

## VACANT HISTORIC SCHOOL BUILDINGS DISPOSITION PLAN

City of Detroit RFP# 19BW2717

Building Envelope and Structural Assessment Report

Higginbotham/Commerce High School

### Basic Property Information: COD 2-Higginbotham-20119 Wisconsin

<b>Short Name:</b>	Higginbotham
<b>Address:</b>	20119 Wisconsin Street, Detroit, Michigan 48221
<b>Year Built:</b>	1927
<b>Additions Built:</b>	1945, 1946, 1948
<b>Outbuildings:</b>	None
<b>Year Vacated:</b>	2004
<b>Plant Dimensions:</b>	48,338 SF
<b>Square Footage:</b>	200 feet x 170 feet
<b>Number of Stories:</b>	2
<b>Building Height:</b>	38 feet



<b>Current Ownership:</b>	City of Detroit	<b>Structural Framing System:</b>	<ul style="list-style-type: none"> <li>▪ Cast-in-Place Concrete</li> <li>▪ Brick Masonry</li> <li>▪ CMU</li> <li>▪ Structural Steel</li> <li>▪ Wood</li> </ul>
<b>City Council District:</b>	2	<b>Exterior Wall System:</b>	<ul style="list-style-type: none"> <li>▪ Brick</li> <li>▪ Stone</li> </ul>
<b>SNF District:</b>	LM	<b>Window System(s):</b>	<ul style="list-style-type: none"> <li>▪ Metal</li> <li>▪ Wood</li> <li>▪ Aluminum Replacement</li> </ul>
		<b>Roofing System(s):</b>	<ul style="list-style-type: none"> <li>▪ Built-up Roof</li> <li>▪ Asphalt Shingles</li> <li>▪ Clay and Precast Tiles</li> <li>▪ Internal Drains</li> <li>▪ Gutters</li> </ul>



### Assessment Summary

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**Assessment Date:** January 23, 2020

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**WJE Inspector(s):** Sarah Rush; Cheryl Early

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**Report Date:** October 26, 2020

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**Building Risk Index:** 37.13

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### Cost Estimate

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**Base Rehabilitation Cost Estimate:** \$1,134,000

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**Preparation for Rehabilitation Work:** \$900,000

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**Mechanical, Electrical, Plumbing,  
Fire Protection (\$80/sq ft):** \$3,867,040

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**Sub-Total** \$5,901,040

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**Contingency (25%):** \$1,475,260

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**Sub-Total** \$7,376,300

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**Overhead and Profit (15-18%):** \$1,106,445

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**Sub-Total** \$8,482,745

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**Escalation (6% for 2 years)** \$508,964

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**Sub-Total** \$8,991,709

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**Architectural and Engineering  
Design Services (20%):** \$1,798,341

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**TOTAL COST ESTIMATE:** \$10,790,051

## 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 buildings 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 main 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 envelope from grade and roof levels, using binoculars as needed. Roof levels were inaccessible due to safety concerns pertaining to the access ladder condition. On the interior, WJE performed a walkthrough of accessible areas of each floor of the building, including basement and attic areas. The interior finishes are in a state of deterioration in localized areas, exposing portions of the structural framing systems in these 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
- 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

Two additions have been constructed to the original 1928 two-story building. The original construction was primarily rectangular in plan, with small wings extending to the west at the north and south ends of the rectangular footprint. The first addition added a south and west wing to the total building footprint, connecting to the original construction at the south end of the west facade. The second addition infilled the courtyard space created by the small western wings of the original building and a boiler house. The second addition also extended the southern wing of the first addition to both the north and to the south.

The yellow brick facade has a common bond coursing, with header units occurring every six courses. It is accentuated with red brick to create a "quoined" appearance at building corners. Limestone accent pieces frame the entrances, window sills, and the tops of the walls of the mid-1940s additions. The window lites are grouped together to create larger window areas, and generally align vertically between the first and second floors. The windows typically consist of original wood elements, though one lite at each window has been replaced with an operable aluminum frame for improved egress from the classrooms.

