

WESTOVER MAGNET ELEMENTARY SCHOOL STATUS UPDATE

412 Stillwater Avenue



Mold Task Force

March 6, 2019



Stamford Public Schools
EXCELLENCE IS THE POINT.



WESTOVER-STILLWATER PROJECT TEAM

KG&D

- Erik Kaeyer, AIA LEED AP Principal/VP
- Joe Reilly, Associate, Construction Specialist

Watsky Associates – Roofing Consultant

- Thomas Olam, President

OLA Consulting Engineers – Mechanical & Electrical Engineers

- Jill Walsh, P.E., Principal

Tighe & Bond – Engineers & Environmental Specialists

- Joseph Canas, P.E., Drainage Engineer
- Kevin McCarthy, Industrial Hygienist

Edward J. Frattaroli, Inc. – Land Surveyor

- Robert Bullard, L.S., Surveyor

GZA GeoEnvironmental, Inc.

- Nathaniel Russell, P.E.

Armstrong Flooring – Flooring Manufacturer

- Todd Steele

Spectrum Floors, Inc. – Concrete RH Test

- Kris Melninkaitis

Innovative Engineering Services – Structural Engineers

- Cliff Barone, Sr., P.E.

Daikin Applied Danbury – Unit Ventilator Manufacturer

- Michael Jesse

Johnson Controls

- John Wenzel

TONIGHT'S AGENDA

1. Team Introductions
2. Brief Overview of Project
3. Site Drainage
4. Building Envelope
5. Slab on Grade Water Infiltration
6. Structural Elements
7. Roof Systems
8. HVAC Systems
9. Interior Finishes
10. Other Building Systems
11. Preliminary Project Timeline
12. Questions and Answers
13. Appendixes

SITE DRAINAGE

Investigative Team being retained

- Tighe & Bond – Joseph Canas, PE, Drainage Engineer
- Edward J. Frattaroli, Inc. – Robert Bullard, LS, Surveyor

Existing Conditions/Findings

- At the North and West side of the building, the fire access road is at or near the finished floor in the building and traps/directs water towards the building – this water may infiltrate the layer of fill between the slab bottom and the vapor barrier and be trapped
- Preliminary calculations indicate that the tributary area has the potential to direct a quantity of water to the site that **greatly exceeds the capacity** of the storm drainage system to convey off the site

[See Appendix 1 for Evolution of the Site](#)



SITE DRAINAGE

Corrective Actions

- Lower the fire access road elevation and change grade to pitch away from building
- Repair/replace roof gutter and downspout drainage

Still To Do

- Complete as-built survey of site
- Complete drainage analysis and design
- Evaluate options for construction
- Video inspect existing box culvert
- Review downstream impacts based on increasing capacity

See Appendix 2 for Test Pit Log
&
Appendix 3 for Test Pit Summary



BUILDING ENVELOPE

Wall construction is brick cavity wall with CMU and steel wall back-up

Investigative Team – KG&D Architects - Joe Reilly

Existing Conditions/Findings – Wall **probe** holes opened in 4 locations

- Observations confirmed that construction was consistent with design documents
- Water intrusion concerns at wall sealants and exterior doors

