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LPBA Architects, Inc.

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October 10, 2008

Mr. Francis J. Lynam
Town Administrator
Whitman Town Hall
54 South Avenue
Whitman, MA 02382

Project:
Needs Analysis for Town Hall and Fire Station
Town Hall, and Central Fire Station
Whitman, MA

Dear Mr. Lynam,

LPBA welcomes the opportunity to work with you and Town of Whitman's staff and building committee. The historic design and construction of the Town Hall studied is of particular interest to us. The distinguished architecture, although in need of repairs and rehabilitation, once repaired and preserved will continue to be the icon of the community. We have observed the existing conditions of the roof, exterior walls, doors and windows, porte cochere, and roof cupolas at the Town Hall, and observed roof and exterior wall conditions at Central Fire Station.

Our goals of the building inspection and observation was to determine the construction quality of the building envelope and the ways in which they are joined, anchored, and supported. The condition of each material and their connections and supports give the reasons for indicating deterioration or failure, and possible approaches to solutions to abate deterioration. Our recommendations suggest multiple building envelope improvements on each building. There are recommendations for accessibility and interior paint repairs. Our approach to provide visual inspection of each building contributes to our understanding of the normal or abnormal behavior of each material element.

LPBA Architects, Inc.

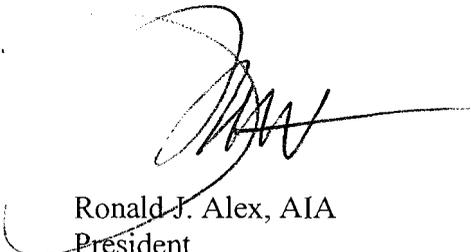
Our recommendations are to improve by plan; the repair or replacement and the decisions that involve many considerations. These include the extent, severity, and cause of deterioration, safety of the façade and its components, preservation of the essential aesthetic characteristics of the façade and components, reversibility or irreversibility of repair and replacement options, availability of labor and materials, surrounding environmental conditions, and life cycle costs of continuing repairs vs. restoring the original components of the building envelope for both buildings.

The cost estimates use current construction practices, prevailing wage rates, assume highest quality standards of workmanship and materials, and look for 30-50 year product life cycles maximizing the value of investment from completion of construction. We have tried to avoid patch and temporary repairs in our analysis and report.

Considerations for funding assistance should be given to Massachusetts Historical Commission grant program awards, National Park Service, Saving America's Treasures Program, Ford Foundation, the local community Development Block Grant program as well as the local Community Preservation Act if it has been adopted by the Town.

I have included an executive summary that addresses visions, goals and objectives for the two buildings, and the environmental hazards report is included. We look forward to provide the quality attention and experienced skills necessary for this project to advance, and address any of the Town's concerns to make this project phase successful.

Sincerely,
LPBA/Architects, Inc.



Ronald J. Alex, AIA
President
Member of National Trust for Historic Preservation

**TOWN OF WHITMAN
NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION
SURVEY AND REPORT**

October 10, 2008

Executive Summary

The Town of Whitman considers the Town Hall as the operational community service building in Town, meeting the needs of a diverse and stable community, and has undergone extremely heavy use over the last 101 years. There have been some improvements to upgrade the interiors over the years, and in 2001 new improvements were made to include handicapped accessible improvements on the interior and exterior, heating system upgrades, repairs to the roof, and smaller repairs were made to the Town Hall roughly 8 years ago.

The cupolas are in need of major repair and restoration. The balance of the exterior building envelope is in need of long overdue slate roof replacement, pointing of the red clay brick and other capital expense repairs. The building is historically significant and worthy of landmark registration with the Secretary of the Interior, National Park Service and Massachusetts Historical Commission. The Town Hall, nearby public common park and nearby residential buildings could become local or national Historic District benefiting the Town with grant assistance for upkeep, as well as local owners, preserving historically significant community symbols at large.

The loose brick conditions of the masonry mortar, spalling brick and deteriorating existing roofing materials contribute to the decline of life cycle and loss of value to the building.

The cupola has received weather exposure and evidence is noted within the interior cupola chamber. The existing sheathing that ties the wood frame together, and cross beam bracing has received water damage. New wood sheathing is recommended to stabilize the cupola from the exterior side under the existing copper sheath covering the wood frame structure. Consideration should be given for practicality and financial reasons, to remove the cupola from the roof, and rebuild the cupola at ground level.

Intrusive wet roof and wall conditions and installation deterioration has exacerbated water entry in many areas of the Town Hall, The continued presence of water penetrating into the solid masonry walls, (according to original drawings) infiltrating and running along the structural beams, rafters, and deteriorating wall /ceiling finishes. This negative action promotes rapid, and accelerates the, decay process often contributing to structural, electrical and mold problems.

LPBA Architects, Inc. suggests correct deteriorating slate roof materials, cupola, ventilation shaft, with quality design, and specifications adapting repair standards as recommended by the Secretary of Interior for Historic Preservation.

**TOWN OF WHITMAN
NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION
SURVEY AND REPORT**

October 10, 2008

I. Vision, Goals and Objectives:

A. Vision:

1. The Town of Whitman will have access to vibrant, architecturally preserved, and welcoming Town Hall.

B. Goals:

1. Improve building performance, maintain structural integrity, project distinguished image, and set a standard for excellence to the community and county for the Town Hall and Fire Station.

C. Objectives:

1. Open discussions with the Town Building Committee and Historical Commission to create building program statement for building envelope improvements based on LPBA Architects, Inc. Needs Analysis, investigation, survey/ report and recommendations for the two buildings.

2. Seek funding. The Town may want to explore Federal and local grant monies and gifts obtainable to complete building restoration, stabilization and improvements.

3. Draw plans and outline specifications to accompany Needs Analysis Report for the repairs, proposed improvements to each building by design and specifications, to include:

Town Hall

- a. Repair of the brick spalling, cracked bricks, loss of mortar attachment, cleaning of precast concrete banding, and masonry brick. Rebuilding of roof ventilation cupolas, replacement slate roof (excluding Fire Station flat roofs) replacement windows and trim, (historically accurate, energy saving replacement), replacement doors matching the original wood doors with full weather-stripping and accessible hardware.
- b. Repair and restore deteriorating marble main ceremonial entrance step (interior)
- c. Cut and repoint existing exterior granite steps
- d. Improve the aesthetic quality, and overall performance of each building through careful sustainable restoration to achieve long term operating performance of each building.

**TOWN OF WHITMAN
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Fire Station

- a. Slate roof tower replacement
- b. Masonry brick repointing at Tower and xxx wall
- c. New heating boiler.
- d.

4. Develop building envelope maintenance plan for next 10 years to serve as guide for yearly building envelope maintenance and preservation.

5. Upgrade and maintain infrastructure, (plumbing, heating, electrical, finishes, hardware, and software to maximize energy conservation and minimize maintenance services.

II. Capital Needs Assessment Summary

The estimated capital improvement costs are:

<i>Town Hall</i>	<i>\$2,537,304.00</i>
<i>a. Projected Future HVAC Renovation Costs</i>	<i>\$1,552,500.00</i>
<i>b. Police Station-New Uses in Town Hall</i>	<i>\$1,052,447.00</i>
<i>Central Fire Station</i>	<i>\$127,332.00</i>
Total 2008 Estimated Capital Improvement Expenses	\$5,269,583.00

III. Conclusion

The Town should discuss and act on responsible capital plan for repairing, restoring and preserving the historic Town Hall, and Central Fire Station. The amount of expenditures projected is expected to cover capital needs improvements for the repair, restoration and preservation of each building surveyed for construction beginning in Spring 2009 and continuing into 2010.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

REPORT

LPBA/ Architects, Inc.

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TOWN OF WHITMAN NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION

Town Hall

October 10, 2008

INTRODUCTION

LPBA Architects has completed the preliminary investigation and survey of the existing conditions at Town Hall, and Central Fire Station. Site observation and review of the building envelope and interiors were performed by ground level, and roof top view. The Town provided fifty-foot aerial lift to scan and observe existing conditions on the buildings elevations at the Town Hall on March 7, 2008.

We have assembled the following report to assist in establishing the preliminary scope of work and providing preliminary cost estimates to summarize budget. We have outlined the components of work below describing solutions to maximize the work through preservation and repair efficiency. Proper restoration treatment of the components listed below, as well as necessary interior work is presented for review of the scope of work recommendations.

Following are each component of the work listed with recommendations for restoration, repairs or modifications as applicable. Each component offers value-oriented solutions where possible, and lists those solutions with associative cost estimates found in the following section. The intention of this report is to establish realistic costs and select which components of the work and the extent of restorative treatment is recommended.

Recommendations for preservation, and building envelope repairs are as follows:
(Refer to subsequent pages for analysis of estimated costs)

RECOMMENDATIONS

Whitman Town Hall

The Town Hall was built in 1907 in American Federal architectural style with red clay brick and natural slate hip and gable roofs. The Architect on record is Aaron H. Gould. The main pediment entrance is centered between exterior masonry pilasters capped by classical carved limestone Corinthian capitals. There are dentil moldings fabricated in the original galvanized metal trim cornice. The ornamental masonry window lintels have unique limestone and brick design with limestone keystone and splayed cut brick forming 17' high structural masonry lintels that characterize the building on all elevations.

TOWN OF WHITMAN NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION

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There is large masonry brick Porte Cochere protecting the street side pedestrian stair entrance on the West elevation. Flat roof with missing balustrade above the stairs. There are two large architecturally clad copper roof ventilation cupolas visible from all street elevations. The building was constructed with exposed aggregate foundation walls with 6-8" face exposure at grade. Review of historical information suggests the buildings structural walls consist of masonry brick exterior load bearing wall, no cavity space detected (deconstructive testing not performed).

The cupolas are clad in copper metal, the seams are badly worn and in need of replacement. The wood frame truss supports the wood cupola frame from load bearing walls directly framed from the second floor. The cupola has ornamental cornice and sheathed wood moldings with small pilasters supporting the metal roof dome. The South cupola is reachable through recently installed (2000) metal rung ladder from attic to cupola. Access to the attic is reachable from second floor closet near main entrance interior staircase. The South cupola base had protective slate removed from the cupola when renovations were made to the roof approximately 8 years ago.

The main portion of the building exterior walls, metal cornice, Porte Cochere, needs attention for repairs, and restoration. The Historical Commission seeks to restore, repair and preserve the unique architectural vocabulary. The Town Hall identity is well known and icon in the community. The building is not listed on the National Historical Register; if so, the Town Hall could be eligible to receive Massachusetts Historical Commission grant funding.

The following architectural components have been observed below with recommendations to improve or repair deteriorated conditions:

A. Architectural Components

1. MASONRY RESTORATION – BRICKS, PILASTERS, LINTELS, SILLS, ARCHES

East Elevation

The East elevation (along the accessible exterior ramp) has random loose detached masonry brick and mortar in the wall running along the entire wall length. Some red clay masonry brick has become dislodged and spalled should be replaced. We believe the building to be solid masonry wall construction (to be verified) after reviewing the original drawings. Typical masonry wall construction details such as masonry brick with metal ties and weep holes (installed for interior water drainage every 10 feet in elevation), have not been installed. The building depends on tight building envelope to perform over the years.

The exterior masonry wall consisting of red clay masonry brick and cut limestone. In general, the existing masonry bricks are in satisfactory condition and most brick surfaces intact with few fractures in general. Major brick spalling has occurred on the Porte Cochere. There are several large masonry sections that need full and matching brick replacement. Due to the age the original mortar (101 years) loss of partial attachment of the brick to mortar has occurred.

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There are many smaller areas of mortar joints with missing mortar or dislodged cracked and open mortar beads at the head and bed joints. Repeated applications of minimal depth repointing over the years along with deteriorated roof openings, and deteriorated window caulk, most likely caused partial brick spalling failure or movement of the exterior masonry bricks due to weather extremes. The window lintel keystones and belt course banding is recommended to be repointed and cleaned.

One hundred percent re-pointing and ¾" depth removal (or more) of mortar is suggested to repel water, maintain dryness within the solid masonry wall for uniform mortar application and brick appearance. The entire facade will require cleaning to remove years old oxides and various pollutants penetrating the brick exposure over the years. Rather than install 40-60% of spot repointing, it is recommended to completely cut and repoint the entire Town Hall masonry brick and limestone. The benefit to repoint is the gain of 100 plus years of value without minor repairs and continuing damage to the interior of the building.

Decorative brickwork within the South and West roof gable pediment. The diamond pattern design with colored masonry bricks in the pediment area requires spot pointing. The joints should be raked out and pointed with mortar formulated to match the original mortar in color, strength and composition. Masonry and metal connection joints on the exterior of the pediment are in deteriorating shape with visible patches of repair. The metal cornice of the pediment, appears to be in satisfactory condition, needs further attention to be observed for minor repairs as necessary.

The construction documents should specify where needed, concentrated areas of masonry cutting, repointing, and rebuilding of selected areas. Allowances or unit prices should be allocated due to hidden conditions for restoration, when not specifically identified in the construction documents. Mortar used for repointing shall match the existing in color, strength, composition and profile. Mortar analysis performed by testing laboratory is recommended. All masonry work to meet Secretary of Interior's guide for masonry standards of historic preservation.

2. SOUTH AND NORTH ROOF CUPOLAS

The South cupola has had the original louvers removed and metal windows installed. If the original ventilation system is still attached (according to the original cross section drawings) the interior first and second floor areas may be closed off to removing exhaust air. Review of the existing mechanical system should be conducted to determine fresh air and exhaust air requirements.

3. METAL ROOF CORNICE, DENTILS, METAL FLASHING, CUPOLA

The existing metal cornice above the brick frieze is in satisfactory condition. There have been ongoing metal strips added by use of riveting to conceal holes or rusting metal. The cornice and accompanying dentil (rectangular block) is made of galvanized metal, is 101 years old and except

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for 5-8 dentils that need repair, are in good condition and has not lost paint attachment over the years.

If portions of the metal flashing on the building can be saved, it should be coated with an iron clad enamel primer and 2 coats of Urethane Alkyd gloss enamel. The color should match the existing color found on adjacent surfaces.

All cornices and moldings from the cupola where loose shall be stabilized and made sound with concealed fasteners and anchors. A section of molding should be removed from typical areas of deteriorated trim to match areas in front and more evident locations where molding is missing. New moldings to be installed around necessary locations of the cupola where existing is deteriorated. Removed for replacement due to deterioration and to match existing profiles.

The portico ceiling hides from view incandescent porcelain electrical lighting fixtures. They appear old and beyond useful life and consideration to replacement are recommended for new energy efficient lighting with timer or light sensor to control energy.

The Porte Cochere ceiling appears to be tongue and groove. Sections of wood forming the ceiling are open wood joints that require closure. The existing moldings beneath the cornice appear to be in good condition. The roof above requires full removal down to the substrate before rebuilding can occur. All architectural elements should be matched as necessary and receive the same treatment as the cornice with primer and paint coatings.

4. METALS

After 101 years of use, exposure to the weather, the steel fire escape landings and railings located in front of double egress auditorium doors (on the first floor East and West elevations) are deteriorated beyond repair. The guard railings, hand railings, and structural steel brackets are in need of repairs, scraping and painting, and do not meet current codes.

Generally, the steel brackets securing the open metal grid called landings, and bolted to the masonry wall and deck is worn thin by weather and natural iron deterioration. The structural depth of thickness has diminished. Due to the age of the metal (101 years) it is recommended to replace the fire escape with masonry wall and concrete stair construction for ease of maintenance, longevity, and maintain the same material vocabulary (brick masonry) as the Town Hall. The new stair design should compliment the historic vocabulary of the building. The design should introduce passages to allow venting from the mechanical rooms on the East elevation, add weep holes for the normal passage of water.

The metal ornamental light posts on the South elevation are considered in poor condition. Metal repairs due to rust are suggested. Depending upon cost of repairs, replacement ornamental lampposts of the same vocabulary and style is recommended with primer and anti-rust paint (Kynar manufacturer).

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5. MAIN GABLE ROOFS & RELATED WORK

The original slate roof material is present on the existing gable roofs. Numerous repairs have been made with slate patching and gutter repairs. Evidence of the 2000 year repair on the slate roof and cupolas is shown in the existing conditions photographs. The attic space reveals spruce board roof plank over wood rafters and 10" x 10" wood roof truss members with composite steel channel angle trusses.

The age and condition of the original roof felts are not known. The trusses supporting roof deck is flat (slight pitch for drainage) at the top, and gable slope for the East and West slate covered roofs. Drainage is collected by copper metal gutters, attached to roof substrate, and run to exterior rain leaders attached to the masonry walls. The gutters are in poor condition, pitted and large holes were detected at point of observation. The West side gutters have been relined with rubber repairs. The original drawings show the same drainage system with metal transfer conductor heads and bands at the stone cornice line directly above the windows. The metal conductor heads are not there today.

We understand the existing EPDM membrane flat roof is roughly 20 years old, and the roof is out of warranty. We recommend installing not the traditional flat seam copper roof, but PVC tapered insulated roof for 30-year life cycle warranty due cost effectiveness and shallow angle of roof over pitched trusses.

The existing membrane roof on cupola base walls has patched in rubber membrane mixed in with the original slate shingle base. This material should be removed and the cupola restored to the original slate base and add new zinc coated standing seam copper flashing on the North side. The sheet materials, gauge and types are to be specified. New materials should match the original materials in appearance, profile, finish and function. The step flashing on chimneys are new and part of the 2000 year work and can remain during the roof replacement. Roughly 100 SF of cutting and pointing is needed on the chimneys.

Due to the suggested partial brick replacement of the West elevation at the Porte Cochere, the top West and North masonry wall should be rebuilt with five or six courses (or as needed) to close the loss of mortar openings at the roof level. The entire roof perimeter must be opened and replaced with new roof accommodating the original flashing features. New BUR replacement roof with stone ballast or PVC membrane recommended with tapered isocyanurate insulation for 20-30 year life.

The existing lower ventilation dormer roof membranes at the North side roof should be replaced if leaking or over 20 years of age. A full rip down to exposed structural wood deck with new tapered R-23 Poly-isocyanurate insulation installed under new fully adhered membrane is recommended. We suggest .060 PVC (poly vinyl chloride) membrane for superior welding characteristics with 10-foot seams and 30-year available warranty from certain manufacturers. Other materials proposed for use shall match existing in size, density, hardness, thickness and texture and shall be acceptable only when specifically approved by the Architect. All roofing accessories, vent pipe boots, curbs, blocking, etc. shall be replaced with new materials. New safety ladders should be installed for emergency and all weather repair access ladder in the North cupola to reach attic roof levels.

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Lighting Arrestors are not present and are recommended with spike arrestors mounted on the exterior metal ridges at upper slate transition to flat roof. Copper cable conductor must be installed ground to roof. Earth rod connections not observed.

Hazardous materials may be present in the roofing felts under the slate roof and in asphalt material of the Tar and Gravel roofs. We recommend testing for asbestos or lead in roof materials, test cuts in the roof to determine if the old Tar and Gravel roof may be present under the EPDM membrane, window caulking, metal railings, and other material that may be affected by the work.

The Police Station, we understand, may be moving to new site in several years. The radio antenna with approximate height of 60 feet should come down. The potential for roof movement (causing leaks) around the antenna base with four metal stay supports would be eliminated. It is recommended to remove the antenna from the roof.

6. METAL CUPOLAS

At the South elevation the metal architecturally detailed cupola is badly deteriorated after 101 years. It is understood cupola repairs performed roughly 8 years ago was only to seal the leaking cupola base. Access to observe existing conditions was available. It was observed the mini truss system supporting the cupola is in satisfactory condition, however the wood studs and sheathing should be replaced when re-sheathing the cupola in metal. There is apparent water damage to the plaster face wrapped structural wood beam at the second floor coffered ceiling. Further investigation, including removing the plaster for observation in the schematic design stage is recommended.

The original building drawings show the cupola base to have copper ornamental metal ball and plinth base on four corners. Restoration of the cupola to include all decorative elements for refinishing.

7. WINDOWS/ DOORS

I. Windows

There are twelve types of wood and replacement metal windows on the Town Hall wall elevations. The large 4'-8" x 8'-10" Palladian windows are made with replacement thermal pane glass. The smaller ornate round wood windows located in the gable roof pediments appear to need repair or replacement. One window frame has been changed; the other to be replaced, as the condition is poor with the frame, mutins and mullions. The wood is in fair condition. In general, the replacement windows appear to be old Peerless model and the window style is not consistent with the

The existing replacement metal windows lack sufficient metal frame receptor edge to form recessed bond with the brickmolds. The exterior caulking has failed and needs replacement. No known thermal pane units have glass seal failure.

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The Town may want to consider new thermal pane windows with higher (minimum U.44) resistance value meeting current Massachusetts energy codes, are recommended to reduce fuel energy expenditures, reduce water infiltration, and increase comfort in the offices, and auditorium.

The existing windows are replacement. It is not known if the original brickmolds have been removed behind the square metal frames. Today's technology can replicate the original brickmold with faithful reproduction of the frame detail and sashes. New replacement thermal aluminum windows can have metal finish on the exterior side and natural or stained wood sash on the interior side low maintenance and aesthetic reasons. Woodside/metal side architectural windows are commonly made today by several manufacturers.

We have provided cost estimates for true divided light aluminum frame exterior with wood interior finish replacement windows. The price range for aluminum/wood windows varies depending upon quality, maintenance and life cycles. The issue of replacing with metal or wood is based upon historical accuracy and should the Town Hall be listed with Massachusetts Historical Commission and requests renovations grant, the windows would be subject to review for potential funding.

Should the Town decide to use full sided replacement aluminum windows, the costs should include exterior panning, interior trim, exterior applied muntins between the glass lites; interior screens; ultra lift balances; custom color silicone polyester or kynar color finish. The cost for wood windows, which would be more in keeping with the aesthetic of the original windows, is more expensive. This is based on custom double hung wood windows, historic fan window, including new sash frame and brick mould; true muntins; weights; chains and pulleys; primed with 2 coats of finish paint.

Different manufacturers offer models to accommodate historical window types such as Peerless and EFCO. Comparable windows can be ordered to replicate depth of the sash and frame to fit the standard 4 1/4" depth, and therefore has a slightly lower R-value. Many manufacturers offer standard brick panning moldings, which can be configured to very closely, match the existing profile.

II. Main Entrance Doors @ Loggia

The existing main entrance aluminum storefront doors on the exterior and at the loggia of the upper stairs are bright shiny aluminum replacement doors and not performing well. The single pane glass should be converted to thermal pane glass and door styles should attempt to replicate the original 1907 design. (See historical photos in the existing conditions photographs) Replacement of the doors may have several alternatives, which should be examined. It appears from historical photographs retained by the Whitman Historical Commission, the doors were wood, perhaps solid or with partial glass windows. The original drawings and existing wood frame confirm the size of each door leaf was 2'-6" x 10'. To accommodate the smaller sized seven-foot aluminum storefront doors, a second transom was introduced in the doorframe.

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The original door transom is detailed to say "leaded glass" with two transoms over four door leafs. The design was enhanced scroll and floral enrichments and may have been clear or colored glass. The cost for re-creating this configuration with the leaded glass would be prohibitive. To re-create the original four-door leaf with two transom panels would not be prohibitive. Accessibility would remain within building code with the operation of automatic door opener for two door leafs. The new wood doors would undoubtedly be welcomed as significant aesthetic addition to improve the historic quality of the Town Hall. The remaining aluminum entrance doors on the East and West entrance could be improved over time.

III. Sealants

We recommend removing all window and door sealants due to age or failure and apply new sealants. If windows are not changed, use backer rod to close all open areas between the window frame and masonry brick. Removing sealants allows the mason to properly repoint the brick open joint voids behind the plane of the window frame, allowing for positive attachment of brick to window frame.

8. INTERIOR WORK

The existing segmented marble stone steps have moved and appears lifted and not firmly anchored to the stair footing or stringer. There are several different reasons for loss of attachment. Original drawings indicate concrete footing forms were poured to accept steps. Step anchor fastening system has been undermined due to deteriorated wood stringers. Typically, the marble steps are set on formed concrete stringers or steel frame and are attached with rods or pins. The wood frame stair stringers have deflected due to wood shrinking, some water damage, shrinking, and cracking, resulting in breaking of the marble stone tread in several areas. If this condition is not abated, more marble treads will be broken and raised and further create safety problem. New structural foundation and fastener system recommended to be designed, details to be determined in schematic design.

There appears to be coffer beam sag with apparent wood beam in the 2nd floor corridor near the main stairs. This deflection in beam span may have been caused water entry in the cupola by natural corrosion of the copper sheathing on the roof and walls. We recommend further investigation by destructive testing to understand the current conditions.

9. PAINTING and FINISHING

The ceiling peeling paint problem within the auditorium and common public areas has demonstrable paint loss of attachment that is viewed as considerable blight and deterioration. Recent paint history suggests the ceilings may have been painted with calcimine paint (calcium carbonate, water, pigments and minimal binders for adhesion).

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Calcimine paint was used in the 19th and early third of the 20th century as economical solution to give interior surfaces new fresh look with minimal cost. Contributing to the loss of paint attachment is environmental and climate changes such as temperature shifts, unheated rooms, excess moisture during rainy seasons when boilers are off, contribute to excessive humidity and also accelerate the delaminating process.

LPBA has received copy of Analytical Laboratory Report performed by J. Frederick Mauck dated April 2, 2004. The report used test methods of Atomic Absorbtion Spectroscopy, Infrared Spectroscopy, Optical microscopy, and Wavelength Dispersive X-Ray. Three samples were collected and analyzed. Sample A was taken from plaster based skim coat, with five or six layers of paint was observed. Material contained vinyl acrylic coating containing TiO₂ and various silica/silicates including clay, talic, and, 07%- .11% lead on the sample. Some of the layers in samples are a calcimine type material.

Asbestos Consultants, LLC, has confirmed the presence of calcimine paint. Samples taken and sent to laboratory confirmed traces of calcite and metals including lead paint. The ceilings do contain calcimine paint, and to eliminate the peeling paint problem with long-term results, cleaning solutions have minimal effect and not the answer for positive paint attachment. The Town has two choices, one- Calcimine paint should be removed to allow new primer to be adhered to the wire lath and plaster ceilings. Most paint manufacturers recommend full removal of the paint finish to substrate. After all paint and calcimine is removed by sanding to substrate, skim coat of plaster is recommended to level the surface before painting. After sanding, apply prime paint and finish coat. For short-term results, several paint manufacturers make calcimine recoated to cover the essentially and apparently chaulk surfaces in the Town Hall. This process is not recommended. Thorough investigation of existing materials is recommended before determining practical solution and final paint removal recommendation.

If not calcimine paint on the existing plaster, the current paint may have been applied on dirty surface, (oily paint) to cause loss of adhesion, or the relativity at time of paint application within the substrate was greater then 12% and would have caused improper adhesion. The temperature at time of application should have been in the range of 40 degrees to 90 degrees.

Sanding is allowed with proper dust control. Sanding is allowed with traces of lead not greater than one millimeter per centimeter squared. This is less than the random sampling results shown. The Tow Hall is public business function and not residency. Contractor must employ dust control operations while removing paint. Thorough cleaning and washing of the Town Hall would be necessary for occupancy; OSHA regulations would be in force during the surface preparation.

Major sections of ceiling are in need of full paint removal, perhaps plaster surface restoration, primed, and painted with two coats of specific paint as determined by painting manufacturer. Paint chemistry analysis is recommended before proceeding with paint specification. The general areas of peeling paint areas are in the auditorium, common area corridors on three levels, and stage area that would require new refinishing and repainting. All architectural wood components, if included, such as trims, cornice,

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wood doors and window trim to match original historical colors. Historical analysis and testing of paint recommended for authenticating original paint colors.

The second choice is to give consideration to applying 3/8" blue board over existing ceiling surfaces with full skim coat. Major detraction to this process is loss of cornice reveal shadow line at top of plaster ceiling cornice in the public areas and in the auditorium affecting the historical accuracy of the architectural trimwork. The costs of blueboard vs. sanding are about the same. The blue board could be held back by one inch to allow for original detail of cornice molding.

See Asbestos Consultants, LLC report attached dated May 8, 2008.

10. SITEWORK

In general the building became accessible with the 2000-year renovations. New Massachusetts Architectural Access Board regulations require buildings, when spending over \$500,000 on improvements to comply with accessibility laws, including the Americans with Disabilities Act.

The East exterior concrete ramp does comply with the 1:12 grade, however the handrails and guard are not in compliance. The East entrance stair handrails are also not in compliance, and the East and West auditorium fire escapes and stairs are not in compliance. Further discussion suggested for fire escape replacement and whether one or both fire escape stairs could be removed through Building Code analysis.

B. POLICE STATION

LPBA was asked to perform observation of the structural roof deck with regard to revised office partition layout for future administration use. The Police Station is expected to move to new or other facility in the next several years. The current offices in the lower level of Town Hall and in the "new" addition are small from general office and function view in the one story addition attached to the North elevation of the Town Hall in the 1970's.

The concrete plank "T" beams observed in the garage and above the lowered ceiling tiles in the administration area were satisfactory in appearance with no apparent sagging or deflection in material strength. The area can be vacated, non-load bearing walls removed and new office floor design can be rearranged to accommodate new program. See preliminary layout concept drawings dated march 27, 2008.

LPBA has generated two proposed schemes for administrative use. Each scheme leaves the existing toilet rooms (economies of scale) for re-use and uses the North entrance of the Police

**TOWN OF WHITMAN
NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION**

Town Hall

October 10, 2008

Station as the main entrance for visitors and employees. Staff may also access the proposed Administration area by means of ground floor corridor between the meeting room and boiler room as it leads off the main lobby stairs. There is approximately one-foot drop or level change from the ground floor of the Police Station (plus twelve inches) to the existing floor level (zero inches) within the Town Hall. The vehicle garage can be made into conference room. The garage door area could be framed with walls and windows and siding and new ceiling could hide water sprinkler pipes, and electrical wiring. HVAC would be introduced to bring fresh air, and remove non-fresh air through new exhaust system.

Existing toilets are left in place on the floor plans due to relatively high cost of fabricating and installing new sewer lines and water supply lines under floors, and overhead HVAC system. The roof precast concrete structural plank was observed to be in satisfactory condition in the garage and administration areas. The wall change sketch as proposed by LPBA Architects, Inc. will not affect removing the existing non-load bearing walls for larger or rearranged spaces when designed with new program.

1. MAIN ROOF & RELATED WORK

The original roof material of the Police Station appears to be 1970's construction of the existing Tar and Gravel roof with built up mineral roofing (BUR) attached to the existing concrete plank deck. The concrete roof deck is one story and supported by the masonry bearing walls on the East and West elevations. The main entrance is through the South. Accessibility is provided by concrete ramp. Flashing reglets on the North exterior wall were most likely cut into the masonry brick with reglets, and appears to be deteriorated and should be replaced with new roofing. Through-wall flashing not determined.

**TOWN OF WHITMAN
NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION**

Central Fire Station

October 10, 2008

RECOMMENDATIONS

Central Fire Station

The Central Fire Station is located on South Main Street not far from the center of Town and the Town Hall to the East.

The Romanesque revival architectural style building with former splayed masonry arches with limestone keystones over the overhead doors have been eliminated. The removal created height to the rectangular overhead door passage for modern day fire apparatus vehicles.

The red brick masonry hose tower has distinguished pyramid shaped slate shingle roof with metal/ wood cornice held by masonry brick bearing walls. The North or main elevation wall is for vehicle entrance into the Station. The elevation was modified in 2000 year to create larger overhead door opening into the apparatus bay by use of steel lintels to support the remaining keystones over each door opening. The original red brick masonry building had new building addition constructed in 2001. All elevations have replacement windows with stone and brick lintels and stone sills. The main roof is above the apparatus bay; the lower new addition roof contains roof top HVAC units for the addition heating and cooling needs.

The hose tower roof is reported leaking and the original slate roof life has exceeded expectations and should be replaced. The building is in need of masonry pointing. The buildings exterior walls, metal cornice, and masonry on the hose tower need attention for masonry repairs, restoration and preservation of the unique architectural tower expression. Windows are non-operating in the hose tower. He tower is in need of repointing. Two of the four building elevations are in need of mortar replacement on East and West side elevations. The condition of the masonry brick face on these two elevations is in fair to satisfactory condition. Spot repointing has occurred over the years. The building is not listed on the local Historical Register.

The following architectural components have been observed below with recommendations to improve or repair deteriorated conditions:

1. MASONRY RESTORATION – BRICKS, ARCHES, LINTELS, SILLS

The East and West elevations have lost 3/16' –5/8" brick mortar on exterior walls. The West elevation has deeper loss of masonry mortar.

TOWN OF WHITMAN NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION

Central Fire Station

October 10, 2008

In general, the existing masonry bricks are in fair to satisfactory condition and most surfaces are intact with few fractures in general. There are several large masonry sections that are in need of repointing with deteriorated mortar at the head and bed joints. Repeated applications of natural rain water washing out the cementitious paste have left mortar voids. The previous deteriorated roof openings, before the new roof was applied, most likely caused partial brick failure through water penetration, exposure to the interior brick wythe, and freeze thaw cycles contributed to mortar failure and some brick spalling.

One hundred percent re-pointing and ¾" depth removal (or more) of mortar is suggested to repel water, maintain dryness within the building, and for uniform mortar and brick appearance. The entire facade where treated, will require cleaning to remove oxides and various pollutants from exposure over the years.

The exterior masonry wall is recommended to be repointed to the extent and areas described on the attached Drawings. The construction documents will specify concentrated areas of masonry cutting, repointing, and rebuilding of selected areas if necessary. Allowances or unit prices will be allocated due to hidden conditions for restoration, which is not specifically identified on the Drawings. Mortar used for repointing shall match the existing in color, strength, composition and profile. All masonry work will meet Secretary of Interior's guide for masonry standards of historic preservation.

2. METAL FLASHING

The existing wood/ metal cornice below the slate roof should have metal gutters to collect the rain water and drain onto the EPDM roof. It appears from observation there are gutters. If so, the gutters should be removed for proper flashing under the new slate roof and allow roof water drainage into the gutters to prevent water washing over the brick exterior walls on all elevations. The existing gutter if left intact, may be in satisfactory condition, and be re-used. If not, we recommend new gutters, leaders, splash blocks, and roof edge flashing.

3. MAIN ROOF & RELATED WORK

The original flat roof was most likely Tar and Gravel mineral tar felts built-up roof (BUR). The existing flat roofs have been covered with EPDM membrane and date of the installation is unknown. The roof appears in satisfactory condition and it is recommended to add 10" seam tape to the sheet membrane, over the entire flat roof seams, to protect the single seam and extend the warranty. There are no observed lightning arrestors on the building and consideration to prevent unnecessary lightning strikes is recommended.

4. HOSE TOWER ROOF

The life cycle of the slate roof appears to be at end with the roof leaks. New 3/8" slate roof is recommended for replacement for longevity and non-combustible characteristics. Old roof and

**TOWN OF WHITMAN
NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION**

Central Fire Station

October 10, 2008

materials to be discarded. New Ice and Water shield material recommended covering the entire wood plank deck roof. The life of the slate roof has 100-year expectancy with very low maintenance.

4. WINDOWS/ DOORS

I. Windows

Windows and Doors are not part of the scope of work.

5. SITE WORK

I. Painting of metal handrails at East elevation.

Peeling and flaking paint was observed on the majority of metal handrails on the East elevation. The pipe appears to be galvanized and should be scrapped and cleaned before painting with rust preventative enamel prime, and paint.

6. MECHANICAL SYSTEMS

See attached MacRitchie Engineering Inc. report of the HVAC systems.

TOWN OF WHITMAN NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION

Town Hall and Fire Station

October 10, 2008

Summary **Needs Analysis for Town Hall and Fire Station**

Whitman Town Hall

Whitman Town Hall has unique American Federal architectural style and is prominent building in Town. The preservation of this landmark is important to the history of the community, and is very important the distinguished architectural features of notable design and construction be preserved. There are many repairs needed for treatment and preservation of the Town Hall. The cost estimate sums the individual items necessary for full exterior building envelope improvements to maintain and restore the building to early historic character. We recommend all improvements as outlined in the attached Cost Estimate with full roof replacement and full repointing of the red brick masonry.

LPBA recommends the Town initiate Master Plan to preserve the original exterior and interior design of the Town Hall. As changes are made for improvements, sometimes, existing features are eliminated or disturbed. This happens more frequently to the interiors of the building. The original quality and character of the interiors should be maintained. A catalogue of the original building elements such as doors, windows, door hardware, brass fittings, chandeliers, seating in the auditorium, ornate plasterwork, signage, specials architectural features, list wood species found on walls floors, doors, marble, granite, and lighting fixtures should be noted and photographed and placed in reference manual for future work in the Town Hall.

The questions of which proposed modifications are acceptable, and merit preservation is a difficult one. If it has notable qualities of design or craftsmanship and is it significant in defining the buildings character, the answer is obvious. The Town of Whitman will be preserving distinguished Town Hall architecture as proposed and built by the community in 1907 for future generations to admire and benefit through civic functions.

The Town may be interested in financial assistance through grants or other means of fund raising to succeed in rehabilitation. The exterior of the building will qualify for Massachusetts Historical Commission (MHC) grant funding. (The next grant round date has not been released) The Town has received previous MHC grant funding for the Town park behind the Police Station.

Considerations for additional funding assistance should be given to apply for National Park Service, Saving America's Treasures Program, Ford Foundation, and the local community Development Block Grant program as well as the local Community Preservation Act, if it has been adopted by the Town.

TOWN OF WHITMAN NEEDS ANALYSIS FOR TOWN HALL AND FIRE STATION

Town Hall and Fire Station

October 10, 2008

Fire Station

The Fire Station needs is minimal compared to the Town Hall. LPBA recommends new slate roof on the hose tower, repainting and repairs as required for the cornice, railing repainting and refinishing, and masonry repointing of large areas of bricks on the hose tower, including three wall elevations to eliminate water entry and preserve the character of the building. The heating system requires minor repairs. The flat roofs should be re-seamed at all joints to add additional life to the EPDM membrane and protect against water entry.