The steeped-sloped hip roofs consist of clay and precast tiles directing water to a gutter and downspout system around the perimeter of the original building. The low-sloped roof areas, which extend between the sloped sections and over the 1940s additions, consist of internally drained built-up roof. The low-slope roof areas are at differing elevations, with at least three clay tiled hipped roofs for bell towers or ventilation shafts located on the uppermost low-slope roof area. The hipped roofs overhang the exterior walls and contain ornate wood soffits and framing.

The original building is a concrete framed structure; the 1940s additions are believed to be of both concrete and steel construction. Throughout the building, the interior floor systems are of concrete joist and slab construction. The joists are both precast I-shaped members and cast-in-place tee joist-slab members depending upon location within the building. The tee joist-slab members were formed with metal pan, wood boards and clay tiles, again depending upon location within the building. The basement area is accessible except in one location, where the basement room is flooded with an approximate two-foot depth of water. The roof structure consists of sloped, board-formed concrete beams and a steel pan-formed concrete roof deck. Interior walls were observed to be of brick masonry and concrete masonry unit (CMU), with the CMU construction related to the 1940s additions. The interior corridor walls are non-load bearing partitions constructed of gypsum tile units and metal lathe-supported plaster. The basement foundation walls are of cast-in-place concrete construction.

In general, the building is in good condition with many of the interior finishes intact or requiring limited repair due to water damage from potentially damaged interior roof drains. Repair of the interior roof drains, replacement of the roofing for the low-slope roof areas, and the repair of the tile roofing are also critical elements to maintain the sound condition of the existing structure. Replacement of the roof deck over the stage, and potentially the full auditorium, is recommended based on the type of precast plank used and its condition. Many of the existing windows can be restored. A prominent vertical crack on the south facade warrants further investigation to develop an appropriate repair. Further investigation on the potential corrosion of embedded structural steel elements within the 1940s era masonry walls is warranted. Further detail of the observed distress is provided below.

## Facade

The facade is generally in good condition. Minor localized cracking within the brick and limestone units was observed and is attributed to water infiltration and corrosion of the embedded steel elements. Refer to the "Structure" section below regarding specific areas of potential corrosion of embedded steel. Rehabilitation should include repair of these elements to mitigate water infiltration within the wall assembly and building interior, and to mitigate further masonry distress.

Near the center of the south facade, several brick masonry infill areas are present. A large vertical crack and localized masonry displacement is present between two of these infill areas. The crack is widest near the roof level, but does not extend to grade, and previous repair attempts are visible. The cause of this distress should be further investigated, though removal and reconstruction of the brick units in this region should be anticipated.

The original wood window frames and metal replacement lights are generally in good condition. Localized areas of observed distress include minor decay, fractured framing elements, broken or missing glass panes, and adhesively failed perimeter sealant. Based on the observed conditions, the majority of the existing windows may be restored in lieu of replaced; however, select windows will require replacement due to fire damage, more significant decay, or fractured elements.

## Roofing

The accessible portions of the roofing assemblies were observed to be in fair condition. Localized areas of the steep-slope roofing tiles are missing or displaced, and water infiltration-related damage was observed, particularly within the roof overhangs where the wood soffit and framing is readily visible. The observed distress is concentrated near missing and displaced gutters and downspout elements. Water infiltration is occurring at some locations at the roof and wall interface in the attic. Rehabilitation of the building should include restoration of these water management systems, repair of the deteriorated steep-slope roof areas in-kind, and repair of deteriorated corresponding roof structural elements as needed, particularly at the wood framed overhangs.