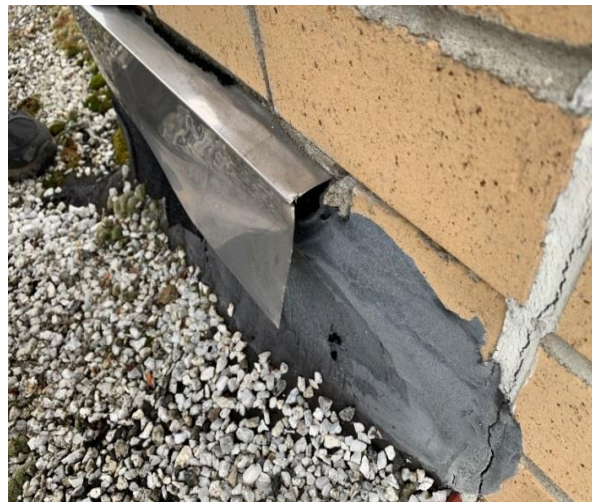
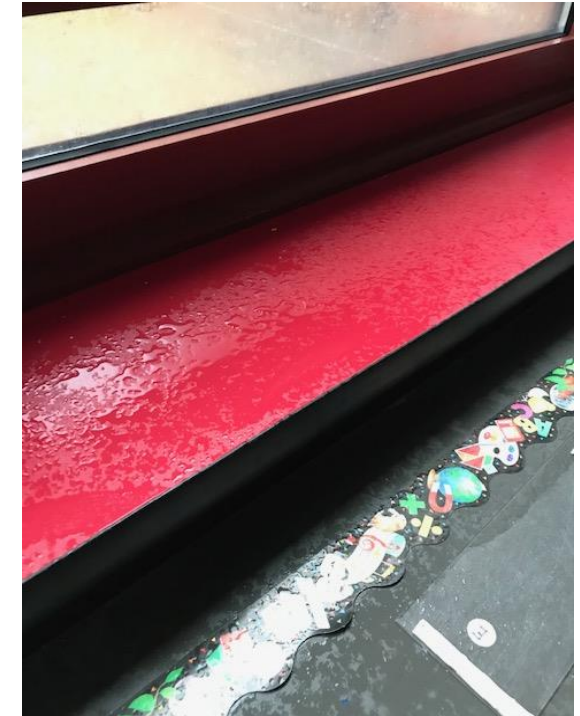


BUILDING ENVELOPE

Window and Flashing

Corrective Actions

- Repair/replace cracked masonry and replace exterior sealants at expansion joints, windows, doors and louvers
- Repoint failed mortar joints
- Insulate wall cavities at exterior framed walls
- Reseal all window, storefront and door perimeter joints



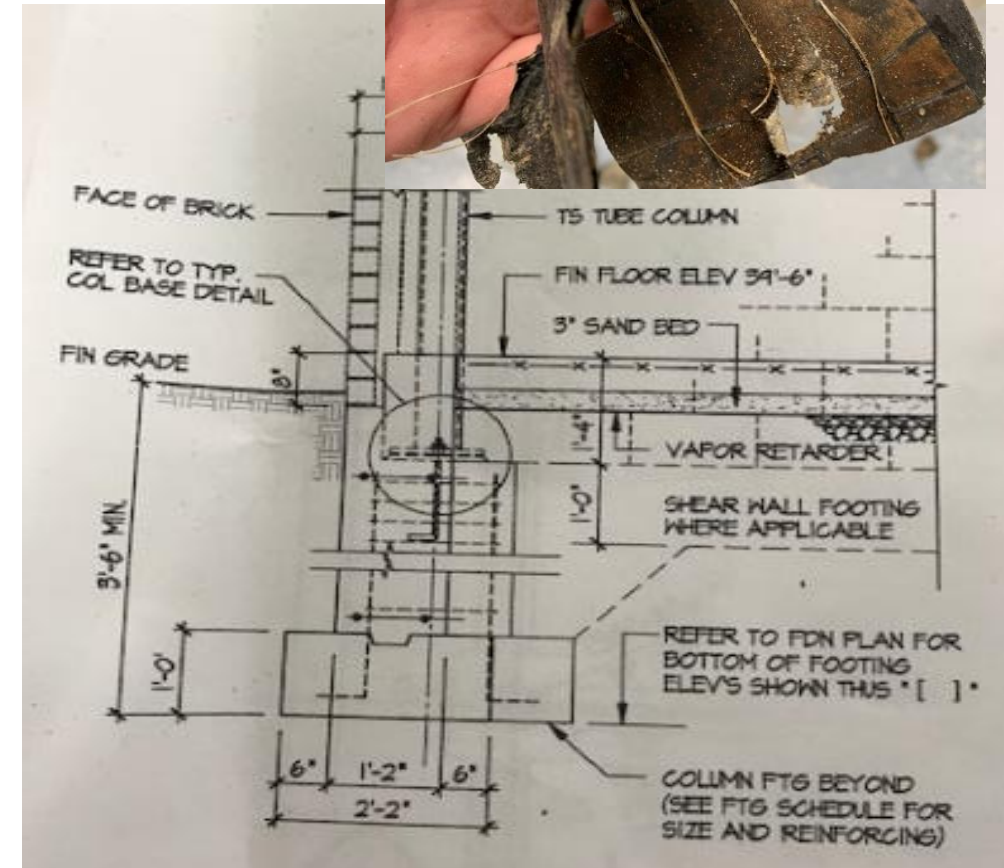
SLAB ON GRADE WATER INFILTRATION

Investigative Team

- KG&D – Joe Reilly, Construction Specialist
- GZA – Nathaniel Russell, P.E. Geotechnical Engineer
- Armstrong Flooring – Todd Steele

