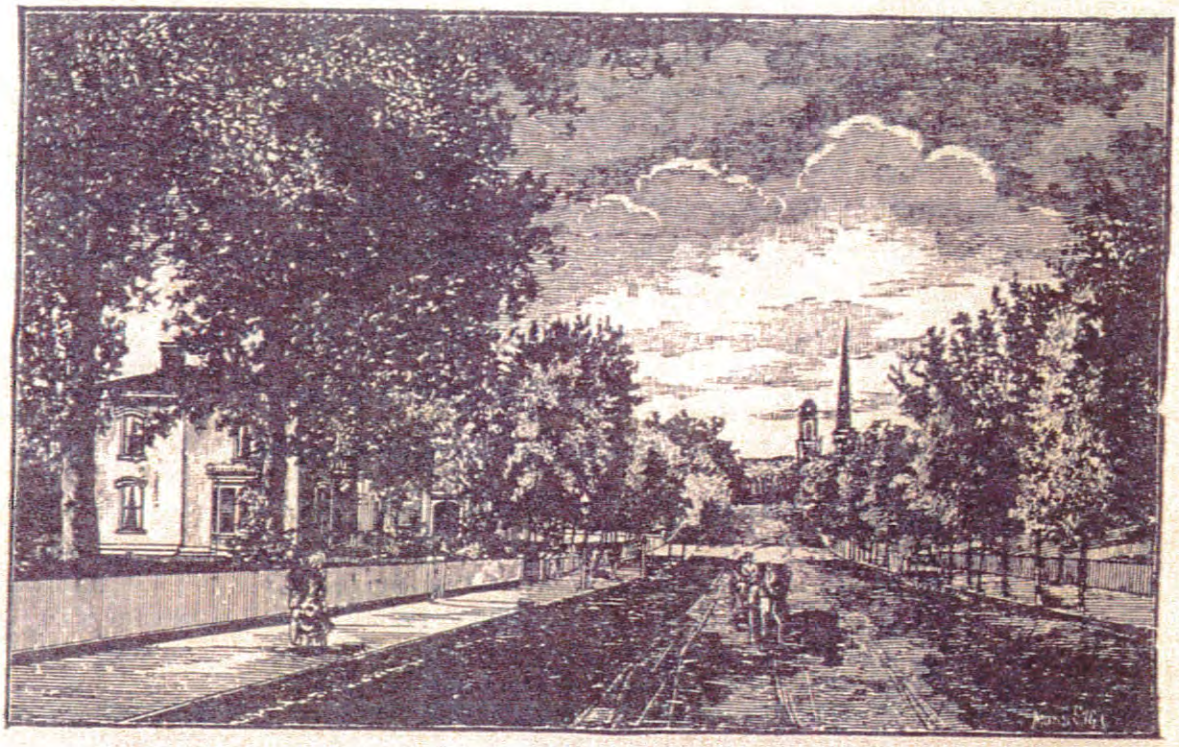
Furthermore, the Guidelines also state that If many of the original details of buildings to be restored have been lost with successive modernizations, it is recommended that the owners try to find photographs of the building from near the time it was built, or study examples of similar buildings that have been restored in order to gather information on appropriate architectural details for each building type. Below, I present the evidence that a limewash was present on this home.

While the guidelines do address the issue of an unpainted building in the historic district, stating: In general, masonry buildings should not be painted if they are not currently painted. Exceptions would be for buildings which must be repaired where it is not possible to match the existing brick.

While this house currently does not retain its original limewash, it is desirable to replace it in this case, due to the multiple mismatches in the brick resulting in an unacceptable outward appearance for such a significant contributing structure in the Historic District.

III. History of Changes at 878 Main Street

While it makes sense that this building originally had a coating of limewash, as evidenced by, not only the remnants of the limewash itself, but by the massive scale of the changes the building has gone through over the years. As built in 1874, the building was a two-story square structure with a bay window on Chestnut Place and an A-frame roof. This is seen in the drawing of the property in the Sketchbook of Danville.



VIEW ON UPPER MAIN STREET.

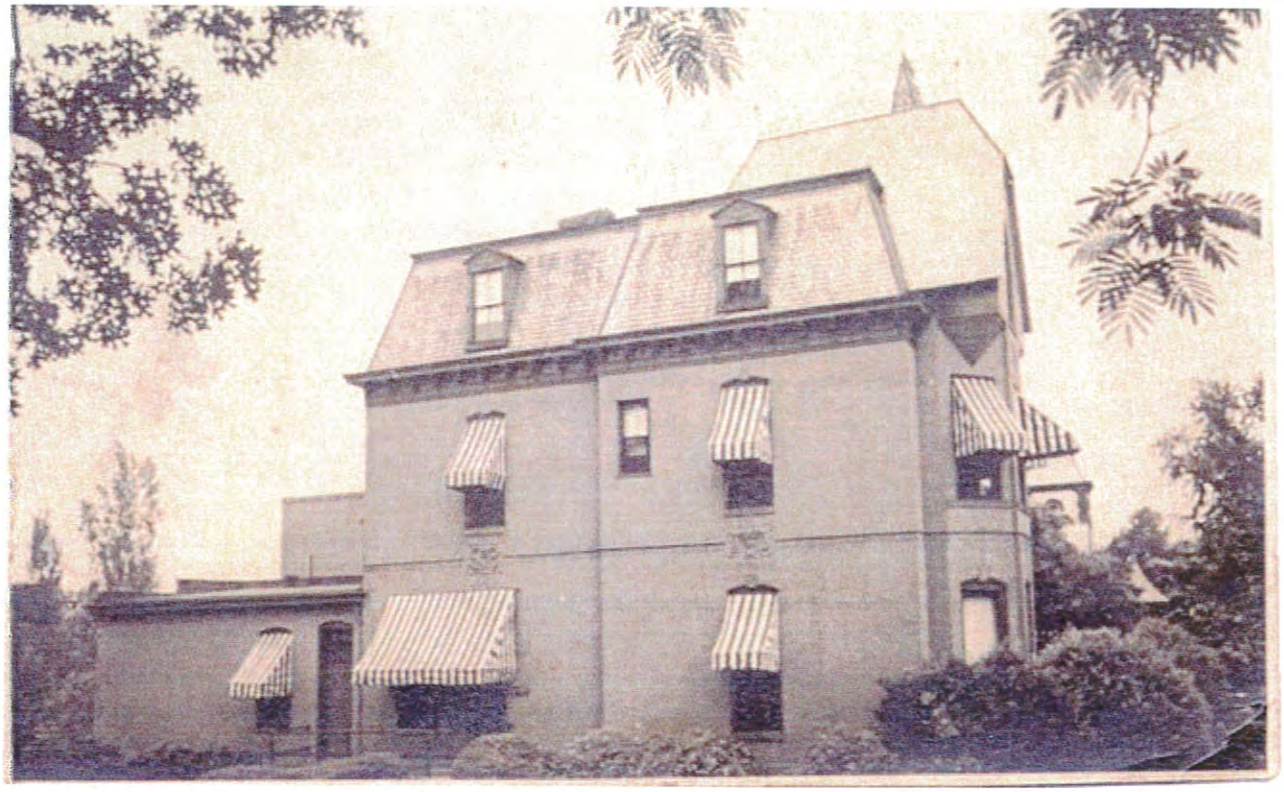
(Residence of E. H. MILLER, ESQ., in the Foreground.)