Police Station

The Police Station vacancy will leave a series of small offices that are cumbersome and difficult to use for administration office layout. Office layout changes with new program to address different needs to the new users are inevitable. The Police Station is accessible from the North elevation and from the lower level passageway near the mechanical room.

LPBA has provided conceptual sketch to show what may be possible for minimal disturbance to the existing interior office layout. No programs for office needs were provided. LPBA provided basic conceptual design to maximize open office design; Drawings A-2.0 shows nearly empty rooms (after removing existing rooms) for potential office configuration. Drawings A-2.1 readjusts existing offices near meeting room. The jail cells are removed in both designs. The existing toilet rooms were left in place due to the added cost of bringing in water and sewer services to relocated toilet room.

We suggest good office planning practices be employed around descriptive program to reconfigure offices with the following objectives- construct offices near windows to provide natural day lighting, create offices or departments around core areas, providing less disruption to other departments, leave toilet facilities to minimize cost for relocating, and create passageways for accessibility to other parts of Town Hall.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

COST ESTIMATE

LPBA/ Architects, Inc.

Architecture
Planning
Interiors
Construction
Management

28 Penniman Road
Boston, MA 01234,
Tel 617/ 782/9131
Fax 617/782/9141
Email infoa@lpba.com

Town of Whitman, Massachusetts 02382				
PROJECT: Town of Whitman				
Needs Analysis for Town Hall and Fire Station				
<i>Preservation, Building Envelope & Interior Repairs</i>				
	Area/	QUANTITY	UNIT COST	COST
DIVISION/ COMPONENT	Quantity			
PHASE ONE	SF /LF		Labor & Materials	
DIVISION 1 - GENERAL REQUIREMENTS				
Town Hall				
ESTIMATED COSTS OF CONSTRUCTION				
A. Mobilization & Insurance (3%)		0.03	\$ 1,345,041.00	\$ 40,351.23
B. Scaffolding-Pipe Staging @ each level continuous				
1. Town Hall		allowance		\$ 36,000.00

DIVISION 2 - DEMOLITION				
Repair entrance steps, remove and notch cracked concrete	SF	24	\$35.00	\$ 840.00
Remove paint from metal gutter cornice	LF		\$315.00	\$ -
Remove metal from cupolas (2)	ea	2	\$950.00	\$ 1,900.00
Remove deteriorated wood in cupola chamber	SF	300	\$7.25	\$ 2,175.00
Cut bed/ vertical masonry joints (North elevation)	SF	2727	\$7.25	\$ 19,770.75
Cut bed/vertical masonry joints (South elevation)	SF	2724	\$7.25	\$ 19,749.00
Cut all bed/vertical masonry joints (East elevation)	SF	4082	\$7.25	\$ 29,594.50
Cut all bed/vertical masonry joints (West elevation)	SF	4280	\$7.25	\$ 31,030.00
Cut pilasters, capitals and attic bases	ea.	4	\$425.00	\$ 1,700.00
Removal of chimney flashing and mortar masonry joints	LF	80	\$6.25	\$ 500.00
Cut mortar in limestone lintel keystone	LF	425	\$6.25	\$ 2,656.25
Interior main entrance stringer step reconstruction removal, number and store	SF	90	\$26.00	\$ 2,340.00
Window sealant removal	LF	2190	\$2.50	\$ 5,475.00
Removal of deteriorated fire escapes	ea	2	\$750.00	\$ 1,500.00

Needs Analysis for Town Hall and Fire Station
Town of Whitman

Remove antenna hardware and base (crane)		allowance		\$	2,200.00
Slate shingle removal	SF	13,140	\$0.45	\$	5,913.00
Dumpsters	ea	12	\$575.00	\$	6,900.00
DIVISION 3 -CONCRETE					

New footings for interior replacement stair stringer		allowance		\$	3,750.00
Concrete exterior stair / landing wall footings	allowance	2	\$6,500.00		\$13,000.00

DIVISION 4 - MASONRY					
Repair main entrance exterior steps	LF	29	\$45.00	\$	1,305.00
Repoint Porte Cochere-interior side	LF	1065	\$18.00	\$	19,170.00
Repoint bed/vertical masonry joints (North elevation)	LF	2727	\$18.00	\$	49,086.00
Repoint bed/vertical masonry joints (South elevation)	LF	2724	\$18.00	\$	49,032.00
Repoint bed/vertical masonry joints (East elevation)	LF	4082	\$18.00	\$	73,476.00
Repoint bed/vertical masonry joints (West elevation)	LF	4280	\$18.00	\$	77,040.00
Repoint pilasters, capitals and attic bases	LF	4	\$550.00	\$	2,200.00
Repoint chimney (2) flashing joints	LF	80	\$22.00	\$	1,760.00
Repoint mortar in pre-cast stone joints at windows	SF	500	\$46.00	\$	23,000.00
Replacement brick match per unit @ Porte Cochere	SF	900	\$36.00	\$	32,400.00
Replacement brick match per unit	ea	200	\$48.00	\$	9,600.00
Clean chimney masonry exterior walls (323+241)	SF	564	\$1.50	\$	846.00
Clean four elevation exterior masonry walls-SF (window protection)	SF	14880	\$1.25	\$	18,600.00
Install new Lamppost stone base- South Elev.	ea	2	\$3,500.00	\$	7,000.00
Reset existing marble steps - main ent. interior	LF	90	\$125.00	\$	11,250.00
Spot repoint chimney all bed/vertical masonry joints -SF	SF	50	\$18.00	\$	900.00
Granite baluster at Porte Cochere	LF	75	\$225.00	\$	16,875.00
Replacement fire escape in masonry brick (East & West Elev.)	ea	2	\$23,000.00	\$	46,000.00

DIVISION 5 - METALS					
Metal flashing Porte Cochere balustrade	LF	75	\$22.50	\$	1,687.50
Scrape and paint ornamental lamppost metal, add repairs	ea	2	\$1,225.00	\$	2,450.00
Metal flashings @ upper flat roof @slate	LF	233	\$29.00	\$	6,757.00

Ridge Flashings	LF	230	\$22.00	\$ 5,060.00
Valley Flashings	LF	180	\$22.00	\$ 3,960.00
Refabricate copper roof hoods for metal ventilators	ea	1	\$350.00	\$350.00
Fabricate cast iron grilles and screening for ventilator	ea	4	\$2,600.00	\$10,400.00
Replacement metal MAAB hand railings at East entrance	LF	92	\$125.00	\$11,500.00
Replacement metal guard railings at East entrance	LF	57	\$210.00	\$11,970.00
Cupola - copper sheathing, trim, ventilator louvers, and roof	ea	2	\$65,000.00	\$130,000.00
Copper gutters at slate roof	LF	475	\$37.00	\$17,575.00
Flat roof gutters	LF	240	\$24.00	\$5,760.00
Clean and prepare metal fascia and cornice for painting	LF	450	\$15.00	\$6,750.00
Snow pipe rails @slate roof	LF	136	\$35.00	\$4,760.00
Interior main entrance replacement stair stringers	allowance			\$5,500.00
Auditorium (new masonry) egress stair metal railings	ea	2	\$8,500.00	\$17,000.00
DIVISION 6 - WOOD & PLASTICS				
3/4" exterior grade plywood for slate /flat roof substrates	SF	16280	\$1.87	\$30,443.60
Exterior stair / landing wall rough framing footings	allowance	2	\$1,500.00	\$3,000.00
Cupola rebuilding repairs	allowance	2	\$7,500.00	\$15,000.00
DIVISION 7 - THERM/MOIST PROTECT				
Replacement roof - .060 PVC membrane (Town Hall)	SF	1770	\$22.00	\$38,940.00
Replacement roof - .060 PVC membrane (Police)	SF	3250	\$22.00	\$71,500.00
Cut -in reglet- LLC	LF	464	\$7.50	\$3,480.00
New 3/8" slate on main roof	SF	13140	\$16.50	\$216,810.00
Ice and water shield	SF	13140	\$1.80	\$23,652.00
Roofing felt- flat roofs 30 lb.	SF	3140	\$1.10	\$3,454.00
DIVISION 8 - DOORS AND WINDOWS				
Replacement exterior wood doors @ main entrance and interior	ea	8	\$2,250.00	\$18,000.00
Wood door frames	ea	4	\$1,500.00	\$6,000.00
Door glazing	ea	8	\$250.00	\$2,000.00
Palladian windows @ auditorium	ea	6	\$9,500.00	\$57,000.00

1/2 round windows @ auditorium	ea	1	\$2,400.00	\$ 2,400.00
Window replacement allowance- North (remove and replace)	ea	19	\$1,100.00	\$ 20,900.00
Window replacement allowance- South (remove and replace)	ea	25	\$1,100.00	\$ 27,500.00
Window replacement allowance- East (remove and replace)	ea	29	\$1,100.00	\$ 31,900.00
Window replacement allowance- West (remove and replace)	ea	31	\$1,100.00	\$ 34,100.00
Window sealants	LF	2190	\$2.25	\$ 4,927.50
DIVISION 9 - FINISHES				
Painting metal cornice at roof		475	\$8.00	\$ 3,800.00
Interior ceiling repairs, scrape, prime and paint in common areas and auditorium (offices excluded)	SF	11805	\$9.50	\$ 112,147.50
DIVISION 10 - SPECIALTIES				
National Historic Register Sign Plaque /mounted		1	\$800.00	\$ 800.00
DIVISION 15 - MECHANICAL				
Not used				
DIVISION 16 - ELECTRICAL				
Rewire lamppost lighting		allowance		\$ 250.00
Lighting Arrestors		allowance		\$ 22,000.00
SUBTOTAL Estimated Construction Cost				\$ 1,658,368.83
Plus 10% Contractor Overhead & 10% Profit		20%		\$ 331,673.77
Plus 7.5% Contractor General Conditions		7.5%		\$ 124,377.66
TOTAL				\$ 2,114,420.26

Plus 10% Percent Owner Contingency		10%		\$211,442.03
TOTAL Estimated Construction Cost w/ contingency				\$ 2,325,862.28
Architectural /Engineering fee - Design-Specifications-Construction Administration- Estimated		10%		\$ 211,442.03

TOTAL Estimated Project Cost **\$ 2,537,304.31**

Environmental Hazards, Asbestos, Lead is unknown. Hazardous materials not tested				
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FUTURE HVAC RENOVATION COSTS

HVAC work in Town Hall (See MacRitchie Engineering Report)

Administration - Cooling on 3 levels with zones	\$ 650,000.00
Auditorium - Cooling for 25% peak load once per day.	\$ 450,000.00
Opening and Closing walls and ceilings	\$ 250,000.00
Sub Total	\$ 1,350,000.00

Architectural /Engineering fee - Design-Specifications-Construction Administration- Estimated		15%		\$ 202,500.00
TOTAL				\$ 1,552,500.00

Deduct Alternative

Asphalt-Plastic shingles

SF	13140	5.15	\$ 67,671.00
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Police Station				
ESTIMATED COSTS OF CONSTRUCTION				
New Uses of vacated spaces				
A. Mobilization & Insurance (3%)	0.03	\$	700,000.00	\$ 21,000.00
Concept design based on Drawings A-2.0 and A-2.1, program not developed. Assumptions - 40% of new interior construction.				
DIVISION 2 - DEMOLITION				
Remove partitions as shown on Drawing A-2.0	SF	6522	\$18.00	\$ 117,396.00
DIVISION 6 - WOOD and PLASTICS				
Reconfigure floor plan as shown on Drawing A-2.1 (30%)	SF	6522	\$65.00	\$ 423,930.00
DIVISION 9 - FINISHES				
Painting of walls and ceilings as shown on Drawing A-2.1	SF	6522	\$2.75	\$ 17,935.50
DIVISION 15 - MECHANICAL				
Allowance for ductwork changes	SF	6522	\$10.00	\$ 65,220.00
DIVISION 1 - ELECTRICAL				
Allowance for lighting and power changes	SF	6522	\$6.50	\$ 42,393.00

SUBTOTAL Estimated Construction Cost				\$ 687,874.50
Plus 10% Contractor Overhead & 10% Profit		20%		\$ 137,574.90
Plus 7.5% Contractor General Conditions		7.5%		\$ 51,590.59
TOTAL				\$ 877,039.99
Plus 10% Percent Owner Contingency		10%		\$ 87,704.00
TOTAL Estimated Construction Cost w/ contingency				\$ 964,743.99
Architectural /Engineering fee - Design-Specifications-Construction Administration- Estimated		10%		\$ 87,704.00
TOTAL Estimated Project Cost				\$ 1,052,447.99

DIVISION 6 - WOOD & PLASTICS				
Wood repairs to cornice and columns		allowance		\$1,500.00
3/4" plywood to deck roof/ hose tower		allowance		\$1,200.00
DIVISION 7 - THERM/MOIST PROTECT.				
Slate Roof Replacement	SF	475	\$20.25	\$ 9,618.75
Ice and Water shield	SF	475	\$1.80	\$ 855.00
DIVISION 8 - DOORS AND WINDOWS				
Not used				
DIVISION 9 - FINISHES				
Painting- wood/ metal cornice		allowance		\$ 750.00
DIVISION 10 - SPECIALTIES				
Not used				
DIVISION 15 - MECHANICAL				
Boiler repaire (see MacRitchie Engineering report)				\$ 3,000.00
DIVISION 16 - ELECTRICAL				
Not used				

SUBTOTAL Estimated Construction Cost				\$ 90,789.75
Plus 10% Contractor Overhead & 10% Profit		20%		\$ 18,157.95
General Conditions 7.5%		7.5%		\$ 6,809.23
TOTAL				\$ 115,756.93
Plus 10% Percent Owner Contingency		10%		\$11,575.69
TOTAL Estimated Construction Cost w/ contingency				\$ 127,332.62
Architectural /Engineering fee - Design-Specifications-Construction Administration- Estimated		10%		\$ 11,575.69

TOTAL Estimated Project Cost **\$ 127,332.62**

Environmental Hazards, Asbestos, Lead is unknown.
 Note: No testing completed for hazardous materials

Town of Whitman
Needs Analysis for Town Hall and Fire Station

ENGINEERING REPORT

LPBA/ Architects, Inc.

Architecture
Planning
Interiors
Construction
Management

28 Penniman Road
Boston, MA 01234
Tel 617/ 782/9131
Fax 617/782/9141
Email infoa@lpba.com

ralex

From: "Kerry Bowden" <kbowden@macritchie.net>
To: <ralex@lpba.com>
Sent: Thursday, March 27, 2008 12:00 PM
Attach: Whitman Town Hall.pdf; pictures.pdf; Whiteman Fire Station.pdf
Subject: Revised Whitman Reports

RECEIVED
MAR 28 2008
LPBA/Architects, Inc.

Hi Ron,

Attached are the revised reports for the Whitman Town Hall & Fire Station. Please let me know if you need anything else.

Thanks,

Kerry Bowden
Business Manager

MacRitchie Engineering, Inc.
197 Quincy Ave.
Braintree, MA 02184
(781) 848-4464 Voice
(781) 848-2613 Fax
kbowden@macritchie.net



MacRITCHIE ENGINEERING INCORPORATED

197 Quincy Avenue, Braintree, MA 02184
Tel. (781) 848-4464 Fax (781) 848-2613

RECEIVED

MAR 28 2008

LPBA/Architects, Inc.

Whitman Town Hall

HVAC

The Whitman Town Hall houses three major functions currently.

Town office functions occupy about forty percent of the basement and the first and second floors in the front of the building. Total floor area of this function is approximately 18000 sq. ft., and includes a large basement meeting room.

The police department occupies slightly less than 6000 sq. ft. on one level.

The large auditorium with balcony occupies about 9000 sq. ft. (including balcony floor area).

Total building floor area (not including large attic spaces) is about 33,000 sq. ft.

The town offices are generally large rooms with large windows, typical of a nineteenth century town hall. Although we would typically estimate an occupancy of 7 people per 1000 sq. ft. in a typical office building, that would grossly overstate the occupancy of the town offices. Large hallways and the museum atmosphere in the lobby suggests, in general, a lower occupancy.

The one exception is the large basement meeting room. Based on ventilation rates (fresh outside air) designed in 2000, this meeting room was designed for about 170 occupants.

The air handling unit installed in 2000 or 2001 is 100 percent outside air. Most of the time the meeting room is not occupied to design and return air could (should) be utilized.

The office portion of the building is generally heated with perimeter, hot water radiation. Air conditioning of perimeter offices is via window air conditioning units (with minor exception such as the treasurer's computer area with ductless split system).

With the exception of the police station, there is no central air conditioning.

The police department is sub divided into small compartmentalized spaces. It is centrally air conditioned. The police department appears to have outgrown its space and will likely move out as plans for a new police station develops.

The existing hot water heating system consists of relatively new boilers (about seven years old) and an eight zone hot water system.

Each zone has a dedicated hot water circulator. Some circulators are dedicated to the hot water coils in air handling units, others feed baseboard radiation. Complete drawings



MacRITCHIE ENGINEERING INCORPORATED

197 Quincy Avenue, Braintree, MA 02184
Tel. (781) 848-4464 Fax (781) 848-2613

were not available, only the 2000 renovations. More field work will be required to document existing conditions.

Most offices do not have thermostatic control of space temperature due to long series runs of radiation, feeding multiple offices. In the case of one, perimeter computer room, the local air conditioning is constantly fighting the hot water radiation that can not be locally shut off.

Most window air conditioning units are removed for the winter to reduce cold infiltration air. Some offices, particularly corner offices, receive a great deal of direct sun. As a result of this winter solar heat gain, window air conditioning units are kept in place year round and are used throughout the winter, on mild, sunny days.

Plans call for the replacement of windows. New windows and old window air conditioning units are not compatible.

Currently there is adequate ventilation as the result of large, leaking windows. New windows will be virtually air tight.

Note: The current state building code (sixth edition) recognizes "natural" ventilation, i.e., the opening of windows. The International Building Code, about to be adopted by Massachusetts does not recognize windows as a source of ventilation air in offices. On a ten degree day in winter or a ninety degree day in summer, people are not going to open a window to get ventilation air.

Any project that replaces windows should include central air conditioning to not only replace the windows units, but also provide a source of ventilation air.

Note: Many schools in Massachusetts have installed new windows only to develop indoor air quality (I.A.Q.) problems due to non-functioning ventilation systems.

As the result of the building having different functions that occur at different times i.e. police; 24 hours per day, seven days per week, office; 8 to 10 hours per day, five days per week, auditorium; occasionally, nights, weekends, central air conditioning could take advantage of the diversity in the building. The office will have a peak air conditioning load of about 40 to 45 tons.

The auditorium, with 500 people will have a load of about 45 to 50 tons.

The future use of the police department area is to be determined. If it is an expansion of the office area it will require 12 to 15 tons.

A central chiller, with a total capacity of 55 to 60 tons could accommodate a connected load, in excess of 100 tons, because of diversity.



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Recommendations

The entire building should be air conditioned. The entire HVAC system should be modernized to integrate heating, cooling and ventilation into one well managed (controlled) system.

This work can be phased over time with much of the work performed piece meal, in accordance with a master plan. The components of the master plan would be as follows.

1. Remove hot water baseboard radiation from the front, office, portion of the building. Each office would be equipped with a four pipe fan coil unit.

This unit would be a console type unit installed under windows to counteract down drafts in winter.

The heating coil would be connected to the existing hot water distribution system.

The cooling coil could be connected to a new chilled water distribution system at this time, or simply capped for future.

Note: A two pipe fan coil is not recommended for the Whitman Town Hall. This system incorporates a single coil with either hot water or chilled water piped through a common piping system. In the "in between" season some space requires heat while others require cooling. Due to basement offices, very large windows, multiple exposures etc, a two pipe system will be problematic. Usually a building experiences about 4-6 weeks in the fall and spring with this type of system. In the case of the Whitman Town Hall this 4-6 week period of discomfort will be much longer.

2. Install a direct digital control (DDC) system for the control of the four pipe fan coil system. This system would be expanded as the HVAC system is expanded.
3. Install an air cooled chiller to produce chilled water for central air condition.
4. Increase the size of the electric service to accommodate the water chiller and for future, undefined, renovation.
5. Modify the air handling unit that serves the basement level meeting room to include a chilled cooling coil and return air ductwork.

With a DDC system CO2 sensors can be added to vary ventilation air with occupancy.



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6. Extend the chilled water system to serve the auditorium. This will require chilled water piping, likely replacement of air handling units with newer units with chilled water coils and "economizer" controls.

The economizer controls will vary outside air volumes based on space temperature and occupancy, i.e. fresh air on an as needed basis.

7. Add mechanical ventilation to office areas.

Note: Unlike a classroom with a high density of people, the office area has a very low occupancy. Adequate infiltration may exist, even with new windows. The element of work can be postponed without major risk, and incorporated if the building is too tight.

8. Extend the HVAC system to the space to be renovated (existing police station).

Electrical

The electrical system was updated in 2000 primarily, to improve power distribution around the building, lighting in offices, voice/data communication and fire alarm. However, central air conditioning was not anticipated and the power to the building does not appear to have been increased. The current incoming electrical service is 240/120 volt, three phase, four wire, 400 Ampere. Central air conditioning will require in excess of 200 Amps, minus the existing load of the displaced window units. It is recommended electrical service be increased to 600 to 800 amperes due to the unknown future needs of the area currently occupied by the police department.



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LPBA/Architects, Inc.

Whitman Fire Station

The Whitman Fire Station has been experiencing heating problems, and in particular with the hot water system that serves the second floor.

The apparatus floor (first floor) with the major equipment and vehicles is heated by several gas fired, infrared heaters. A "Plym-O-Vent" exhaust system (connected to each fire truck) provides ventilation of diesel exhaust fumes. The heating and ventilating system on the apparatus floor is typical of a modern fire station and nothing unusual was observed (or reported).

The gas fired boiler that heats the entire building (except the apparatus floor) is located in the basement. Complaints of frequent pump failure were received.

The boiler is an older (estimated at 20 to 30 years old) Peerless (manufacturer) gas fired boiler that is atmospherically fired. It has an input of 140,000 BTUH, a D.O.E. output of 114,000 BTUH and a net I.B.R. output of 99,000 BTUH.

A flue damper has been installed in the vent pipe directly at the connection to the boiler. It appears there is (or was) a problem with flue gases "spilling" out of the boiler.

The installation of a flue damper is an effective way of saving energy, however, burner ignition should be delayed until the damper is open. Once the damper is open, I do not believe a draft problem exists with the boiler. A time delay relay or an "end switch" could be installed to prevent the boiler from firing until the damper is open.

It appears the boiler may have been sized for the entire building. There is also evidence of extensive re-piping around the boiler, much of it incorrect.

The atmospheric boiler design is common and all manufacturers return water low into the boiler with supply water taken from the top of the boiler. The existing hot water circulator is piped to take water out of the return connection on the Peerless boiler.

The boiler is rated for 50 PSI pressure, and in all likelihood was originally equipped with a 50 PSI relief valve. The existing relief valve is a 30 PSI valve.

Although pure speculation, it's possible the 50 PSI valve was replaced with a 30 PSI valve. The combination of system pressure plus the added pump pressure caused the 30 PSI relief valve to open. By simply turning the pump around that problem was resolved, but other problems created.

A hydronic system is often equipped with "flow control valves" to prevent water flow in piping circuits not requiring flow. In addition, control valves (not to be confused with "flow control valves") are designed for flow in a specific direction. By reversing the



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direction of water flow, it's possible some thermostatically operated control valves do not operate or do not operate adequately and that flow control valves (acting as check valves) prevent flow to some heating elements.

The following factors were observed and all contribute to shortened pump life.

1. The boiler water temperature is maintained at about 190° F. Generally baseboard radiation is designed for 180° F supply water and 160° F return water. The pump experiences 190° F continuously.

By adjusting the water temperature to 180° F (operating aquastat) and reversing the pump (to pump into the boiler) the water temperature through the pump will be reduced about 160° F.

2. The pump runs twenty four hours per day, 365 days per year (unless someone manually shuts off the boiler and pump). By installing an outside air temperature thermostat to prevent boiler and pump operation above 55 to 60° F (adjustable), pump and boiler operation can be eliminated about 3500 hours per year.
3. The pump is oversized for the boiler. The TACO model 112 is currently elevating the pressure 6 PSI or 13.8 ft. From the pump curve this equates to about 27 gallons per minute (GPM) water flow.

With a boiler output of 114,000 BTUH, a pump with a flow rate of about 12 GPM is a better selection.

The fix appears to be relatively easy including:

- Change the pressure relief valve to 50 PSI (the boiler rating).
- Change the pump to a TACO 113, 12 GPM at 14 ft. of head.
- Change the direction of water flow in the system. This will include relocating (and reserving) the check valve in the pump valve in the pump discharge.
- The city water make-up and system expansion tank should be located on the suction side of the pump. A TACO air scoop (elimination fitting) should be installed on the suction side of the pump. The expansion tank and the city water should be connected at this point, along with an automatic air vent.
- Wire the gas valve through a 30 to 60 second time delay, to allow the flue damper to open, prior to firing the boiler.



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- Installed an outside air temperature sensor to prevent boiler operation above 60° F.

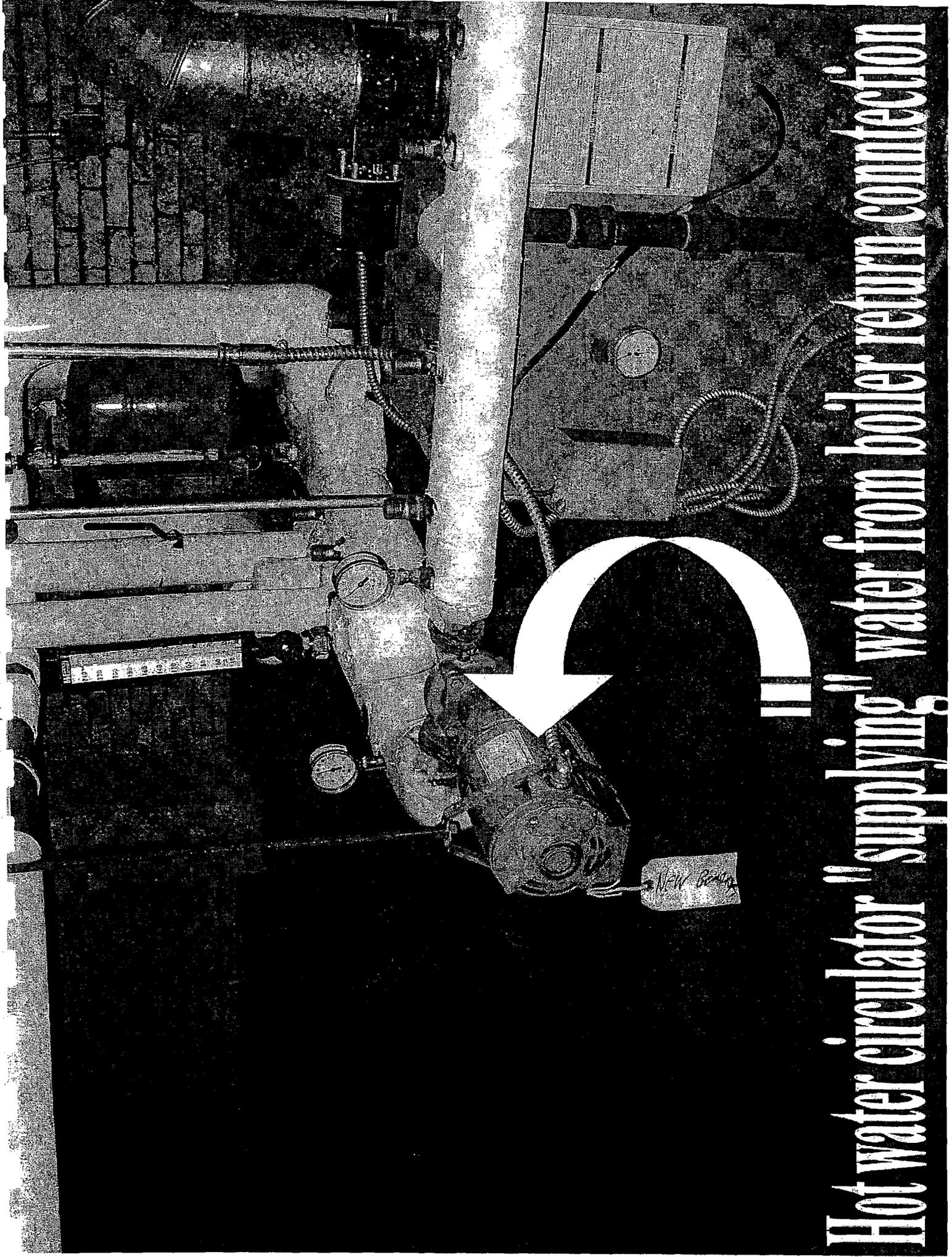
The Peerless, cast iron, atmospheric boiler is a rugged, simple, long lasting boiler with a typical life expectancy of 30 to 35 years (2 ASHRAE studies) and often longer.

It is, however, by today's standards inefficient. New, this boiler had a peak efficiency of about 78 to 80 percent. Today the efficiency has likely dropped to a peak of 70 to 75 percent (or lower).

New condensing boilers have peak efficiencies in the 93 to 95 percent range. Although the payback alone may not justify the boiler replacement, the existing Peerless boiler will likely have to be replaced within the next 5 to 10 years. At that time a condensing boiler should be considered.

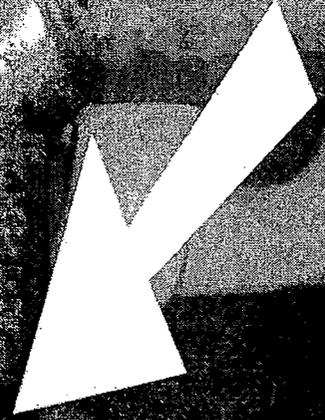
Most gas utility providers offer rebate programs for the installation of energy efficient equipment. These programs cover just a small portion (say 10 to 30 percent) of the premium cost differential between high efficiency and standard efficiency equipment. However, this is often enough to justify the higher, initial expense of the more efficient installation.

Attached, 2 photos with notes



Hot water circulator "supplying" water from boiler return connection

Vent Damper



Evidence of flue gases "spilling" from boiler

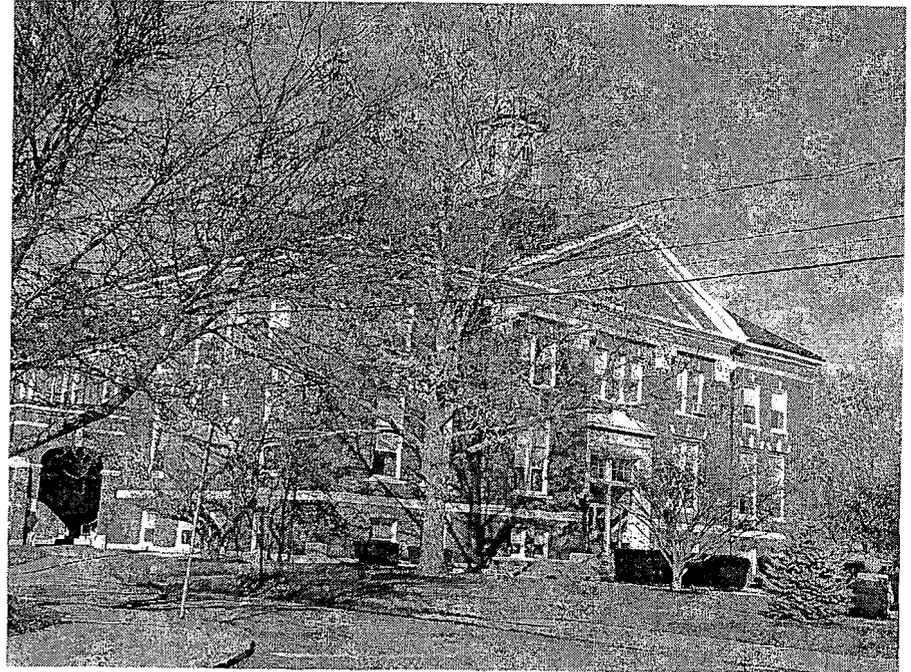
Town of Whitman
Needs Analysis for Town Hall and Fire Station

EXISTING CONDITIONS PHOTOS

LPBA/ Architects, Inc.

Architecture
Planning
Interiors
Construction
Management

28 Penniman Road
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Town Hall/ Police Station

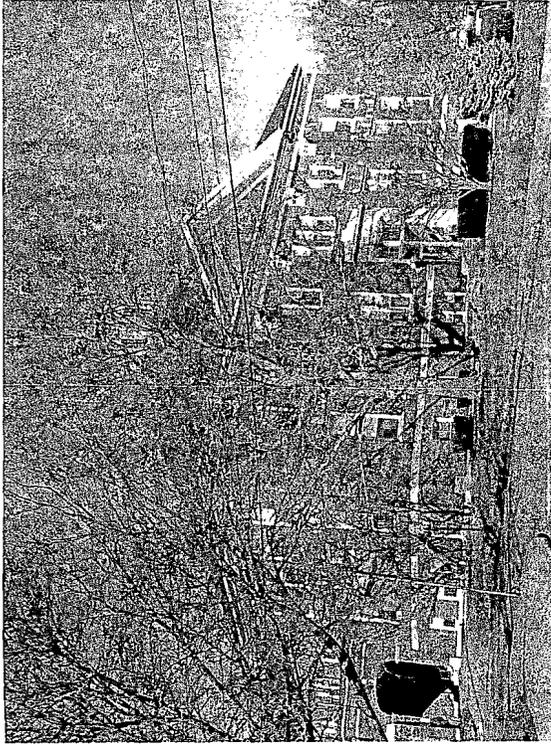
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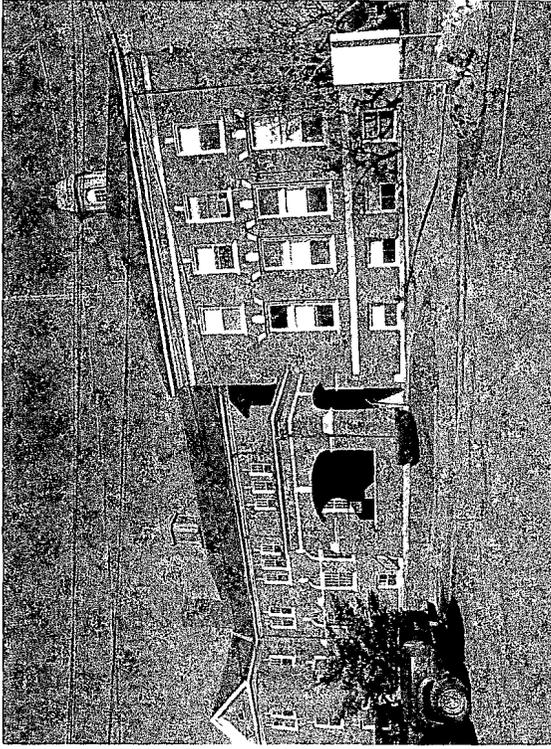
28 Penniman Road
Boston, MA 02134
Tel 617/782/9131
Fax 617/782/9141
Email info@lpba.com

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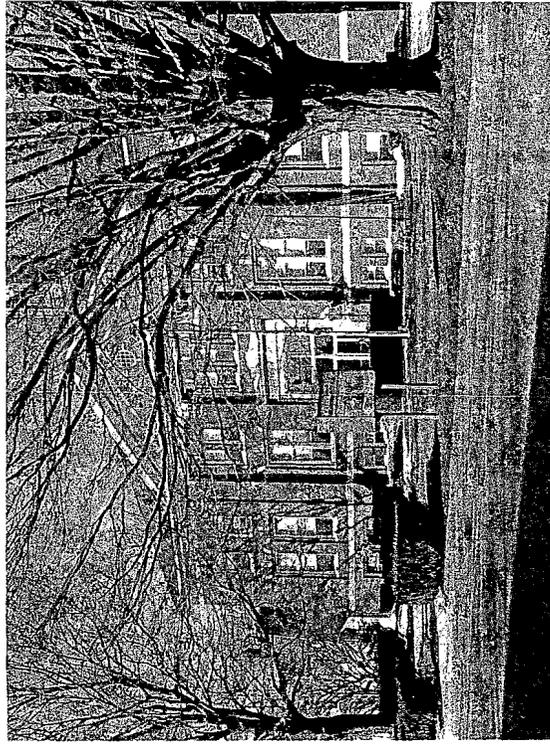
Existing Conditions
March 2008



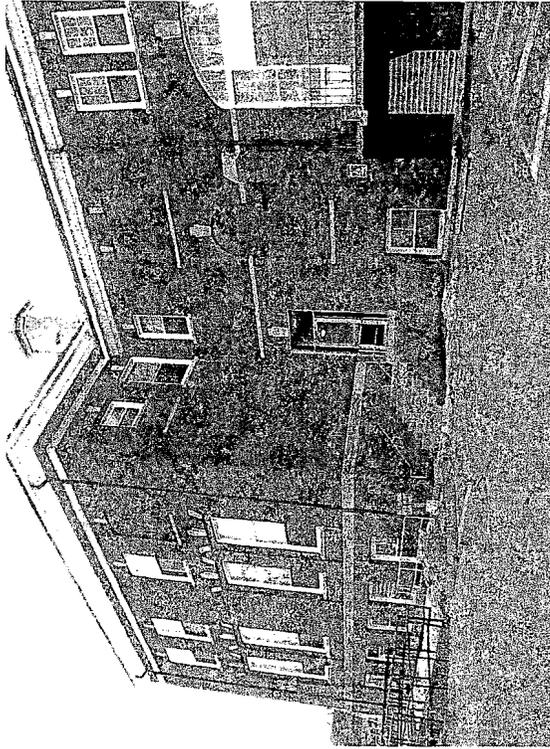
Southwest Elevation



West Elevation



South Elevation



East Elevation

Town of Whitman
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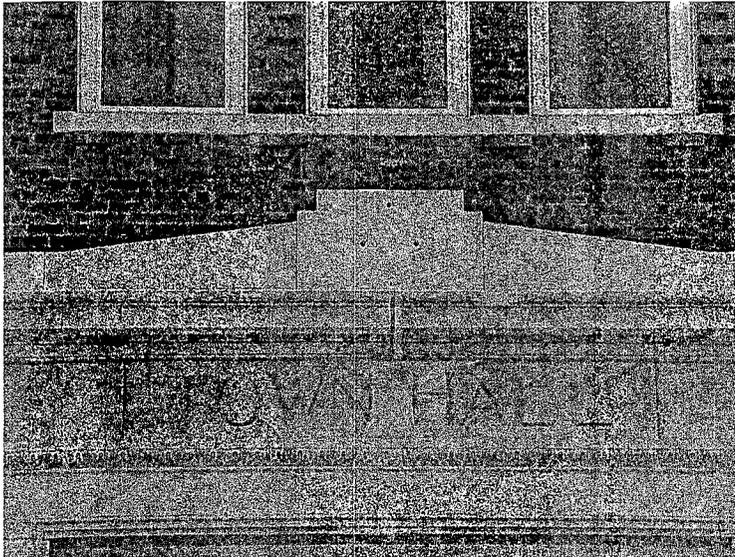
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Pre-cast stone entrance, replacement aluminum doors with masonry Pilasters.



