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VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Guyton Elementary School

Basic Property Information: COD 4-Guyton-355 Philip

Short Name:	Guyton
Address:	355 Philip Street, Detroit, Michigan 48215
Year Built:	1922
Additions Built:	1925
Outbuildings:	None
Year Vacated:	2009
Building Footprint:	135 feet x 280 feet
Square Footage:	46,127 sq. ft.
Number of Stories:	2
Building Height:	42 ft.

Current Ownership:	City of Detroit
City Council District:	4
SNF District:	JC

Structural Framing System:	■ Cast-in-Place Concrete ■ Brick Masonry ■ Structural Steel ■ Wood
Exterior Wall System:	■ Brick ■ Limestone
Window System(s):	■ Wood-framed ■ Steel-framed ■ Leaded Glass
Roofing System(s):	■ Built-Up Roof ■ Internal Roof Drains ■ Clay Tile Shingles ■ Asphalt Shingles ■ Gutters

Assessment Summary

Assessment Date:	May 28, 2020
WJE Inspector(s):	Sarah Rush; Andrew Lobbestael
Report Date:	November 11, 2020
Building Risk Index:	**77.10**

Cost Estimate

Base Rehabilitation Cost Estimate:	$1,563,100
Preparation for Rehabilitation Work:	$900,000
Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft):	$3,690,160
Sub-Total	$6,153,260
Contingency (25%)	$1,538,315
Sub-Total	$7,691,575
Overhead and Profit (15-18%):	$1,153,736
Sub-Total	$8,845,311
Escalation (6% for 2 years)	$530,718
Sub-Total	$9,376,029
Architectural and Engineering Design Services (20%):	$1,875,205
TOTAL COST ESTIMATE:	$11,251,235

ASSESSMENT METHODS

Visual Survey

As requested, Wiss, Janney, Elstner Associates, Inc. (WJE) performed a visual review of the building envelopes and structures to assess the viability of the building for reuse. WJE was joined by Mr. Andrew Wald of Interboro Partners and Ms. Jennifer Ross and Mr. Garrick Landsberg of City of Detroit Planning and Development Department. During the time on site, Mr. Wald gathered information pertinent to the general building site and layout of the building, and Ms. Ross and Mr. Landsberg assessed the condition of the historic fabric of the buildings.

WJE performed a visual review of the building facades from grade, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition, but an unmanned aerial vehicle (drone) was used to take detailed aerial photographs. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building. The basement level is flooded, and thus, was not accessed. The interior finishes are in a state of deterioration, exposing the structural framing systems in multiple locations. Up-close examination of building elements and destructive inspection openings involving the removal of building finishes to review underlying conditions were generally not performed.

WJE's observations were documented with tablets and digital photography. WJE has shared our field data with Interboro Partners; City of Detroit Planning and Development representatives; and A.M. Higley Company, the cost estimator for this project. Each observed condition is documented in the field data and assessed as discussed under "Risk Characterization" below. A summary of the conditions observed is provided in the "Building Overview" section below.

Limitations of Assessment

Limited to four hours on site, WJE visually assessed the exposed portions of the building envelope and structure. Recognizing the limitations on visually detecting distress from afar and the limitations on detecting concealed internal distress, the assessment may not include all current conditions. As such, completion of this assessment is not an indication, certification, or representation that all deterioration or hazards have been observed or recorded, including underlying deterioration not evident from the building exterior or interior. Additionally, the conditions of the building elements discussed herein are exposed to further damage and deterioration due to the existing condition and unoccupied status of the property, and as such, WJE cannot state the conditions discussed herein will remain unaltered and as observed during the visual survey. However, we have performed these assessments in accordance with the requirements of applicable regulations and the applicable standard of care for architects or structural engineers performing such services.

WJE identified structural or building envelope issues that have significant impact on the viability of future reuse of the property. Items posing little risk such as regular maintenance items are not included in the assessment. The assessment was limited to within the walls of the building; on-grade walkways, access roads, parking lots, landscaping, play structures, or other site features were excluded from this assessment. The assessment, remediation, and identification of hazardous materials (e.g., asbestos, lead, etc.) or other environmental issues were also excluded. Based on WJE's past experience with building rehabilitation projects, WJE has assumed existing mechanical, electrical, plumbing, interior finishes, and other building

systems are anticipated be removed and replaced with future reuse of the building, and as such, were not included in WJE's assessment.