This bay window was later removed in the large renovation that raised the roofline, added the mansard roof, and the tower and in front, and the turret on the side. As a result, the toothed-in brick from the former bay is still visible, and the bricks below the roofline do not exactly match the bricks of the original structure from before the renovation.

A later addition of the East wing, some time in the 1890s, now houses the kitchen. This wing added still another incongruous brick, and sports a badly bricked-in window, and the screened porch on the East side of the house has another type of brick – quite modern, hard and smooth-surfaced.

The addition of the West wing perhaps in the 1930s has another type of brick as well, and an addition on to the rear of that addition was done with modern brick. A bricked-in door to the former doctor's office can also be seen on that side. In addition, modern brick was used to repair a large portion of the rear of the house can be seen at the entrance on Chestnut Place, and above.

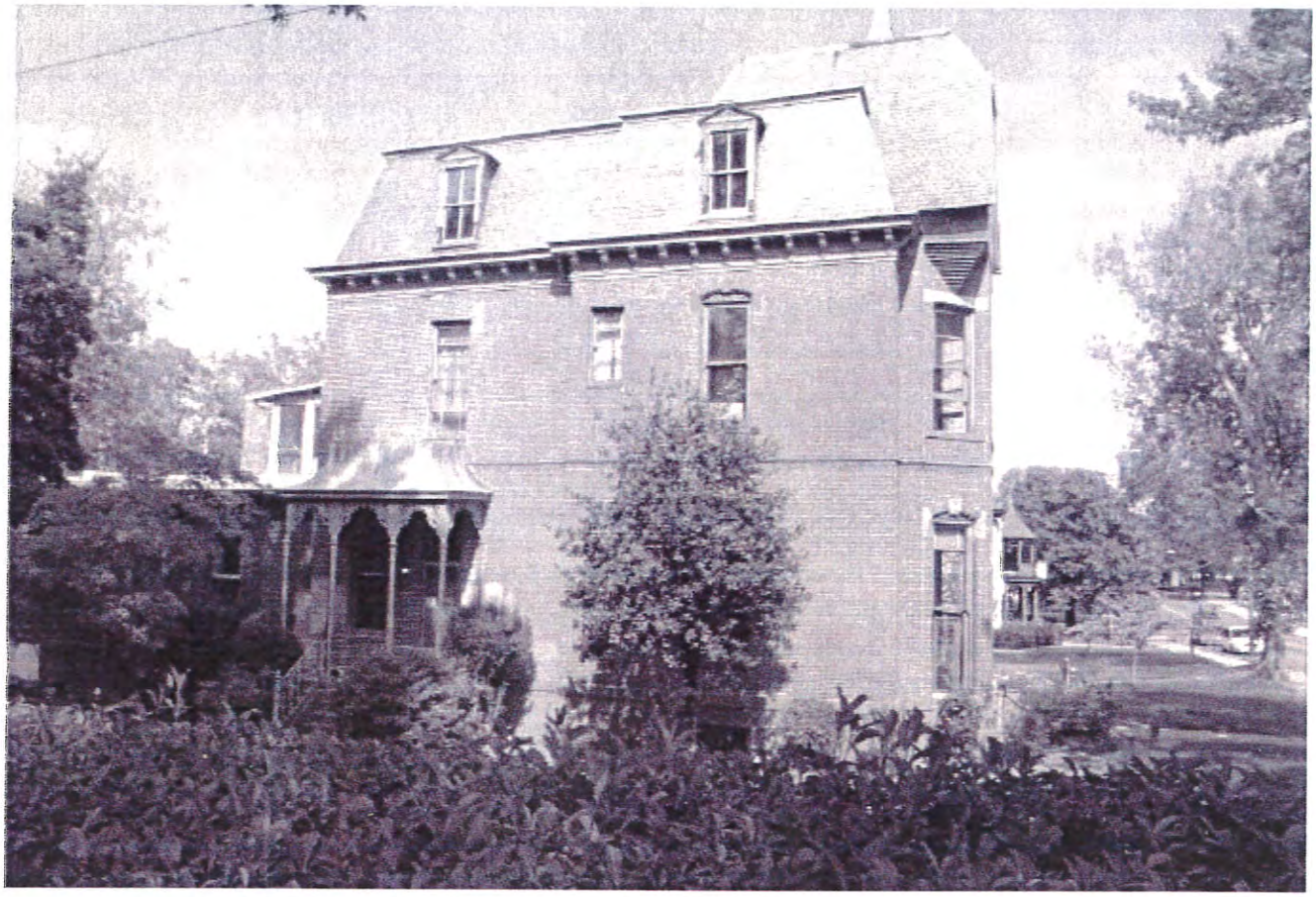
Given all of these later additions and repairs, it is no wonder that a limewash was applied, not only to protect and preserve the masonry, but to even out the look of the entire building and smooth out the transitions between incongruous brick colors and sizes. The evened look of all of the various incongruous bricks, repairs, and alterations is captured in an undated black and white photograph from the period before the house was painted white. Judging from the awnings, it is perhaps a photo taken in the 1950s or earlier.