Replacement windows installed with metal casings.



Plaque or Ornamentation missing.



Ornamental brickwork in diamond pattern around circular window.



Auditorium emergency egress with metal railing,



Police Station garage.



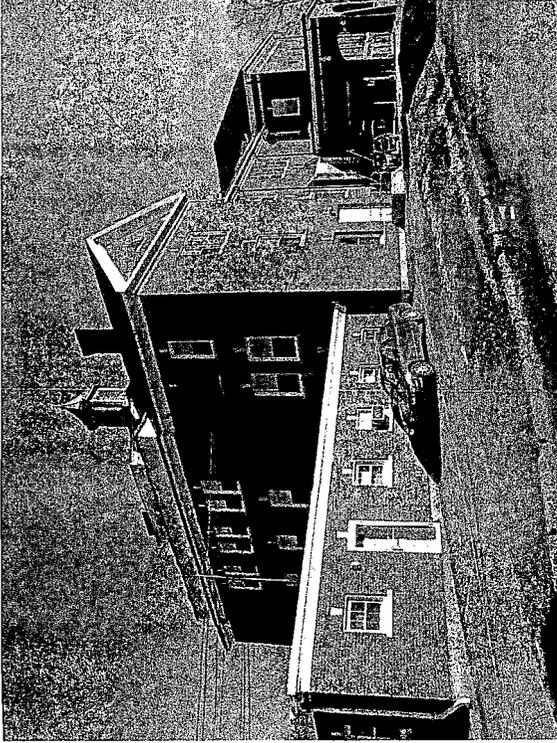
Paint leaching under sills onto brickwork.



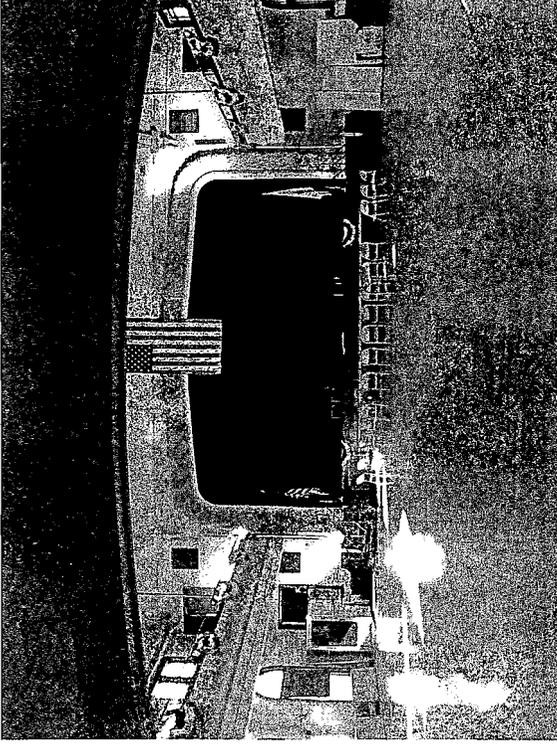
Accessible ramp.

Town of Whitman
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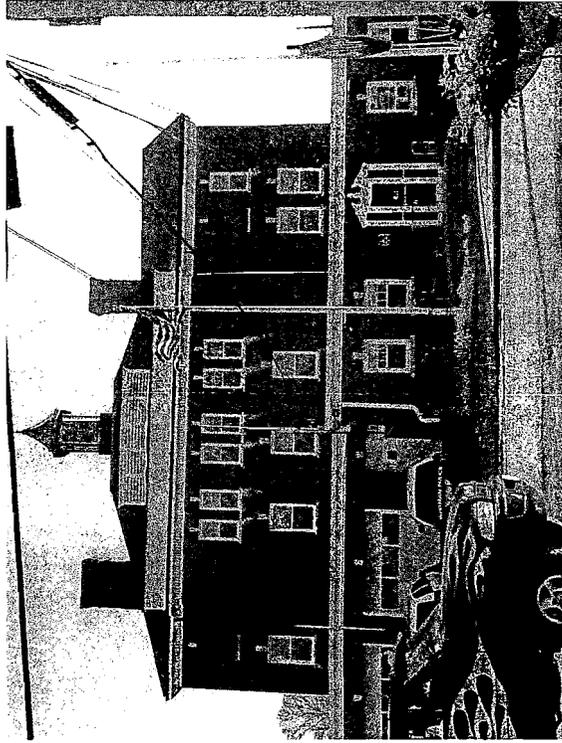
Existing Conditions
March 2008



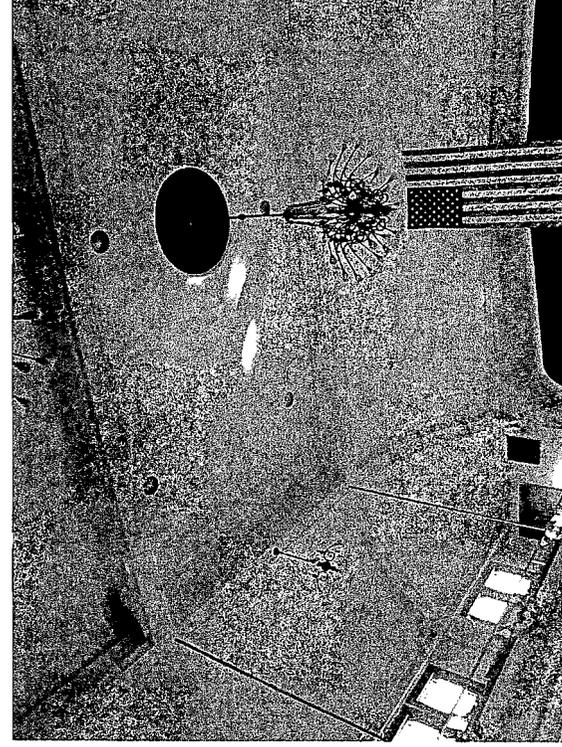
West elevation of police station.



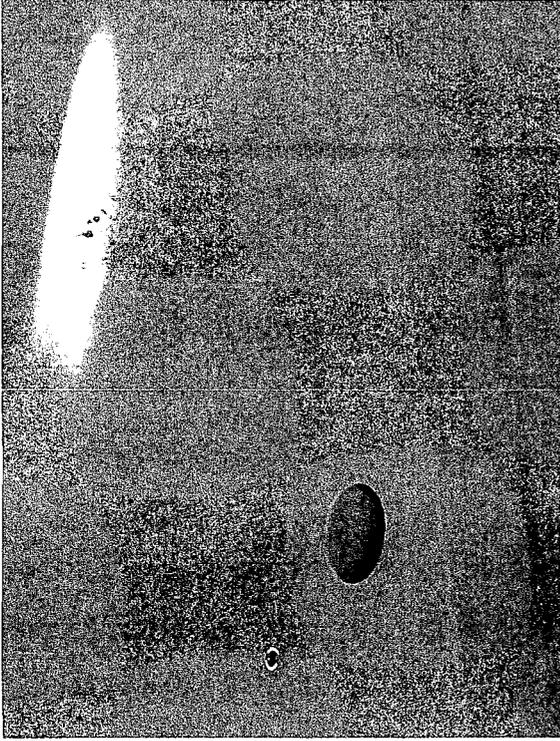
Auditorium with mezzanine.



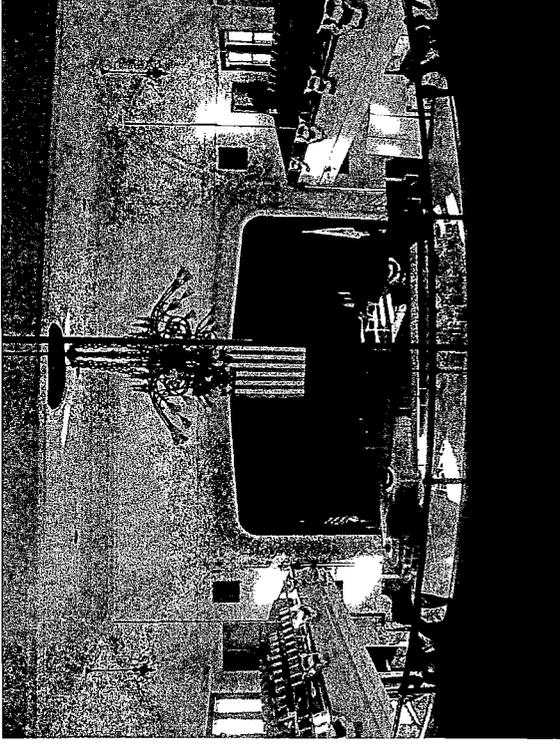
North elevation with main entrance to police station and auditorium air shaft exhaust.



Peeling and flaking paint on ceiling.



Peeling paint.

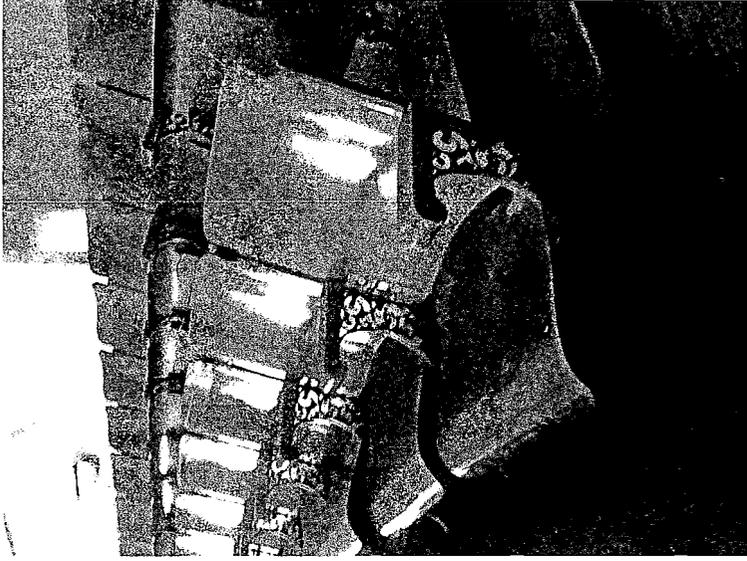


Mezzanine view of interior in auditorium.



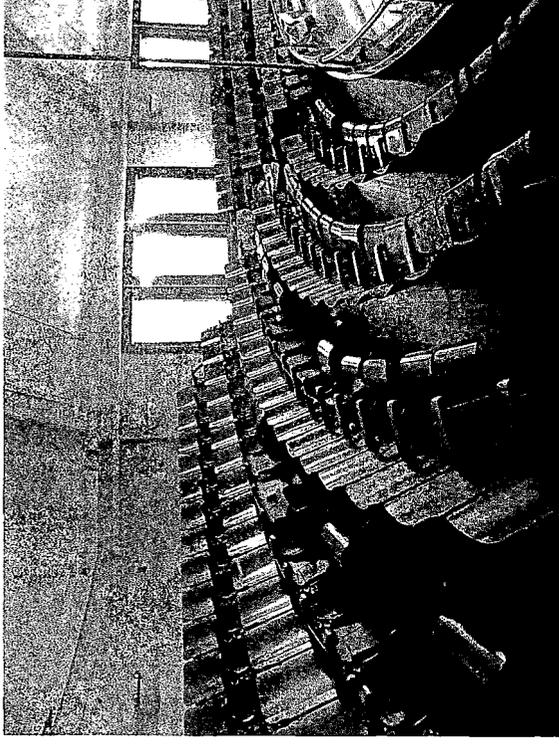
Peeling paint.

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Original bentwood frame and metal chairs.

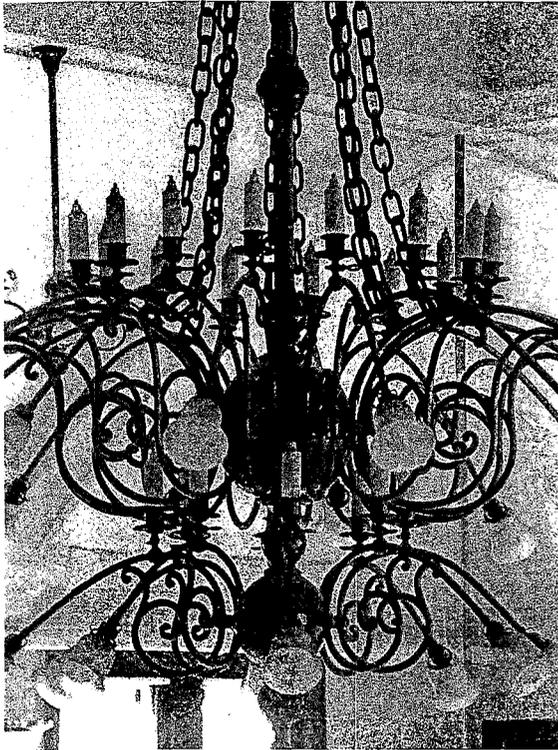
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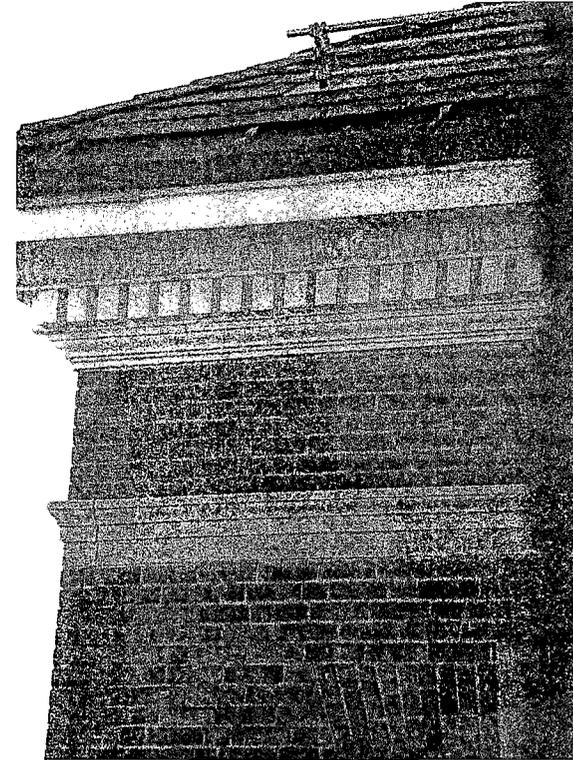
Elliptical row seating on elevated risers.



New metal window on wood sill.



19th Century chandelier.



Deteriorated flashing at stone cornice banding.



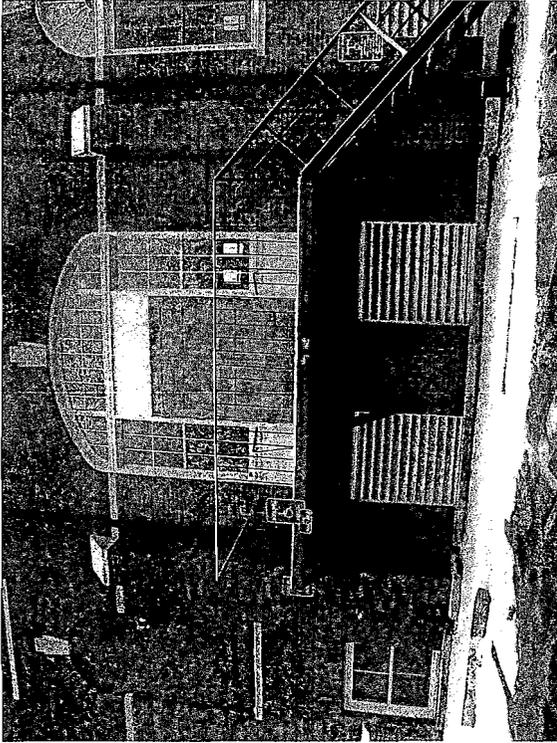
Main entrance vestibule.



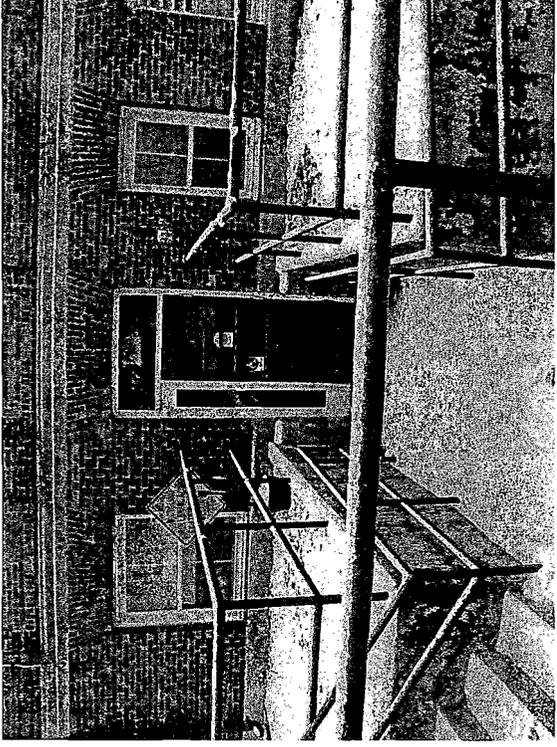
Fire alarm annunciation panel.



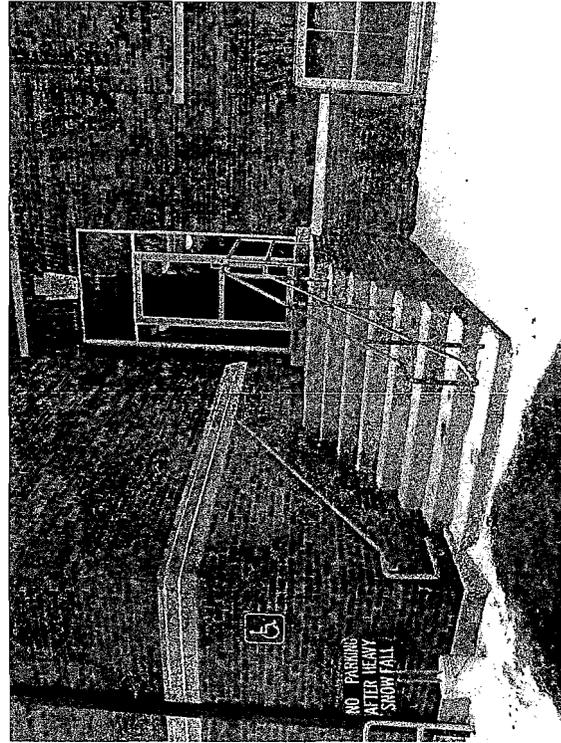
West Side Entrance



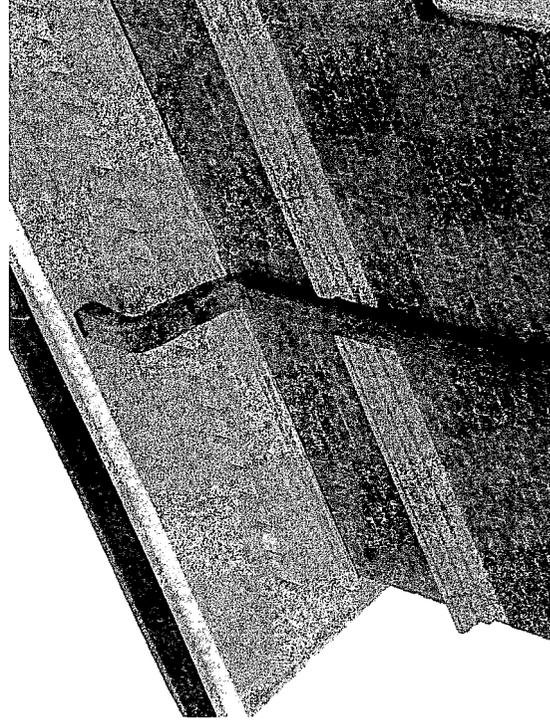
Air intake louvers under fire escape handrail, not code compliant.



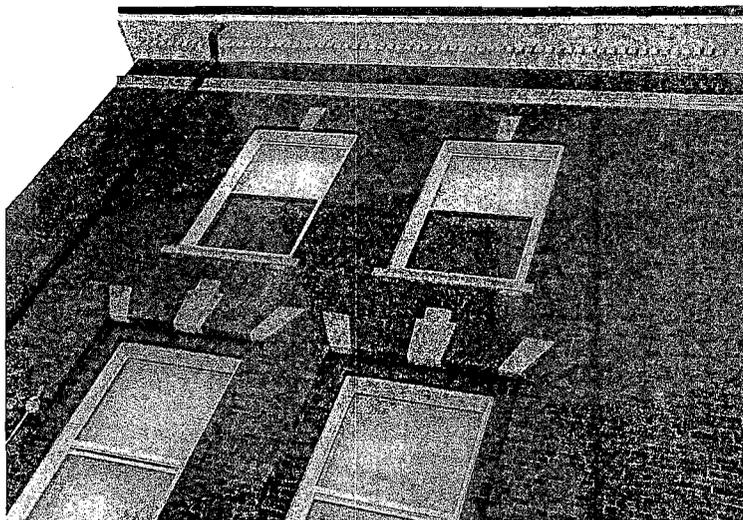
Basement accessible entrance with non compliant handrails.



East entrance.



Cornice detail and rain leader.



Decorative stone and masonry lintel paint staining bricks at sill.



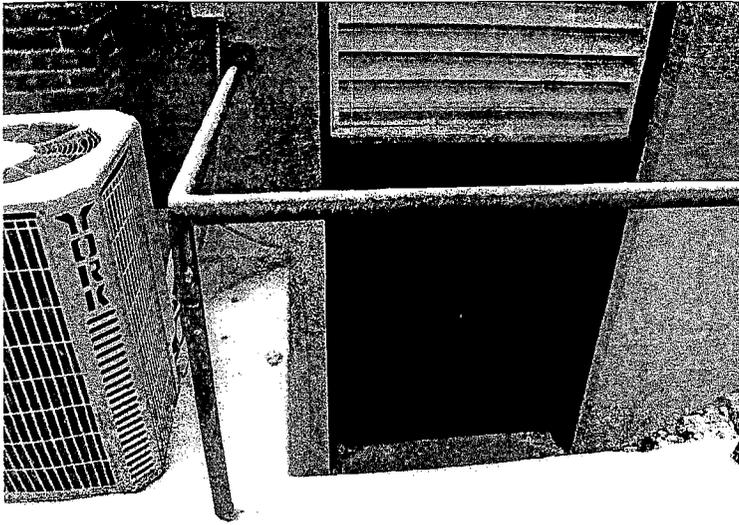
Two color caulking.



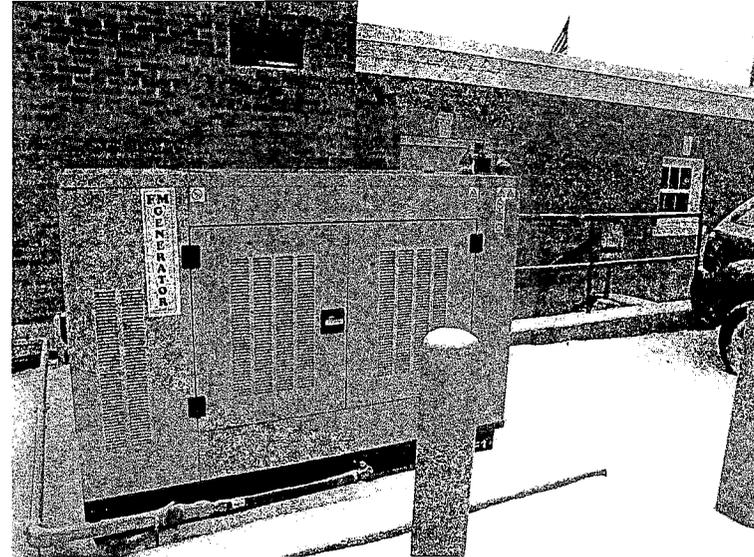
Loose open mortar joints.



Fungi coated pre-cast stone belt course banding over architectural brick lintel.



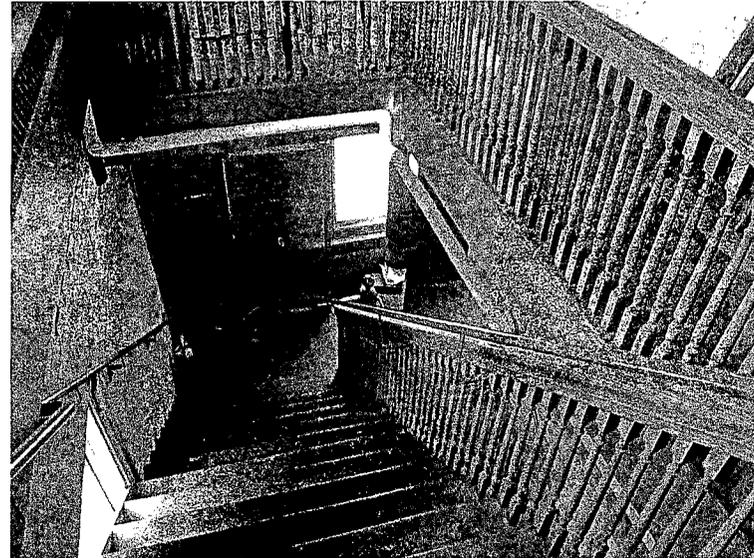
42" Guardrail missing.



Emergency generator.



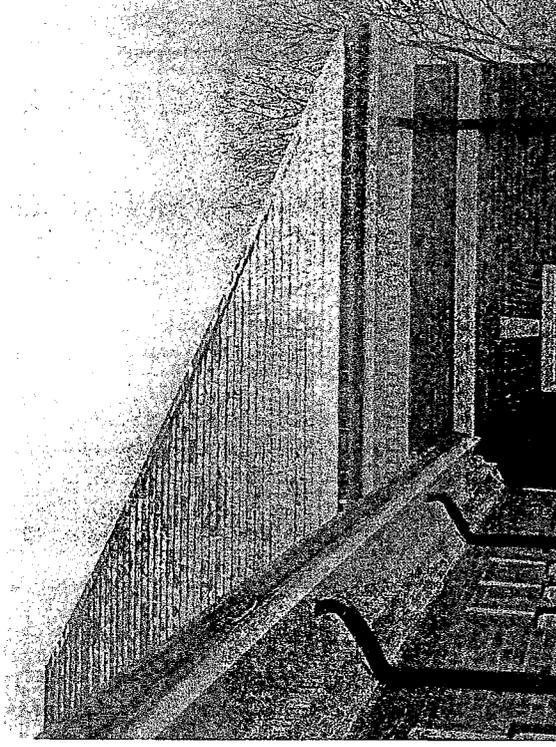
Missing brick mortar, open sealant at window header.



Northeast egress stairs.



Port cochere and deteriorated metal flashing at flat roof.



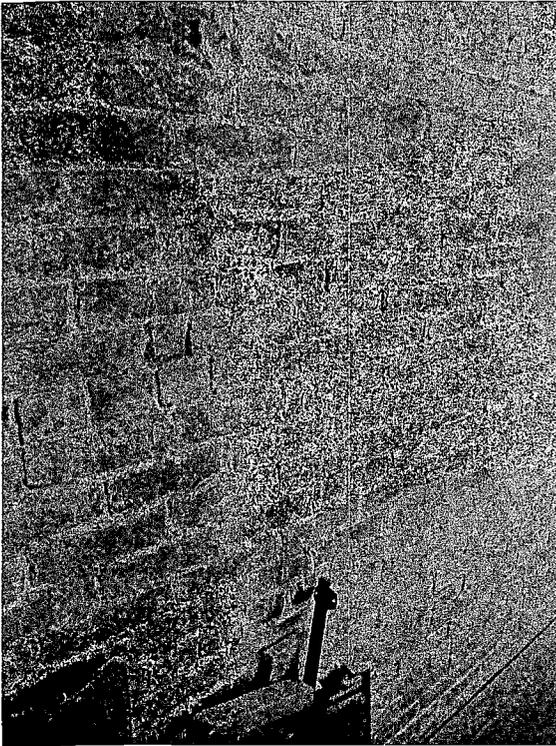
Metal cornice with hidden gutter.



Deteriorated soffit. Roof opening.



Back stage passage, loose paint on masonry walls.



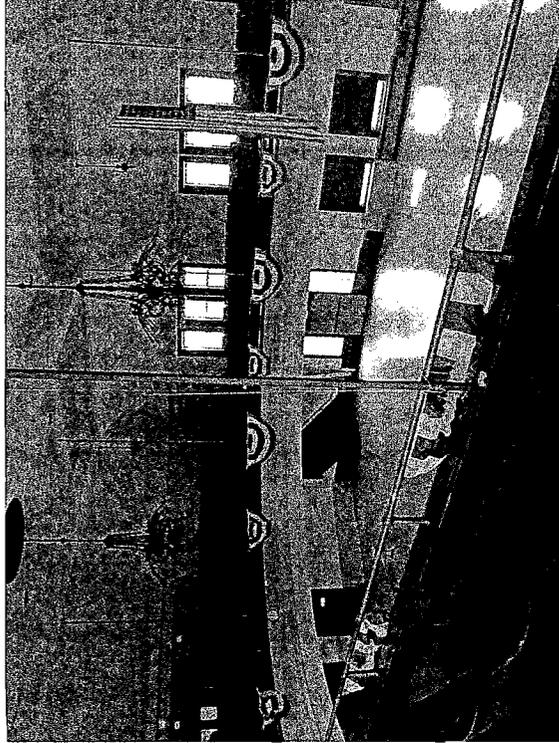
Moisture creating loose paint.



Auditorium ventilation ductwork



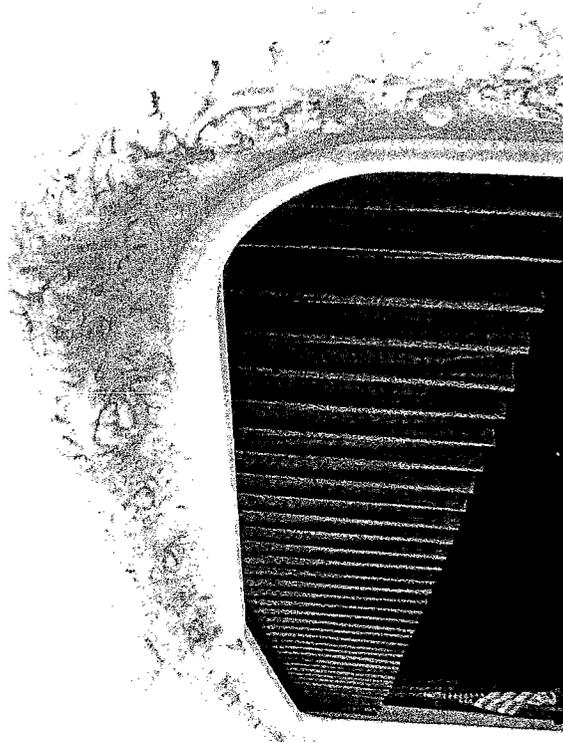
Auditorium ventilation ductwork.



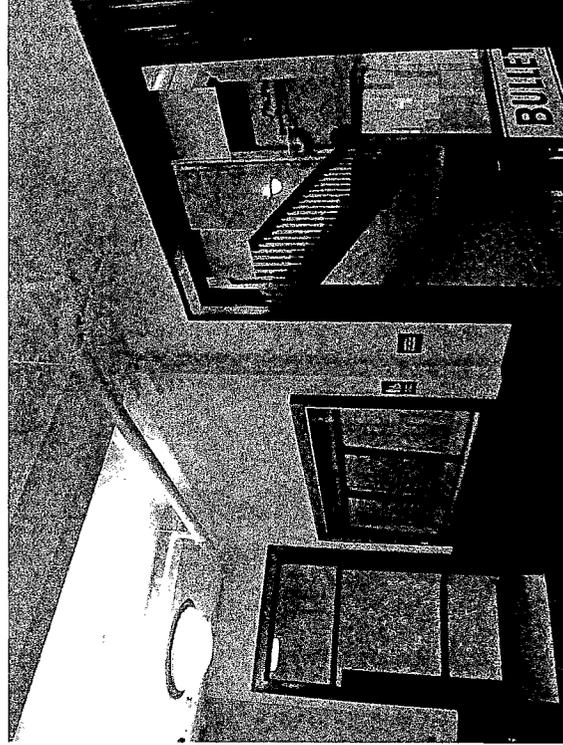
View of Auditorium looking west



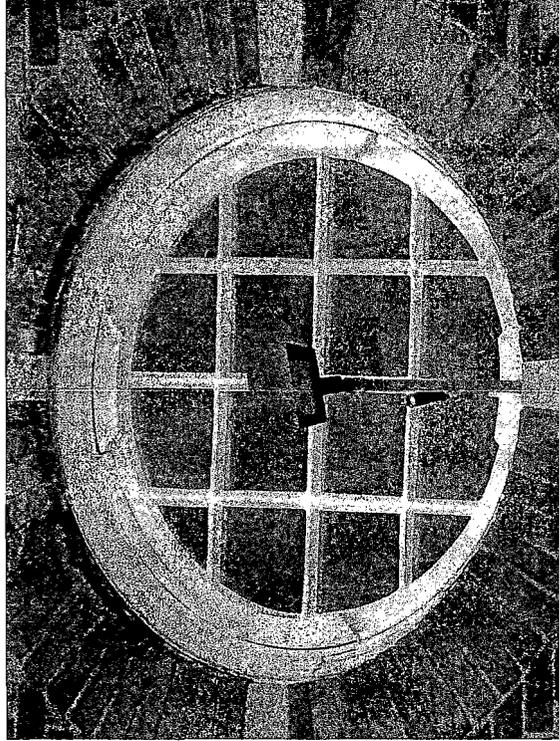
Loose peeling paint.



Ornate leaf detail at stage.



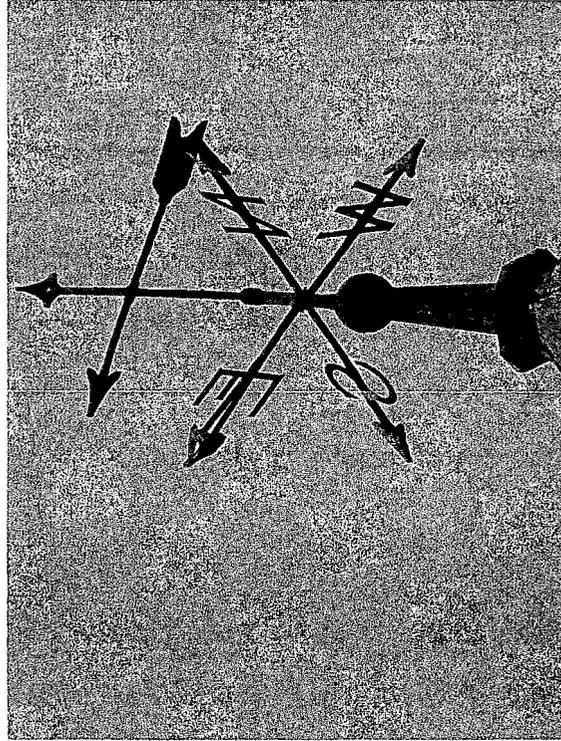
Loose peeling paint near elevator.



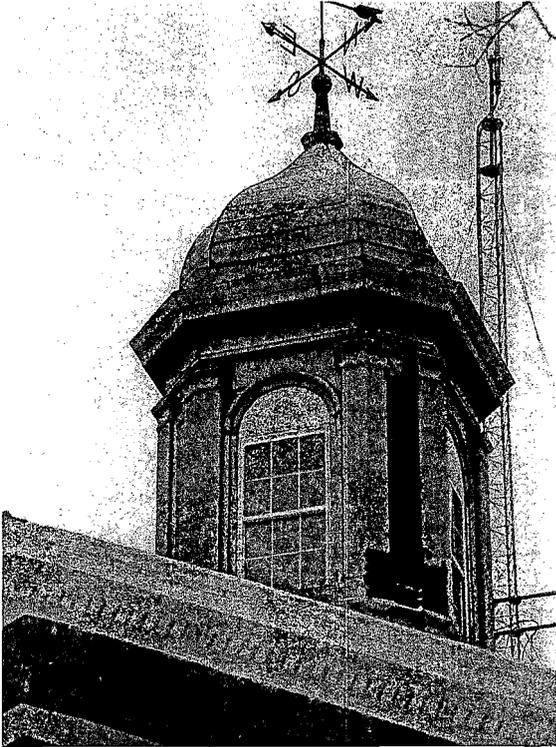
Elliptical muntin and mullion window, open joints next to brick.