Document Review

WJE performed a cursory review of documentation provided by Interboro Partners to gain familiarity of the property. The documentation provided included:

- Site Plan (included with this report)
- Floor Plans (included with this report)
- Environmental Reports
- Investment Memo
- National Register of Historic Places Registration Form

Other documents, such as original construction drawings, specifications, or maintenance records, were not made available for our review.

Risk Characterization

WJE has categorized each significant area of distress, damage, or deterioration observed with a systematic methodology to provide an objective, quantitative characterization of its relative condition and associated risk, or its Condition Risk Index (CRI). The CRI is based on the primary building system affected by the condition and the condition's severity, prevalence, and the associated consequence of failure. A higher CRI score indicates that observed conditions embody relatively higher risk than conditions with a lower CRI. The CRI is the product of each of the rankings below multiplied and normalized to meet a maximum score of 100 per condition.

Specifically, the CRI assigns a numerical value to the following:

- System (Structural, Roofing, Facade, Other)
  Conditions affecting the structure are assigned a higher rating than those affecting the facade or roofing systems. Other includes items such as non-load bearing partition walls and exterior steps, and are assigned a lower rating.
- Building Performance Impact (Minor, Moderate, Advanced, Critical, Imminently Hazardous)

  This parameter addresses the severity of the impact of the observed condition on the performance of the affected building system. Imminently Hazardous is assigned the highest rating. For example, a crack in a concrete slab may be a minor distress, but a damaged prominent skylight is considered advanced distress. Imminently hazardous conditions are discussed immediately with Interboro Partners and the City of Detroit representatives.
- Size/Distribution (Isolated/Infrequent/Frequent/Widespread/Pervasive)

  In short, this parameter rates how large and/or frequent a condition is with respect to the entire affected building system/component. Pervasive is assigned the highest rating. Examples include: an isolated step crack in a masonry wall versus pervasive corrosion of metal floor decking throughout a building.

- Consequence of Failure (Low, Moderate, High)

  This parameter allows inspectors to exercise judgment regarding general risk to the public, considering the unoccupied status of the buildings. High is assigned a higher priority, and, for example, might be assigned to a condition whose failure would result in potential harm within the public right of way. Conditions rated with a high consequence of failure are discussed immediately with Interboro Partners and the City of Detroit representatives.

The CRI for each observed condition is summed to calculate a total Building Risk Index (BRI), as provided in this report. The reported BRI is therefore a numerical expression of the relative risk present at one property, as compared to other properties in the scope of this assessment.

Both the CRI and the BRI are expressions of WJE's professional opinion of the relative significance of an observed condition to other building conditions, and the collective relative risk of the structural and building enclosure elements of this property. Neither the CRI nor the BRI are an expression of actual risk or probability of occurrence of any event. The CRI for each condition is tabulated in WJE's electronic field notes. The BRI provides a numerical tool for the project team and the property owners to compare and make decisions about this property and the other properties included in this overall effort, in context with the cost estimate, market analysis and community input. Both the CRI and BRI are intended only for this assessment project. The numerical values do not have substantive meaning beyond the context of the Vacant Historic School Buildings Disposition Plan project.

Recommendations

Recommendations developed in the assessment are conceptual and are intended for budgetary and planning considerations. Recommendations are provided within the narrative below, and in the field data provided. It is not the intent or purpose of this report or the field data to direct a contractor to bid, or otherwise implement, the recommendations. Significant additional investigation by various professional disciplines is necessary to develop appropriate scopes of repair and rehabilitation efforts to enable the re-use of any facility included in this assessment.

Cost Estimating

The rehabilitation costs are opinions of probable construction cost and have been developed with the assistance of A.M. Higley Company, a contractor familiar with rehabilitation of historic buildings. The costs have been developed for evaluating the relative cost of repair of distressed conditions as well as establishment of order-of-magnitude repair budgets. They are based on national construction cost data, adjusted based on the local construction market, and our experience with similar past projects.

Understanding the rehabilitation cost may vary depending on type of future occupancy, this assessment assumes the building will be rehabilitated to a weathertight and "grey box" condition with unfinished walls, flooring and ceilings; no mechanical, electrical, plumbing or other building systems installed. The costs assume the rehabilitation work would occur in 2022 and are not inflated should the work occur in future years.