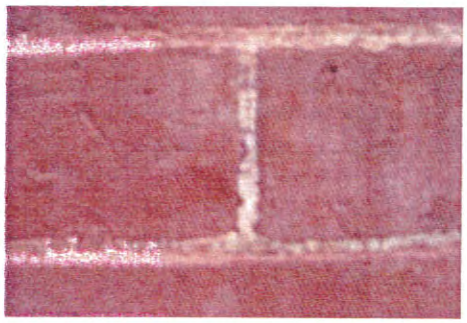
This photo can be contrasted to the unpainted color photograph, and the evidence of the limewash will become evident:

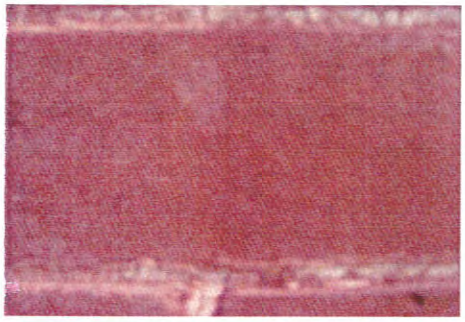
The limewash has the effect of making the mortar lines between the brick disappear, paints over the granite over-window lintels so that they match the brick, and hide the various changes and repairs in the brickwork.

Even if the above current photo were converted to a black and white photo, the mortar lines and differences in the over-window lintels would still stand out. The overall uniformity of the old black and white photo makes it clear that there was a limewash present.



I have also provided photos of the last of the limewash clinging to the brick after the paint removal process, below. This remnant is still present on the house if the CAR wishes to do a direct inspection.





IV. Department of the Interior, Secretary Standards for Rehabilitation

The Department of the Interior, Secretary's Standards for Rehabilitation sets out 10 overall guidelines to follow when rehabilitating historic buildings. Specifically, number 5 states: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

The limewash is a distinctive feature, a finish which does much to define the look of the building, and thus, its preservation is essential.

V. Limewash Appropriateness and Durability

The National Park Service, Department of the Interior through its National Center for Preservation Technology and Training has published an excellent article on the history, durability, and appropriateness of limewash with regard to historic buildings. A copy is attached

In addition, our own test of the product on the actual structure it is intended to be applied to was performed in 2004. The photo below shows the samples as applied in 2004. They look pretty much the same eleven years later.

A thorough discussion of limewash was presented at the International Building Lime Symposium 2005 Orlando, Florida, March 9 -11, 2005, presented by The National Lime Association (NLA) and the Building Lime Group
https://lime.org/documents/lime_basics/limewash.pdf

The experts presenting at that symposium state that "Limewash is an effective surface covering for a wide range of water-absorptive surfaces. Limewash is vapour-permeable and allows a building to "breathe." Limewash is robust and, in the proper number of coats, may consolidate and improve the condition of the underlying substrate. Limewash is stable and long lasting. Limewash is beautiful in either its brilliant white, non-pigmented native state, or when pigmented with compatible oxides to complement architectural colour schemes. Limewash has always been, and remains, a most effective way to protect, maintain and beautify the surface of historically-significant structures."

In an article on Building Conservation.Com, entitled "Awash With Color; The Decorative and Protective Roles of Limewash " the author states that "Limewash assists in maintaining the ability of the building to breathe as it is one of the most vapour permeable decorative coatings. Tests show that limewash has a vapour permeability rating of about 350 units while many of the masonry paints are well below a rating of 75 units. If a building is prevented from breathing, water can become trapped in the external walls, resulting in the decay of the masonry and producing ideal conditions for timber rot to commence."

VI. Conclusion

Not only was limewash once a significant decorative element to this building, and one that will protect the soft brick and mortar of the home. In addition, experts and researchers, as well as our own testing of the material on the building have shown that it is safe. We will return the color to the color of the original brick on the front, as it originally was.

Study on the Durability of Traditional and Modified Limewash

BY SARAH JACKSON ON JULY 8, 2011 · ADD COMMENT · IN ARCHITECTURE & ENGINEERING

Durability of Traditional and Modified Limewash

[Download not found]*In 2004, NCPTT partnered with Cane River Creole National Park (CARI) and Quality Finish to study the durability of limewash for use on buildings in the Park.*

Study on the Durability of Traditional and Modified Limewash

NCPTT partnered with CARI to determine the durability of traditional and modified limewash recipes. CARI wanted to identify a lasting, low-cost limewash that was applied in approximately three layers and would last three to five years. Quality Finish, a local paint contractor, joined the project to ensure that limewash could be applied by local craftsmen outside of a laboratory setting.

The study looked at traditional and modified limewashes made from four different lime sources. Traditional additives such as salt, alum, molasses and others were tested. Different limewashes were applied to handmade brick, modern brick, weathered wood, rough sawn wood, and epoxy fill materials.

Standard test methodologies were used as defined by the American Society for Testing and Materials (ASTM) standards. We measured abrasion, adhesion, and color change on samples before and after artificial weathering. The amount of solids applied to the samples was estimated by weighing. Next we developed numerical ranking system to take into consideration performance on various tests.

Brick cabins at Magnolia Plantation at CARI. Photograph by Sarah Jackson

The Laboratory Tests

Abrasion testing was based on ASTM D 968-96, allowing us to rank how a limewash might stand up over time to abrasion from wind and rain borne particles. The results were averaged for each wash and the best performers were those samples that

required the highest amount of sand, indicating that they had formed a harder, more cohesive finish.

Adhesion testing was performed to evaluate how firmly the limewash bonded to the samples, following ASTM D 3359-95.The results were averaged and the best performers were the samples with the least limewash loss, indicating the limewashes that bonded most tightly to the material.

Limewash Recipes

	Lime, Water, Table Salt, Alum, Unsulphured Molasses and Laundry Bluing	Lime, Water, Clove Oil, Unsulphered Molasses, Laundry Bluing and Casein Binder	Lime, Water and Acrylic Binder	Lime and Water
Graymont Ivory Hydrated Lime	Wash A	Wash D	Wash G	Wash L
Graymont Niagara Lime Putty	Wash B	Wash E	Wash H	Wash M
Virginia Lameworks Lime Putty	Wash C	Wash F	Wash I	Wash K
Mississippi Lime Architectural Lime Putty				Wash N

	Applied to handmade brick, modern brick, weathered wood and rough-sawn new wood.
	Applied to handmade and modern brick.
	Applied to handmade and weathered wood.

Limewash Recipes

History of Limewash

Quicklime slaking after water was added to the pan. Steam rising above the pan was created by the exothermic reation of the quicklime slaking.

Limewash was the traditional finish for centuries on both the exterior and interior surfaces worldwide. Lime is one of the world's oldest building materials. It was readily available at most job sites. Limewash was applied to surfaces for both it's protective and aesthetic qualities.