The low-slope roofing areas were not accessed at the time of this assessment due to limited access and safety concerns with the main roof access ladder. Where visible from grade, vertical roofing terminations are failed (open, displaced, non-adhered to substrates). The copings, where present and visible from grade, appeared to be in good condition. Isolated areas of significant water damage to wall and ceiling finishes noted on the interior may be related to damaged interior roof drains. Based on the observed conditions, including those described below, the low-slope roofing assembly will likely require removal and replacement, including localized areas of the internal drains and drain pipes and localized coping repointing repairs.

## Structure

The structure is minimally exposed due to the relatively good condition of the floor, wall and ceiling finishes. Generally, the condition of finishes is indicative of the condition of the structural elements behind. The existing wood flooring has buckled in the classrooms, and in the gymnasium the wood floor has uniformly warped or bowed upward up to two-feet in height. The existing wall and ceiling finishes are exhibiting failure only in isolated locations, likely related to damaged interior roof drains. Isolated areas of



ceiling plaster have fallen. Additional moisture staining is present on the underside of the 1940s addition roofs over the gymnasium, auditorium, and in the classroom spaces near the northwest corner of the building.

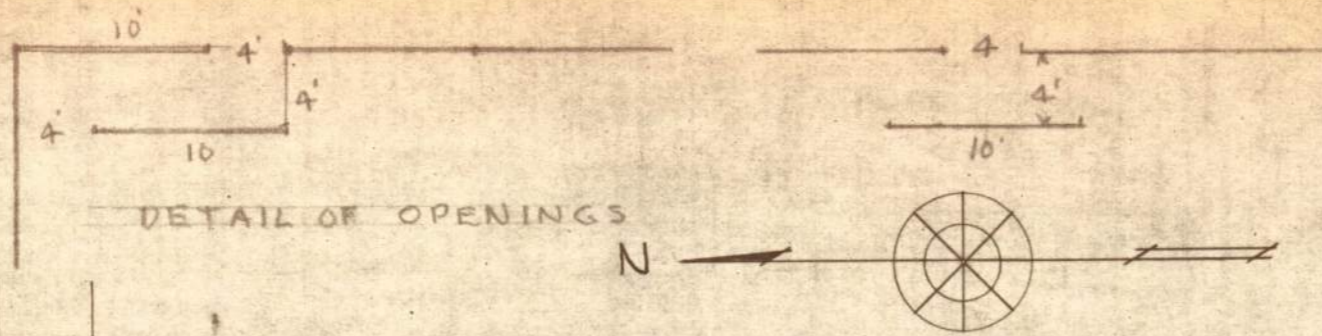
In the attic level, the concrete roof deck was observed to have localized areas of water staining and efflorescence, which generally correlated with roofing distress above. Locations of past repairs are evident and are in good condition with no observed distress. Corrosion is present in the perforated steel decking of the gymnasium ceiling. The precast roof plank over the stage is heavily water stained and cracked for approximately half of the stage area. Based on our experience with the type of precast roof planks over the stage area and based on the amount of water staining and cracking observed, replacement of the roof deck over the stage is recommended. The area over the adjacent auditorium seating is also recommended to be further assessed, assuming the same roof deck was installed in this area.

All of the finishes in the library space, located in the south wing, have been damaged by fire. A relatively small area of the second-floor concrete I-joist structure is soot laden and cracked. These joists may be damaged from the fire event and require further assessment and potentially full replacement. The soot is recommended to be cleaned from the remaining concrete structure in this room.

Vertical cracking in the CMU construction of the gymnasium walls is occurring at the bearing of a roof girder at the exterior walls. Similar vertical cracking is visible within the exterior brick veneer surfaces, and above the window openings. The masonry below the gymnasium roof girders is recommended to be further investigated; steel columns, potentially embedded in the masonry, may be corroding resulting in the observed vertical cracking and masonry movements at these locations. Further, the extent and configuration of brick masonry distress above the window openings suggests beam/lintel elements are also likely corroded and causing the observed distress. Vertical and step cracking is present in the CMU walls of the northeastern-most classroom of the west wing (art room) and warrants further review to the identify the cause of the cracking.