In addition to this "grey box" base rehabilitation cost, an allowance, based on percentage of costs and square footage of the building, is delineated for:

- Preparation for Rehabilitation Work

- Mechanical, Electrical, Plumbing, Fire Protection ($80/sq ft)
- Contingency (25%)
- Overhead and Profit (15-18%)
- Escalation (6% for 2 years)
- Architectural and Engineering Design Services (20%)

The preparation for rehabilitation work item includes mobilization, hazardous material abatement as well as salvaging for potential later duplication or re-installation pertinent historic interior finishes identified by the City. For the purposes of the cost estimating effort, all roofing replacement or repair work is recommended to be performed with like-kind materials; all windows are assumed to be replaced with new commercial window assemblies in lieu of restoration of existing elements, and any exterior doors are to be repaired or replaced in like-kind. Where like-kind materials may no longer be available, WJE will offer alternative materials for the cost estimating purpose. For rehabilitation design and construction efforts, further evaluation of each of these elements is recommended. All work is recommended to be performed as per the Secretary of Interior's Standards for The Treatment of Historic Properties.

The condition-based subdivision of repair recommendations used to develop the base cost estimate is not representative of how a repair program could be implemented to remediate building conditions. Moreover, the costs assume that all repairs would be remediated in the same rehabilitation project. Execution of separate repair projects, or phasing of the rehabilitation project, could result in increases in the total repair cost. Furthermore, the final scope of repair work and the actual repair costs may vary depending on underlying or concealed conditions that were not apparent during our limited assessment.

BUILDING OVERVIEW

Overall

The two-story building was constructed in phases between 1922 and 1925. The initial construction was primarily rectangular in footprint with accentuated bay window spaces extending from both the north and south facades at the west end of the building. The second, 1925 phase was constructed from the east end of the south facade of the original portion. The 1925 addition is primarily rectangular in footprint with relatively symmetrical setbacks along the length of the addition.

The facade consists of dark red and brown clay brick masonry in English bond and ornate brickwork details at the spandrels and entrances. Limestone accent units are present at the entrances, window sills, copings, buttresses, and horizontal bands. Wood clad dormers are located on the south, east, and north facades, as are roof dormers clad in brick and limestone masonry. Wood-framed windows are generally present in punched wall openings, though the auditorium, attic, a conservatory, and select other rooms have leaded-glass and steel-framed windows. The building entrances generally consist of conventional steel doors.

The roof layout consists of steep-sloped roof surfaces at the front exterior walls of the building and low-sloped areas between the sloped surfaces. The steep-sloped roofing consists of clay tile roof shingles manufactured by Ludowici, which have a green-colored exterior surface, though the roofing on the north and southernmost facades have been replaced with red-colored asphalt shingles. These roof areas are drained with external gutters and downspouts. The low-slope roofing areas appear to consist of a smooth surface built-up roof (BUR) with an aluminumized roof coating. A vaulted mechanical space is located in the rear of the building. The waterproofing assembly over this region consists of a bituminous system. Several modern outbuildings are present at the perimeter of the vaulted space, which are clad in either exposed concrete masonry (CMU) or clay brick veneer.

The roof structure over the majority of the building consists of wood decking supported by steel channel purlins spanning over steel roof trusses with riveted connections. These roof trusses bear on interior and exterior mass brick masonry walls. The floor slabs consist of concrete pan joists. Three types of forms were used for the pan joist systems: stay in place steel forms, removable forms, and gypsum forms. The roof structure in the gymnasium consists of a pan joist slab that spans in the north-south direction between plaster-clad girders that span east and west.

In general, the building is in serviceable condition with the majority of observed distress resulting from water infiltration due to the damaged and deteriorated roof assemblies (commonly at the eaves and valleys). Within steep-sloped roof areas, flashing elements and downspouts have been removed, and the asphalt shingles are significantly deteriorated. Several drain systems for the low-slope roof are failed. The majority of observed masonry deterioration is attributed to water infiltration, as well as subsequent corrosion of the embedded steel support elements. The structure is in serviceable condition with the majority of distress concentrated within the roof deck, but it is at considerable risk of more substantial deterioration in the near future due to the deteriorated roofing conditions. A majority of the building interior finishes are already compromised. Addressing the roofing elements is essential to mitigate additional distress to the building. Beyond the roof-related deterioration, the window assemblies exhibit significant distress due to damage from vandalism and deterioration from prolonged exposure to the

elements with deferred maintenance. It may be more economical to replace the deteriorated wood-framed windows, though the majority of the leaded glass and steel-framed windows may be restored in-place if desired. Further detail of the observed distress is provided below.