Corinthian pilaster capital.



Cupola weather vane.



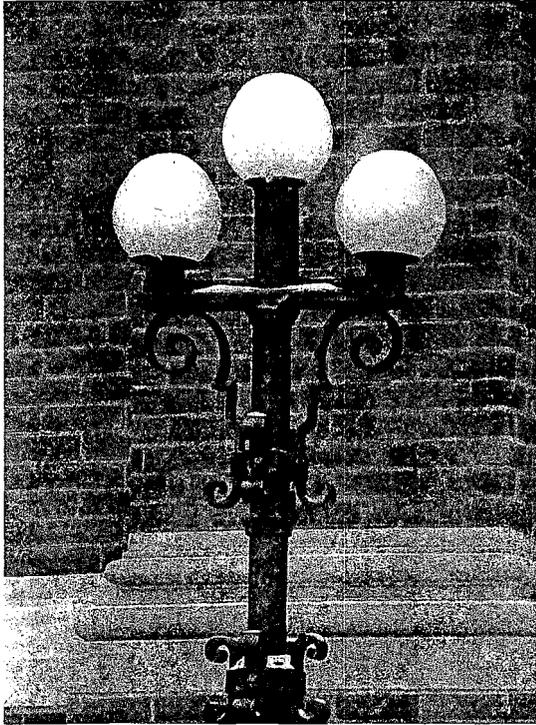
Replacement windows covering previous air louvers. Upper metal covering wood frame cupola deteriorating.



Metal banding deteriorating at joints



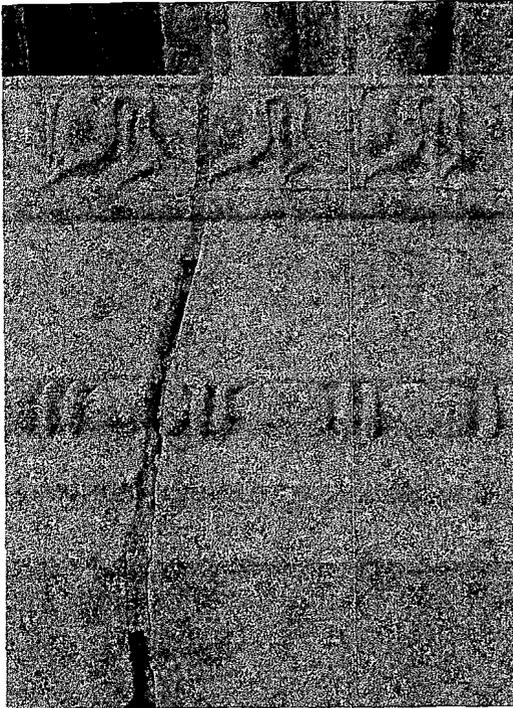
Original light post next to 1907 marker.



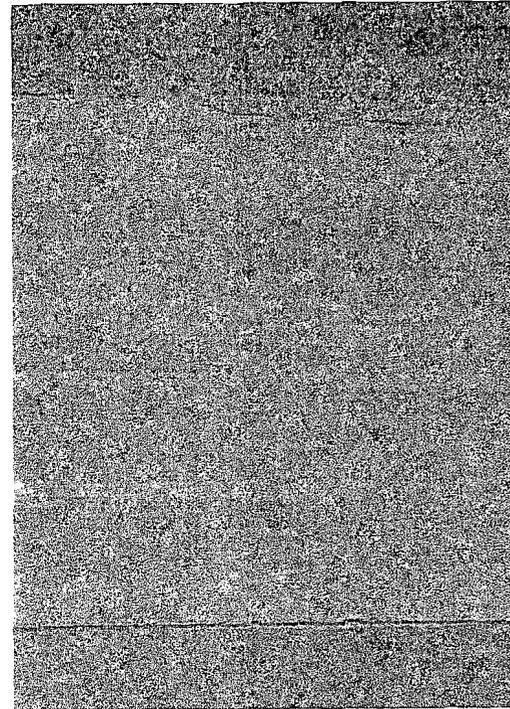
Cracked concrete light base.



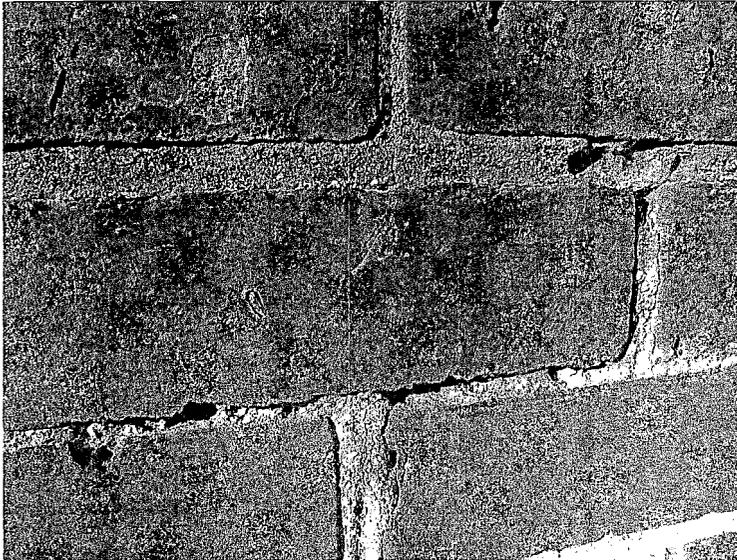
wood doors have been replaced by aluminum storefront doors.



open stone joints allow water access.



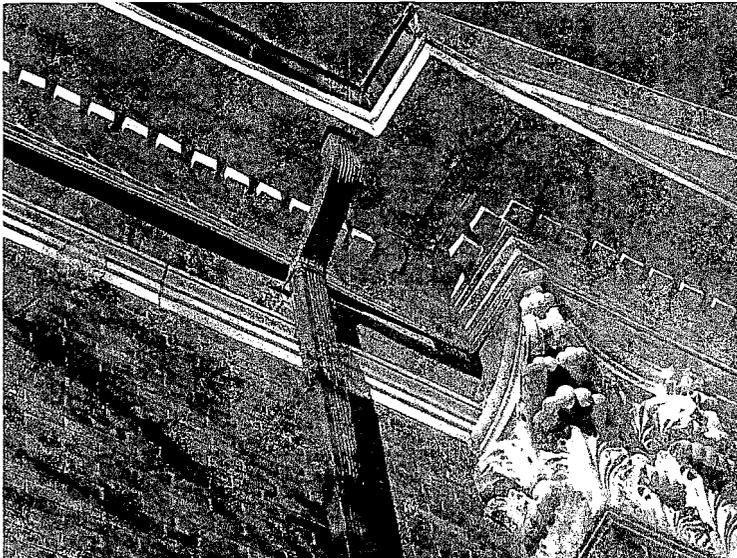
Air-born oxides and salts
Deteriorating capitol at south
Entrance.



open mortar joints.



Deteriorated 20 year old window caulk should be replaced.



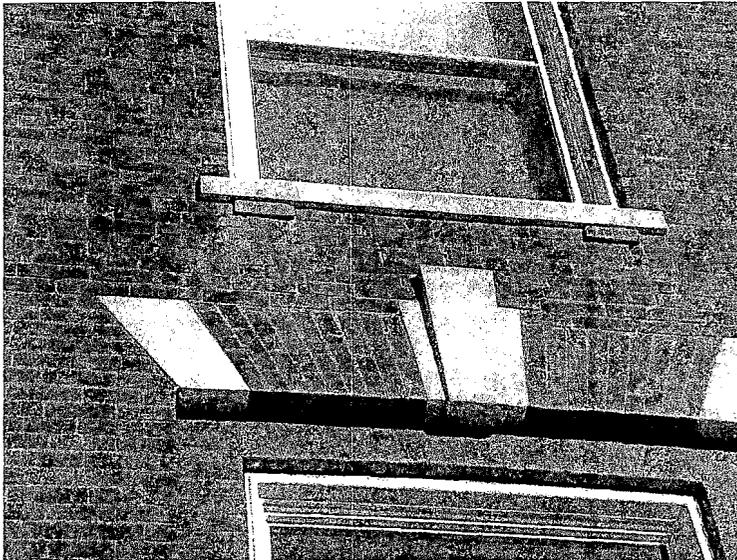
Deteriorating soffit above details and decorative cornice.



Cornerstone

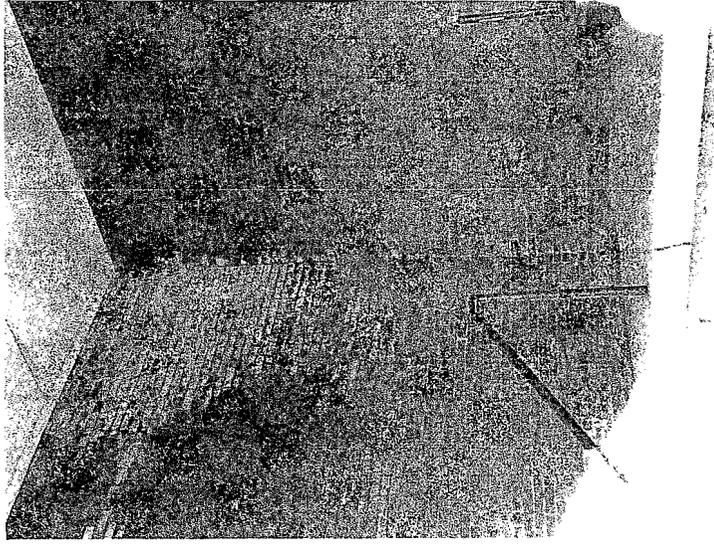


spalling face brick and cracked mortar joints.



Distinguished splayed masonry brick with limestone accents and keystone. Window frame and masonry recessed from face of elevation.

Town of Whitman
Needs Analysis for Town Hall and Fire Station



Brick efflorescence on exterior wall under port
Cochere roof

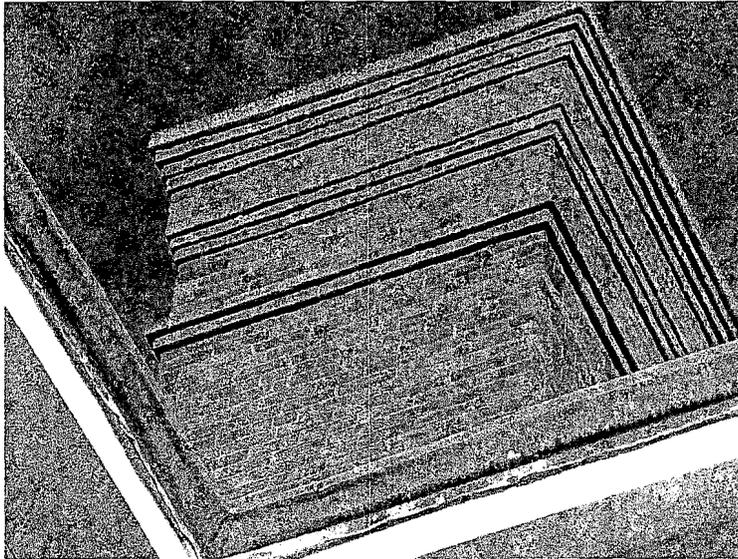
Existing Conditions
March 2008



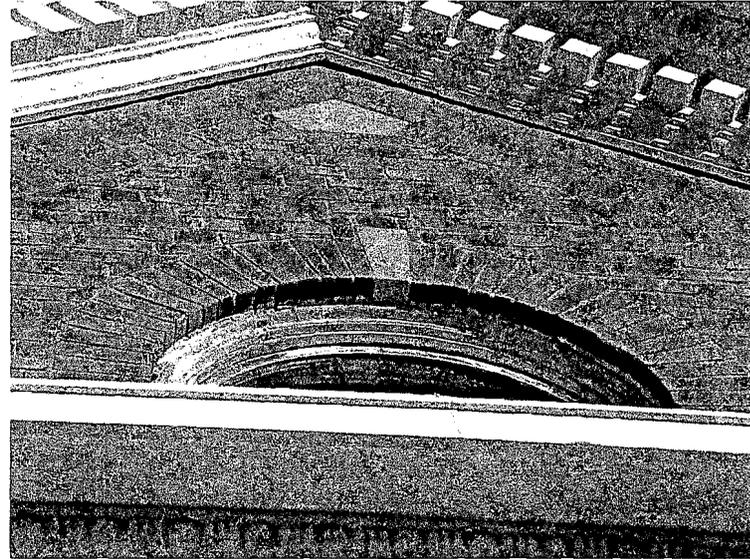
peeling paint and rusting crown molding under soffit



Peeling paint and rusting crown molding under soffit.



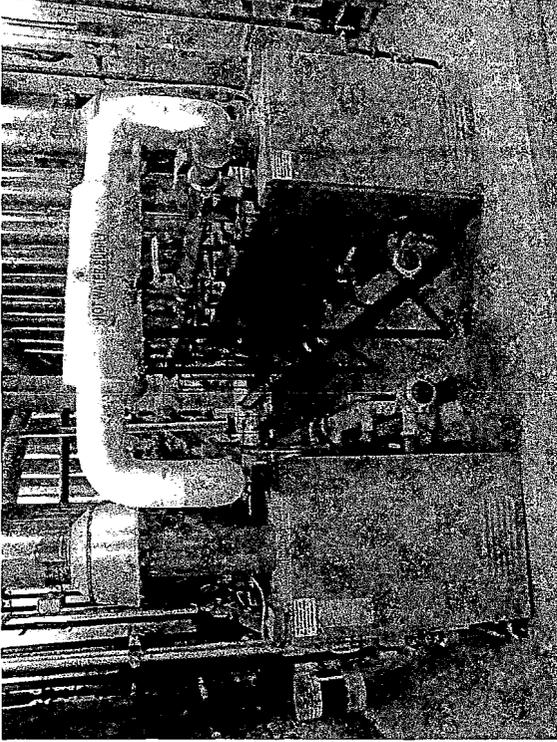
Corbelled brick chimney at slate roof.



Metal cornice open on south elevation.



Deteriorating metal on auditorium ventilator.



Boiler room



Heating system cabinet blocking display case.



Moving and cracked paint.



Main entrance marble steps.

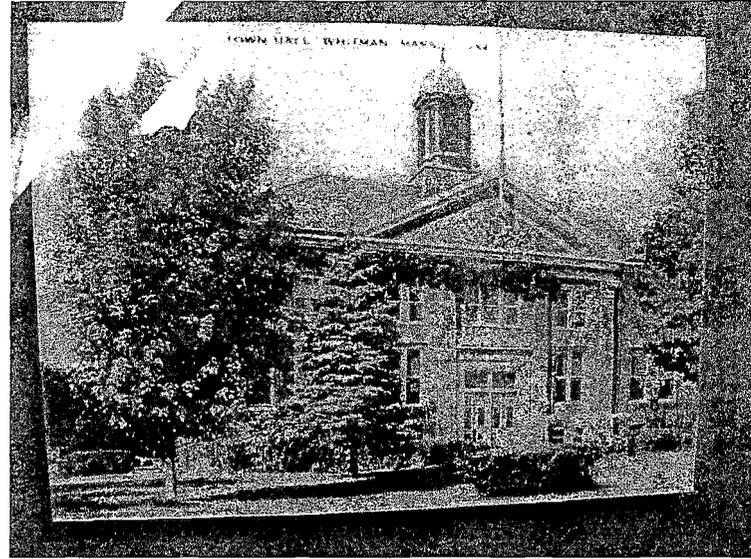


Town Hall vestibule with replacement non-aluminum doors.

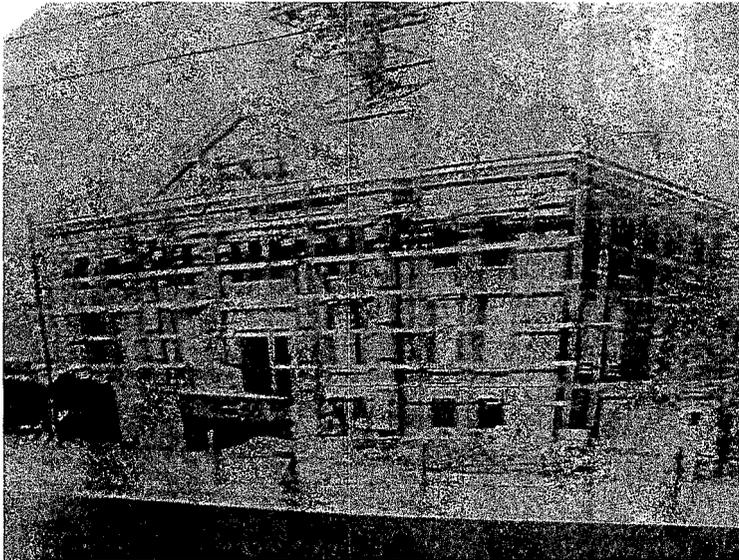


Town of Whitman
Needs Analysis for Town Hall and Fire Station

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Historical Photos

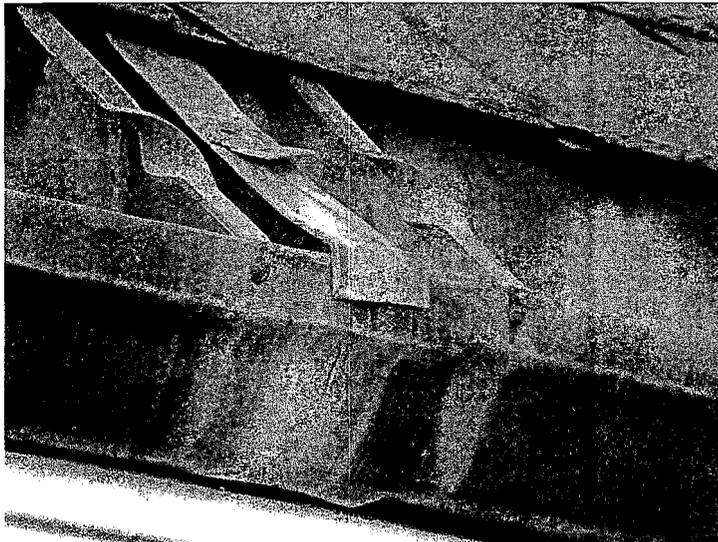




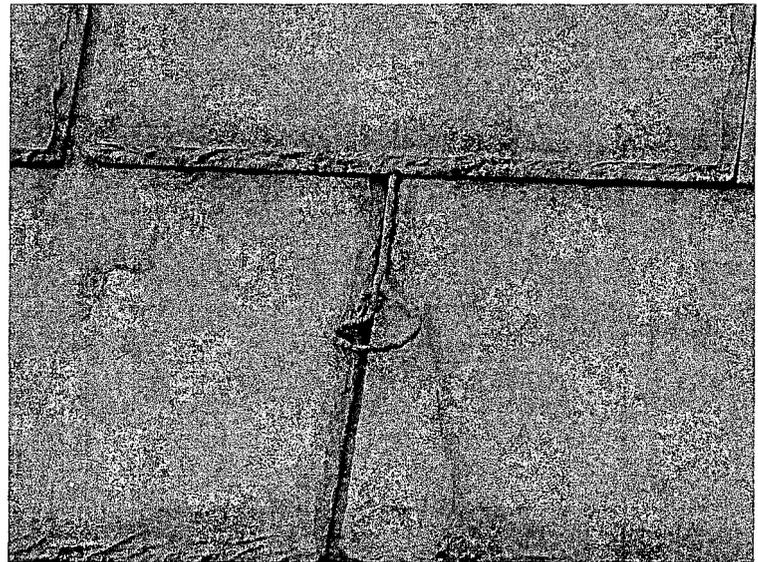
East elevation.



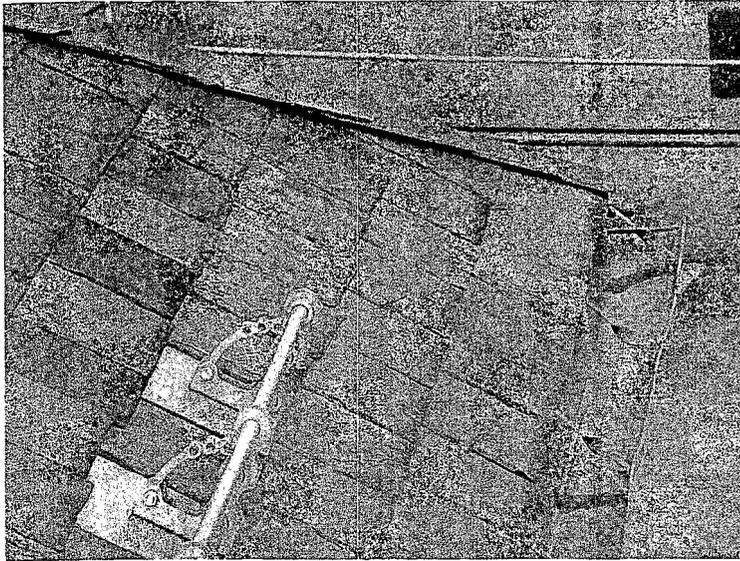
Loose slate.



Broken strap repair.



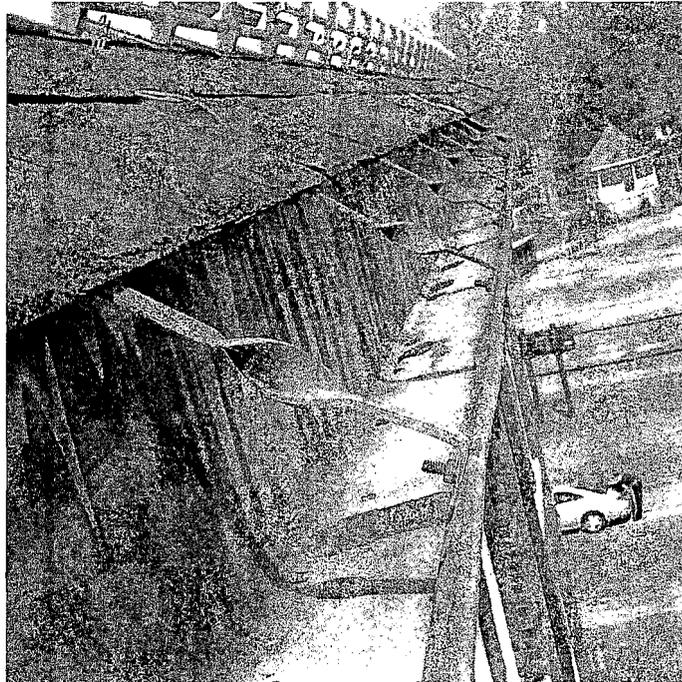
Rusted and broken snow guard, cracked slate.



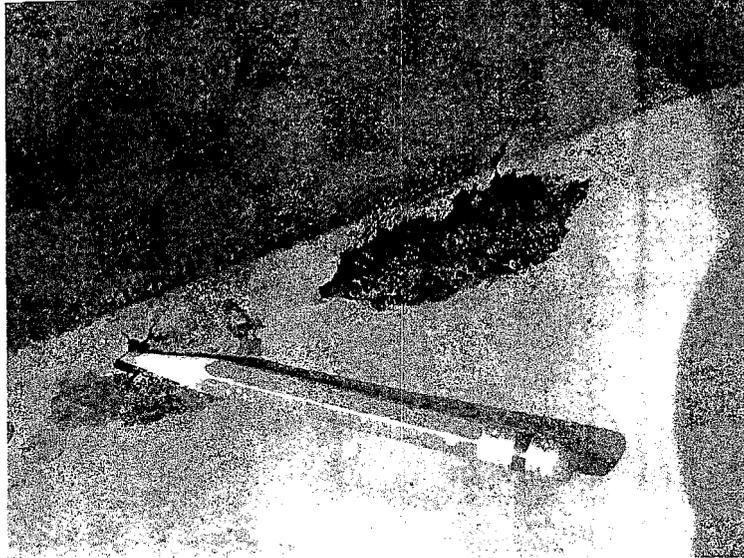
Loose slate at northeast ridge. Corner ridge cap appears loose.



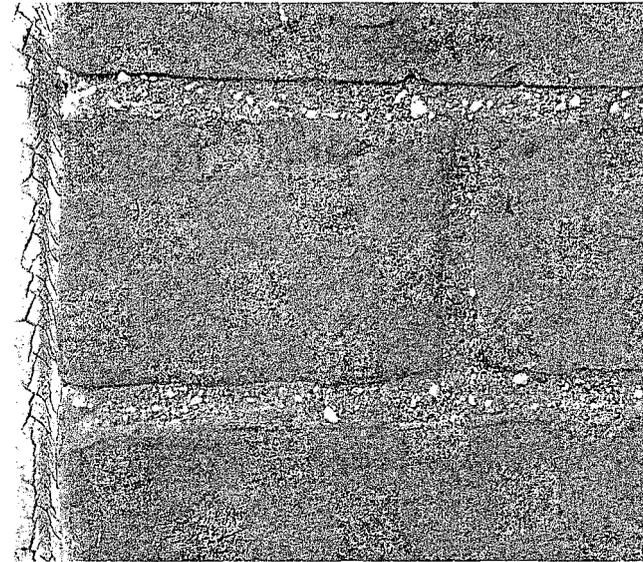
Loose broken slate at chimney.



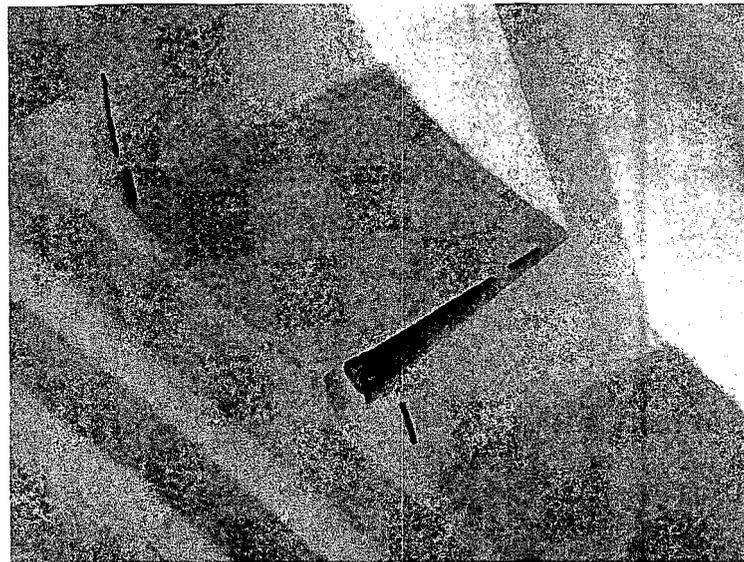
Original gutter with numerous hole perforations allows water to penetrate into structural brick wall below.



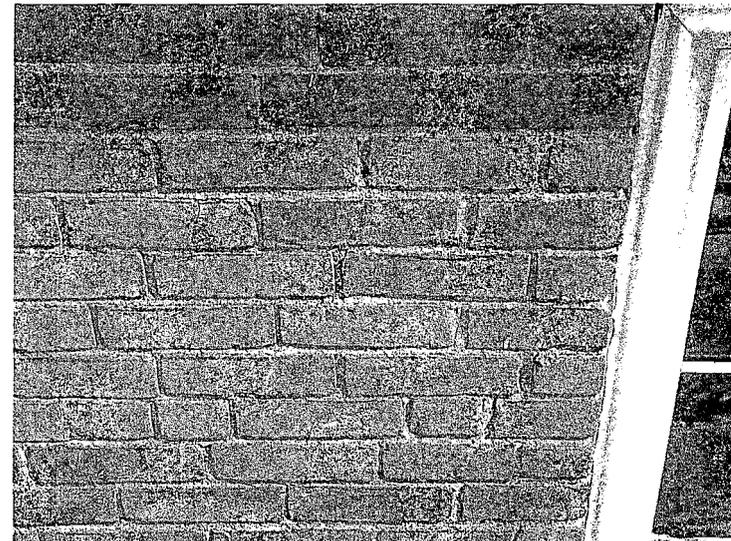
Example of gutter perforation exposing brick.



Example of failed window caulk at brick to frame connection.



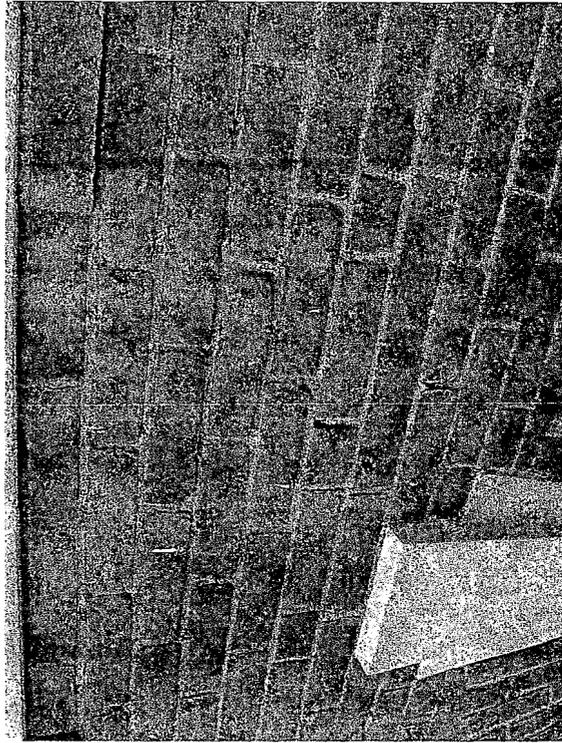
Metal cornice dentil loss of attachment.



Example of loss of mortar at head and bed joints.



Cracked limestone sill



"whitewashed" brick caused by low quality window paint. Thinning, bleeding, and washing of paint over time has left paint staining marks on majority of bricks below the sills,



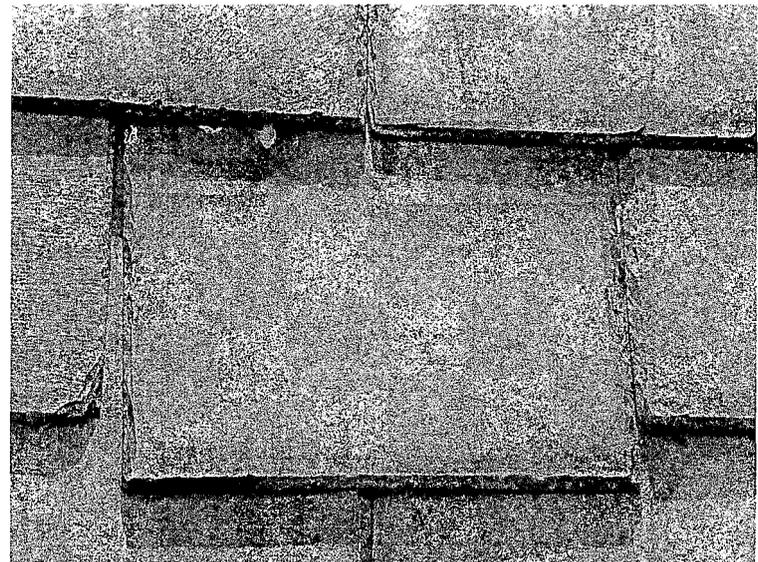
Roof valley flashing detail with mismatched replacement slate above east entrance



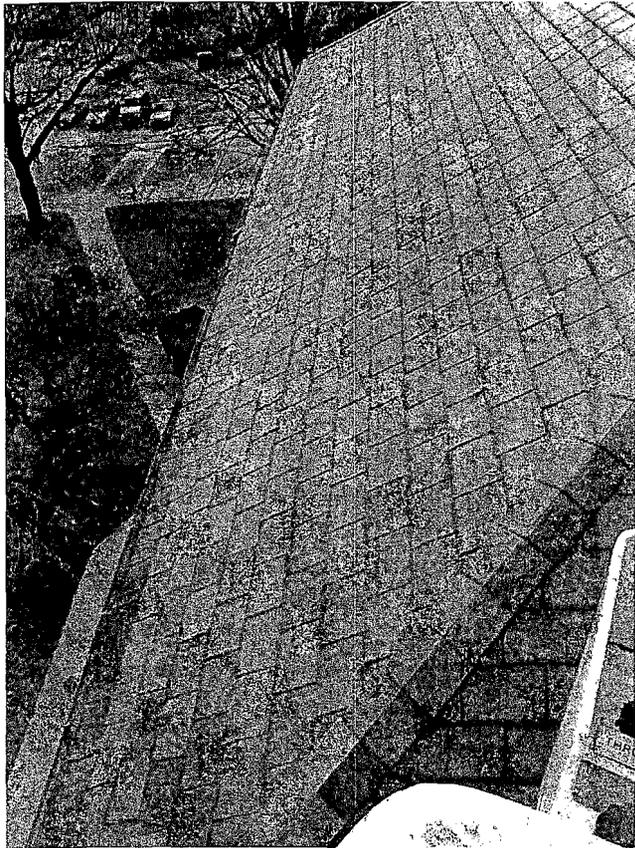
Typical broken slate.



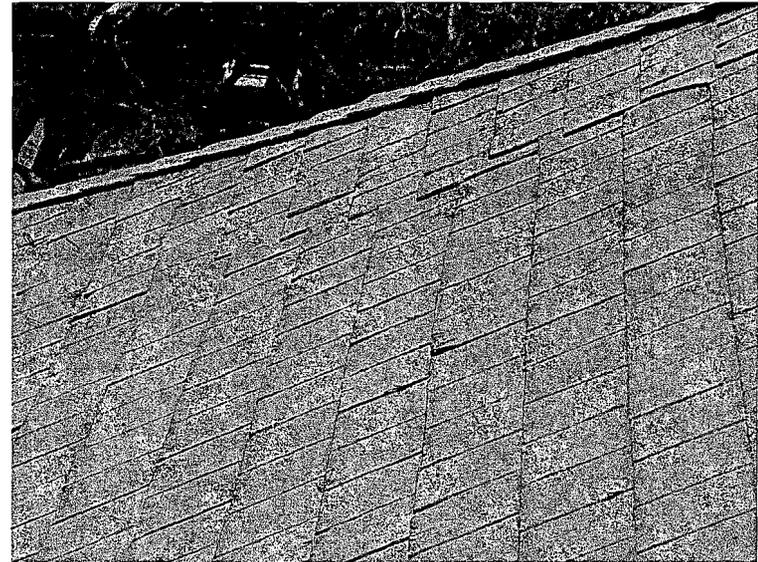
Loose and broken slate.



Example of slate nail fastener failure.



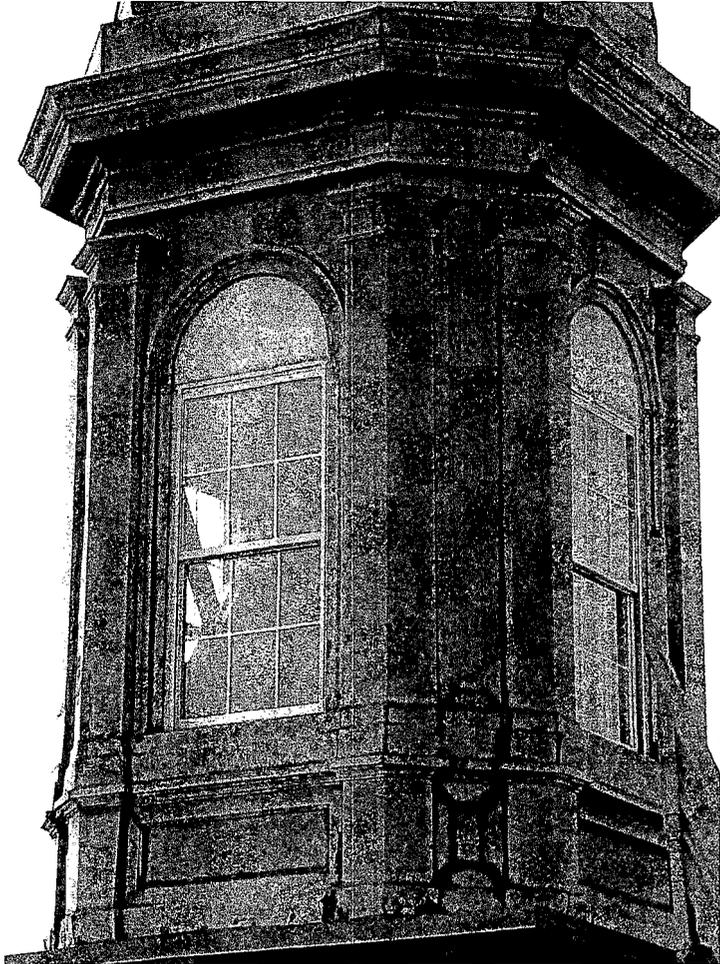
Southeast roof showing replacement slate repairs, old gutter system



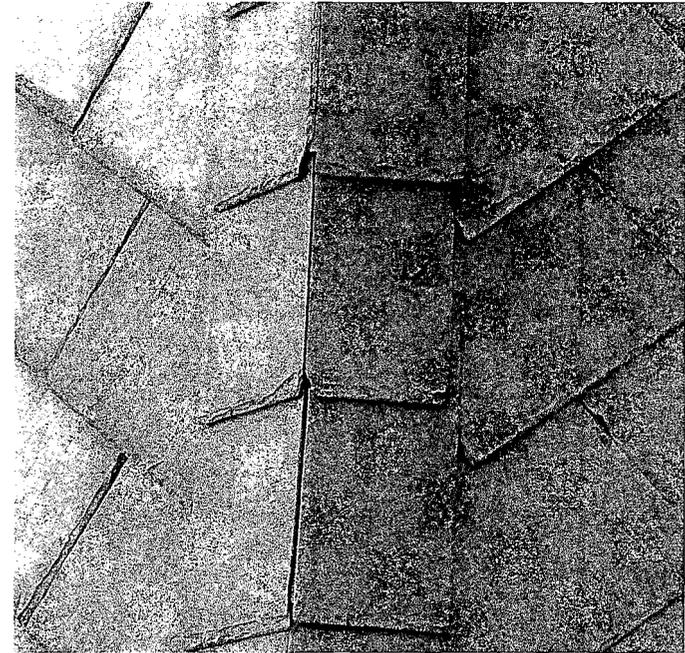
Loose slate on southeast corner.