Existing Conditions/Findings – 8 test borings and sawn openings through concrete slab

- Water infiltration via the slab on grade construction of first floor - water weeping into the wall cavities from the slab is trapped by the GWB and vinyl wall covering which contributes to mold growth on surface of GWB
- VCT flooring is delaminating from the concrete slab in multiple locations (west wing first floor and lobby areas adjacent to exterior doors)
- Vapor barrier and sand/gravel layering is consistent with the design documents



SLAB ON GRADE WATER INFILTRATION

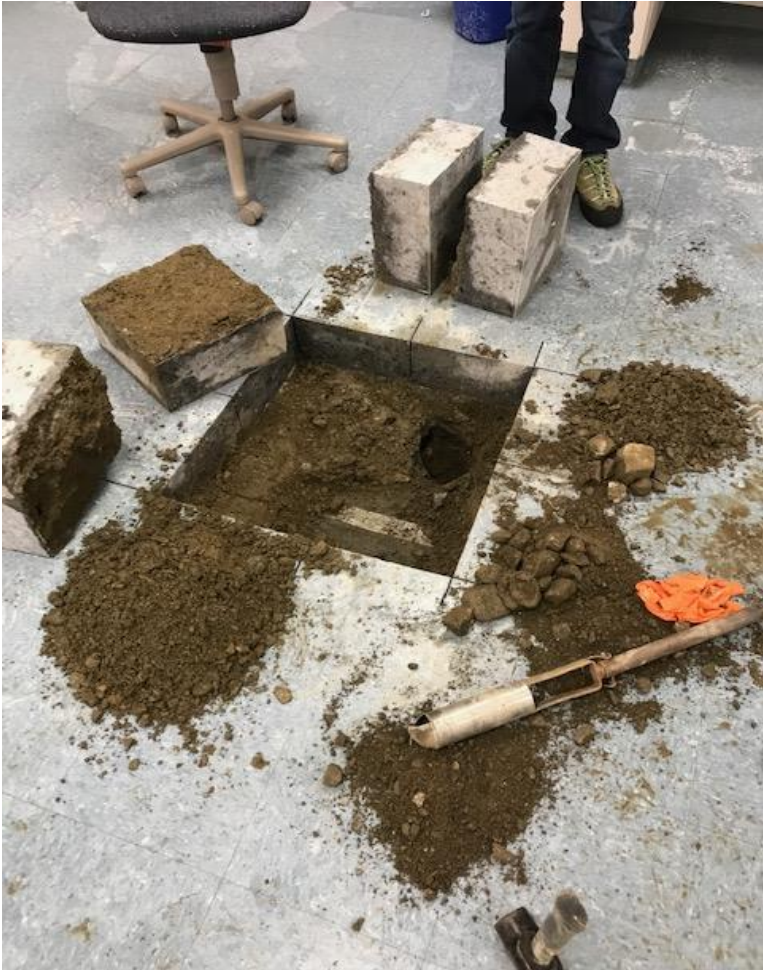


Table 1: Slab Investigation Summary

Location	2-ft x 2-ft SAW CUT	6-inch dia. CORE
Classroom B121	SC #4	SC #5
Classroom B122	SC #1	SC #2
Hallway at Classrooms B121 & B122	SC #3	SC #7, SC #8
Hallway at Northwest Entrance	-	SC #6