Facade

The masonry walls are in serviceable condition. Corrosion of the steel lintels was observed, with some areas containing masonry distress and lintel displacement due to the development of pack rust. At the north conservatory, cracked limestone and bowing brick veneer above the window level are present, and some brick units are missing. Mortar deterioration and water staining is present at several locations where downspouts are missing or gutters are actively leaking. Common brick is exposed at the base of the roof dormers due to the missing flashing elements, and the exposed units are exhibiting spalling and mortar deterioration. The top four feet of the masonry chimney has been previously rebuilt, as indicated by differences in the brick color, and vertical cracks extend downward from the base of the rebuilt area. Rehabilitation of the building should include repair of the distressed masonry and steel support elements to mitigate further distress within the wall assemblies.

The wood dormers are significantly deteriorated. The flashings have been removed at the roof level and the ornate exterior panels are missing from the west and north dormers, exposing the wood plank sheathing below. The exposed sheathing and framing elements, where visible through the sheathing, are decayed. Rehabilitation of the dormers should be considered in conjunction with the roofing repair and replacement work to mitigate additional points of water infiltration and preserve these aesthetic elements.

The wood-framed windows are generally intact but contain visible distress and damage. Several wood frames and sash elements are missing, damaged, or displaced, and a majority of exterior sill surfaces exhibit minor decay. Glass units are cracked or missing and paint and sealant materials are failed. Though it is possible that these wood-framed windows may be restored, it is likely more economical to replace these units based on the extent of distress and our experience with similar rehabilitation work. A few leaded glass and steel-framed windows are also missing. Where present, these windows are in serviceable condition with minor distress including localized, cracked, and missing glass, and paint and sealant failure. These window types may be restored in-place where present. The exterior steel doors are typically corroded near the base, dented, or missing, and should be replaced in-kind.

Roofing

Deterioration and damage within roofing assemblies is leading to significant deterioration of the wall assemblies, structural system, and building interior finishes.

Within steep-sloped roof areas, copper flashing elements and downspouts are missing, which has been attributed to vandalism. This includes flashing elements over two projected bays. The asphalt shingles are significantly deteriorated, and areas of the asphalt shingles are missing; these roof areas are recommended for replacement. Temporary measures are recommended in the near term to stabilize the observed deterioration and mitigate additional distress to the wood-framed structural system. The clay tile singles are in serviceable condition beyond the missing flashing and drainage elements, though isolated shingles are displaced or are missing and require repair.

Missing drain conductors within the low-slope roofing assembly are permitting bulk water infiltration into the building interior. Some areas of the low-slope roofing have blown off and flashing elements are missing at transitions to the steep slope roof. However, based on a lack of water intrusion below the field of the low-slope roofing, the roof itself appears to be performing well and requires only maintenance related repairs to extend the service life of the existing roof assembly. Localized areas of roof deck replacement are anticipated in areas of sustained water infiltration, such as areas near roof drains, asphalt shingle roofing, and missing flashings.

The waterproofing assemblies at grade over the vaulted mechanical spaces are significantly deteriorated, including displaced and missing flashings, vegetative growth, ponded water, and crushing of tapered insulation materials underfoot. A portion of the vaulted space has been covered with asphalt pavement. The waterproofing assemblies are recommended for removal and replacement. The basement was flooded and could not be accessed, though based on the distress observed within the waterproofing materials and our experience with similar structures, repairs to the elevated concrete slab are anticipated.

Structure

The most significant structural distress is extensive decay of the wood decking at the roof. The wood decking is commonly decayed at the steep slope portions of the roof. The decking on the low slope portions is in better condition and has more limited areas of decay. The decay on the low sloped areas is typically associated with roofing penetrations and the transition to the steep slope roof. It would be prudent to replace the decayed wood decking. We recommend a detailed survey to further delineate the areas that require replacement and the areas that could be salvaged. Based on our limited survey about half or more of the decking could be salvaged; the roofing replacement discussed above would need to be coordinated with the decking replacement.