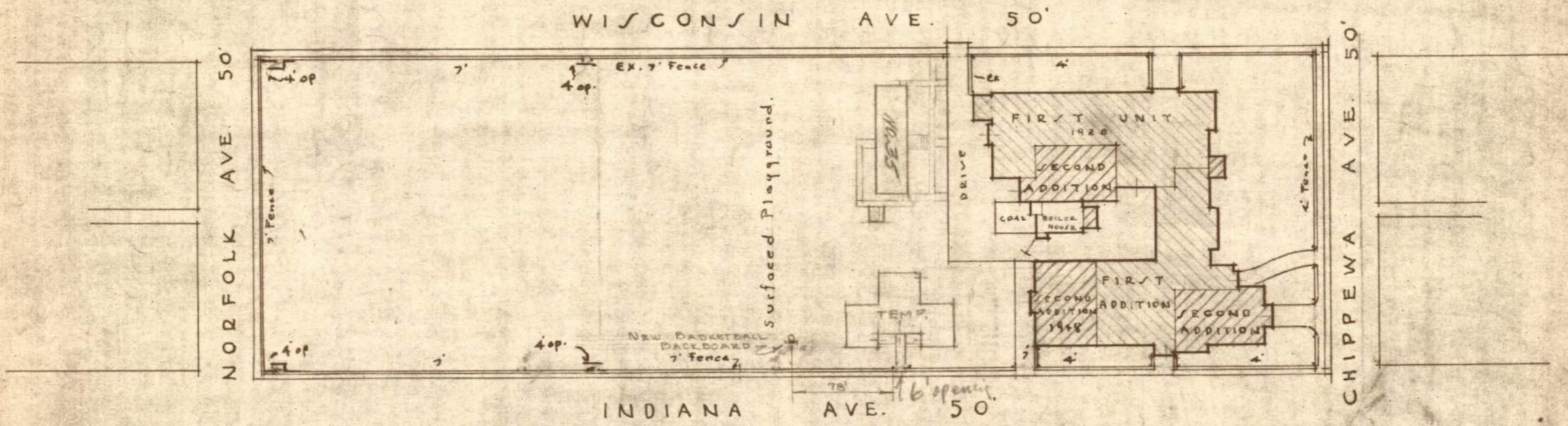
The western fan room of the basement level was not accessible during the walkthrough inspection due to approximately two-feet of standing water; however, WJE was able to make observations from both entrances to this room.

PLOT PLAN  
 HIGGINBOTHAM SCHOOL  
 BOARD of EDUCATION  
 DETROIT, MICHIGAN  
 DEPARTMENT OF BUILDING PLANNING  
 DRAWN BY G.H.M.  
 Revised by S.H. Feb. 1948



SCALE 1" = 100'