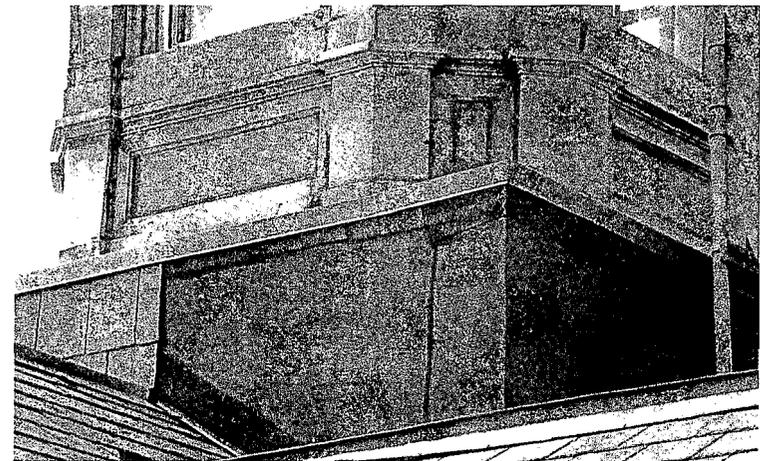
Loose cracked and repaired slate.



South cupola architectural metal detail, most joints are deteriorated.



Open ridge caps.



Slate removed for temporary cupola repair.



Southeast elevation.



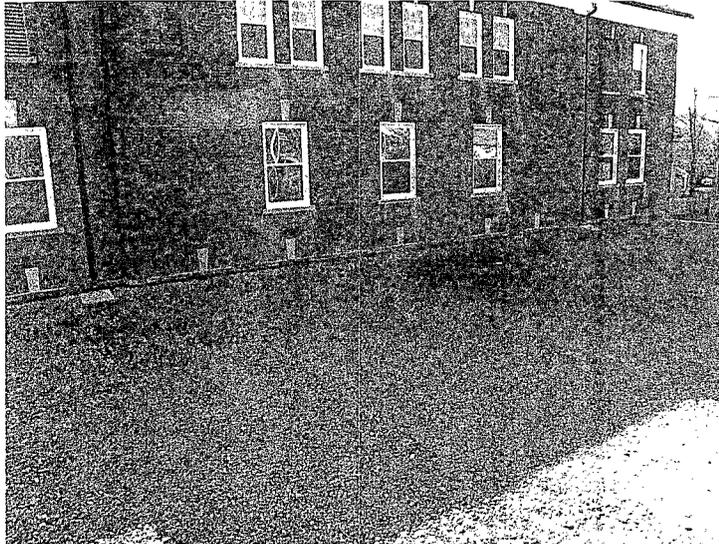
Loose cracked slate.



Southeast elevation. Detail of cracked loose slate with failed snow guard.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

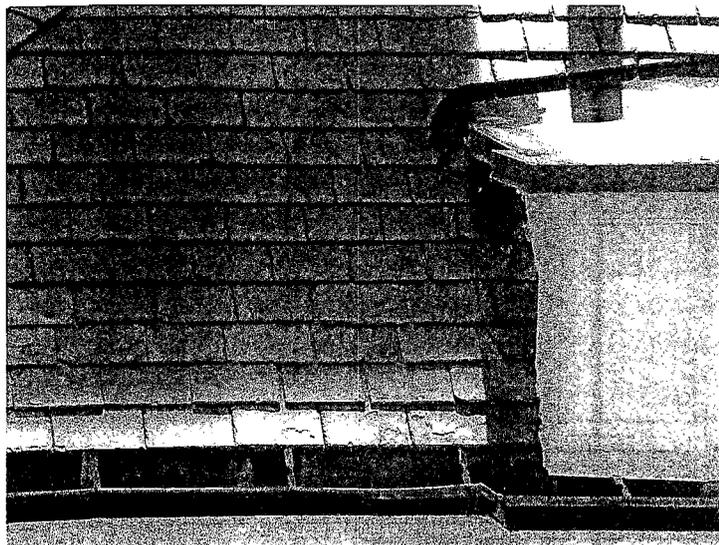
Existing Conditions
March 2008



Police station roof with stone ballast BUR roof.

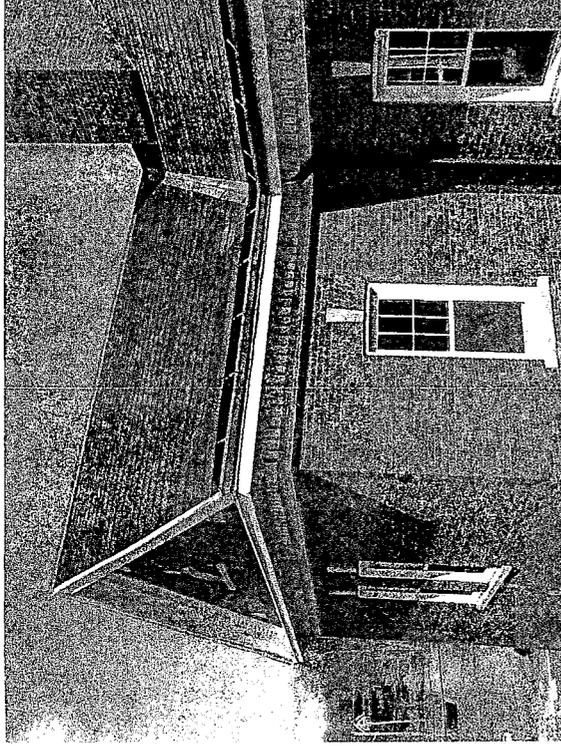


North elevation with EPDM flat dormer roofs.



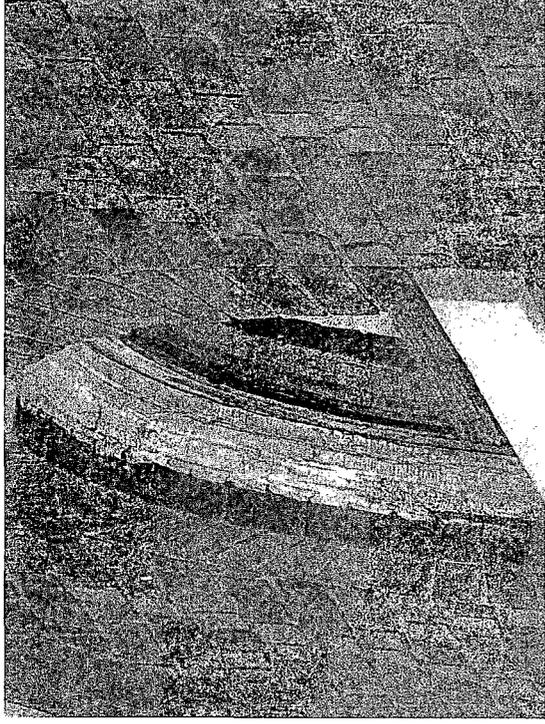
Detail of patching on dormer roofs.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

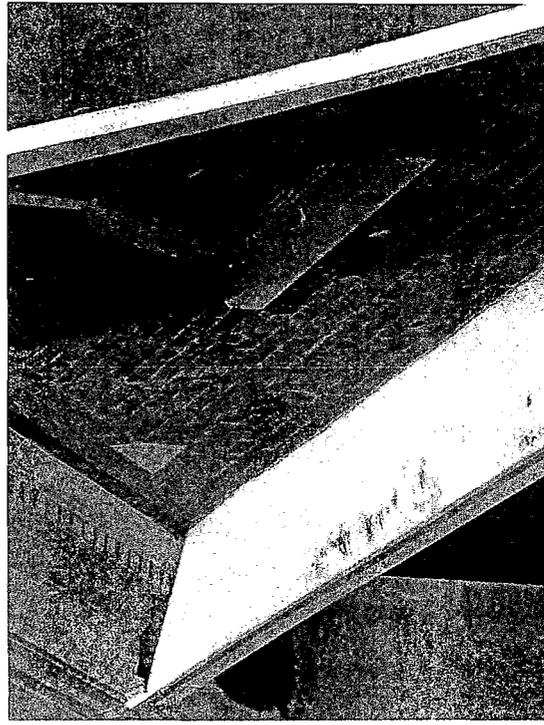


Northwest gable with cracked and missing slate. Gutter has been patched.

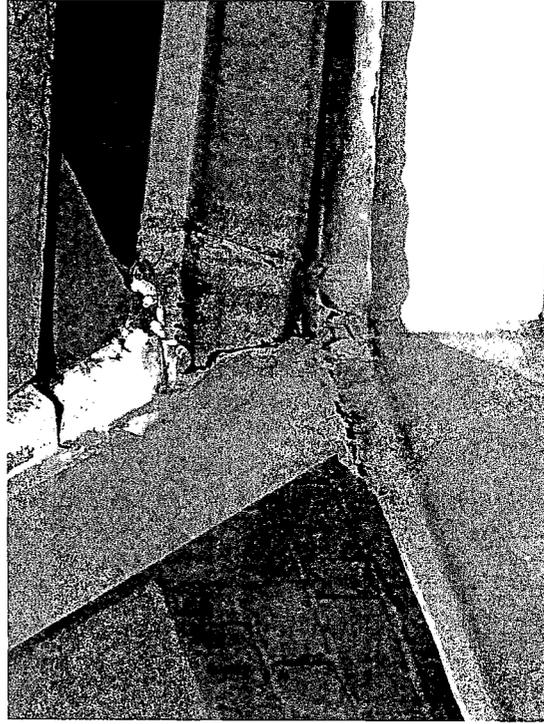
Existing Conditions
March 2008



Deteriorated wood frame and window.



Rusting of metal covering cornice.



Deteriorated gutter to gable connection.



Porte cochere flat EPDM roof with standing water and failed gutter system allows the roof water to penetrate into brick structural wall causing brick spalling and efflorescence.



Deteriorated wall to roof flashing @ porte cochere.



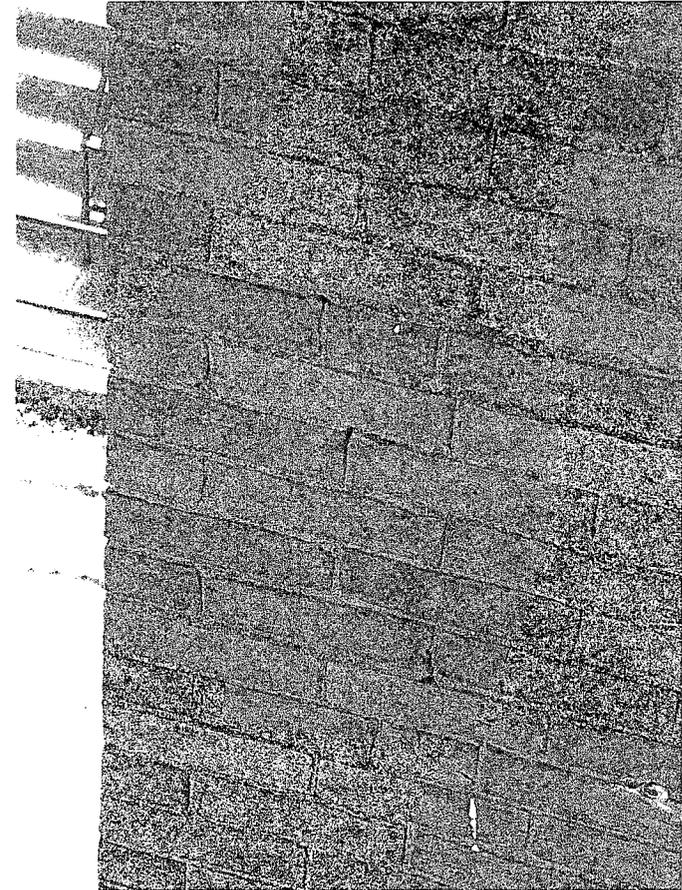
Loose and missing slate.



Scattered slate repairs on north west gable.

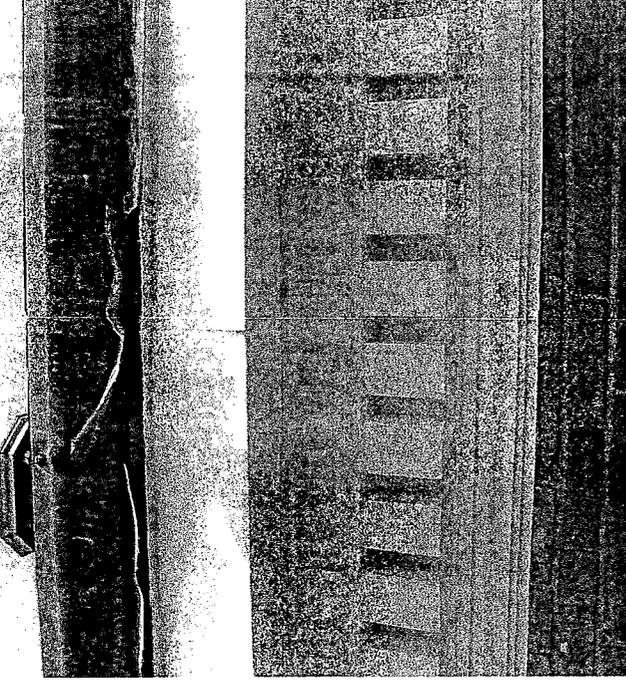


Open limestone cornice connections allowing water to penetrate into building.



Natural process of aging allows for Loss of firm mortar at head and bed joints. Bricks should be washed to eliminate dark oxides imbedded into red clay brick.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

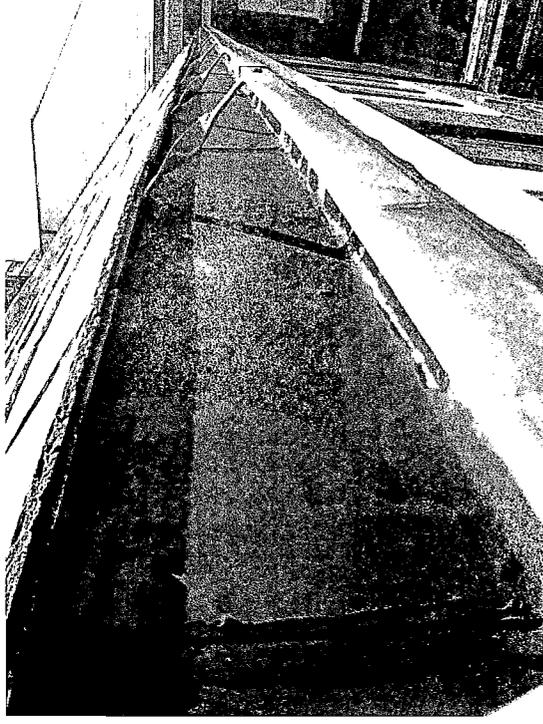


Deteriorated gutter with small lead flashing inserted inappropriately. Metal cornice is hidden and edge band has severe rust.



Rusting nails and original snow guard rail
Showing loss of attachment.

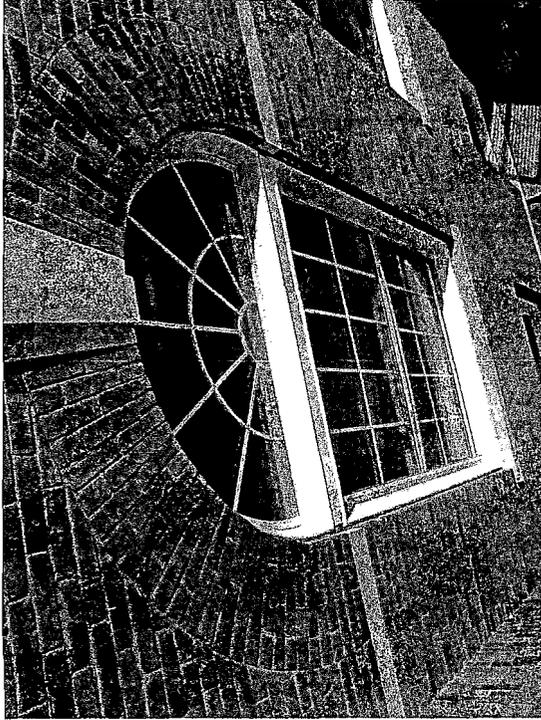
Existing Conditions
March 2008



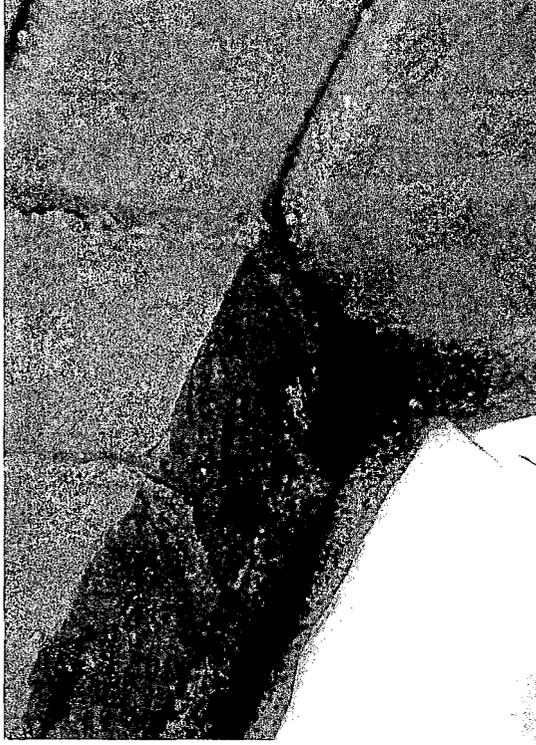
Rubber repairs to original metal gutter with rubber membrane (gutter metal has perforations)



Small lead flashing inserted under gutter, allowing metal cornice. To accelerate rusting process. Full extent of damage unknown.



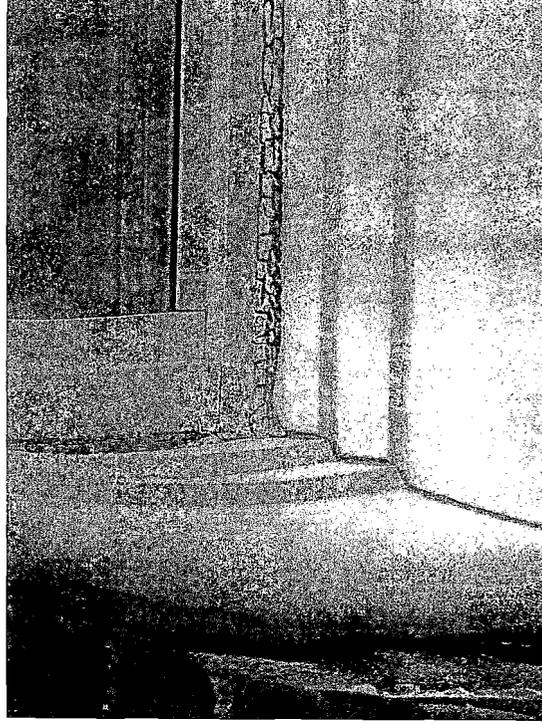
Black mold attacking window caulk at top of brick arch window.



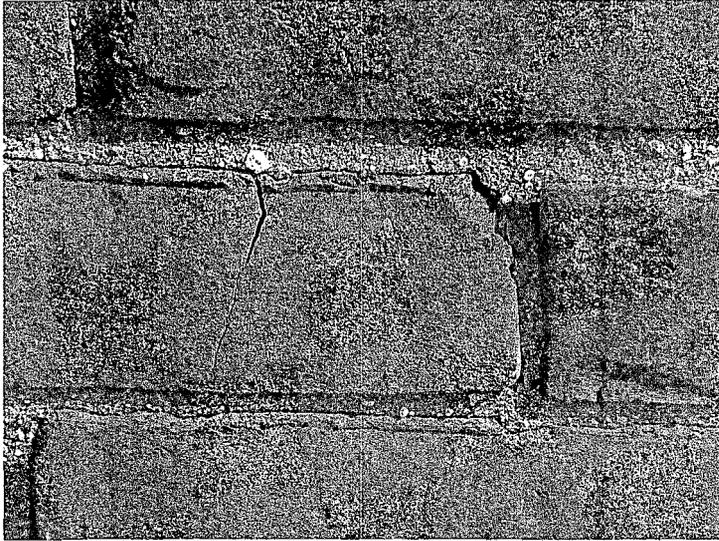
Open mortar joints above window allowing moisture to penetrate into building. Building moisture within causing black mold to form on exterior window caulk.



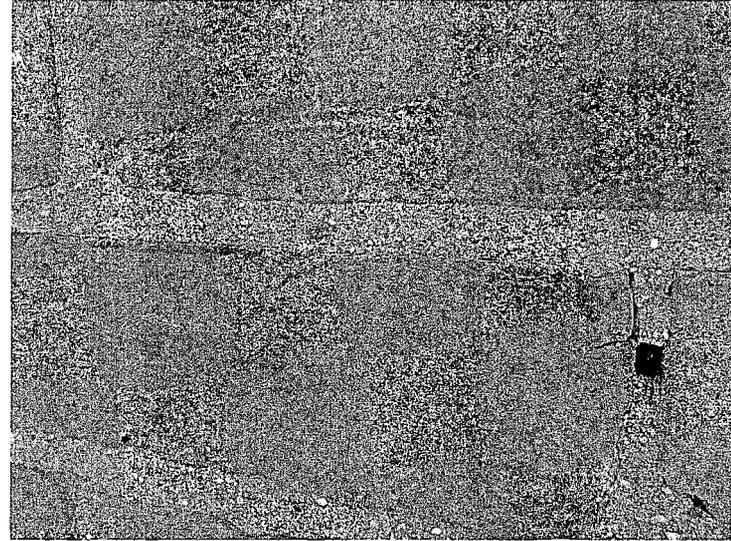
Roof water entry allowed brick efflorescence and spalling to occur.



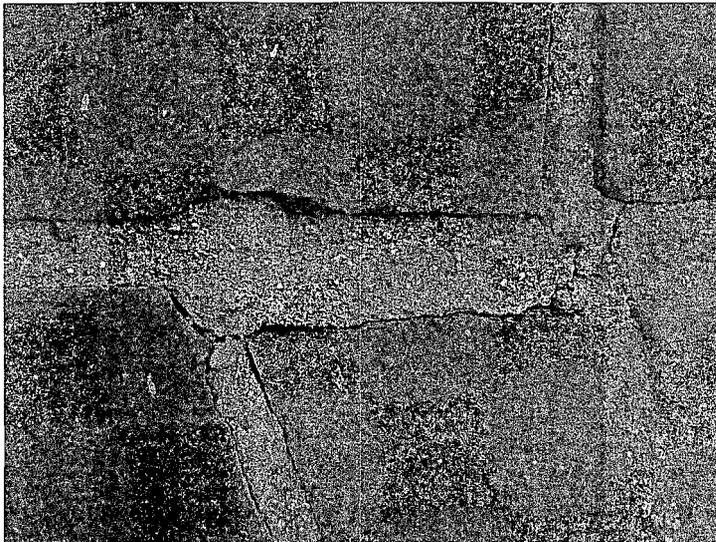
Failed window caulk and sealant on window frame.



Bed joint displays loss of attachment between brick and mortar bond.



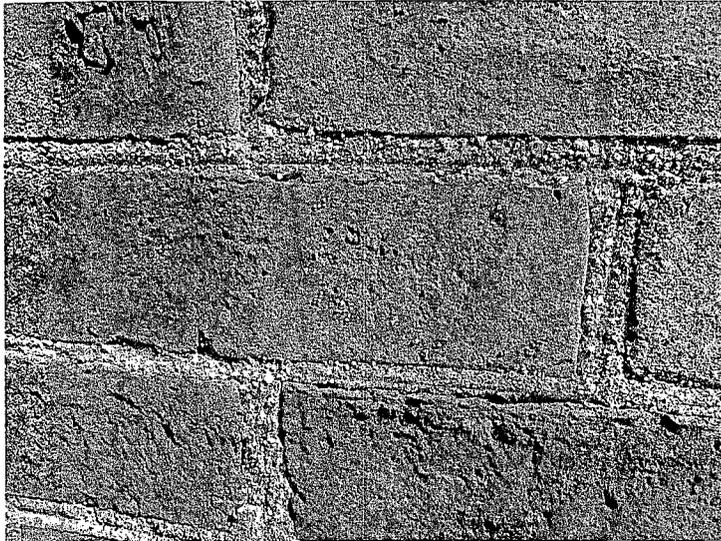
Rare example of good tight mortar bond of existing brick at upper bed joint



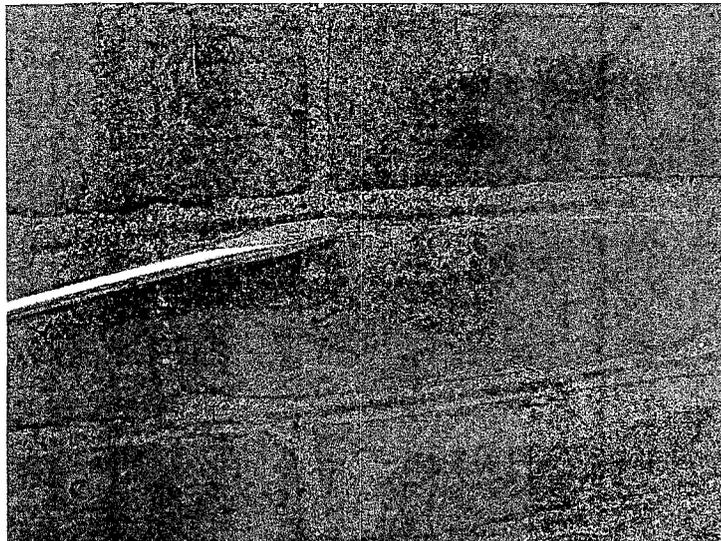
Open lintel joint allowing water entry.



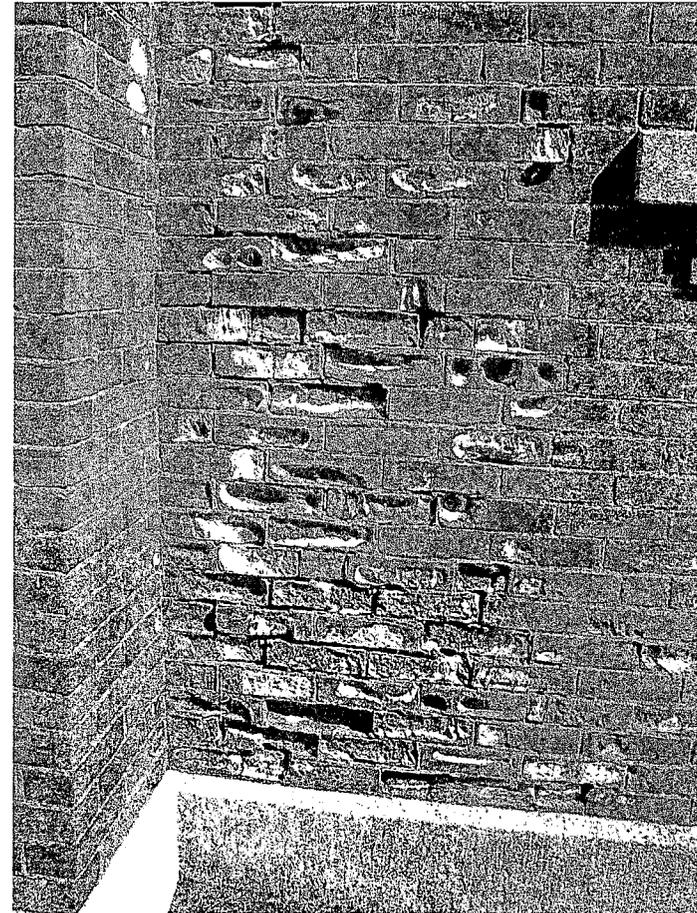
Water entry allowed at brick mold. Flat edge of Metal return of window frame causing opening and sealant failure



Mortar remnants of original v-joint or weather struck joint. From 1907.



Sample of v-joint tooling of mortar.



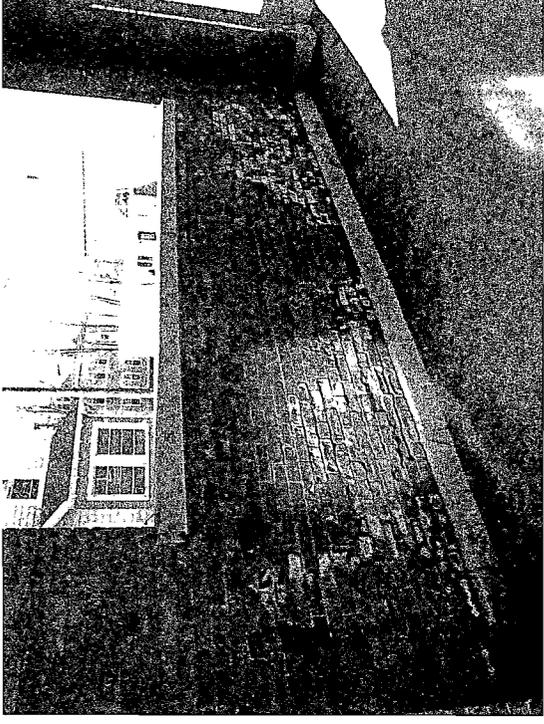
Severe spalling brick masonry wall at west elevation of port cochere.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

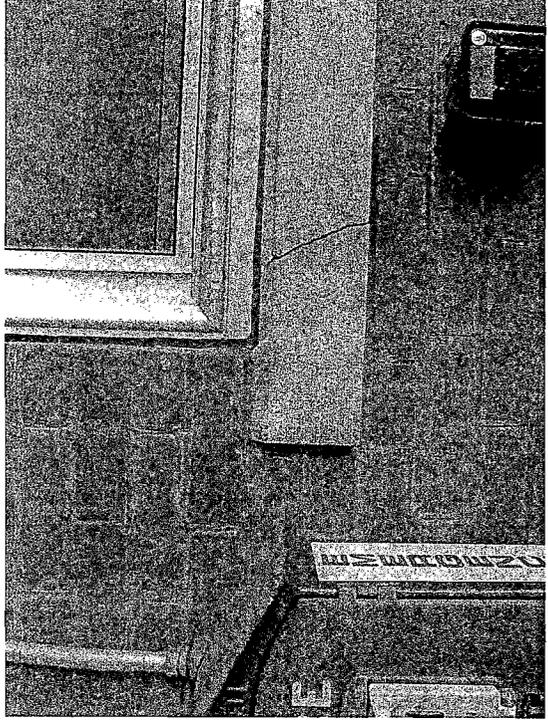


Porte cochere masonry wall of west elevation. Brick spalling runs vertically from cornice to foundation wall.

Existing Conditions
March 2008



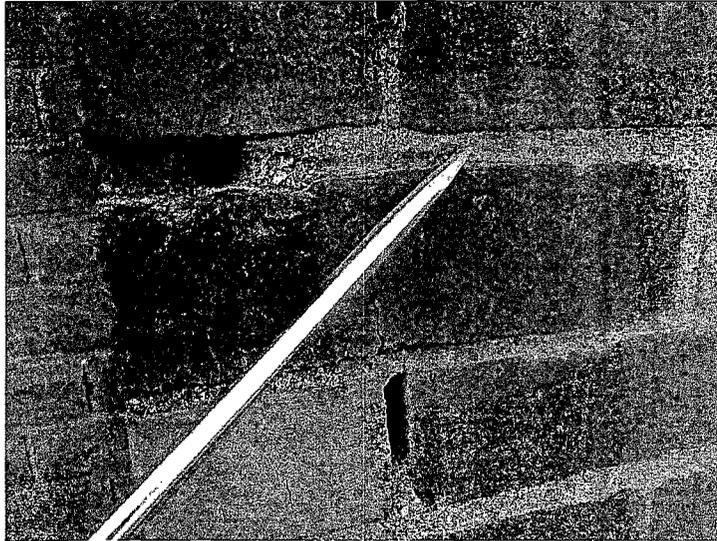
Masonry brick spalling example on east wall side of porte cochere



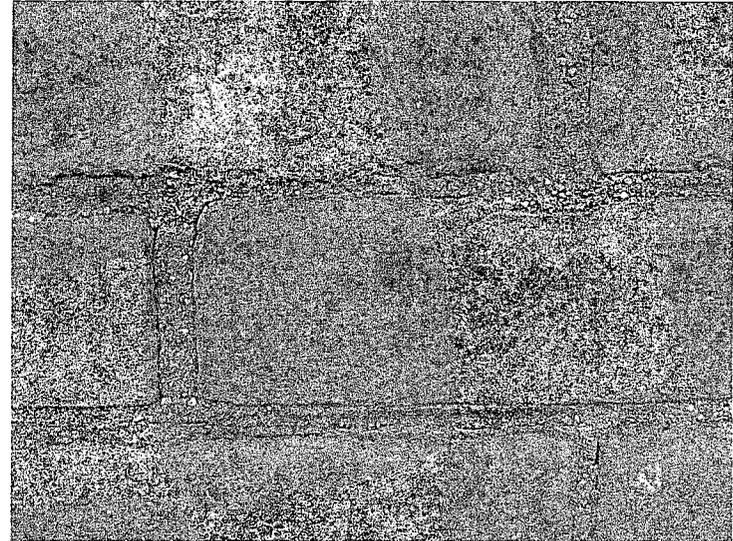
Cracked limestone sill.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

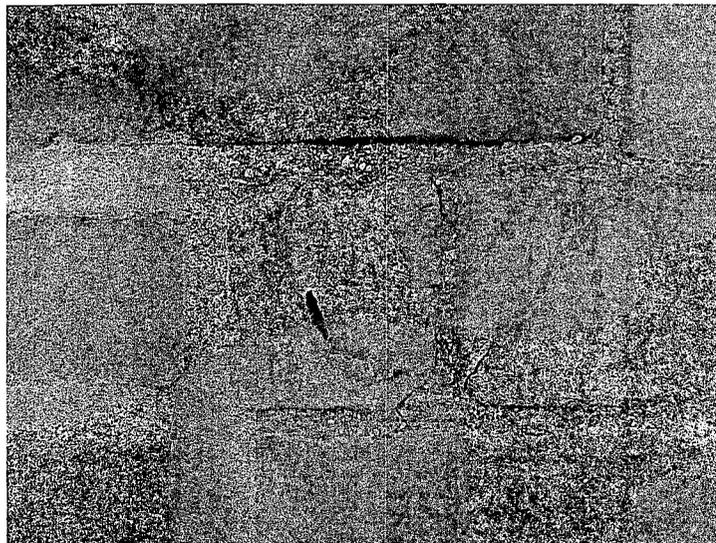
Existing Conditions
March 2008



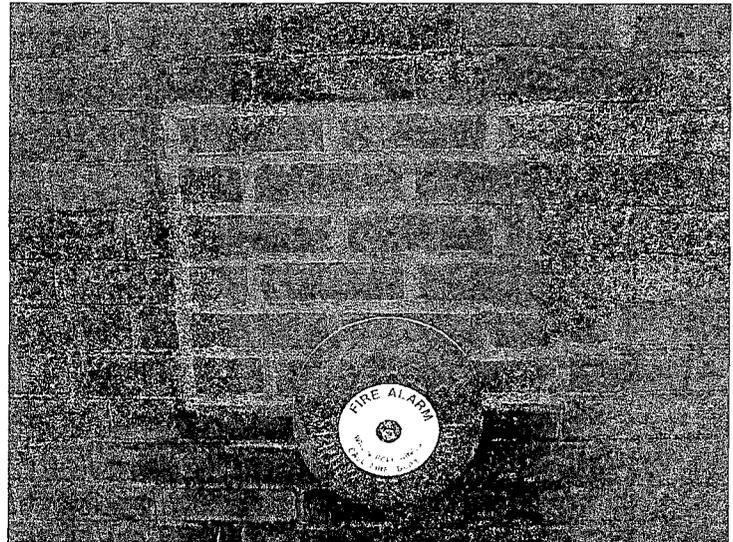
Red color mortar depth consistency. Spot re-pointing seen to right of mortar.



Example of open head joints.



"Replacement" brick with extra large bed and head joints.



Bad example of replacement brick and mortar joints.

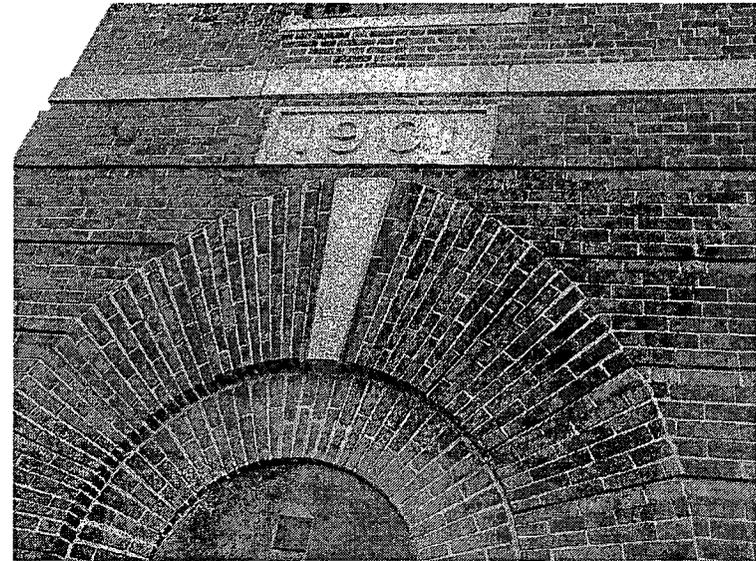
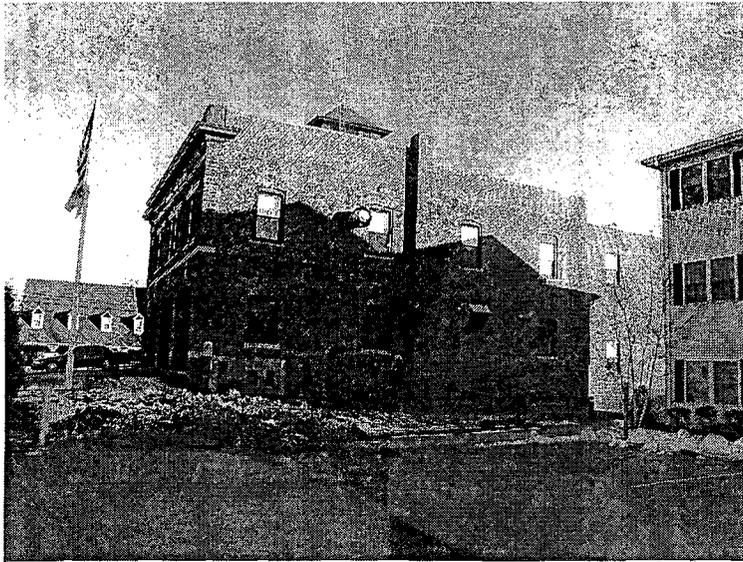


Fire Station

LPBA/ Architects, Inc.