The steel roof framing in the attic exhibits localized areas of surface corrosion. The corrosion is more prevalent at the channel purlins and at the trusses where they are set into the masonry. Repainting all of the steel is not necessary at this time, but rather it would be appropriate to do touch up painting at the areas of corrosion, particularity at the trusses.

Most of the concrete floor slabs are concealed by plaster finishes. Only limited distress or deterioration of the concrete structure was observed, and significant concrete repairs are not anticipated. Two haunches of concrete visible on the facade do warrant repair. We recommend that the exposed reinforcing steel and poorly consolidated concrete be repaired using the form and pour repair technique.

Miscellaneous

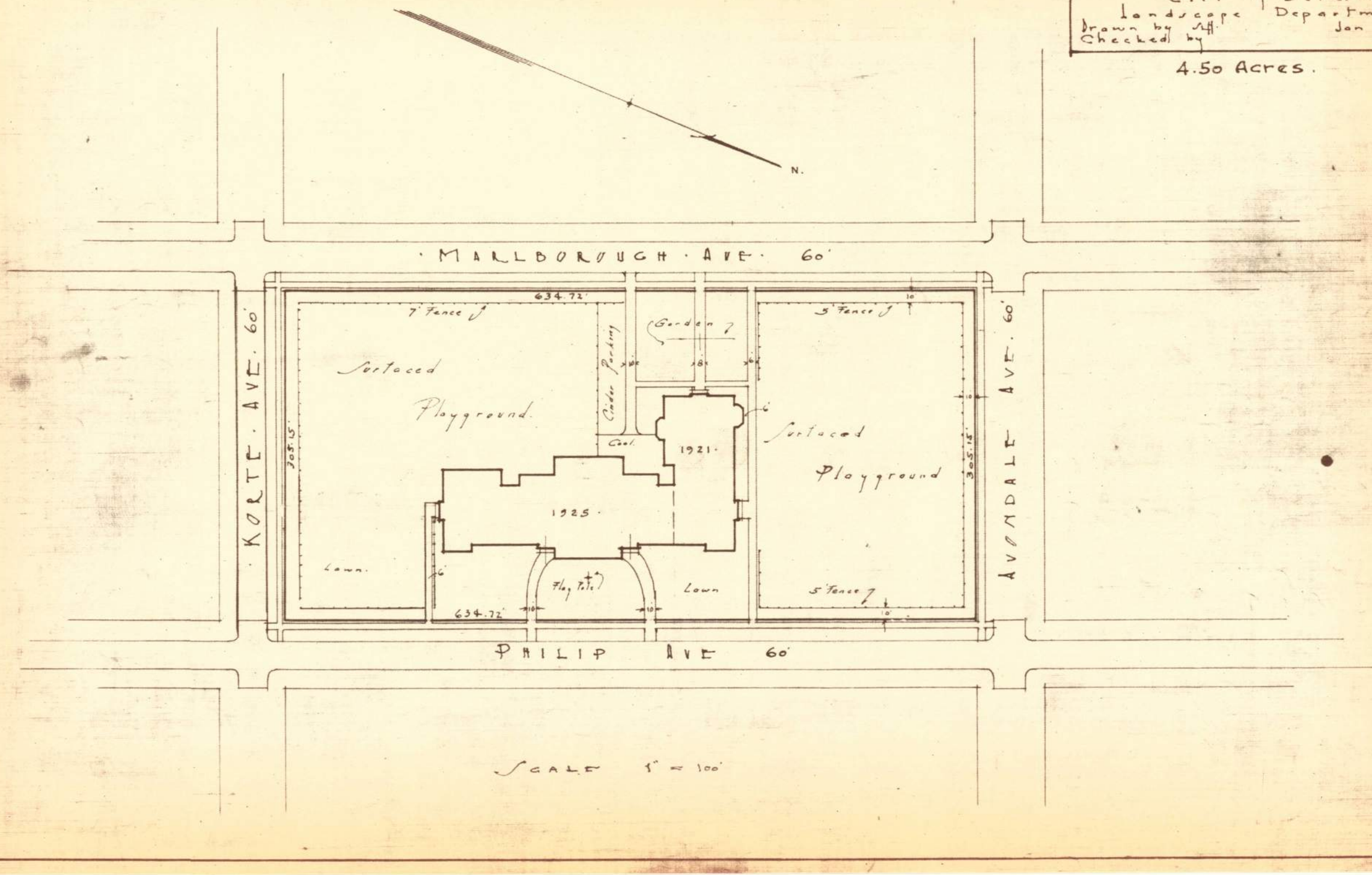
Water intrusion is causing extensive distress to interior finishes as well as gypsum forms in the pan joist flooring system and non-load bearing gypsum block infill walls. The gypsum-based materials expand from repeated wetting and drying and are susceptible to damage from water intrusion as compared to other more durable construction materials. Stopping the water intrusion is important to minimize additional damage to these elements and the interior finishes. The interior finishes are typically plaster on expanded wire lath at the ceilings, and direct applied plaster on the walls, and hard wood flooring is present in many of the classrooms.