4.54 ACRES



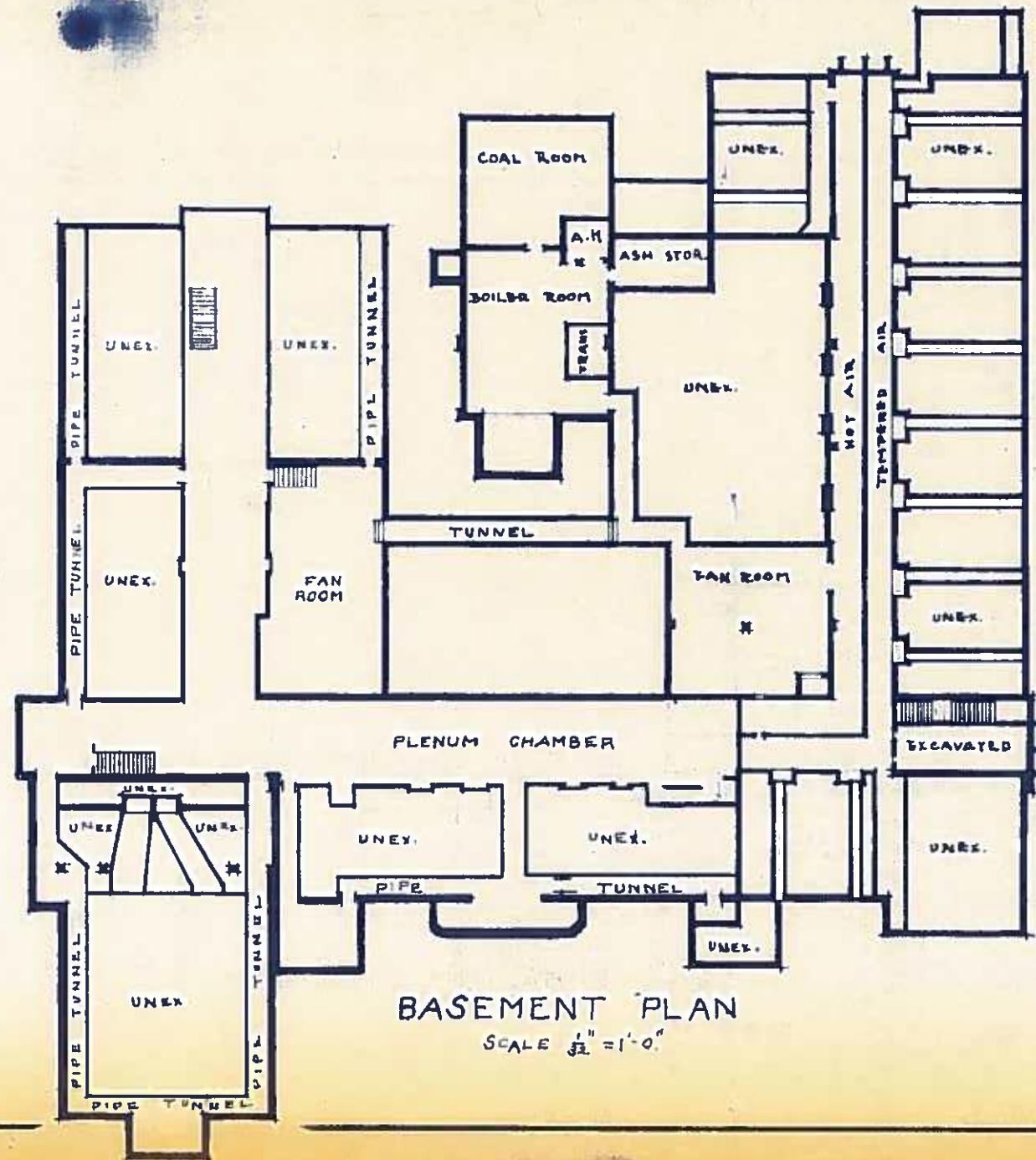
APX. 1128' - 7' Fence  
 16 End Posts  
 6 Cor. "

APX. 740' - 4' Fence  
 8 End Posts  
 6 Cor. "