Limewash is a mixture of slaked lime and water that, as it dries, reacts with carbon dioxide in the air carbonating creating a tough, "rock" like coating. Lime begins as limestone that is burned (heated) at high temperatures removing the carbon dioxide and moisture from the stone creating calcium oxide (quicklime). The quicklime is then slaked, water is added, to create a workable material. Hydrated lime is a dry powder that is created when a minimum amount of water is added to quicklime. Lime putty is created when an excess amount of water is added to quicklime.

Limewash is often considered to be a tactful historic building material because it allows a greater water transfer than most modern finishes. If a structure suffers from rising damp, where water moves up the interior of walls before evaporating, a modern paint often does not allow for moisture transfer. Thus the moisture becomes trapped in the wall creating a environment that could lead to damage or material deterioration.

Hydrated lime is a dry powder that is created when a minimum amount of water is added to quicklime. Lime putty is created when an excess amount of water is added to quicklime.

Closeup of quicklime slaking. As water is added the quicklime releases calcium hydroxide is created.

Limewash is often considered to be more sympathetic to historic building materials as it allows for greater water transfer than most modern finishes. If a structure suffers from rising damp, when water moves up the interior of walls before evaporating, a modern paint often does not allow for the wall to dry out. Thus the moisture becomes trapped in the wall creating a environment that could lead to damage or material deterioration.

Limewash was traditionally prepared on site by skilled craftsmen and applied in the spring or fall for optimal temperatures. Additional ingredients may be included in limewash to provide additional chemical or physical properties. Additives require careful consideration due to the possible adverse affects.

Brick fireplace at Oakland Plantation, part of CARI, which was limewashed with a colorwash after color analysis. Photograph by Sarah Jackson

Pigments were a common additive included in limewash to vary the color of the finish. Earth pigments are recommended to maintain consistent color and limit changes from the alkalinity of the limewash. Moderation was necessary when adding pigments to limit the weakening effect of excessive amounts of additives.

To maintain consistency in the limewash an amount large enough to complete the project was mixed and agitated throughout application. If the limewash dried too quickly carbonation would be disrupted, forming a finish that tended to crack, powder, and lacked strength.

Limewash was applied in thin layers, constantly maintaining a wet edge. Multiple layers were applied with sufficient time to dry between applications. Drying times were 24 hours or longer depending on exterior conditions such as humidity and temperature.

Three or more layers were recommended for the initial limewashing. Annual reapplication

was necessary to counter weathering from exposure. Successive limewashings required fewer layers.

Beginning in the 1900's limewash became less used in urban areas while its popularity continued in rural settings until as late as mid-20th century. An increase in modern, long-lasting buildings materials and the rising cost of labor may have contributed to its waning popularity.

Results of Study

Wood outbuildings at Oakland Plantation after limewashing. Photograph by Sarah Jackson

A variety of limewash recipes were tested on multiple sample materials for possible use at CARI. Based on the results, the most important distinction among the recipes tested was the additives used, rather than the type of lime. The adhesion of the limewash was also greatly affected by the substrate to which it was applied.

The more porous material, brick, allowed for a better adhesion of the limewash, creating a more cohesive coat and increased durability. On porous materials such as brick, soluble salts can be very detrimental. Therefore, limewash prepared with a salt additive may be detrimental to porous materials. Washes with salt did not perform better than limewash prepared without additives after artificial weathering. On the handmade brick Wash M performed almost twice as well on all tests after artificial weathering.

The porous structure of handmade brick makes a primer unnecessary to assist in the adhesion of limewash to the surface. For application on handmade or historic brick wash M, Graymont Niagara lime putty and water, would likely provide the best results in field applications.

None of the limewashes tested were long-lasting on the wood samples, which could be attributed to using only three layers of limewash on the wood samples. The wood itself has been unfinished for numerous years, which most likely contributed to the poor adhesion and would have affected any finish applied to it. However, there was a noticeable difference in performance between the washes applied after Edison Coatings Primer #342 and those that were applied to bare wood.

The limewashes applied to wood samples after primer performed better during the study. In applications where an acrylic primer is deemed an inappropriate treatment on wood, Wash E with Graymont Niagara lime putty and casein would likely be a good choice for use. Epoxy samples experienced results that were comparable to the same recipes on the wood samples. Wash E was the best performer on the wood and epoxy samples.

Additional research is needed on the physical and chemical properties of limes commercially available in the United States and Europe in order to gain a clearer understanding of its role in limewash. Application of a greater number of coats of thin layers and investigation of the effects of temperature and humidity on carbonation may provide greater insight into the durability of limewash.

ASTM D 3359-95 • ASTM D 968-96 • ASTM Standards • Cane River Creole National Park • CARI • exothermic reaction • historic building materials • history of limewash • hydrated lime • Limewash • Limewash Recipes • modified limewash • moisture transfer • pigments • Quicklime • quicklime slaking • slaked lime • traditional limewash • water

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OUR RULE OF THREE: PRODUCING A VIDEO ON STATUS CONSERVATION
IDENTIFYING MUSEUM INSECT PEST DAMAGE

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Fax: (318) 356-9119

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Awash with Colour

The Decorative and Protective Roles of Limewash

Bob Bennett

While the romantic magic of limewashed buildings amazes many of its admirers to-day, limewash was common place as a protective and decorative treatment for at least ten thousand years.

Essentially, limewash is a mixture of slaked lime (calcium hydroxide) in water which sets slowly by absorbing carbon dioxide from the air. The chemical reaction which occurs produces crystals of calcite (calcium carbonate). These crystals are unusual in that they have a dual refractive index; light entering each crystal is reflected back in duplicate. This results in the wonderful surface glow that is characteristic of limewashed surfaces, and is not found in other decorative finishes.

However, when limewash was discovered, man was not looking for a decorative finish to impress the neighbours. He had actually discovered a sacrificial treatment which protected his dwelling against the worst weather. Early mud structures and wattle and daub panels were very vulnerable to the climate and limewash still plays a most important part in protecting these surfaces in particular.

Prior to the patenting of Portland cement in 1824, most structures were constructed of solid, porous materials which keep out damp and rain through their thickness and their high porosity or vapour permeability; that is to say that they dry out so quickly that damp never penetrates the thickness of the wall. Rapid drying was aided by the use of open fires, and the kitchen fire in particular, which remained alight throughout the year, providing both heating and ventilation. Some idea of the rate of ventilation this provides can be gained by watching the rate at which smoke pours out of a chimney, as air is drawn into the building at exactly the same rate. This marvellous ventilation ensured that any moisture present in the building was expelled through the chimney within a very short time.