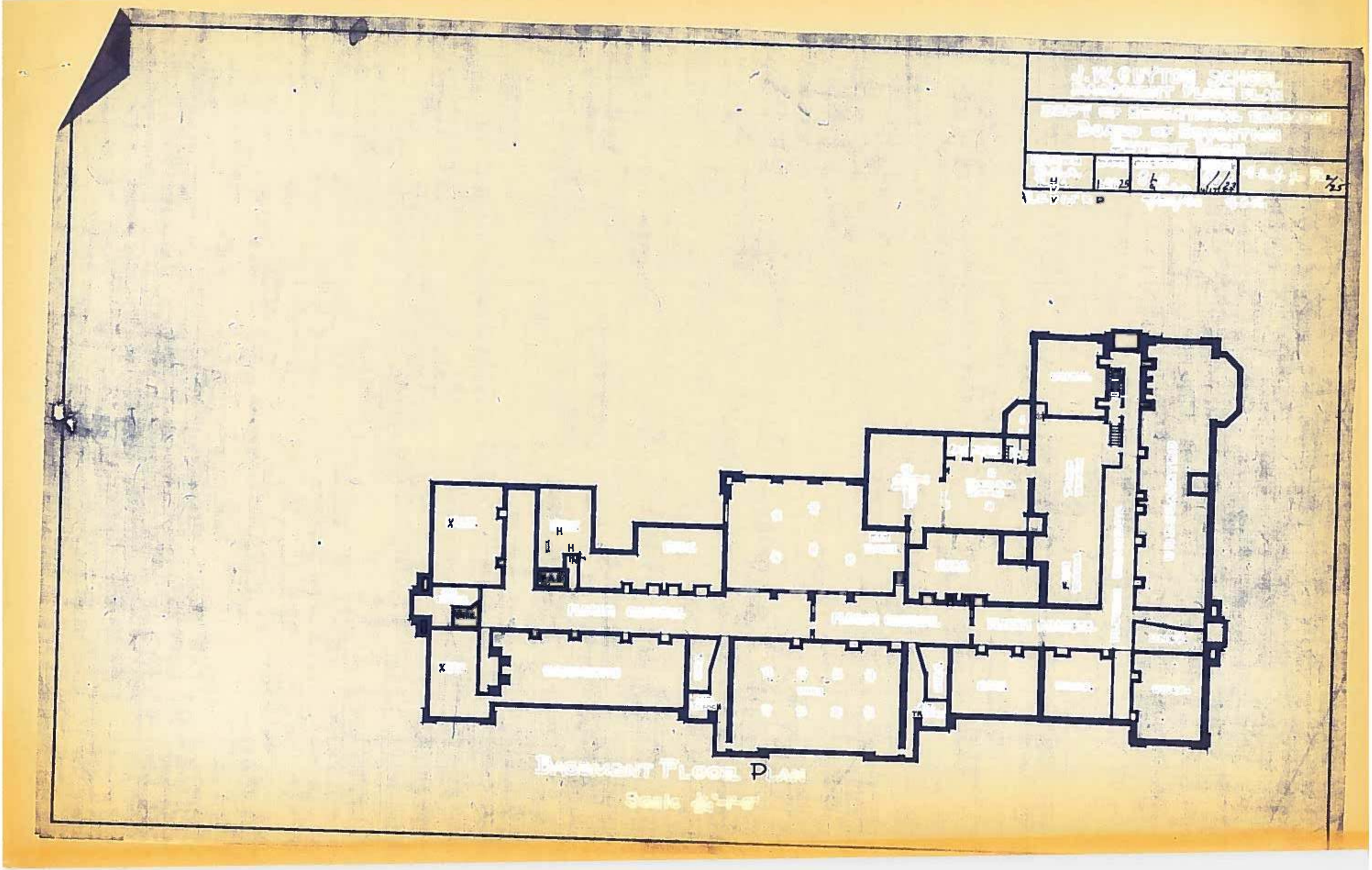
The pump room, fan rooms and boiler rooms were not accessible due to standing water in the basement. The adjacent plenum chambers were accessible and WJE did not identify any significant or notable deterioration.