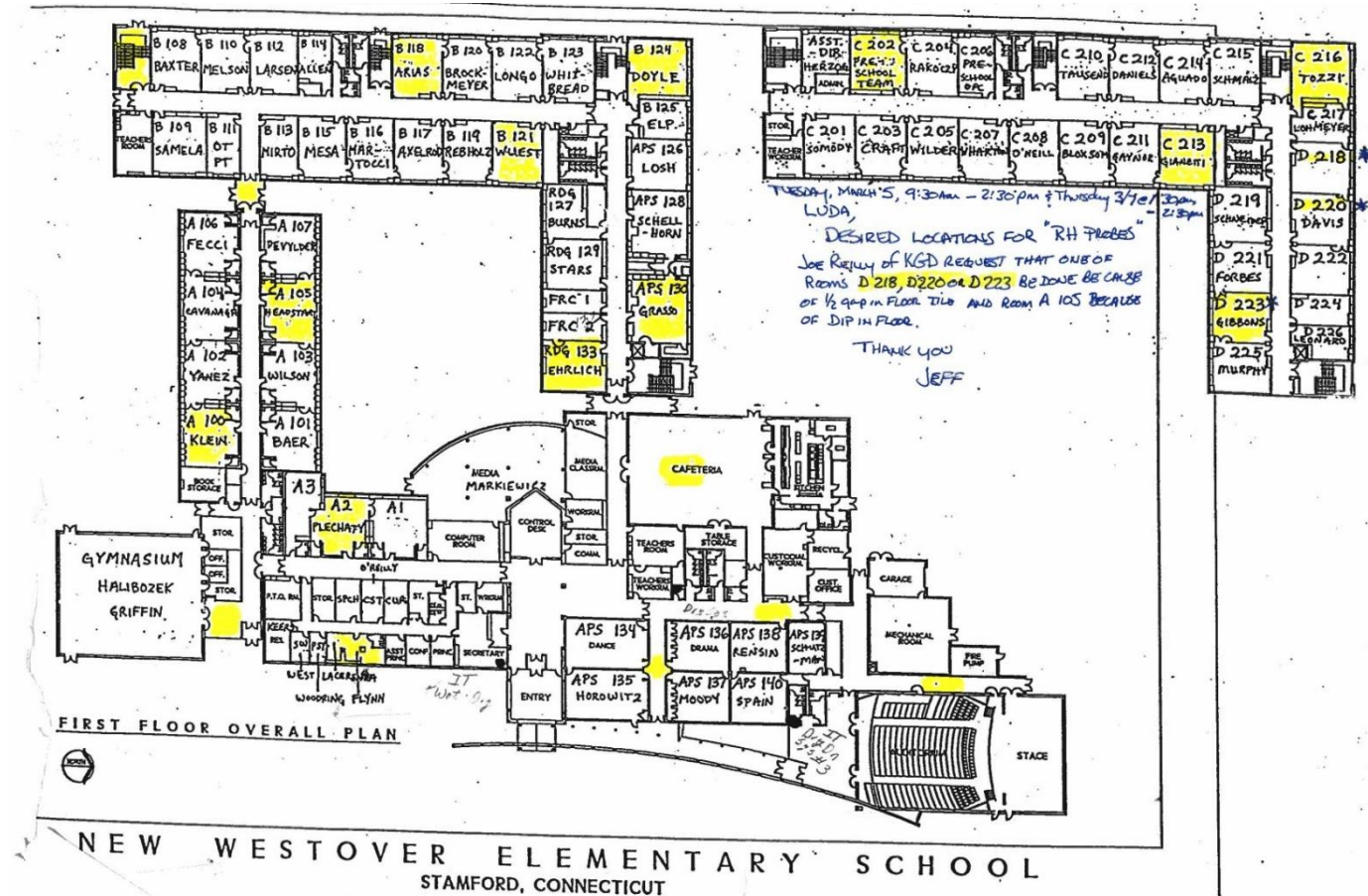
The observed conditions of the concrete slab and directly below the slab were generally as follows (from top down):

- Concrete Slab – 5 to 8-inches thick, lightly reinforced.
- Granular Fill - approximately 2- to 3-inch thick layer of fine to coarse sand between the bottom of the slab and the underlying vapor barrier.
- Vapor Barrier – The vapor barrier was observed to be present at all saw cut and core locations and consisted of black, fiber-reinforced plastic sheeting.
- Granular Fill – the granular fill consisted of fine to coarse sand, with trace silt and some fine to coarse gravel.

SLAB ON GRADE WATER INFILTRATION

Corrective Actions

- Conducted Relative Humidity (RH) probe tests on foundation slab



16 tests on 1st floor, and 4 tests on 2nd floor

SLAB ON GRADE WATER INFILTRATION

Corrective Actions

- Based on the results of the RH testing, a moisture mitigation plan will be developed, which is likely to include the addition of a moisture barrier between the concrete and Vinyl Composition Tile (VCT) flooring



See Appendix 4 – Ruled out Domestic Water or Sanitary Sewer Leak

STRUCTURAL ELEMENTS

Investigative Team

- Innovative Engineering Services – Cliff Barone, Sr., P.E.