Limewash assists in maintaining the ability of the building to breathe as it is one of the most vapour permeable decorative coatings. Tests show that limewash has a vapour permeability rating of about 350 units while many of the masonry paints are well below a rating of 75 units. If a building is prevented from breathing, water can become trapped in the external walls, resulting in the decay of the masonry and producing ideal conditions for timber rot to commence. Condensation may take place and heating bills rise as a damp wall transmits heat faster than a dry wall.

THE MATERIALS USED

Prior to the introduction of Portland cement, lime putty was the principal binder in mortars, renders and plasters. It was therefore logical that the same material should be used as a finish on lime plasters and renders. Its use internally on plaster is mainly decorative but on external renders its protective qualities are essential.

Lime putty is made by burning limestone or chalk (both forms of calcium carbonate) to produce quick lime (calcium oxide), which is then 'slaked' by adding water. Traditionally, limewash was produced mainly from lime derived from the purer sources of limestone, as limestones contaminated with clay may produce an 'hydraulic' lime when fired which sets by reaction with water.

Tallow was often added to limewash to make it water droplet resistant while retaining most of its quality of vapour permeability. A type of animal fat, tallow was primarily used with beeswax for making candles, and was therefore widely available. ('The butcher, the baker, and the candlestick maker': as the nursery rhyme suggests, even the smallest village had a candlestick maker ie a source of tallow). More recently, raw linseed oil was added for the same purpose. Other alternatives used nowadays include casein which increases the vapour permeability, resists dusting and being a weak form of adhesive, may be useful when decorating difficult surfaces. Although, historically, sea water was used during the slaking process in the eastern counties, and common salt may be added to limewash to reduce dusting, the practice is seldom used today due to the importance of keeping salts out of the fabric of the buildings.

For colourwashes (coloured limewashes) care should be taken in selecting watersoluble pigments to ensure that they are not affected by ultra violet light nor by lime. A variety of earth pigments are available and these should be soaked for at least 24 hours before being incorporated into a wash. These are essentially refined earth or clay with a strong natural colour, such as red and yellow ochres. The colour is given by their mineral content and they are therefore least likely to fade in the sunlight or by chemical reaction with the lime.

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Author

BOB BENNETT is a masonry consultant specialising in the care and repair of historic buildings and is a founder member of the Building Limes Forum. In 1990 he opened The Lime Centre to provide practical day courses in the use of lime and to supply specialist materials including limewashes. Besides a regular programme of courses each year, he also travels widely within the UK and overseas, teaching, advising and troubleshooting.

Further Information

RELATED ARTICLES

Lime mortars and render

Limewash

Paints and decorative finishes

RELATED PRODUCTS AND SERVICES

Lime wash

Lime, non-hydraulic (lime putty)

Paint and decorative finishes

Paint analysis

Site Map

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MAKING A LIMEWASH

Limewash is not difficult to produce providing that a few simple but important rules are observed.

Having slaked the quicklime, the resulting putty should be left for at least three months to ensure that all the quicklime has reacted with the water and that the particles of lime have started to mature.

The putty should be sieved to exclude any foreign material as even the finest and purest naturally occurring limestone will contain some contaminants.

Limewash should be applied as thinly as possible to facilitate carbonation and prevent crazing that can occur when applied more liberally and it is therefore recommended that the putty is diluted with sufficient lime water (that is, water that has been saturated in lime putty) to produce a wash the consistency of milk. Providing that it is thin, there is little likelihood of an over enthusiastic operative applying too thick a coat.

To this basic limewash may be added binders such as raw linseed oil which will help it to adhere by making it moisture droplet resistant while remaining vapour permeable. In the event that tallow is to be added this can only be effectively included during the slaking process. While there has been a long tradition of tallow in limewashes, its use on interior walls is not to be recommended, as it is liable to become rancid in warm weather.

As a water based product, limewash is most suitable for application onto an absorbent background. Traditionally it was applied to earth walls, brick, limestone and calcareous sandstone, lime render, plaster and timber and, having found that the mildly antiseptic properties of lime would help to prevent the spread of disease, farmers regularly limewashed calf pens between batches of calves.

For those trying to produce a colourwash for the first time it will be rather disconcerting to find that having made what appears to be the appropriate colour in the tub, it dries many shades lighter once it is applied. Colours need to be dry tested to ensure the correct hue has been achieved. Furthermore, it is almost impossible to reproduce exactly the same colour if a further supply is required for the same job. After all, this is a hand-made craft product and slight variations are inevitable and appropriate.

APPLICATION

When making or applying limewash, safety goggles or glasses and gloves should always be worn. Lime is irritating to skin and, in contact with the eyes, may cause pain and impairment of vision if not treated immediately.

As with so many jobs, good preparation is important. The background should be absorbent; inappropriate old paint treatments should be removed; and, if paint stripper is used, a check should be made to ensure that the pH of the surface has not been radically changed. Insufficient washing down after the use of an acid based solvent, for example, may leave the surface sufficiently acidic to interfere with the limewash, resulting in failure. When rejuvenating an old limewashed surface, care must be taken to remove any loose or spalled material and the entire surface should be thoroughly washed down using a soft scrubbing brush to ensure that the dust is removed. All surfaces to be limewashed should be wetted with clean cold water and left until the surface is damp but not wet.

The best results are obtained when the limewash is almost scrubbed into the surface with a brush which is stiffer that a conventional paint brush but softer than a scrubbing brush, such as a soft bristle dustpan brush (which costs only a couple of pounds). The application should be with a circular motion, ensuring that the limewash is worked into the surface and spread as far as possible. The work should be finished with vertical strokes.

Limewash cures by absorbing carbon dioxide from the atmosphere and this process is prolonged during periods of low temperature or high relative humidity. Even though the application has been kept as thin as possible, it may take several days before it can be safely overcoated. It is advisable to leave it for at least five days before further work is carried out.

Care should be taken to choose a period of fine weather before applying limewash externally as a fresh coat is vulnerable to dilution by rain which will manifest itself as white streaks running down the work or the colour washing out. Should this occur, all is not lost as once this coat has cured a further coat will cover the damage. Further dismay may be experienced by the newcomer to limewash when the first coat is applied and appears very thin and almost without any body or depth. Reassurance is close at hand when after only a few hours, the cure starts and the depth and vibrancy of this material begins to show. After a further coat has cured you will be as enthusiastic about the material as we are. It is recommended that a minimum of three coats should be applied for new work.