DETAIL of SITE
GUYTON SCHOOL

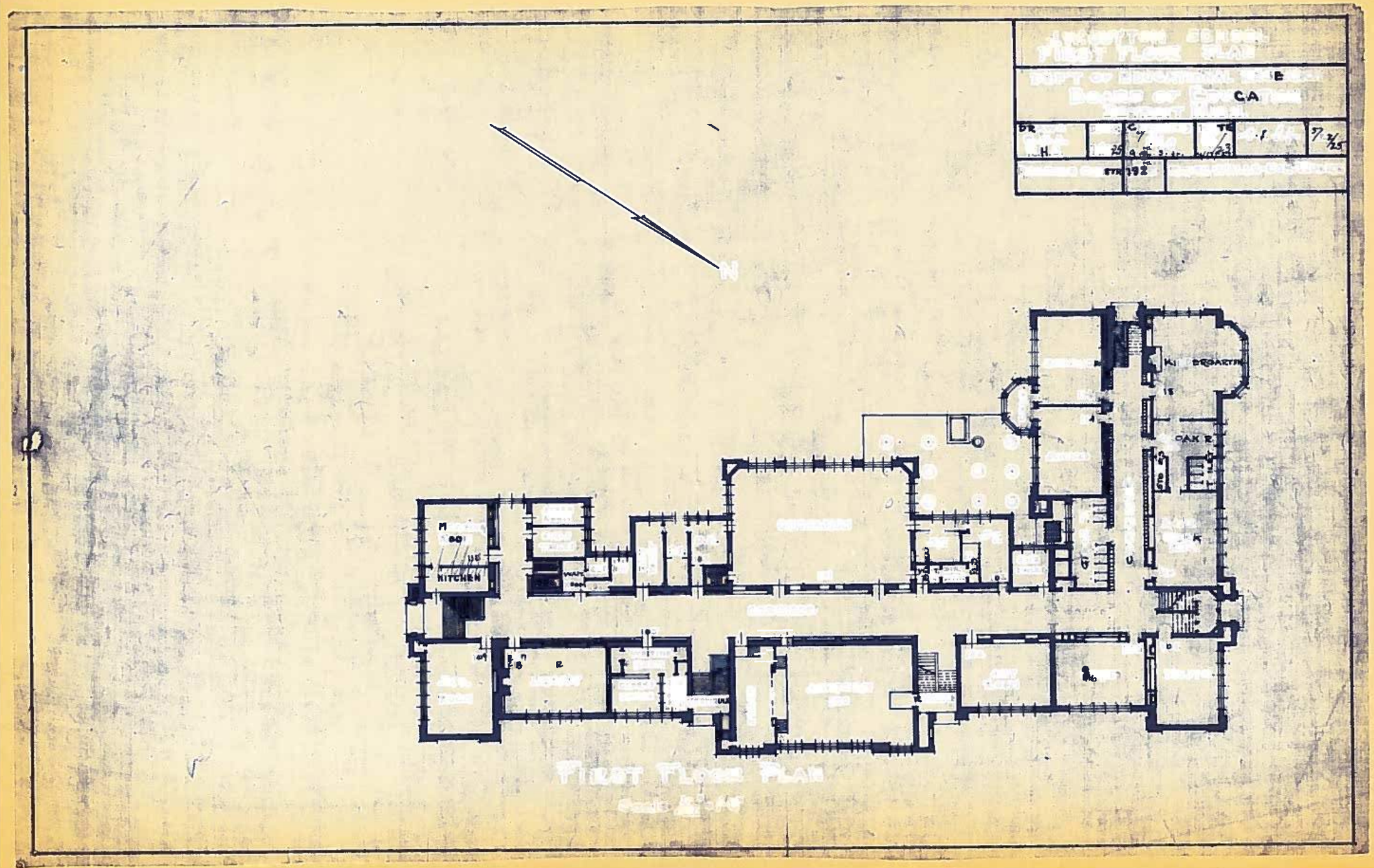
BOARD of EDUCATION
CITY of DETROIT
Landscape Department
Drawn by SH
Checked by
Jan 16. 1925