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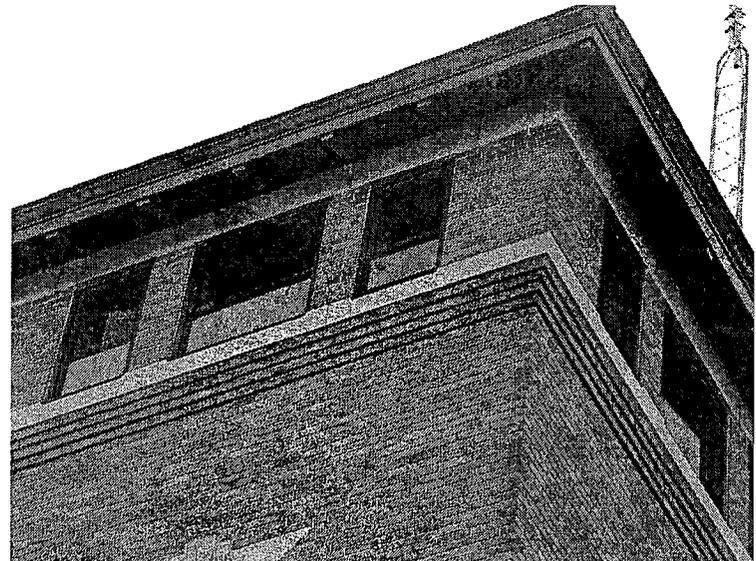
28 Penniman Road
Boston, MA 02134
Tel 617/782/9131
Fax 617/782/9141
Email info@lpba.com



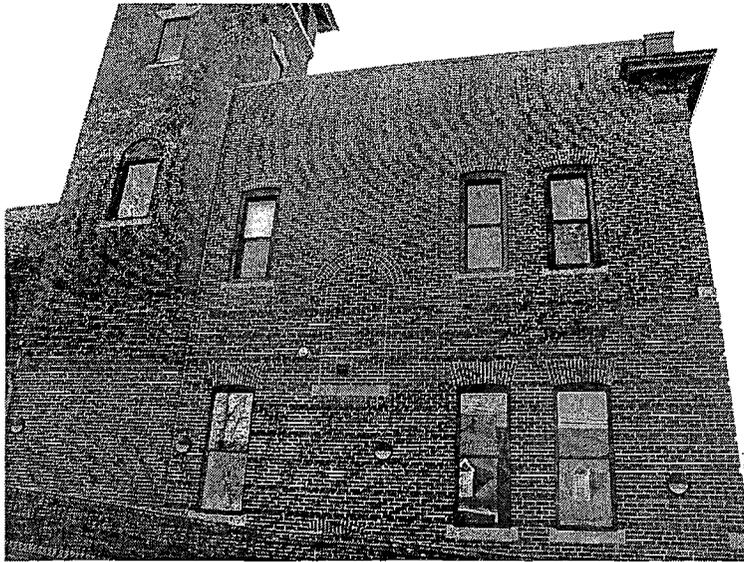
Brick arch over doorway.



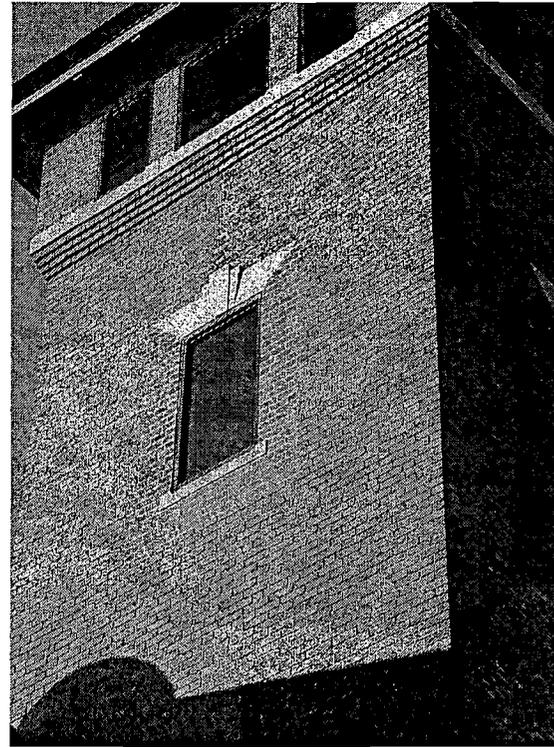
3 bay fire station, North elevation.



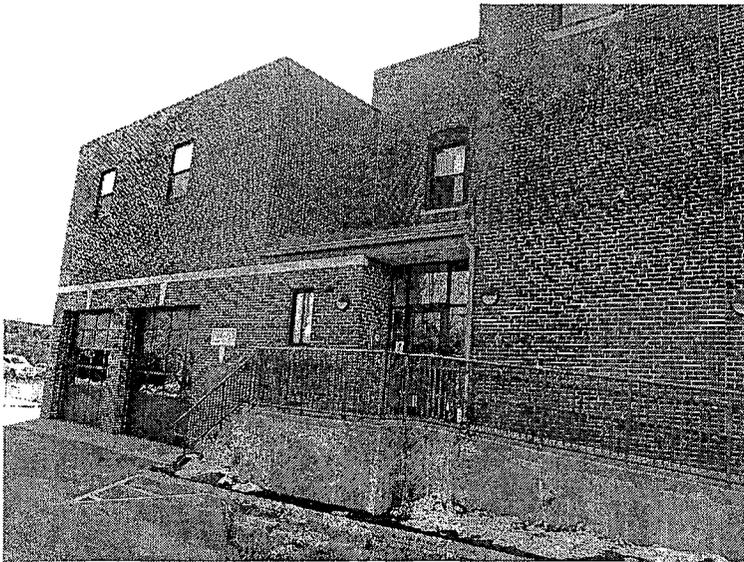
Deteriorating cornice.



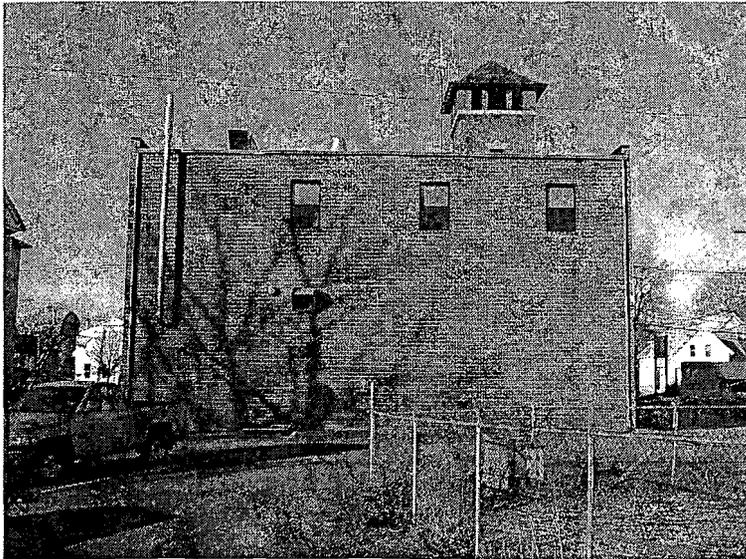
East elevation, loose deteriorating mortar.



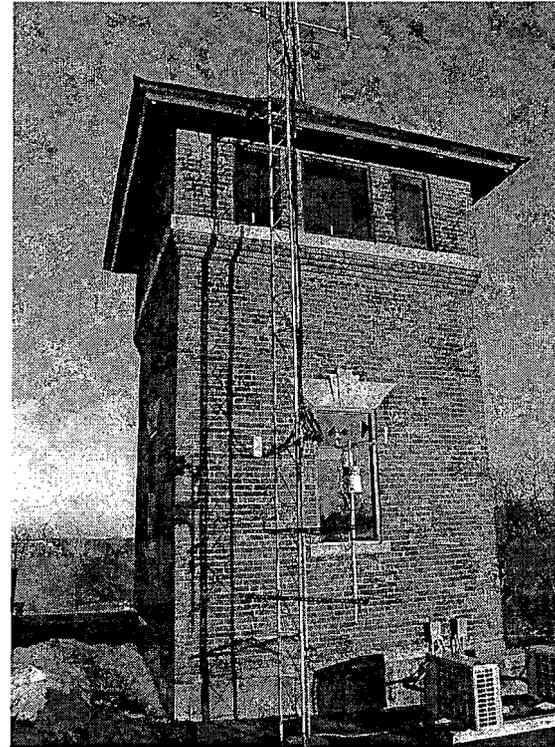
Deteriorated mortar.



West elevation.



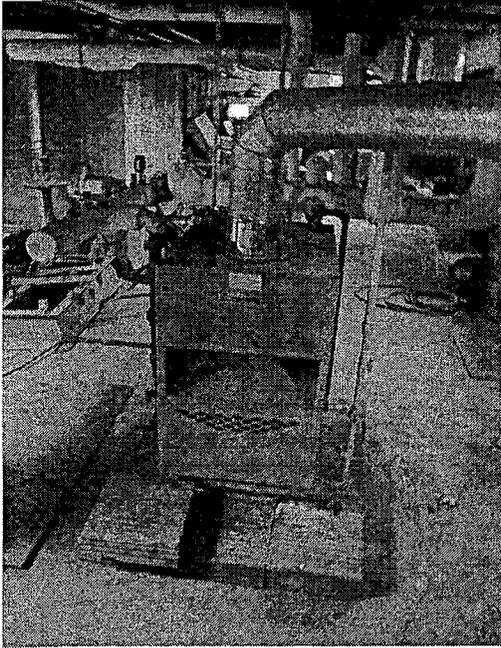
South elevation.



Deteriorated mortar at upper window.



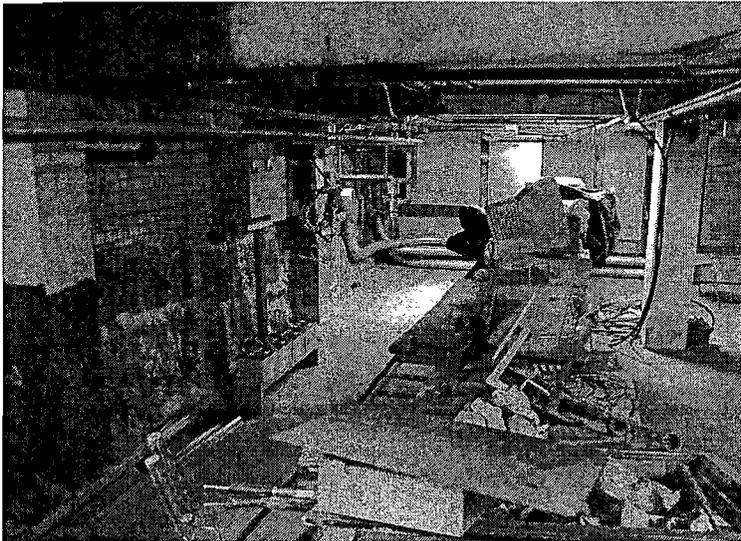
Main public entrance.



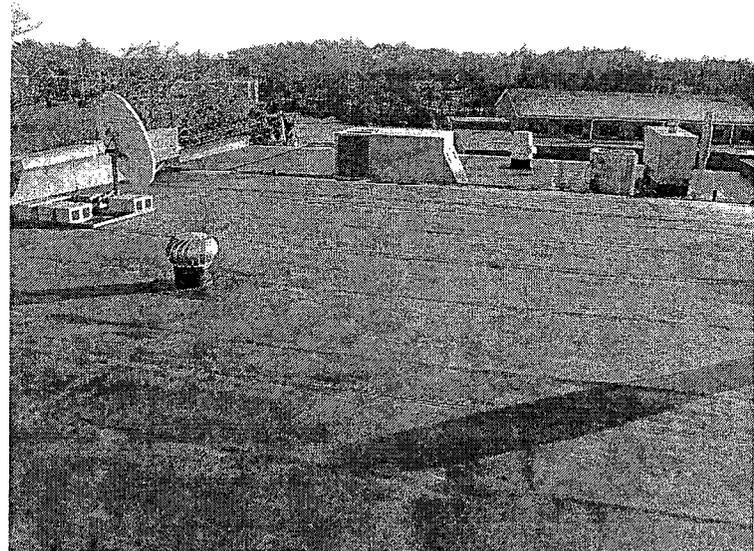
Mechanical room.



Mechanical units mounted at roof top.



Basement



Flat (Carlisle .060) roof.

ENVIRONMENTAL HAZARDS

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Email info@lpba.com

Ronald John Alex, AIA
Principal

Barbara Thornton, MCP, MBA
Senior Planner

Francesco Garofalo, AIA
Principal

July 14, 2008

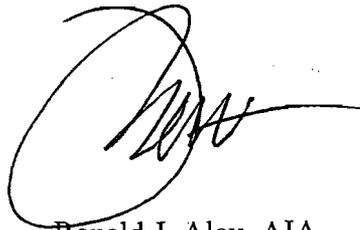
Mr. Francis J. Lynam,
Town Administrator
Whitman Town Hall
54 South Avenue
Whitman, MA 02382

Project:
Needs Analysis for Town Hall and Fire Station
Town Hall, and Central Fire Station

Dear Frank,

As you requested recently, attached is original Asbestos Consultants, LLC Inspection Testing Report for the Whitman Town Hall. If you need additional information, you may call 617-782-9131.

Sincerely,
LPBA/Architects, Inc.



Ronald J. Alex, AIA
Member of National Trust for Historic Preservation

ASBESTOS CONSULTANTS, LLC

61 Unity Avenue #1
Belmont, MA 02478
617-775-4688

RECEIVED
JUL 14 2008
LPBA/Architects, Inc.

May 8, 2008

Mr. Ron Alex, AIA
Principal
LPBA Architects, Inc.
28 Penniman Road
Boston, MA 02134

Reference: Hazardous Materials Inspection Results
Whitman Town Hall
Whitman, MA

Dear Mr. Alex:

Thank you for providing Asbestos Consultants, LLC (AC) the opportunity to serve your environmental needs.

AC was contracted by LPBA to perform a hazardous materials inspection to identify asbestos, lead based paint and calcite (calcimine) in select areas of the Whitman Town Hall.

The following building materials were found to be suspect for asbestos, lead and calcite and sampled:

- o Exterior Window Caulking (replacement and original material)
- o Exterior Hand Railings
- o Ceiling Plaster
- o Ceiling Paint
- o Roofing Materials (paper, felts and flashings)

ASBESTOS

Based upon the laboratory results, all sampled materials suspected to be asbestos tested negative for asbestos.

Beneath the flat EPDM upper roof above gable slate roof is 1/2" paper on a wood substrate. The sample was collected from the center near the antenna location.

Beneath the one story tar and gravel roof is EPDM, 1/2" paper, 1" styrofoam, 1" poly-extruded insulation and black felt on a wood substrate. The sample was collected from the southeastern corner.

Beneath the one story Porte Cochere EPDM roof is 1" poly-extruded insulation, gravel, 3/4" felts (4 layers), paper and felt (1 layer) on a wood substrate. The sample was collected from the center of the roof.

A Massachusetts licensed Asbestos Inspector performed the inspection and collected the samples. Samples were analyzed using the Polarized Light Microscopy (PLM) method for asbestos by an accredited laboratory.

LEAD

Ten paint chip samples were collected from inside and outside areas of the Town Hall. Six of the samples collected from inside the building tested below 0.13% lead. The East and West fire escapes tested 11% and 2.3% lead. Exterior hand railings tested below 0.02% and 0.03% lead.

Paint samples were submitted to an accredited laboratory for analysis. The paint chip samples were analyzed by Atomic Absorption Spectrophotometry (AAS) for total lead content in accordance with the EPA Test Method SW846 3050B and 7420.

According to Massachusetts Lead Regulations, levels in excess of 0.5% lead by dry weight are considered dangerous. However, there is no safe level for lead. Appropriate worker protection must be implemented to comply with OSHA Lead Exposure Regulations if the paint will to be disturbed.

CALCITE

Two samples were collected from ceiling plaster and paint from the same location to identify the single component Calcite. Both samples tested positive for Calcite. However, the ceiling paint sample contained 3% Calcite while the plaster contained 35%. Since both samples were in direct contact with each another, the Calcite identified in the paint sample may be transference from the plaster.

Asbestos, Lead and Calcite laboratory results are attached for your review.

Please call me directly at 617-775-4688 with any questions.

Very truly yours,



Edwin G. Morgan
Asbestos Services Manager



EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Ed Morgan**
Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Customer ID: ASCO62
Customer PO:
Received: 04/17/08 9:00 AM
EMSL Order: 130801310

Fax: (617) 484-0351 Phone: (617) 775-4688
Project: **Whitman Town Hall, Whitman, MA**

EMSL Proj:
Analysis Date: 4/18/2008
Report Date: 4/18/2008

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
1 130801310-0001	Caulking	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
2A 130801310-0002	Caulking	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
2B 130801310-0003	Caulking	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
3 130801310-0004	Paper	Tan Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (other)	None Detected
4 130801310-0005	Felts	Black Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (other)	None Detected
5 130801310-0006	Flashing	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
8 130801310-0009	Clg Plstr	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
11 130801310-0012	Clg Plstr	White Non-Fibrous Homogeneous	<1% Hair	100% Non-fibrous (other)	None Detected

Analyst(s)

Kevin Pine (21)

or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
NVLAP Lab Code 101147-0, AIHA IHLAP 180179, MA AA000188



EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Ed Morgan**
Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Customer ID: ASCO62
Customer PO:
Received: 04/17/08 9:00 AM
EMSL Order: 130801310

Fax: (617) 484-0351 Phone: (617) 775-4688
Project: **Whitman Town Hall, Whitman, MA**

EMSL Proj:
Analysis Date: 4/18/2008
Report Date: 4/18/2008

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
14 130801310-0015	Cig Plstr	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
17 130801310-0018	Cig Plstr	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
20 130801310-0021	Cig Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
21 130801310-0022	Felts	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
22 130801310-0023	Felts	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
23 130801310-0024	Red Caulking	Red Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
24 130801310-0025	Paper	Tan Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (other)	None Detected
25 130801310-0026	Flashing	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Kevin Pine (21)

or other approved signatory

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EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Ed Morgan**
Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Customer ID: ASC062
Customer PO:
Received: 04/17/08 9:00 AM
EMSL Order: 130801310

EMSL Proj:
Analysis Date: 4/18/2008
Report Date: 4/18/2008

Fax: (617) 484-0351 Phone: (617) 775-4688
Project: **Whitman Town Hall, Whitman, MA**

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Location	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
26 130801310-0027	Flashing	Black Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
30 130801310-0031	Clg Plstr	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
31 130801310-0032	Felts	Black Fibrous Heterogeneous	20% Cellulose 10% Glass	70% Non-fibrous (other)	None Detected
32 130801310-0033	Paper	Tan Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (other)	None Detected
33 130801310-0034	Felt	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected

Analyst(s)

Kevin Pine (21)

or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
NVLAP Lab Code 101147-0, AIHA IHLAP 180179, MA AA000188



EMSL Analytical

3 Cooper St., Westmont, NJ 08108

Phone: (856) 858-4800 Fax: (856) 858-9551 Email: westmontleadlab@emsl.com

Attn: **Asbestos Consultants**
61 Unity Avenue
Belmont, MA 02478

Customer ID: ASCO62
Customer PO:
Received: 04/18/08 10:44 AM
EMSL Order: 200805847
EMSL Proj:

Fax: (617) 484-0351 Phone: (617) 775-4688
Project: **Whitman Town Hall**

Report Date: 4/18/2008

Lead in Paint Chips by Flame AAS (SW 846 3050B and 7420*)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
pb-1	0001	4/17/2008	4/18/2008	11 % wt
pb-2	0002	4/17/2008	4/18/2008	<0.02 % wt
pb-3	0003	4/17/2008	4/18/2008	2.3 % wt
pb-4	0004	4/17/2008	4/18/2008	<0.03 % wt
pb-5	0005	4/17/2008	4/18/2008	<0.01 % wt
pb-6	0006	4/17/2008	4/18/2008	<0.01 % wt
pb-7	0007	4/17/2008	4/18/2008	<0.01 % wt
pb-8	0008	4/17/2008	4/18/2008	0.13 % wt
pb-9	0009	4/17/2008	4/18/2008	0.12 % wt
pb-10	0010	4/17/2008	4/18/2008	<0.01 % wt

Shannon Kauffman, Lead Lab Supervisor
or other approved signatory

Reporting limit is 0.01 % wt. The QC data associated with these sample results included in this report meet the method quality control requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities.

* slight modifications to methods applied Samples received in good condition unless otherwise noted. Quality Control Data associated with this sample set is within acceptable limits, unless otherwise noted

ACCREDITATIONS: NJ-NELAP: 04653, AIHA Environmental Lead Laboratory Approval Program: 100194



EMSL Analytical, Inc.

107 Haddon Avenue, Westmont, NJ 08108
Phone: (856) 858-4800

Materials Science Division

Attn.: *Ed Morgan*

Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Phone: 617-775-4688

EMSL Case No.: 360800536

Sample(s) Received: 04/18/2008

Date of Analysis: 04/25/2008

Date Printed: 04/25/2008

Reported By: D. D'Ulisse

- Laboratory Report -

Single Analyte: Calcite

For

Project: Whitman Town Hall

Analyzed by:

Dana D'Ulisse
Dana D'Ulisse
Materials Scientist

April 25, 2008

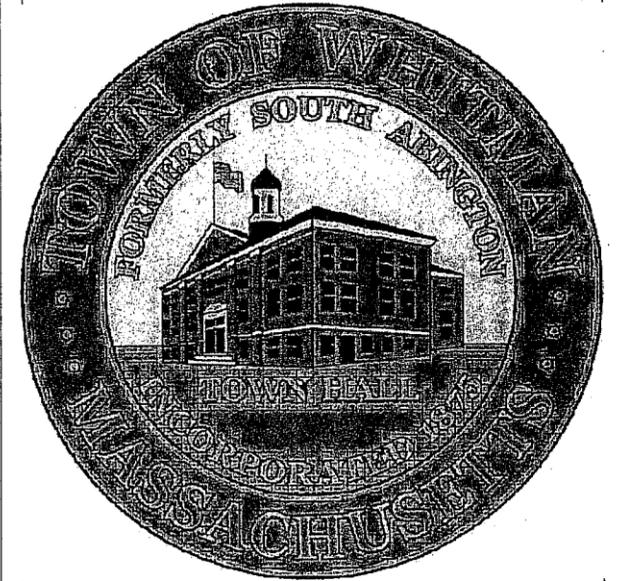
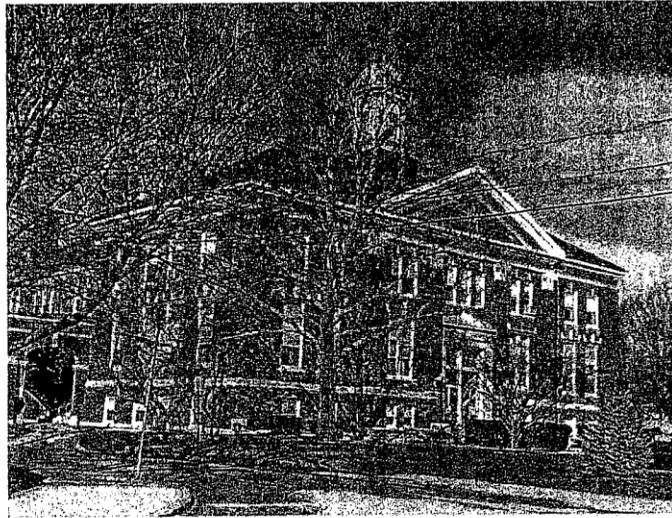
Date

QA/QC:

Eugenia Mirica
Eugenia Mirica, Ph.D.
Senior Materials Scientist

April 25, 2008

Date



Town Seal

PROJECT:

Needs Analysis for Town Hall and Central Fire Station

ARCHITECT:

LPBA / Architects, Inc.

28 Penniman Road, Boston, MA 02134

Tel: 617/782-9131 Fax: 617/782-9141

e-mail: info@lpba.com www.lpba.com

AWARDING AUTHORITY:

Town of Whitman, MA

54 South Avenue

Whitman, MA 02382

TOWN REPRESENTATIVES:

Mr. Francis J. Lynam

Town Administrator

Mr. Timothy Travers

Fire Chief

SUB COMMITTEE OF THE BUILDING COMMITTEE:

Mr. Daniel E. Holbrook

Selectman

Robert Curran

Bldg. Commissioner

Elizabeth Pretorius

Historical Commission Director

Daniel Salvucci

Member

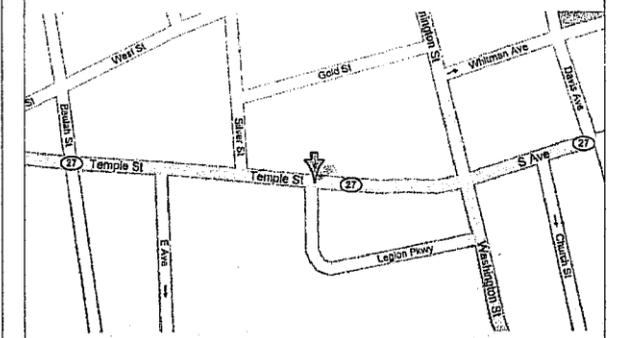
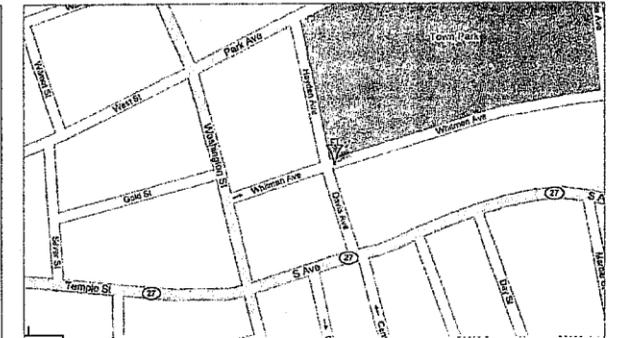
William Capucci

Member

Margaret McGillivray

Selectman and Associate

Member of the Historic Commission



TOWN HALL & FIRE STATION LOCUS MAP

March 27, 2007

T-1

LPBA
Architects, Inc.

Architecture
Planning
Interiors
Construction-
Management

28 Penniman Road
Boston MA 02134

Tel.: 617.782.9131
Fax: 617.782.9141

Email: info@lpba.com
Web Site: www.lpba.com

REVISIONS:

CLIENT:

TOWN OF WHITMAN
TOWN HALL

PROJECT:

NEEDS ANALYSIS FOR
TOWN HALL AND CENTRAL
FIRE STATION

DRAWING TITLE:

PROPOSED WORK
GROUND FLOOR PLAN

DRAWN BY: ST

CHECKED BY: RA

SCALE: 1/8"=1'-0"

DATE: 3/27/2008

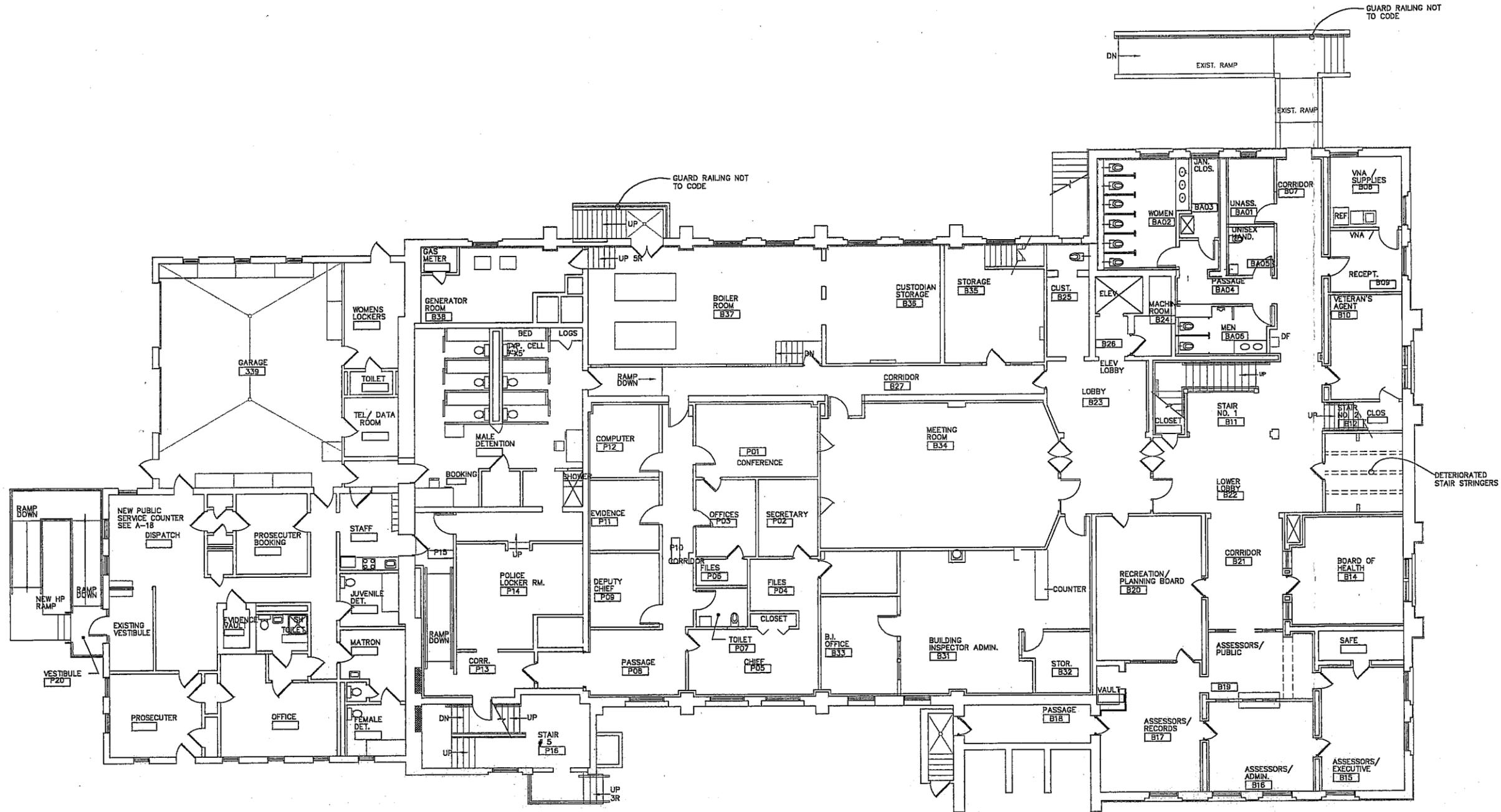
JOB NO.:

SHEET NO.:

EX-1.0

FILE:

SHEET 1 OF 9



NOTE:
PEELING CEILING PAINT IN CORRIDORS,
OFFICES, AND AUDITORIUM-1729 SF

1 EXISTING CONDITIONS GROUND FLOOR PLAN
EX1.0 SCALE: 1/8" = 1'-0"

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Architecture
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Web Site: www.lpba.com

REVISIONS:

CLIENT:

TOWN OF WHITMAN
TOWN HALL

PROJECT:

NEEDS ANALYSIS FOR
TOWN HALL AND CENTRAL
FIRE STATION

DRAWING TITLE:

PROPOSED WORK
FIRST FLOOR PLAN

DRAWN BY: ST
CHECKED BY: RA
SCALE: 1/8" = 1'-0"
DATE: 3/27/2008

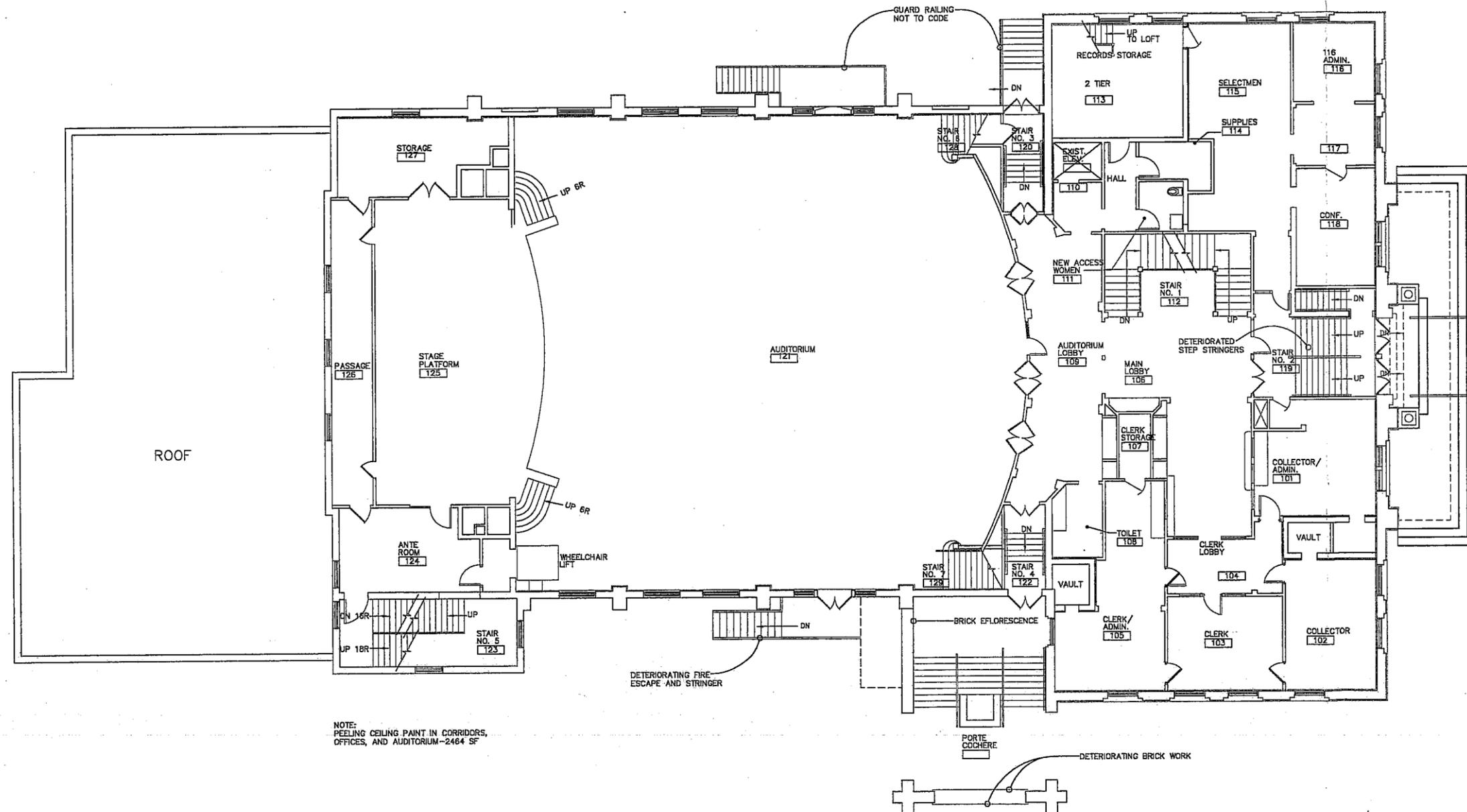
JOB NO.:

SHEET NO.:

EX-1.1

FILE:

SHEET 2 OF 9



NOTE:
PEELING CEILING PAINT IN CORRIDORS,
OFFICES, AND AUDITORIUM-2464 SF

1 EXISTING CONDITIONS FIRST FLOOR PLAN
EX1.1 SCALE: 1/8" = 1'-0"

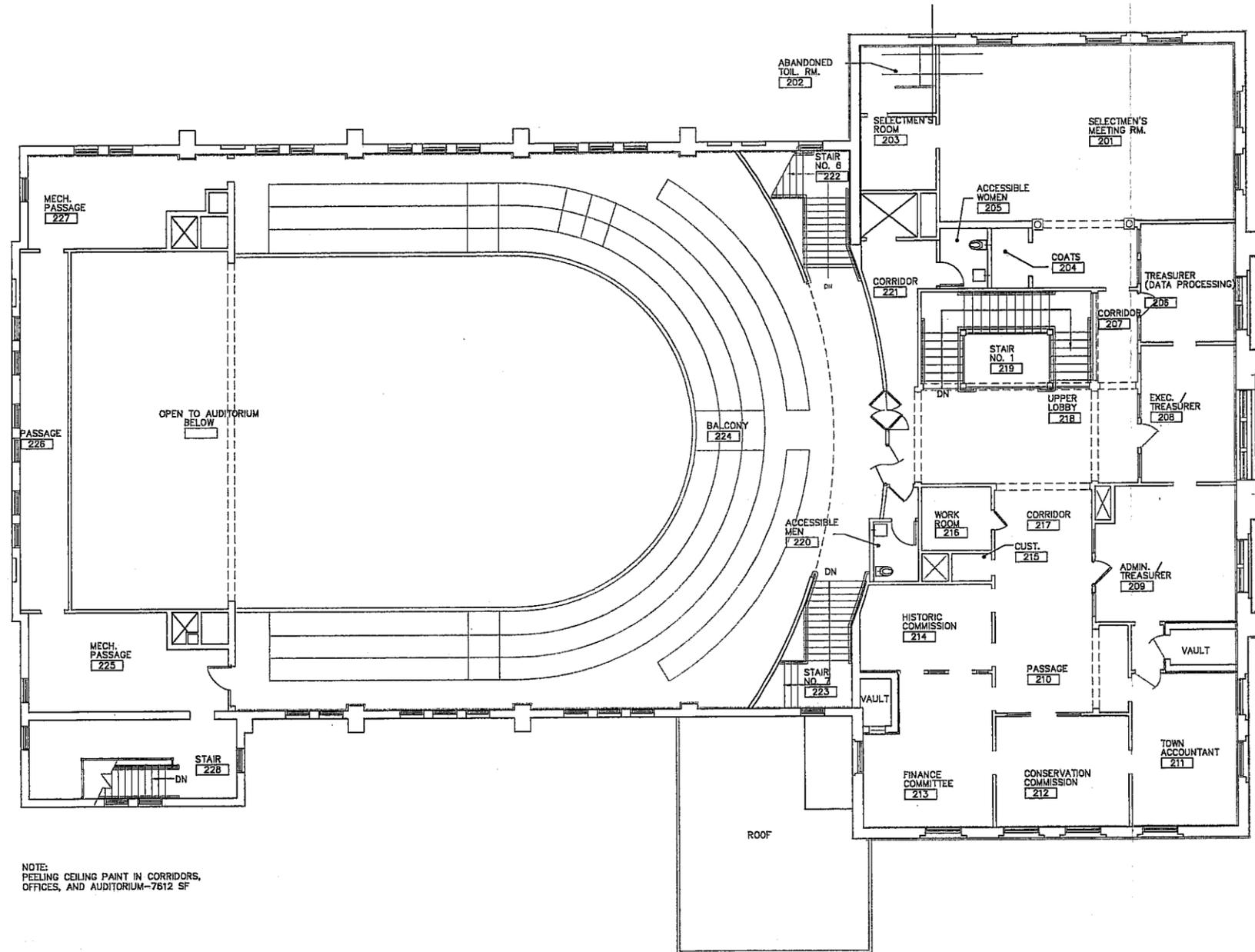
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Boston MA 02134

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Fax: 617.782.9141

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NOTE:
PEELING CEILING PAINT IN CORRIDORS,
OFFICES, AND AUDITORIUM-7612 SF

REVISIONS:

CLIENT:

TOWN OF WHITMAN
TOWN HALL

PROJECT:

NEEDS ANALYSIS FOR
TOWN HALL AND CENTRAL
FIRE STATION

DRAWING TITLE:

PROPOSED WORK
SECOND FLOOR PLAN

DRAWN BY: ST

CHECKED BY: RA

SCALE: 1/8"=1'-0"

DATE: 3/27/2008

JOB NO.:

SHEET NO.:

EX-1.2

FILE:

SHEET 3 OF 9

1 EXISTING CONDITIONS SECOND FLOOR PLAN
EX1.2 SCALE: 1/8" = 1'-0"

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REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS
FOR TOWN HALL &
CENTRAL FIRE STATION

DRAWING TITLE:

TOWN HALL &
POLICE STATION
ELEVATIONS

DRAWN BY: GH

CHECKED BY: RA

SCALE: 1/8" = 1'-0"

DATE: 3/27/2008

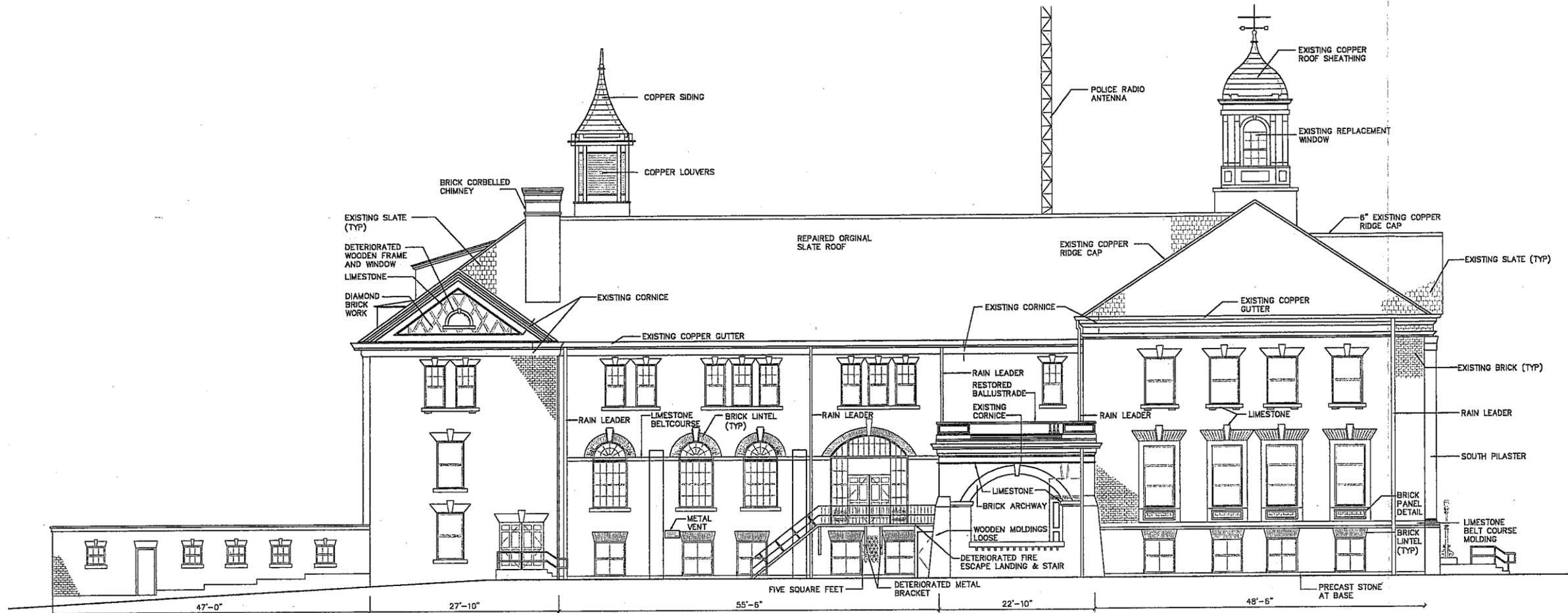
JOB NO.:

SHEET NO.:

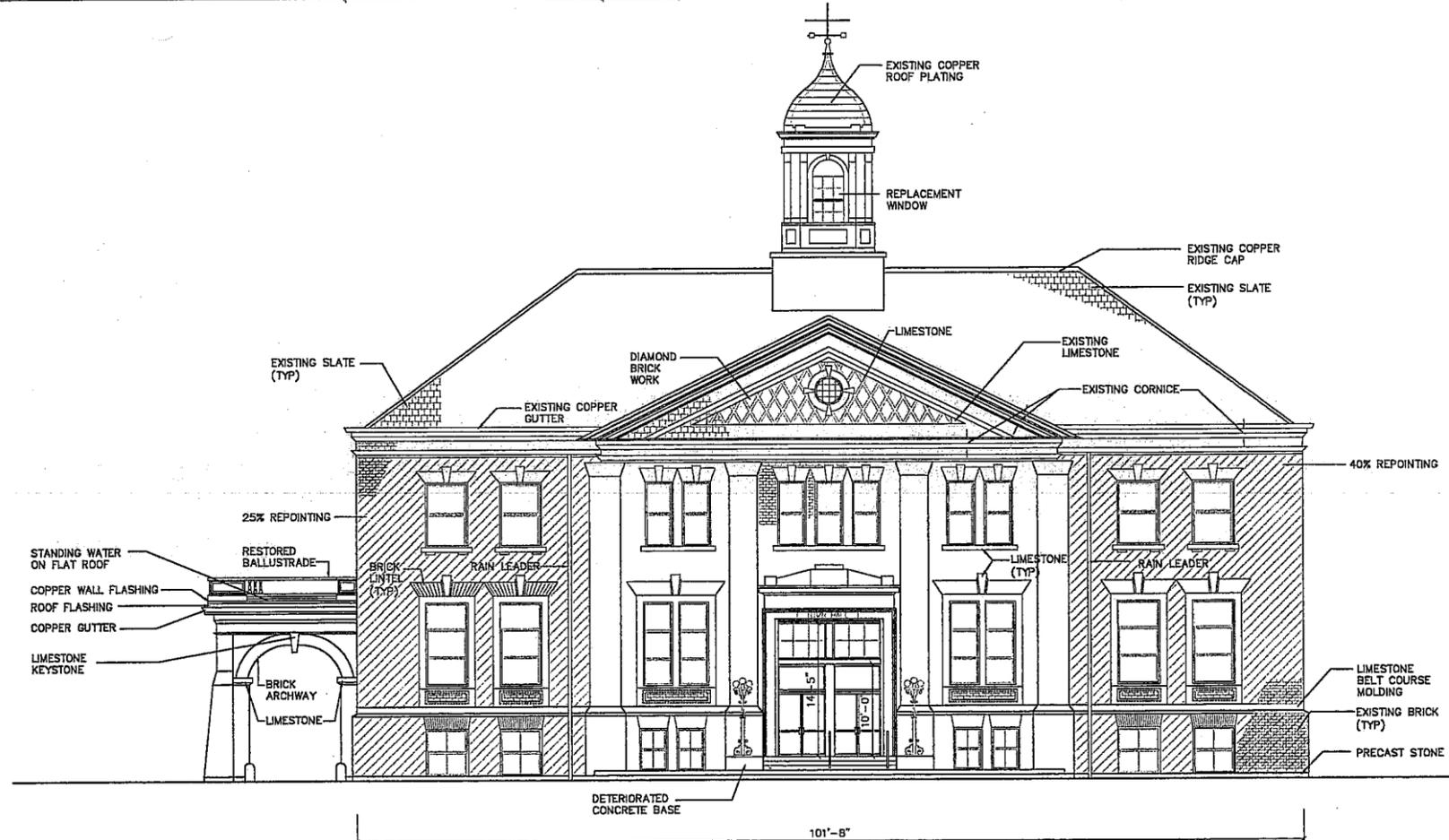
EX-1.3

FILE:

SHEET 4 OF 9



1 WEST ELEVATION
EX1.3 SCALE: 1/8" = 1'-0"



2 SOUTH ELEVATION
EX1.3 SCALE: 1/8" = 1'-0"

NOTE:
See Needs Analysis Report
for purposed improvements

KEY:
EXISTING BRICK
EXISTING SLATE
CRACKED BRICK
SPALLING BRICK
(REPOINTING & SHOWN
ON ELEVATION)

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REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS
FOR TOWN HALL &
CENTRAL FIRE STATION

DRAWING TITLE:

TOWN HALL &
POLICE STATION
ELEVATIONS

DRAWN BY: GH

CHECKED BY: RA

SCALE: 1/8" = 1'-0"

DATE: 3/27/2008

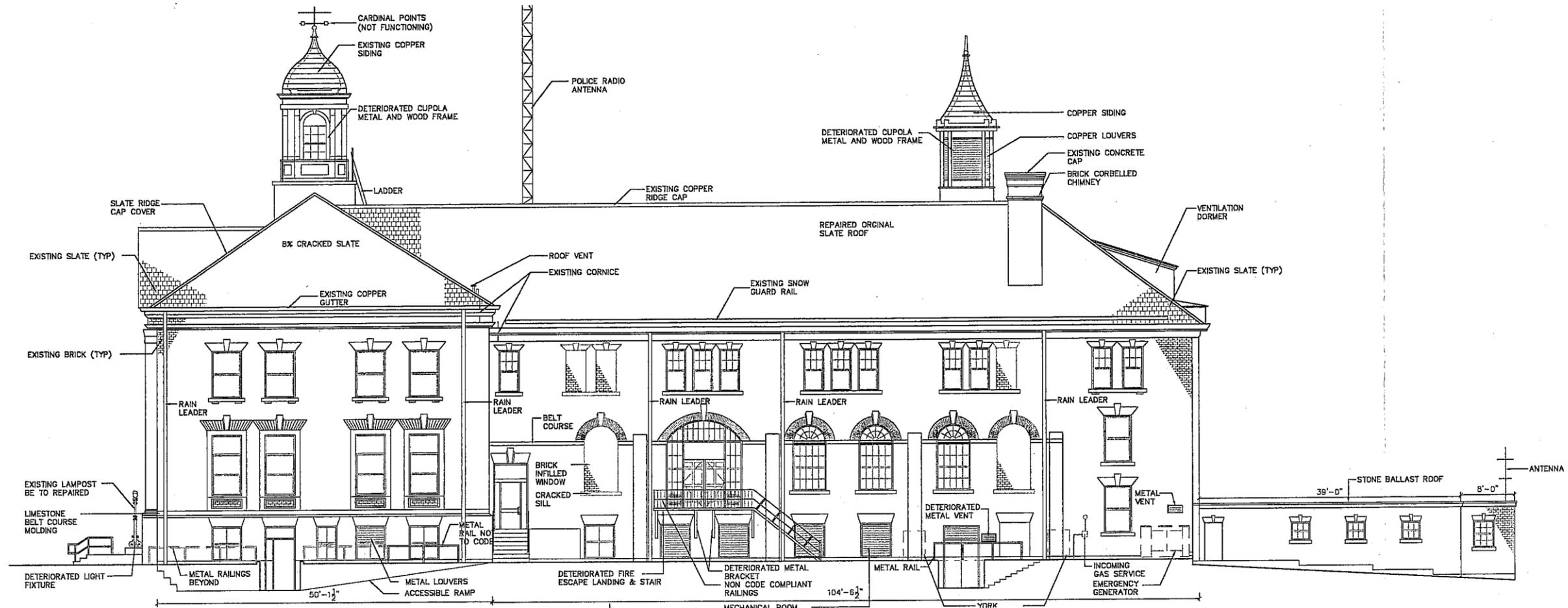
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SHEET NO.:

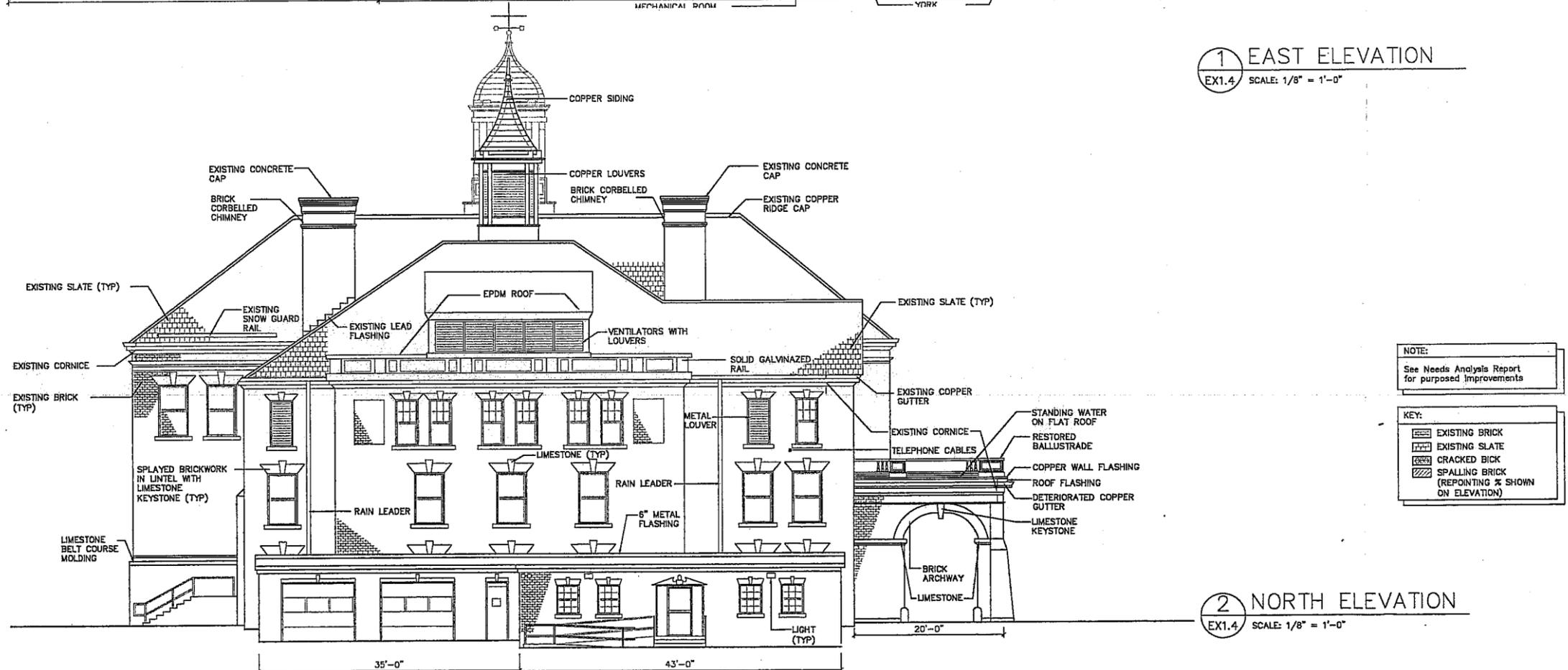
EX-1.4

FILE:

SHEET 5 OF 9



1 EAST ELEVATION
EX1.4 SCALE: 1/8" = 1'-0"



2 NORTH ELEVATION
EX1.4 SCALE: 1/8" = 1'-0"

NOTE:
See Needs Analysis Report
for proposed improvements

KEY:

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REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS
FOR TOWN HALL &
CENTRAL FIRE STATION

DRAWING TITLE:

TOWN HALL &
POLICE STATION
DOOR & WINDOW
SCHEDULE

DRAWN BY: GH

CHECKED BY: RA

SCALE: 1/4"=1'-0"

DATE: 3/27/2008

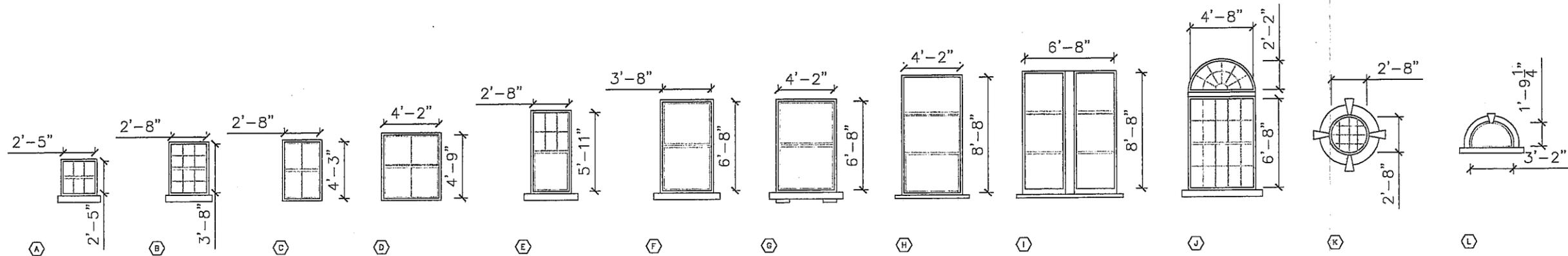
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SHEET NO.:

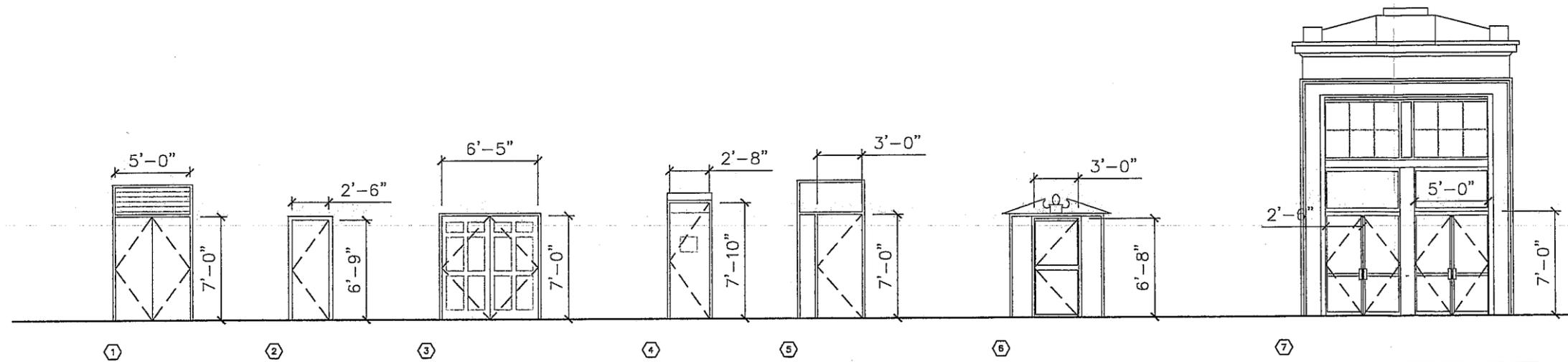
EX-1.5

FILE:

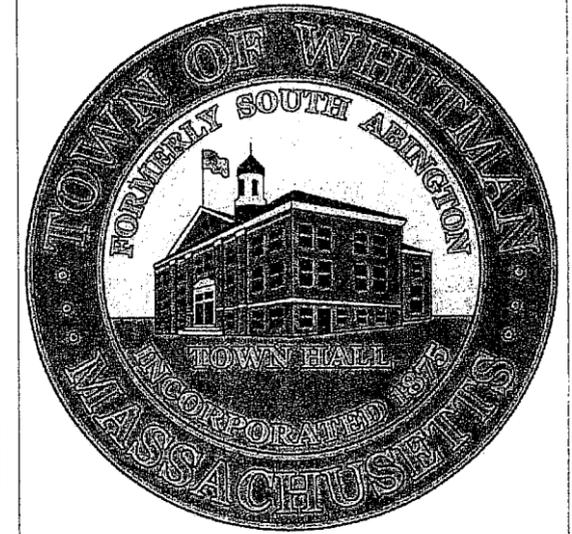
SHEET 6 OF 9



TOTAL NUMBER OF WINDOW UNITS	8	5	5	15	30	12	13	12	2	6	1	1
------------------------------	---	---	---	----	----	----	----	----	---	---	---	---



TOTAL NUMBER OF DOOR UNITS	1	2	3	1	1	1	1
----------------------------	---	---	---	---	---	---	---



WHITMAN POLICE STATION NEEDS ANALYSIS

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REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS
FOR TOWN HALL
WHITMAN, MA

DRAWING TITLE:

POLICE STATION
PROJECTED VACATED
MUNICIPAL OFFICES
AND STORAGE AREAS

DRAWN BY: WP

CHECKED BY: RA

SCALE: 1/8" = 1'-0"

DATE: 3/27/2008

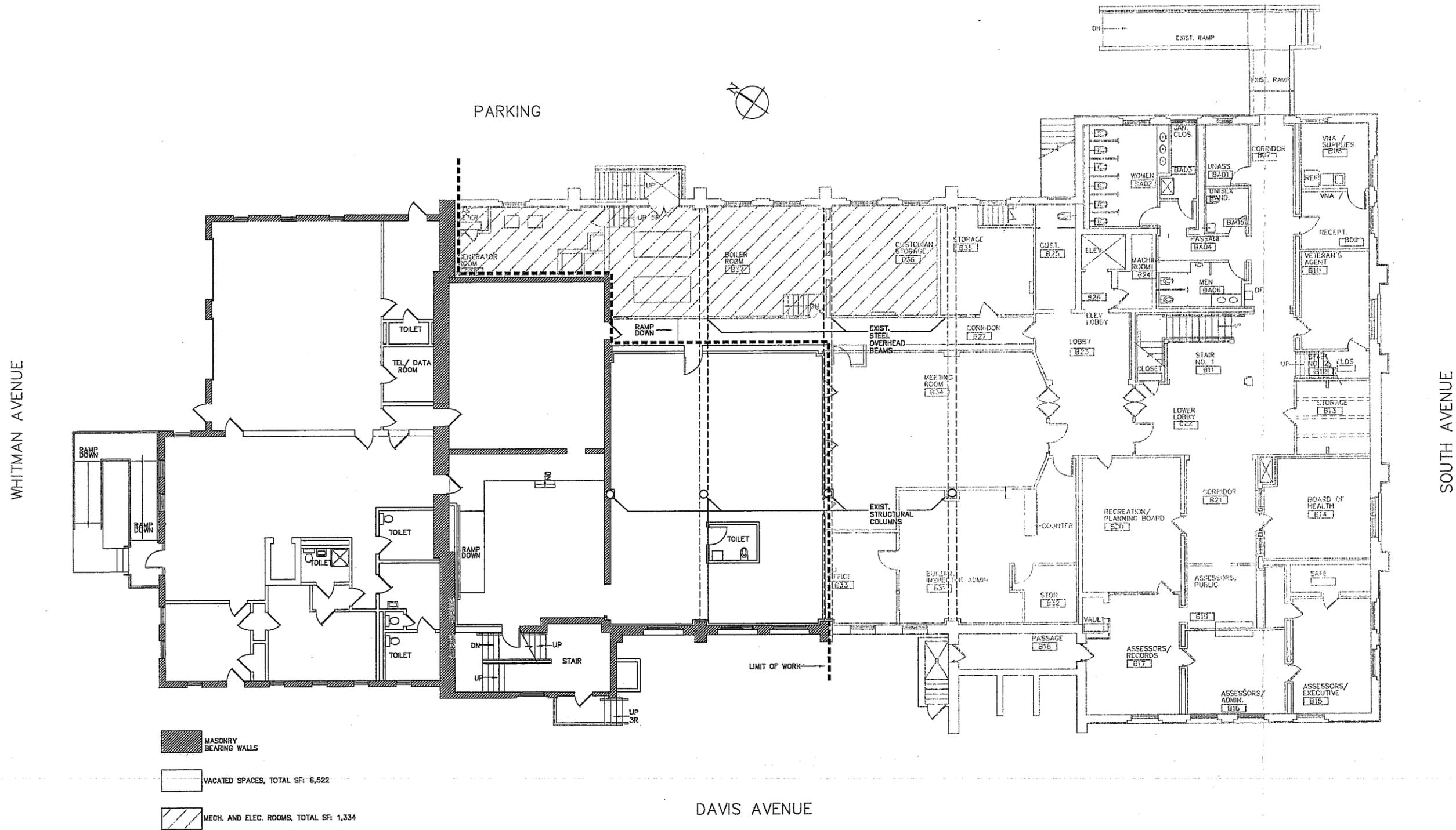
JOB NO.:

SHEET NO.:

A-2.0

FILE:

SHEET 7 OF 9



1
A.1.0 GROUND FLOOR OF EXISTING POLICE STATION
PROJECTED VACATED OFFICES AND STORAGE AREAS
SCALE: 1/8" = 1'-0"

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REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS
FOR TOWN HALL
WHITMAN, MA

DRAWING TITLE:

PROJECTED VACATED
MUNICIPAL OFFICES
FOR MUNICIPAL OFFICES
AND STORAGE AREAS

DRAWN BY: WP

CHECKED BY: RA

SCALE: 1/8" = 1'-0"

DATE: 3/27/2008

JOB NO.:

SHEET NO.:

A-2.1

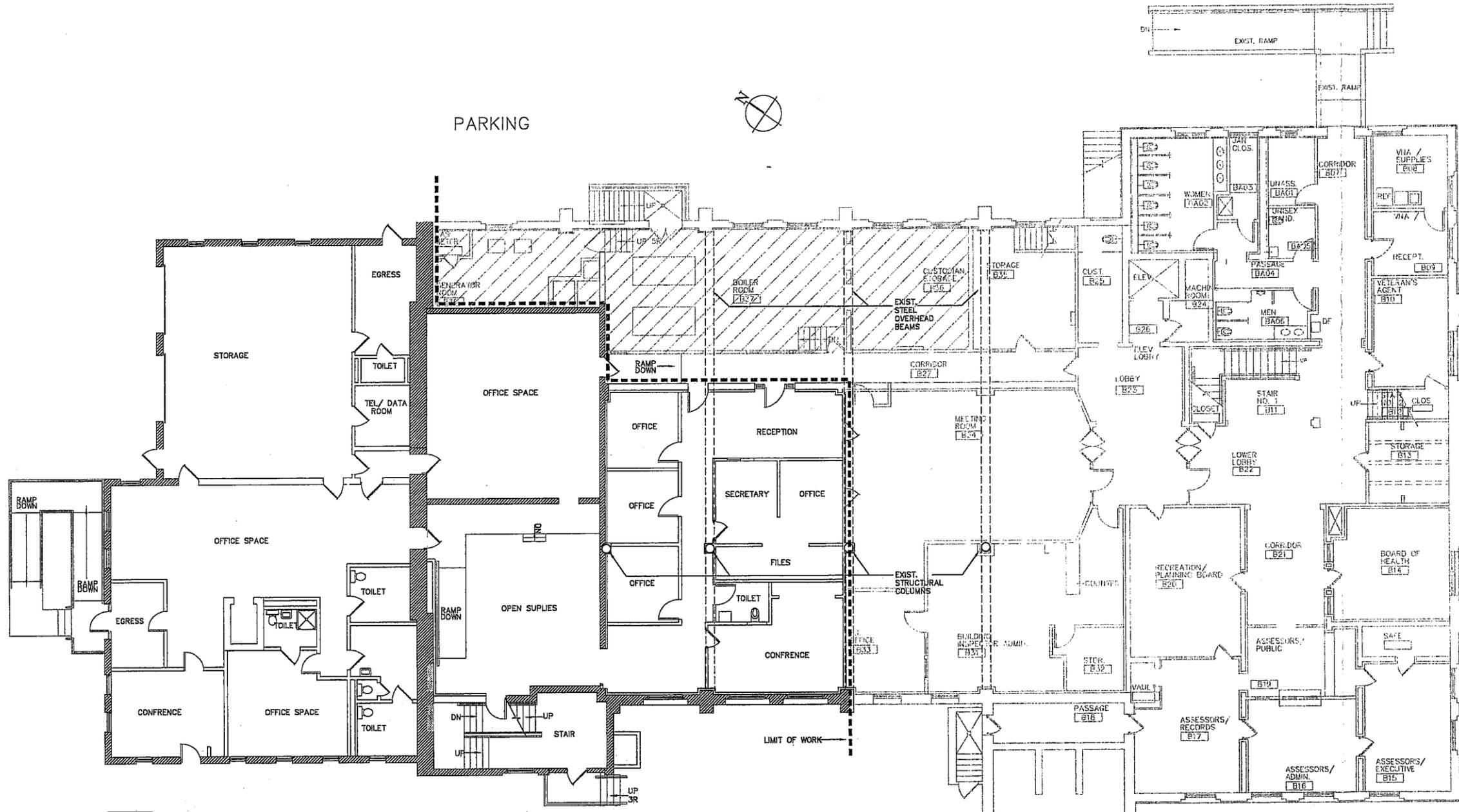
FILE:

SHEET 8 OF 9

WHITMAN AVENUE

SOUTH AVENUE

DAVIS AVENUE



-  MASONRY BEARING WALLS
-  VACATED SPACES, TOTAL SF: 6,522
-  MECH. AND ELEC. ROOMS, TOTAL SF: 1,334

1
A1.0
GROUND FLOOR OF EXISTING POLICE STATION
PRELIMINARY OFFICE AND STORAGE ROOM LAYOUT
SCALE: 1/8" = 1'-0"

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Email: info@lpba.com
Web Site: www.lpba.com

REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS
FOR TOWN HALL &
CENTRAL FIRE STATION

DRAWING TITLE:

TOWN HALL &
POLICE STATION
PROPOSED WORK
ROOF PLAN

DRAWN BY: GH

CHECKED BY: RA

SCALE: 1/8" = 1'-0"

DATE: 3/27/2008

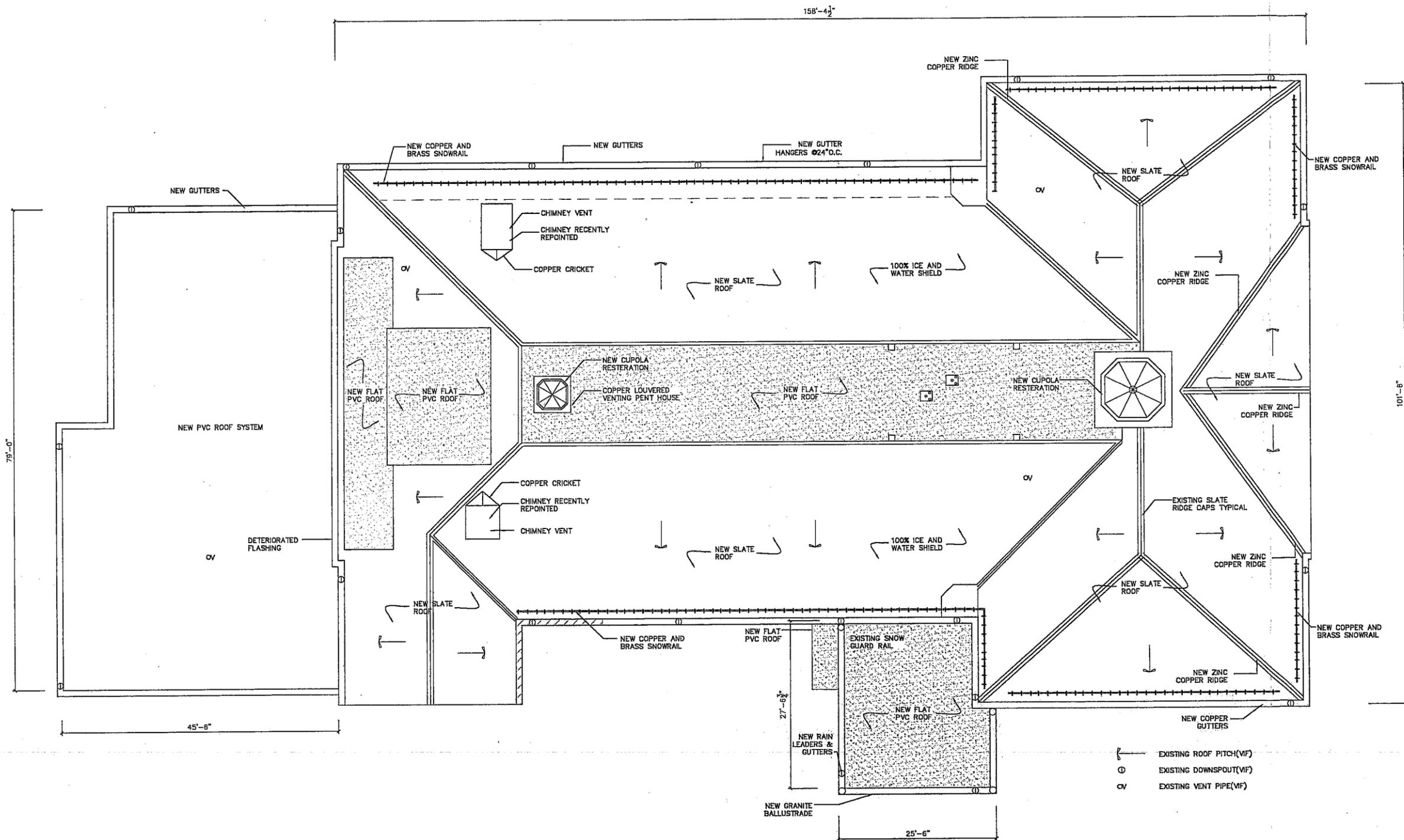
JOB NO.:

SHEET NO.:

A-2.2

FILE:

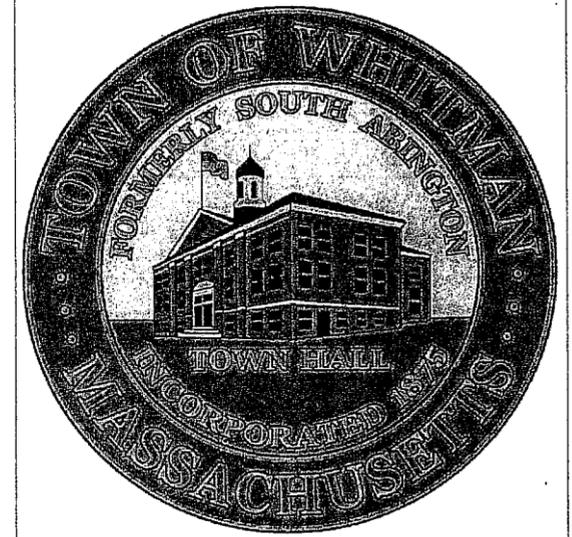
SHEET 9 OF 9



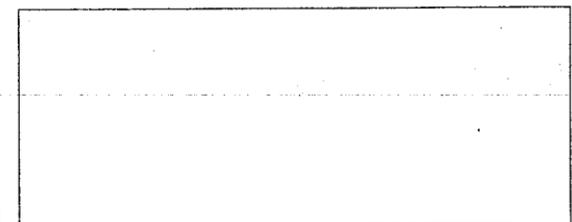
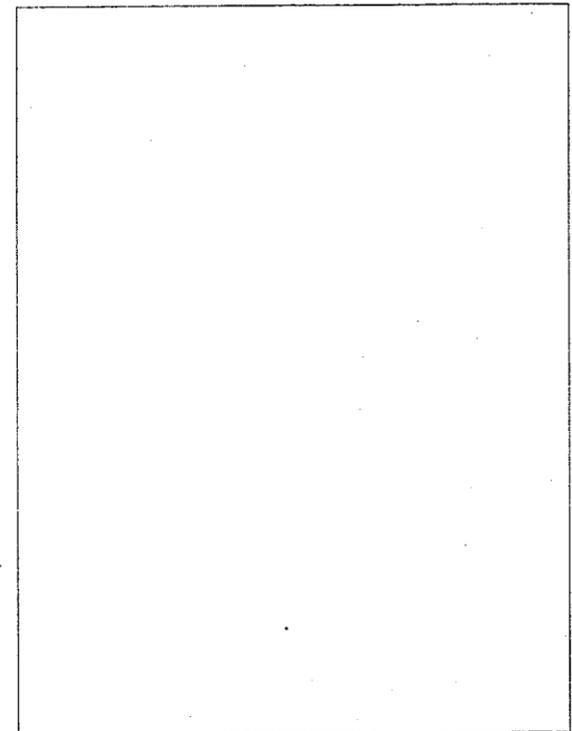
- EXISTING ROOF PITCH(VIF)
- ⊙ EXISTING DOWNSPOUT(VIF)
- ov EXISTING VENT PIPE(VIF)