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Recommended Reading

- Ashurst, John and Nicola, *Practical Building Conservation Volume 3, Mortars, Plasters and Renders*. English Heritage, Gower Technical Press, Aldershot, 1988
- Jane Schofield, *Lime in Building*, Black Dog Press, Crediton, Devon, 1995
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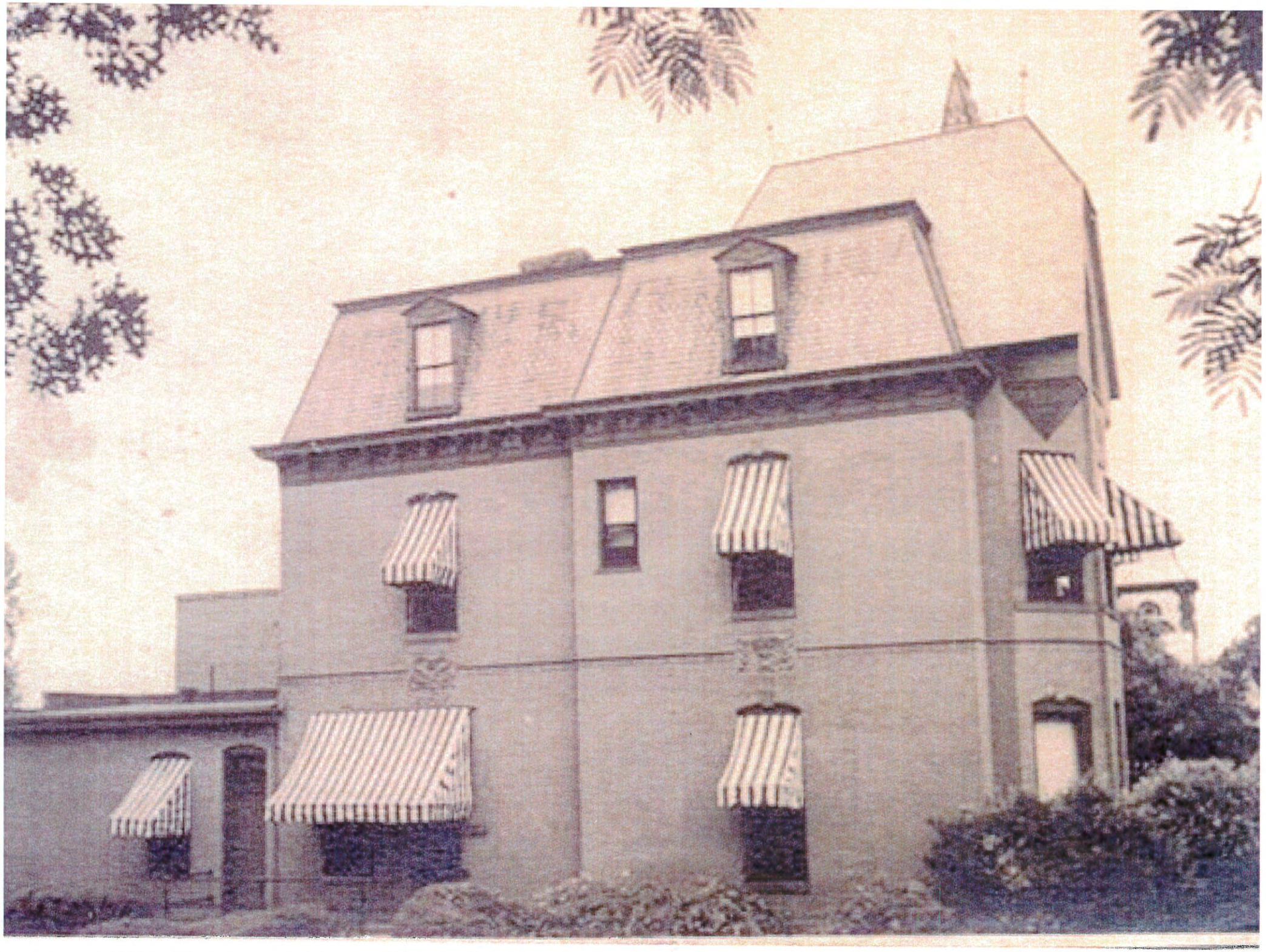

Original
Later Added Brick
Altered Window
Removed Window
Modern Brick

Different Brick
Modern Brick
Added Window
Original Brick
Decorative Terra-Cotta Border
Bricked-in Doorway
Different Brick
Toothed-in brick where
bay window was remove

NIAGARA
Mature Lime Putty

07.27.2017 22:00

APPROVED
07.27.2017 22:01

COMMISSION OF ARCHITECTURAL REVIEW

July 27, 2017

Members Present	**Members Absent**	**Staff**
Susan Stilwell	Michael Nicholas	Anna Levi
Robin Crews	Robert Weir	Tracie Lancaster
Sean Davis	Jeffrey Bond	Renee Burton
Robert Stowe		Clarke Whitfield
		Bonnie Case

The meeting was called to order at 3:30 pm

ITEMS FOR PUBLIC HEARING

1. *Request for a Certificate of Appropriateness, PLCAR20170000192, filed by Davis Potts to install an 18" x 24" reclaimed wood hanging sign at 117 Broad Street.*

Mrs. Crews opened the Public Hearing

Present to speak on behalf of this request was Davis Potts. I intend to hang this sign as part of my eagle scout project.

Mrs. Crews stated that if all the members would look he has four renditions I'm assuming of where the sign could go.

Mr. Potts stated yes.

Mrs. Crews asked if the committee has any questions.

Mrs. Stilwell stated I have a question about what we discussed if it could be a hanging sign from the porch not in the center of the walkway but over the balustrade. Would that work?

Mrs. Crews asked which depiction is which?

Mrs. Stilwell stated that would be option 1.

Mr. Davis stated in Choice 1 they want the sign in the middle of the porch. Correct? So the other idea is to move it to the middle of the front directly over the balustrade that way we don't have to worry about anybody ...

Mrs. Crews stated choice 3 appears that it's just to the right of the door but not over the balustrade nor is it between the door and column and choice 4 comes overhead to the left hand side of the entrance.

Mrs. Burton stated Ms. Crews 3 and 4 are actually affixed to the structure itself. The only one you actually have hanging will be choice 1 and choice 2 will be affixed to the balustrade.

Mr. Leggett stated no it will have a type of rack to hold it.

Mrs. Burton stated choice 2 then is a free standing option.