4.50 Acres.

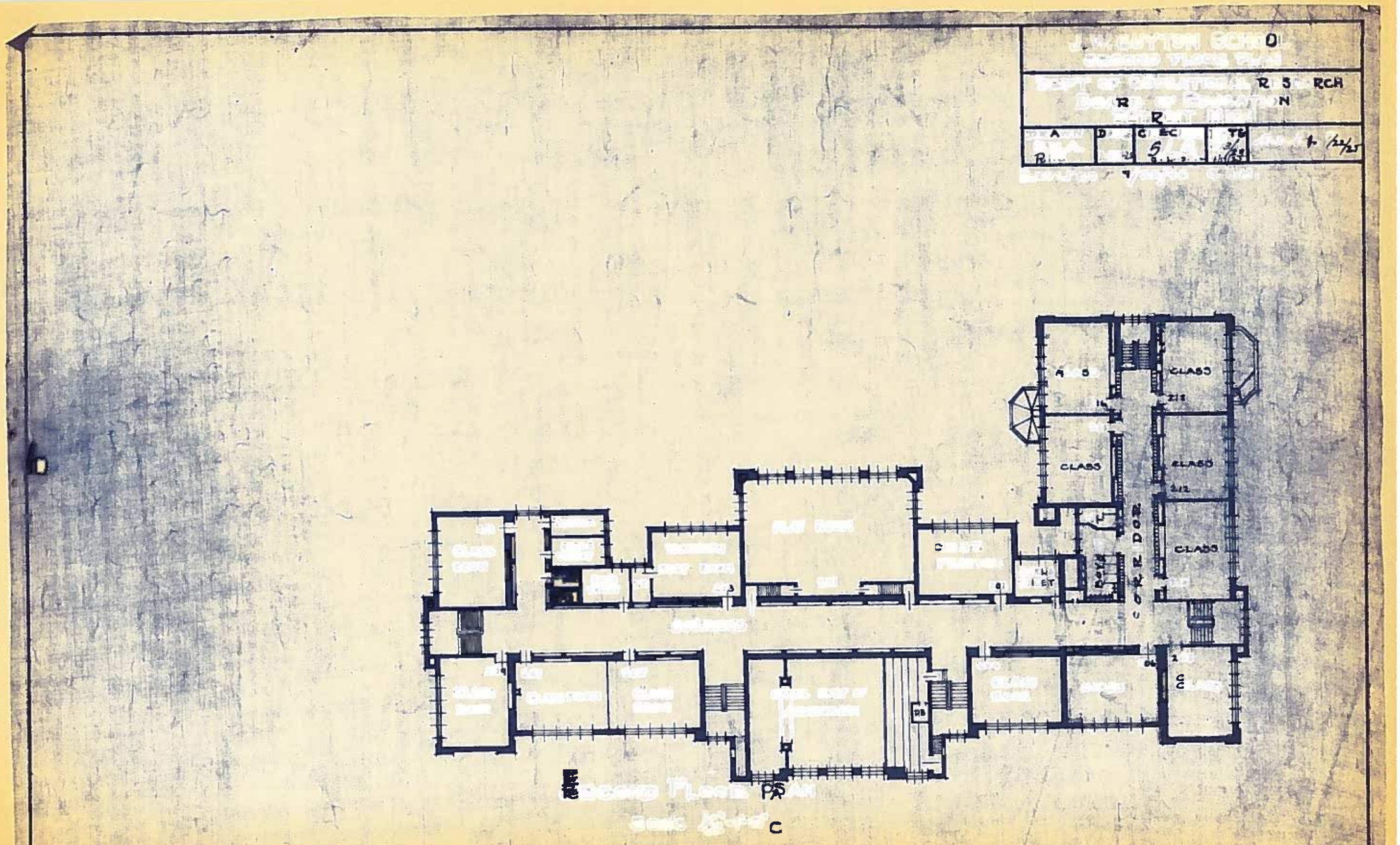




BASEMENT FLOOR PLAN



First Floor Plan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