# HIGGINBOTHAM SCHOOL

DEPARTMENT OF BUILDINGS & GROUNDS  
**BOARD of EDUCATION**  
 DETROIT MICHIGAN

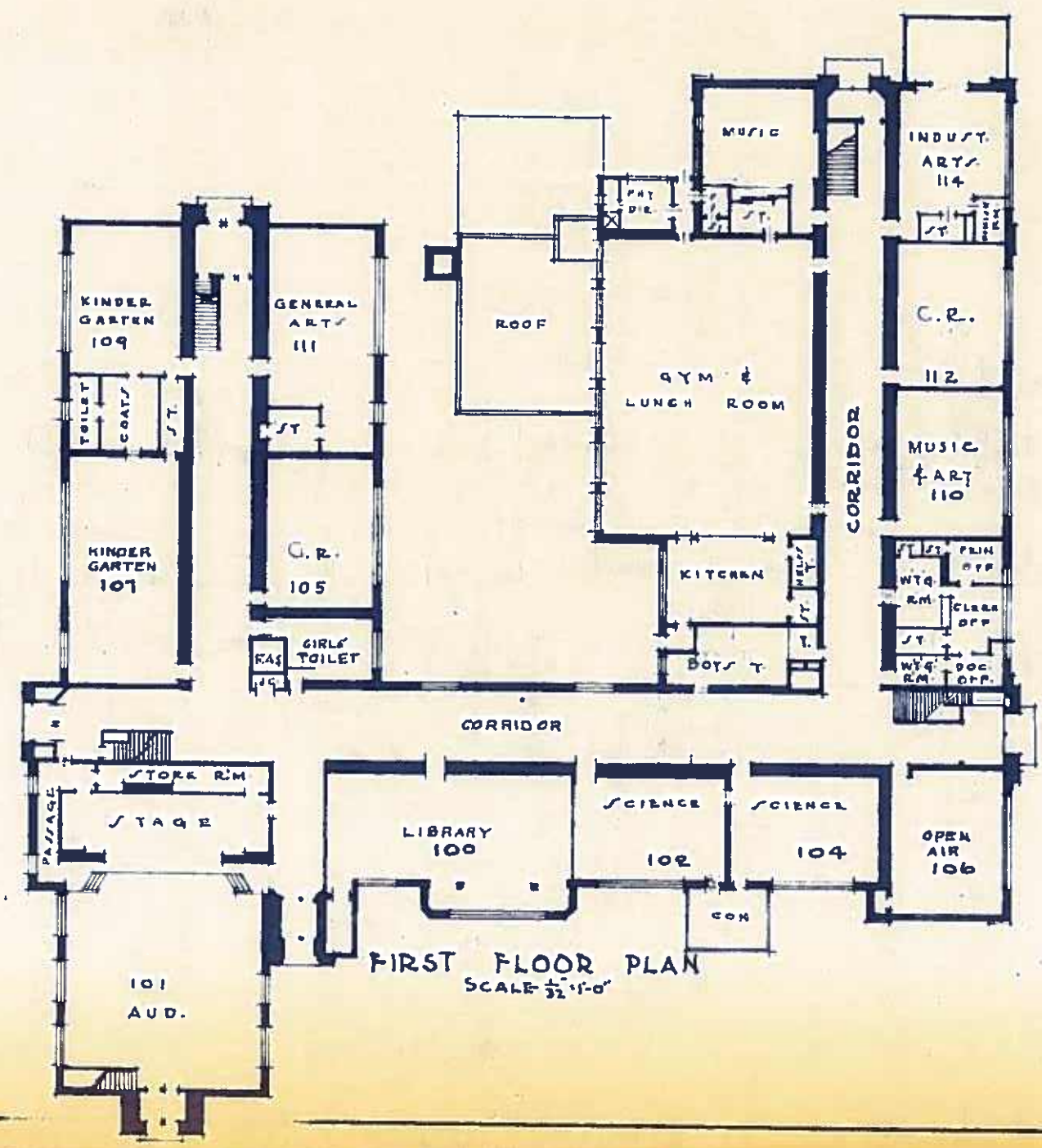
DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-30-27				



# HIGGINBOTHAM SCHOOL

DEPARTMENT OF BUILDING & GROUNDS  
**BOARD OF EDUCATION**  
 DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	7-6-27				



FIRST FLOOR PLAN  
 SCALE  $\frac{1}{32} = 1'-0"$

# HIGGINBOTHAM SCHOOL

DEPARTMENT OF BUILDING & GROUNDS  
**BOARD OF EDUCATION**  
 DETROIT MICHIGAN

DRAWN	DATE	CHECKED	DATE	APPROVED	DATE
R.H.C.	6-30-27				