Mrs. Stilwell stated free standing? Choice 2 is like on a for sale sign?

Mrs. Crews stated yes just on a rack.

Mr. Davis stated it is made with pipe fittings instead of bended metal.

Mrs. Stilwell stated it looked like to me it was attached to the balustrade.

Mr. Davis stated so are these the choices from the board of the Langhorne House. If we are going to choose something that is not one of these choices do with have to get their approval?

Mrs. Stilwell stated no I think we can tell them what to do, right? Isn't that our power? We can make suggestions that are architecturally more appropriate.

Mrs. Burton stated that you can make your approvals here. That is not contingent upon what the Langhorne House board says.

Mrs. Crews stated Mr. Potts will you hold up the sign for each of the committee and that may help us just to see the scope.

Mr. Leggett stated one problem that they do have with the Langhorne House is that the entrance door is right in front of where the sign will be and will help people not going to the apartment side. The only thing is that there is a historical sign on the left hand side of the building on the corner and if you put it on the other side it will give you some symmetry but so far that's not a big deal. They have a sign at the door that they hang out that says open and when they close they take that sign down or turn it around and it says closed. And that's on the left hand side.

Mrs. Stilwell stated wonder why they put that there because they don't even use that door.

Mr. Leggett stated no that's the main entrance to the building.

Mrs. Stilwell stated the left hand side of the building?

Mr. Leggett stated no I didn't say that. I don't know why they put the historical sign there.

Mrs. Stilwell stated that's what I'm saying. That shouldn't even be over there in a door they don't even use.

Mr. Leggett stated that will help people go to the right door anyway.

Mrs. Crews asked if there were any more questions for the applicant. Are there any questions from the public for this applicant? Hearing none, I will close the public hearing.

Ms. Crews closed the Public Hearing.

Mrs. Stilwell stated he needs the project for eagle scouts but they also need to direct tourists. They are open on Saturdays and sometimes on Sundays, garden tour, Christmas walking tour. If anyone makes a motion with our approval or review, I would suggest removing that sign that says open and closed to the door that is functional.

Mr. Leggett stated you have misunderstood. The only thing on the left hand side of that door is the historical plaque that's there.

Mrs. Crews stated here under option 4 they're talking about option 4 bullet 2 below the sign they hang an open or closed sign.

Mrs. Stilwell stated I misunderstood.

Mrs. Crews asked if there were any other questions amongst the committee.

Mr. Davis stated I guess we are going to make a suggestion altering number 1 correct? So what's the best way of altering one of their options?

Mr. Davis proposed that we suggest to them to hang the sign in the middle of the balustrade directly over the balustrade. So that way it is covered as they walk in.

Mrs. Stilwell stated nobody is walking under it.

Mr. Davis stated right no one will be walking under it.

Mrs. Burton stated do you believe that meets the guidelines.

Mr. Whitfield stated I believe the motion has to say it meets the guidelines or it doesn't meet the guidelines and if doesn't meet the guidelines, then you move to step 2.

Mr. Davis stated I believe it meets the guidelines.

Mr. Whitfield stated so your motion is that it meets the guidelines and that it should be placed.

Mr. Davis stated correct hanging directly over the balustrade in the middle of the balustrade on the right hand side of the porch.

Mrs. Stilwell stated I'll second that.

Mr. Davis made a motion that the sign be hanging directly over the balustrade in the middle of the balustrade on the right hand side of the porch. Mrs. Stilwell seconded the motion. The motion was approved by a 4-0 vote.

APPROVAL OF THE MINUTES

Mrs. Stilwell made a motion to approve the May 25, 2017 minutes with a correction to the spelling of Mr. Barker's first name. Mr. Stowe seconded the motion. The motion was approved by a unanimous vote.

OTHER BUSINESS

Mr. Whitfield stated that this is the last meeting for Tracie, Anna and Renee. Renee leaves tomorrow and Tracie and Anna leave next Friday.

Mrs. Stilwell stated leave. What does that mean?

Mr. Whitfield stated they will no longer be employees of the City. They are going on to other things.

Mrs. Crews congratulated each one.

Mrs. Burton stated that she will be working part time so you will still see me around but I will no longer be a full time employee.

Mrs. Stilwell asked who was going to take over.

Mrs. Burton replied that temporarily you will have Mr. Gillie.

Mrs. Burton stated I have a long list. I have several items. One is going to be the Five Forks property. We have received the VHDA grant for $200,000 for stabilization. Part of that has already gone out to bid as far as removing asbestos. When we receive those we will put the construction portion out hopefully tomorrow. So we will start

seeing some work on that. I would say September. 205 Jefferson Avenue which is the complex there, the 25 unit apartment complex, will be getting some work on that as well. First you will see tree removal so you will see that pretty soon. That contract has been awarded and then we will go out for bid for the construction work.

Mrs. Stilwell asked who owns it? Did the City acquire it?

Mrs. Burton stated the City received it through a receivership program ordered by the court so officially we have two years to take care of it and bring it up to code on the exterior. So that work will begin fall or early winter.

Mr. Whitfield stated at the end of that period the owner can either pay us to reimburse us or either we can sell the property and we receive up to the amount we can verify we have spent by the receipts.

Mrs. Stilwell stated that is a great program finally that the state of Virginia recognizes was desperately needed.

Mr. Whitfield stated we are the first ones in Virginia to try it.

Mrs. Burton stated you have probably seen some work begin already at the corner of Pine Street and Jefferson Street. They are starting the exploratory work for the storm sewer project that is to go back behind the houses on Pine Street. That project should officially begin on August 1. It will go behind the houses at 815 on the side Mr. Leipe owns. On that side it's going to be a new storm sewer that's going to be installed that will go from the corner all the way behind 871, the newly painted white and black structure the housing authority owns. Then hopefully we can see if it can continue to another phase and take it all the way to Chestnut. But that's where it will go now and that should make a huge difference.

Mr. Stowe stated there's a lot of storm water running from up there from that vacant lot up from his house that there is just a torrential river running underneath the house.

Mrs. Burton stated that's a real mess and that construction will take a while.

Mrs. Stilwell stated it's on the side where the meat market is. That's why the meat market must be flooded. It's getting terrible water problems.

Mrs. Burton stated you're actually getting water from the Sutherlin Mansion and then accumulating and coming down through there and there's no unified storm system back there. Everything was just done by each property owner when they developed the property so you've got small pipe, little pipe, trenches, rock, anything imaginable, tires that were stacked. So you've just got a myriad of things back there so this will give it one unified system.