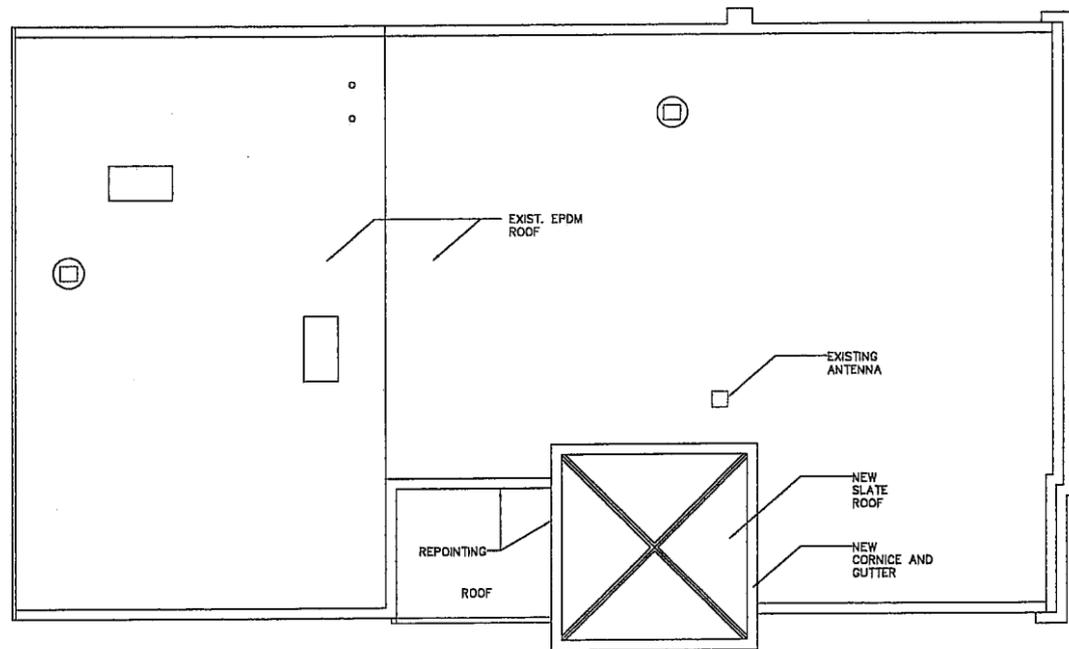
1
EX1.5 PURPOSED WORK
ROOF PLAN
SCALE: 1/8" = 1'-0"

SOUTH AVENUE

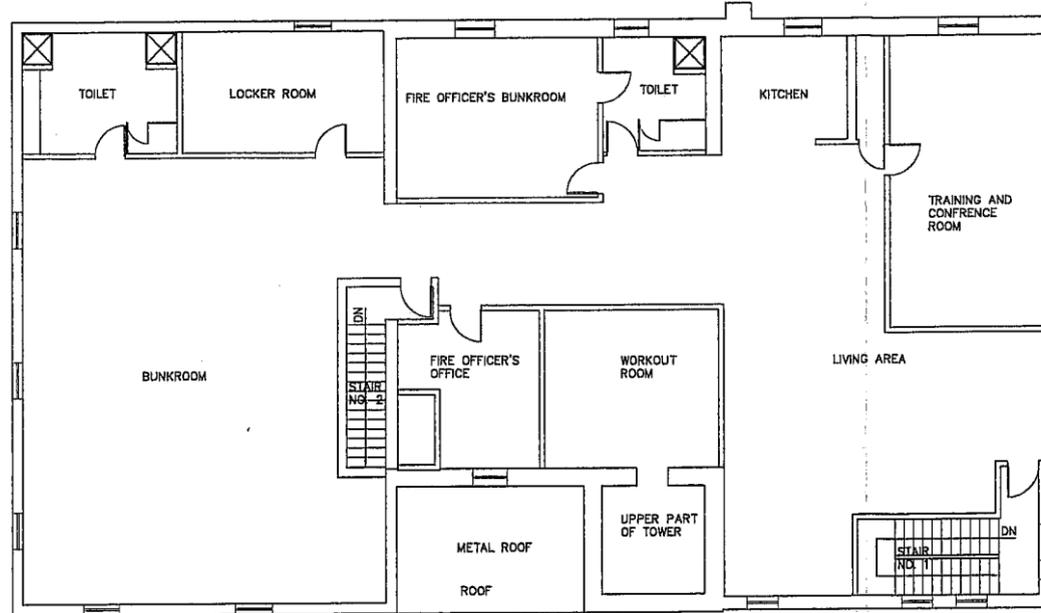


WHITMAN CENTRAL FIRE STATION NEEDS ANALYSIS

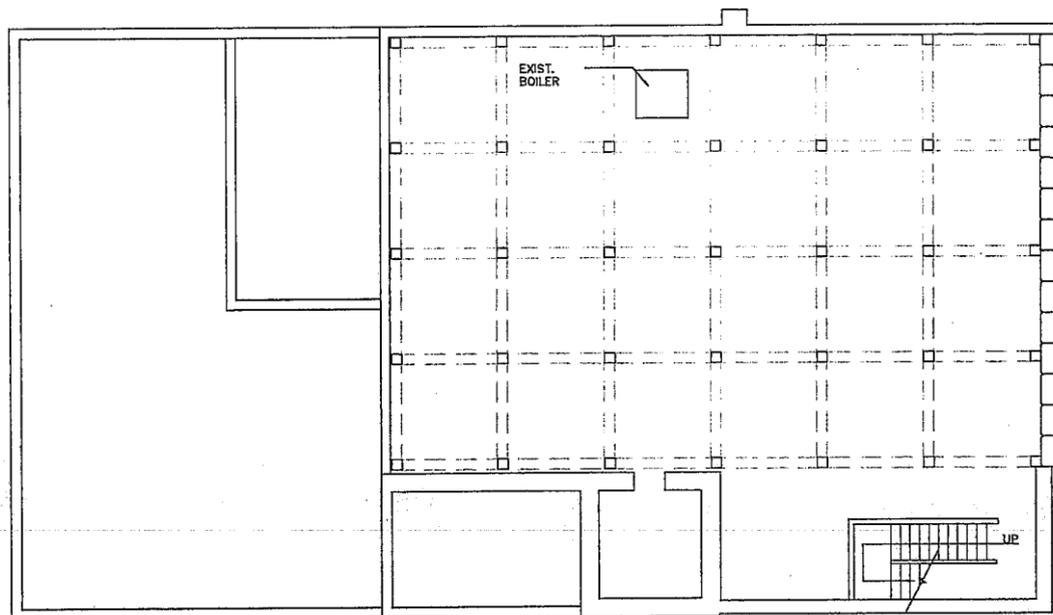




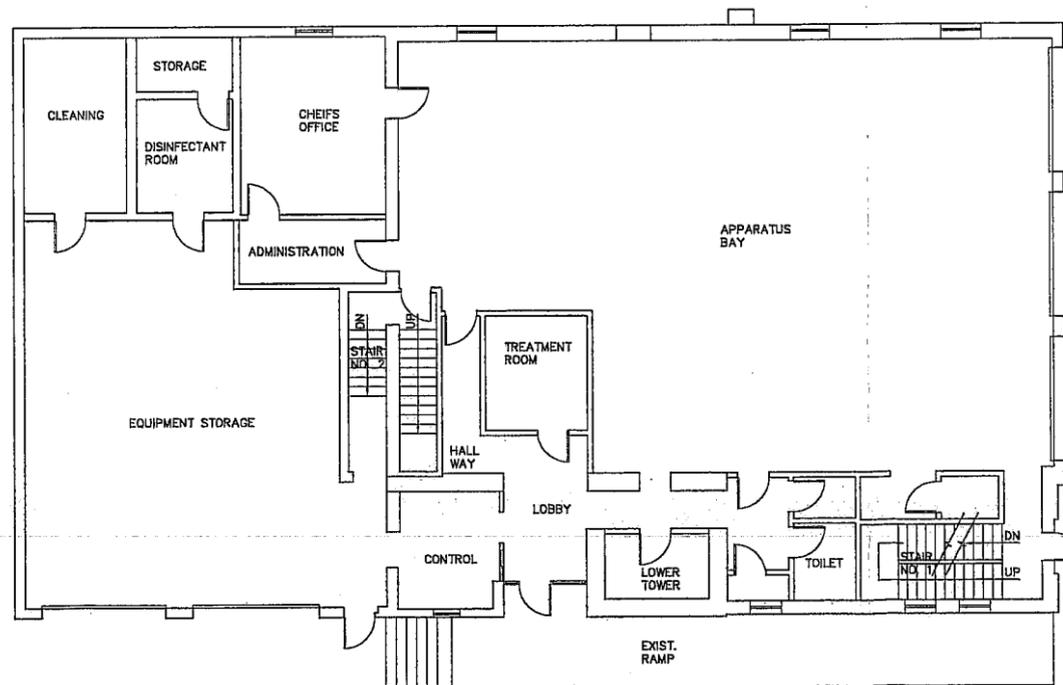
3 EXISTING CONDITIONS ROOF PLAN
EX1.0 SCALE: 1/4" = 1'-0"



2 EXISTING CONDITIONS SECOND FLOOR PLAN
EX1.0 SCALE: 1/4" = 1'-0"



4 EXISTING CONDITIONS BASEMENT PLAN
EX1.0 SCALE: 1/4" = 1'-0"



1 EXISTING CONDITIONS FIRST FLOOR PLAN
EX1.0 SCALE: 1/4" = 1'-0"

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Web Site: www.lpba.com

REVISIONS:

CLIENT:

TOWN OF WHITMAN
WHITMAN, MA

PROJECT:

NEEDS ANALYSIS FOR
TOWN HALL AND CENTRAL
FIRE STATION

DRAWING TITLE:

CENTRAL FIRE STATION
EXISTING CONDITIONS
AND PROPOSED WORK
FLOOR AND ROOF PLANS

DRAWN BY: ST

CHECKED BY: RA

SCALE: 1/4"=1'-0"

DATE: 03/27/2008

JOB NO.:

SHEET NO.:

EX-1.0

FILE:

SHEET 1 OF 2

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Web Site: www.lpba.com

REVISIONS:

CLIENT:

TOWN OF WHITMAN
FIRE STATION

PROJECT:

NEEDS ANALYSIS FOR
TOWN HALL AND
CENTRAL FIRE STATION

DRAWING TITLE:

FIRE STATION
EXISTING CONDITIONS
ELEVATIONS AND
PROPOSED WORK

DRAFT

DRAWN BY: ST

CHECKED BY: RA

SCALE: 1/8"=1'-0"

DATE: 3/07/2008

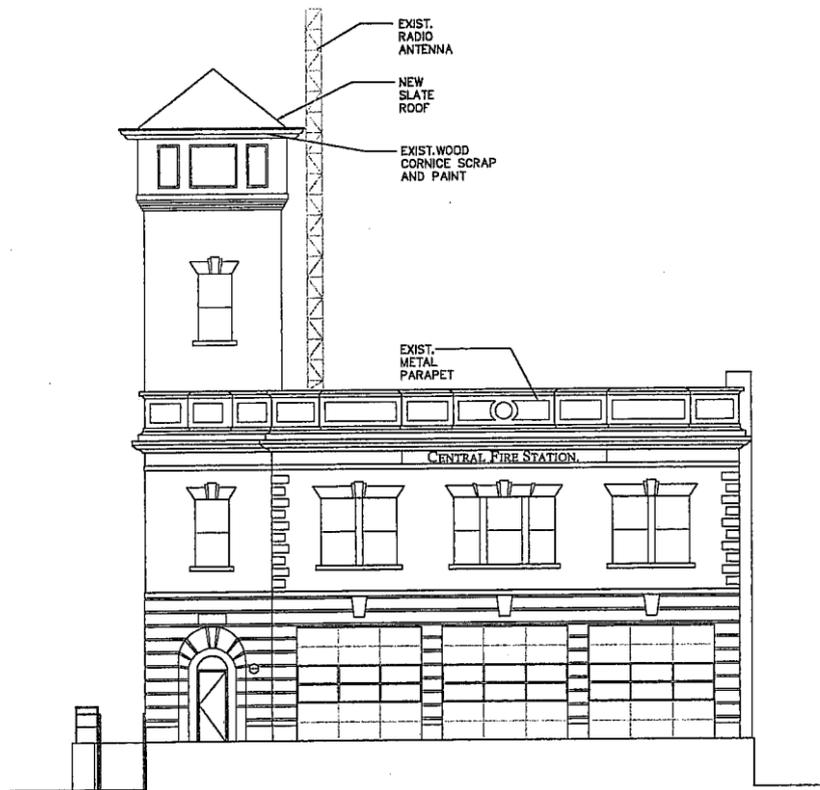
JOB NO.:

SHEET NO.:

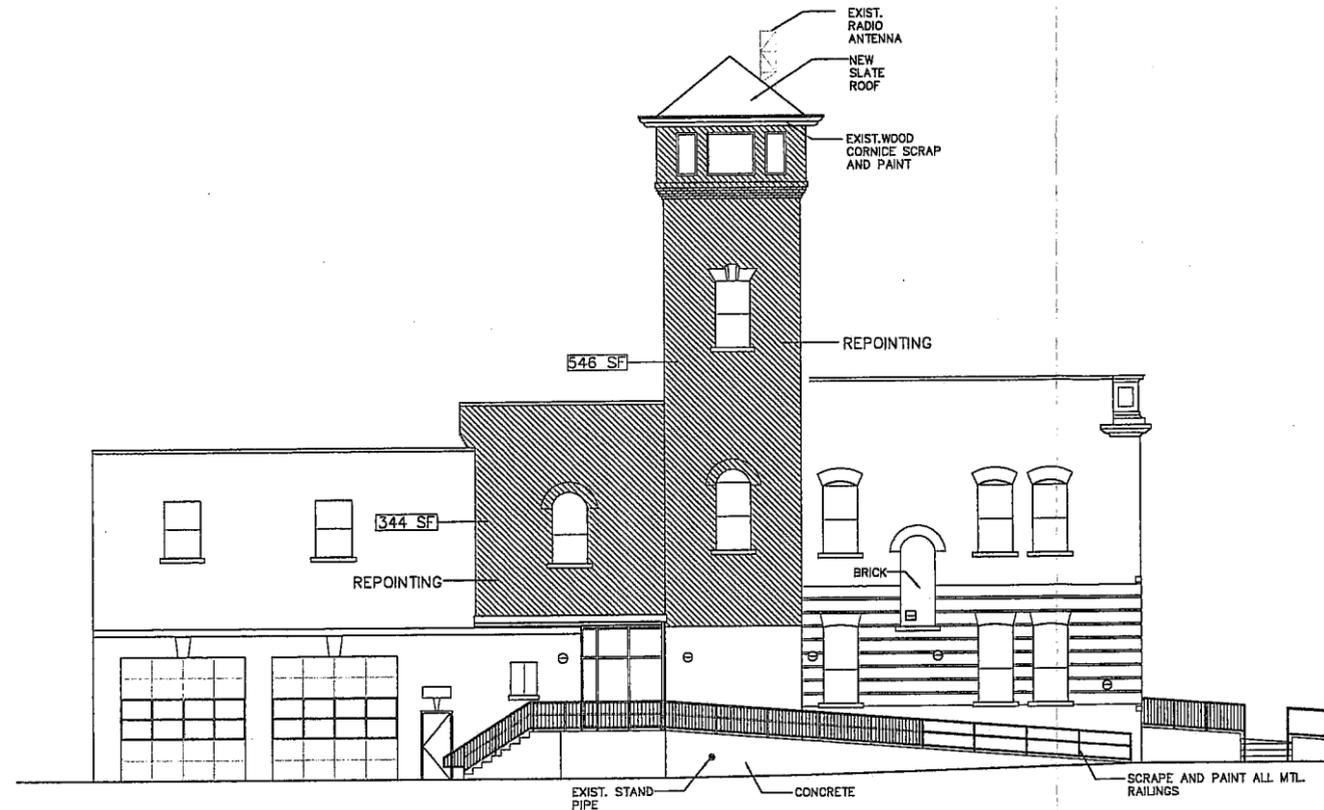
EX-1.1

FILE:

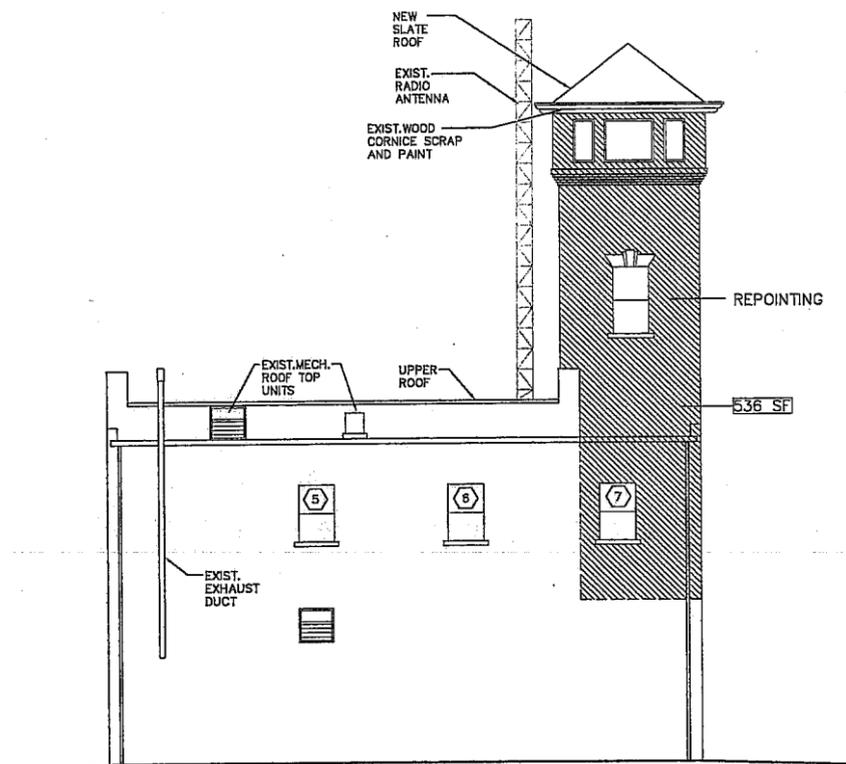
SHEET 2 OF 2



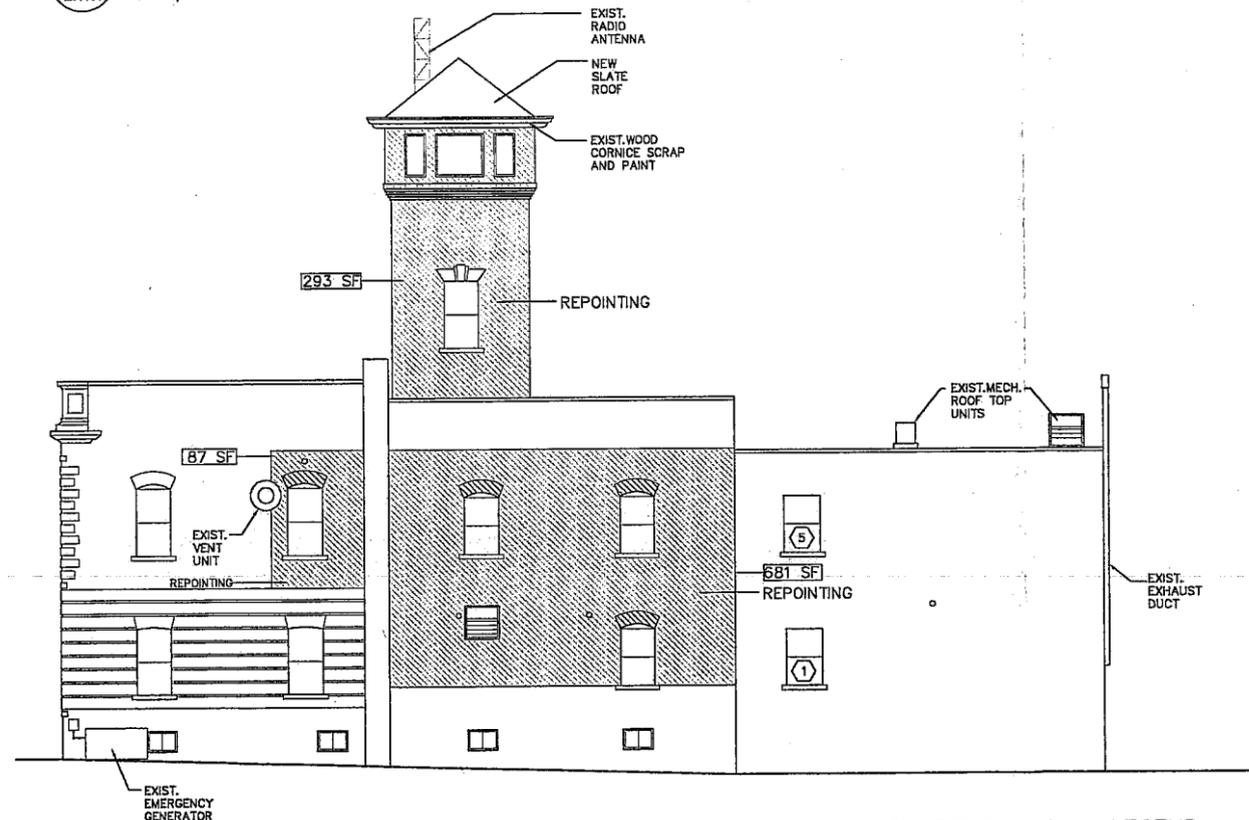
2 EXISTING CONDITIONS NORTH ELEVATION
EX1.1 SCALE: 1/8" = 1'-0"



1 EXISTING CONDITIONS EAST ELEVATION
EX1.1 SCALE: 1/8" = 1'-0"



4 EXISTING CONDITIONS SOUTH ELEVATION
EX1.1 SCALE: 1/8" = 1'-0"



3 EXISTING CONDITIONS WEST ELEVATION
EX1.1 SCALE: 1/8" = 1'-0"

SUMMARY REPOINTING

LEGEND:

EAST- 890 SF
WEST- 974 SF
NORTH- 0 SF
SOUTH- 536 SF

 100% REPOINTING - SF



EMSL Analytical, Inc.

107 Haddon Avenue, Westmont, NJ 08108
Phone: (856) 858-4800

Attn.: Ed Morgan
Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Phone: 617-775-4688

EMSL Case No.: 360800536
Sample(s) Received: 04/18/2008
Date of Analysis: 04/25/2008
Date Printed: 04/25/2008
Reported By: D. D'Ulisse

Conclusions:

- Calcite was identified in samples 1 and 2.

Procurement of Samples and Analytical Overview:

The samples for analysis (bulk) arrived at EMSL Analytical's corporate laboratory in Westmont, NJ on April 18, 2008. The package arrived in satisfactory condition with no evidence of damage to the contents. The samples were submitted for the purpose of determining the presence of calcite. The samples reported herein have been analyzed using the following equipment and methodologies.

Methods & Equipment: Polarized Light Microscopy (PLM)
Stereo Microscopy
Scanning Electron Microscopy (SEM)
Energy Dispersive X-ray Spectrometry (EDX)
X-Ray Diffraction (XRD)



Attn: Ed Morgan

Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Phone: 617-775-4688

EMSL Case No.: 360800536

Sample(s) Received: 04/18/2008

Date of Analysis: 04/25/2008

Date Printed: 04/25/2008

Reported By: D. D'Ulisse

Results and Discussion:

<i>Sample ID</i>	<i>Description</i>	<i>Analyte</i>	<i>Conc.</i> <i>(%)</i>	<i>LOD</i> <i>(%)</i>	<i>Comments</i>
1	Ceiling	Calcite	3	~1	
2	Ceiling	Calcite	35	~1	

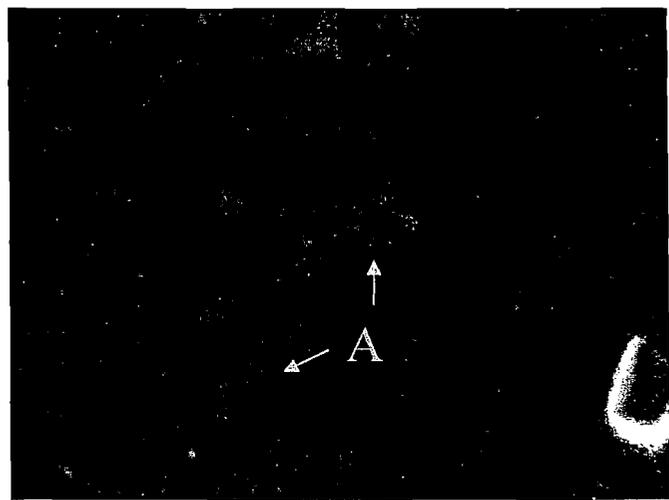
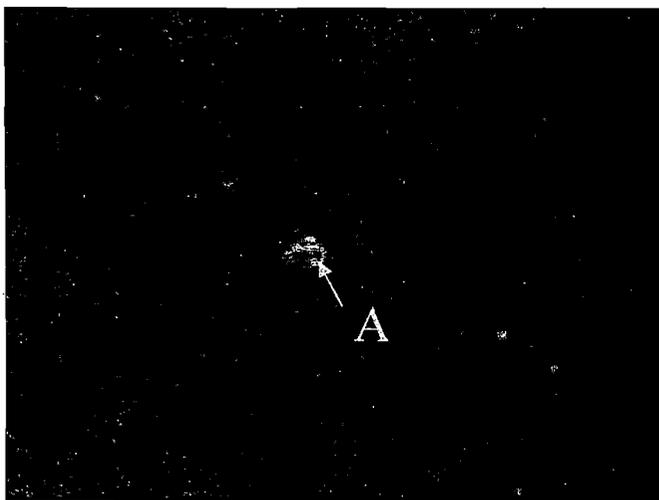


Figure 1: PLM images of samples 1 (top) and 2 (bottom) showing (A) calcite



Attn.: Ed Morgan

Asbestos Consultants
61 Unity Avenue
Belmont, MA 02478

Phone: 617-775-4688

EMSL Case No.: 360800536

Sample(s) Received: 04/18/2008

Date of Analysis: 04/25/2008

Date Printed: 04/25/2008

Reported By: D. D'Ulisse

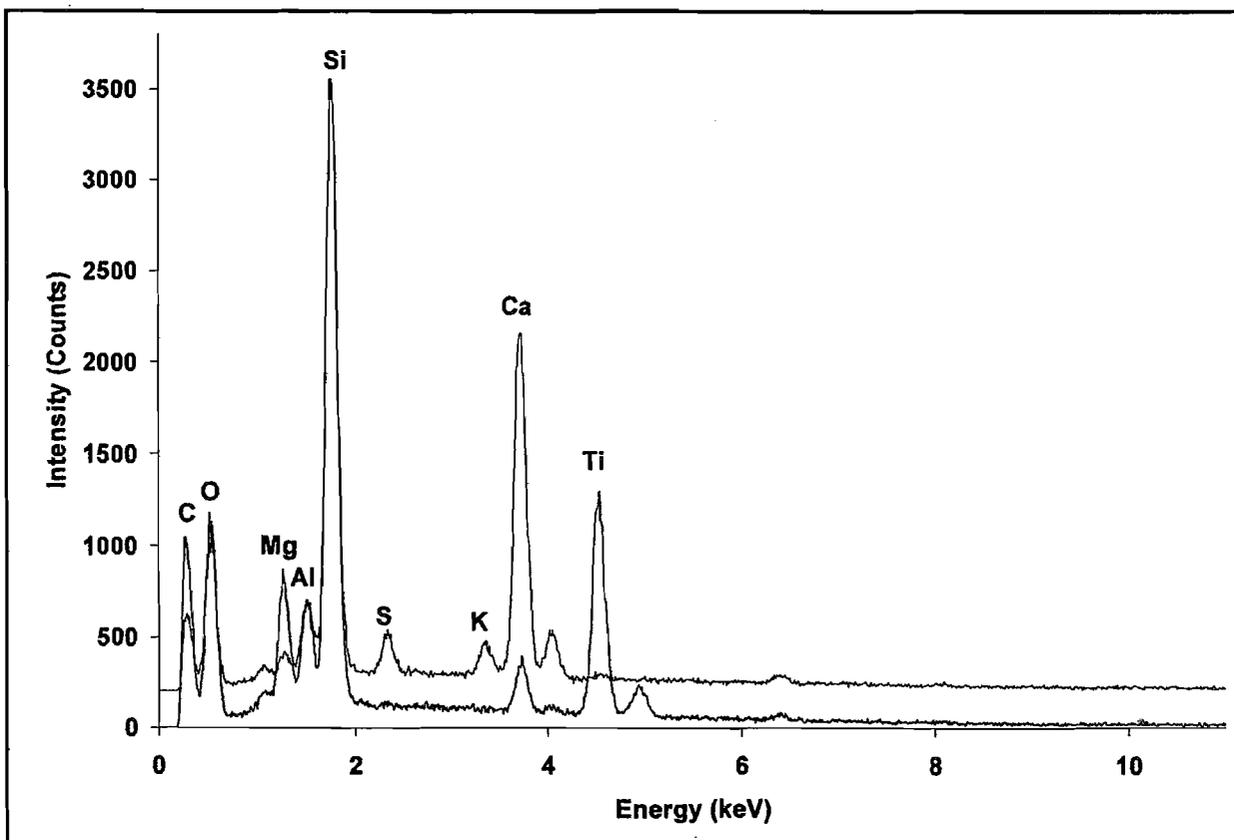


Figure 2: SEM/ EDX elemental spectra of samples 1 (blue) and 2 (pink) indicating the presence of calcite (CaCO₃) in both samples.



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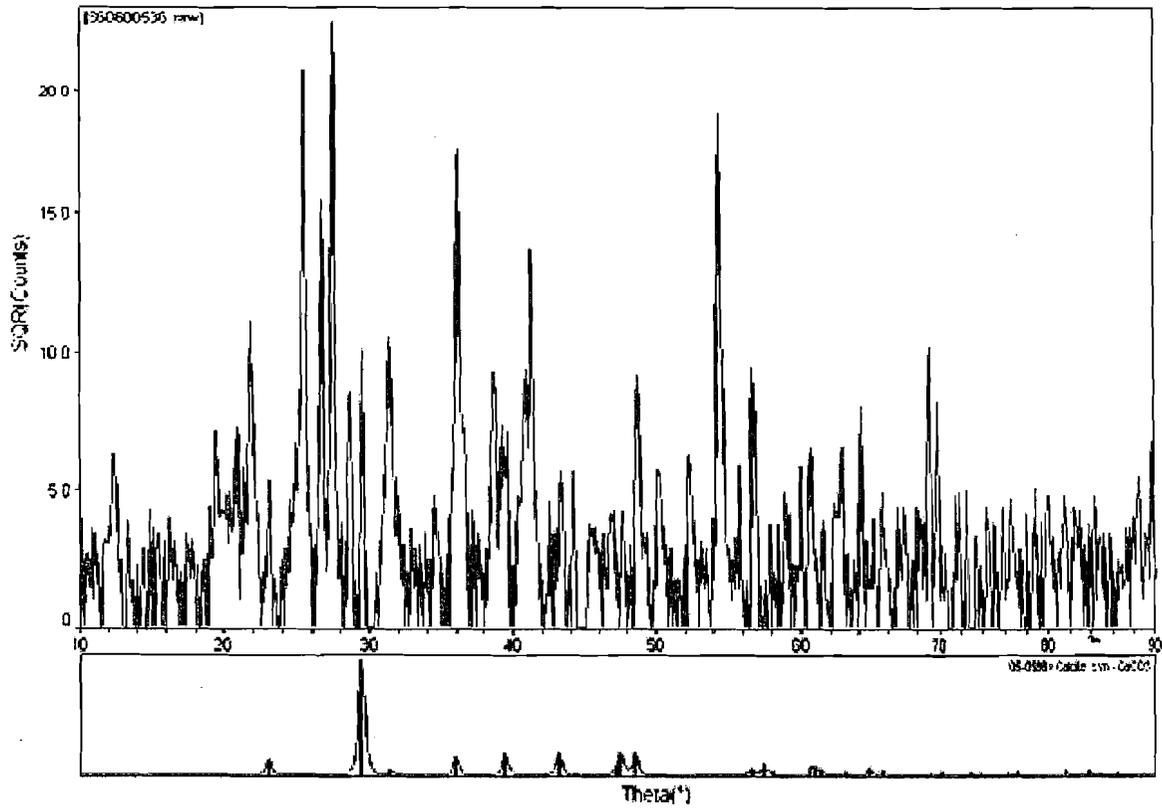
107 Haddon Avenue, Westmont, NJ 08108
Phone: (856) 858-4800

Attn: *Ed Morgan*

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Figure 3: XRD pattern of sample 1 showing a match with calcite (CaCO_3).



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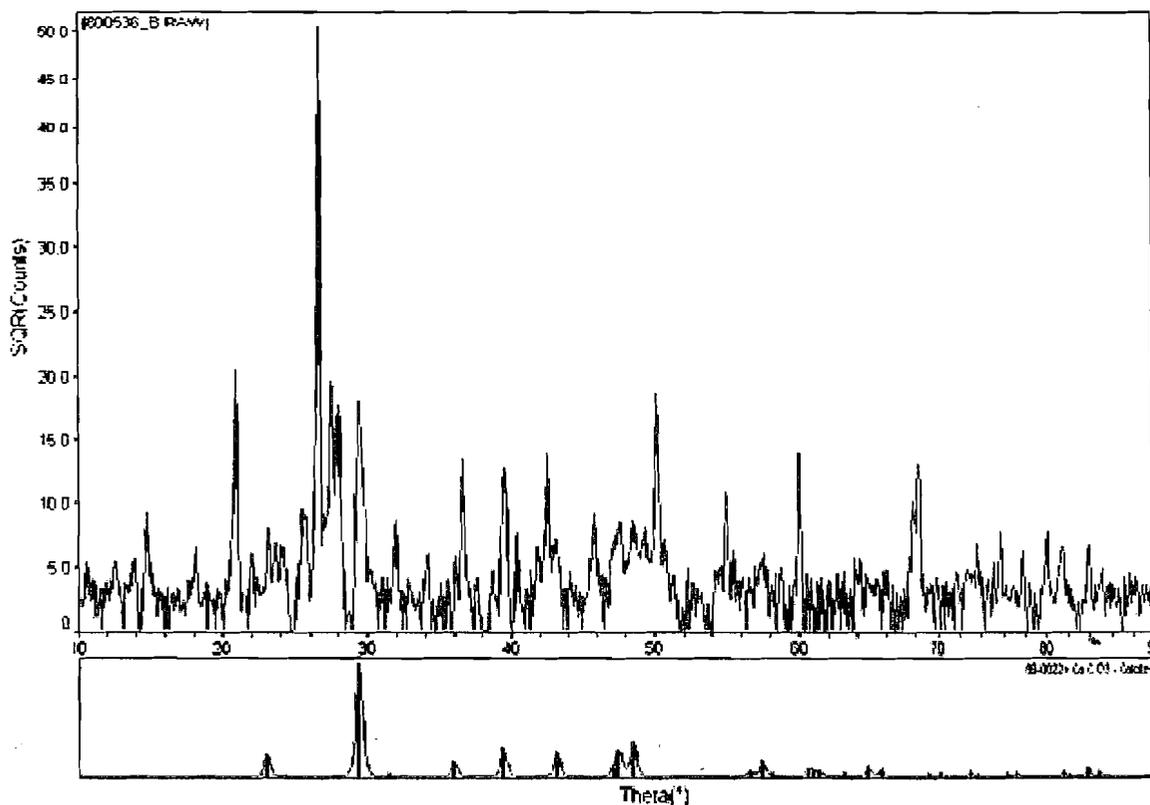
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Figure 4: XRD pattern of sample 2 showing a match with calcite (CaCO₃).



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Descriptions & Definitions:

None Detected (ND) denotes the absence of an analyte in the subsample analyzed. Trace levels of the analyte may be present in the sample below the limit of detection (LOD).

Limit of Detection (LOD): The minimum concentration that can be theoretically achieved for a given analytical procedure in the absence of matrix or sample processing effects. Particle analysis is limited to a single occurrence of an analyte particle in the sub-sample analyzed.

Concentrations for bulk samples are derived from Visual Area Estimation (VAE) unless otherwise noted. Air sample concentrations are calculated to particles per unit volume.

VAE technique estimates the relative projected area of a certain type of particulate from a mixture of particulate by comparison to data derived from analysis of calibration materials having similar texture and particulate content. Due to bi-dimensional nature of the measurements, in some cases the particle thickness could affect the results.

The results are obtained using the methods and sampling procedures as described in the report or as stated in the published standard methods, and are only guaranteed to the accuracy and precision consistent with the used methods and sampling procedures. Any change in methods and sampling procedure may generate substantially different results. EMSL Analytical, Inc. assumes no responsibility or liability for the manner in which the results are used or interpreted.

Town of Whitman
Needs Analysis for Town Hall and Fire Station

DRAWINGS

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Construction
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