Mrs. Stilwell stated Steve Delgiorno is very interested in that property and doing something in the future. It's not immediate but the water problem made him make such a lowball offer that the Historical Society would not accept the offer because he was figuring that you could not get any equipment between the house and meat market because it's about this wide. It will have to be hand work.

Mrs. Burton stated hopefully this will help and eliminate some of the water coming through there.

Mrs. Stilwell stated it's just like a flood was coming out between there and it would get deep and just push into the meat market because of the path of least resistance. Okay, that's good news and I'll have to tell him about that.

Mrs. Burton stated 221 Jefferson Avenue is on the last phase of the kitchen. The kitchen is the last phase to be completed and will be completed by October. 120 Chestnut is still under construction will probably finish about the same time. That one looks really nice too so when I get them all done, I will open them up so you guys can see.

Mrs. Stilwell asked if the city would allow the brick house on Jefferson to be open for the Christmas walking tour?

Mrs. Burton stated we are talking now about using that as a model home to show what you can do so there is some potential.

Mrs. Stilwell stated we are getting ready to start lining up properties for the holiday walking tour. If somebody could give us a notice that might it be getting close to being ready and whatever we might have to do Clarke.

Mr. Whitfield stated it's my guess that someone other than the city folks will have to do the decorations.

Mrs. Stilwell stated some houses don't have decorations. We put a wreath on the door or something like that and sometimes we put those candles in the front window or something. Given the opportunity, 200-300 people could go through the house and probably at least 100 people are from out of town.

Mr. Whitfield stated it would be good marketing.

Mrs. Burton stated the other ones I have aren't quite so positive. So keep an open mind though. We've been looking at a couple properties in the district. One is 422 Chestnut Street. It's a blue structure that sets off I guess it's a little ways back. You see Mr. Lesher's property, he lived in Pennsylvania and came down and did a little work. It had scaffolding on the front for a very long time but no really active work. It's down from the

Boatwright house. This property was acquired by the Housing Authority. After it was acquired, we then entered the property and it was in a state of disrepair. It needs a lot of work and I don't know how much of it can be done and certainly be economically feasible. We had an appraisal completed on the property and the entire property was appraised at $2,500. So we have looked at other options and of course demolition is always an option. Maybe not always an option but something you look at when you get numbers like that. I wanted to bring it before you so that you were aware of it. We know that if that is the path we take it will certainly have to be marketed. At this point, it will be three months by state statute. Anything under $25,000 has to be three months.

Mrs. Stilwell stated when they built Chestnut Street it was in the county. Everybody would have brought their address from everywhere.

Mrs. Burton stated we have a similar situation at 875 Green Street. 875 Green Street is a white house that sets back. If you go to the intersection of Green and Park Street there's a duplex. This white house sets back and then Bev Cowen's house is the next one. This property has had a lot neglect as well. Many years of neglect, a lot of water damage and is basically running under the house, actively running under the house at this point. The appraisal did have a value of $4,000 on this one. I don't think this is going to be one that if it were to be demolished it would be as visible because it does set back it is almost missed on your streetscape. A little different than 422 but that is something that we are looking at and it would go the same situation of being able to market it per Code.

Mrs. Stilwell asked how are you going to market it, just put for sale signs or put it on historic properties?

Mrs. Burton stated I'm guessing we would have a realtor.

Mrs. Burton stated we have two others. The other we talked about 422 Chestnut and if that were to be demolished we talked about a possible infill project which I think would be interesting. We don't have one there.

Ms. Levi stated this is 422 Chestnut.

Mr. Stowe stated that's the house the guy wanted to break down into six apartments.

Mrs. Stilwell stated six apartments.

Mrs. Burton stated that was his plan when he bought it.

Mrs. Burton stated 422 would give us the opportunity for a possible infill project. Or possibly one that could be moved to that lot or something to give us a little bit of options there.

Mrs. Stilwell stated how about offering half of each side to either neighbor.

Mrs. Burton stated we will certainly look at that too to break it up a little bit because those houses are so close. Which is one of the issues we also have on Jefferson Avenue. The apartment complex you have two houses right after that before we get to the 221 Jefferson that we're redoing the Bryant Heard. You can barely walk through the house and the apartment complex with the fire escape in the middle of it and so what's happening is the water is rushing off of the apartment complex and under that neighboring house so the foundation is literally gone.

Mrs. Stilwell stated the little white house. Charles Smith owned it for years.

Mr. Davis stated wasn't that part of the review and they said that house didn't have any architectural value to that neighborhood.

Mrs. Burton stated both of them don't have a great deal left.

Mrs. Stilwell state but the house to the right of that is the duplex.

Mrs. Burton stated the yellow one, 217. This will be just up from that. There's two more. There's two and then 217 and then 221. Those are small houses not a lot of detail. I think most of the reports say the same thing that they have lost its value so we've been looking at those two as well. I don't know an appraisal value at this point. I can't imagine that it's a huge amount because of its closeness and because of its current state. But I wanted you all to be aware of that.

Mrs. Stilwell asked if they were privately owned.

Mrs. Burton stated they are owned by the Housing Authority. We would also, given the opportunity with those two, does help to have some lot that can be used for the apartment complex so that there is some space there, maybe some parking. We have also talked about a trail system that we've been discussing within the Old West End maybe utilizing that space as well so it has opportunity. Unfortunately, you would have to lose some structures to get to that point.

Mrs. Stilwell stated we aren't going public yet but I just want to say I just got back from Youngstown. We met with the Youngstown CDC that was formed. The neighbors came and said they wanted to do something and started a little neighborhood and have been going at it for 12 years. Their budget now is like $2 million a year. They've got steel corporations that are no longer in existence. Families that gave money that owned the land and what they are doing in their neighborhoods, I was blown away. I have never seen so much activity and so much revitalization. They have volunteers coming for the whole year to work with them. They do the grass cutting that is a source of income for them. They do the boarding up systematically and digitally and provide it to

the city so that they are coming back against their landlords for the grass cutting and boarding up. They are activists and I'm hoping that we can just do half of what they do. That was a town of 170,000 people now 60,000. So they are very similar. They have lost the legacy industry like we have and I know we are going to be sharing a lot of stories and maybe even have some of them come down here. We are getting ready to have our strategic plan in September. They are educating their population about owning property and teaching them. It was the most inspiring day.

Mrs. Crews thanked Mrs. Burton for her service and advisement to the board.

With no further business the meeting adjourned at 4:01 p.m.

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Approved