Existing Conditions/Findings

- Foundations for the building appear to be in “very good condition” with “no red flags”
- The steel frame supporting the second floor and roof is also in “excellent condition”
- Structural review encountered cracking in CMU and concrete slab – These conditions appear to be typical settling, expansion and shrinkage related defects – there is NO indication of structural failure

Corrective Actions

- Replace cracked CMU
- Repoint mortar joints
- Proper fill and sealing of expansion cracking in floor slabs



Custodial Area



Music Room



Dance Room



Gym

ROOF SYSTEMS

Combination of Flat (33,600 sf) & Sloped (101,200 sf)

Investigative Team – Watsky Associates – Thomas Olam, President

Existing Conditions/Findings

- 7-inch wide external gutters have failed
- Probes cut into flat roof revealing construction installation consistent with contract documents – no indication of water infiltration
- Flat roofs have isolated blisters and expansion joint deficiencies
- Sloped metal roofs have loose, rusting screws

Corrective Actions

- Replace gutters with seamless construction
- Replace roof leaders and provide new catch basins at grade to create an air break and receive leader runout
- Replace rusting screws with stainless steel screws and washers
- Implement all recommendations based on infrared roof scan of flat roof

Still To Do

- Comprehensive analysis of roof systems – InfraRed Analyzers, Inc. to scan the flat roof area – requires dry, sunny day – work to take 5-10 days weather permitting

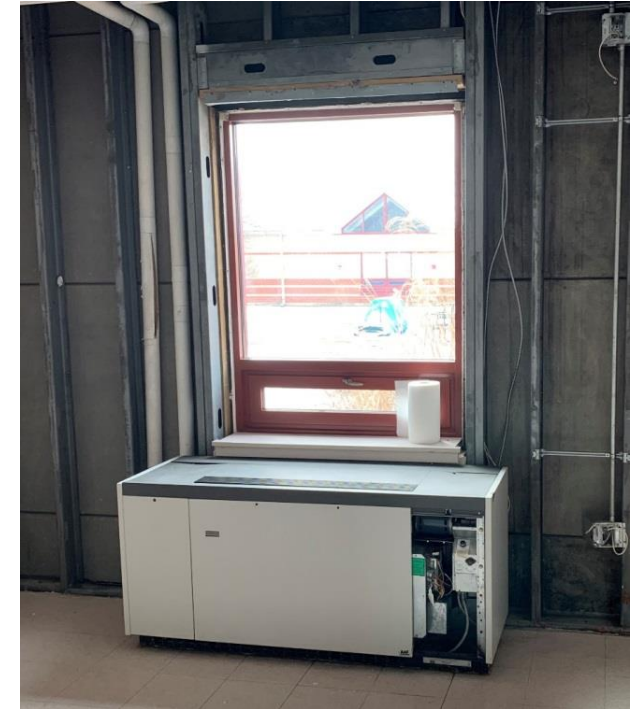


HVAC SYSTEMS – AIR QUALITY

AAF AZ Herman Nelson Unit Ventilator – 70 Units

Investigative Team

- OLA Consulting Engineers
Jill Walsh, P.E., Principal
- Daikin Applied Danbury
Mike Jesse – Unit Ventilator Manufacturer
- Johnson Controls
John Wenzel



Existing Conditions/Findings

- Improper sealing around unit ventilators and intake louvers
- Coil deterioration observed consistently throughout unit ventilators
- Improper balancing of air
- The HVAC system does not appear to have any method to remove the relief air from the ceiling plenum



HVAC SYSTEMS – AIR QUALITY

AAF AZ Herman Nelson Unit Ventilator – 70 Units

Corrective Actions

- Replacement of in-kind unit ventilators
- Seal louver perimeter.
- To achieve proper balance - install new relief ductwork and fans
- Install new variable volume rooftop units in lieu of constant volume for better circulation in common areas
- Replace all pipe insulation
- Supplemental ventilation system should be added to treat the large common spaces.
- Commission system – complete air and water balancing to ensure all systems functioning per design

OTHER BUILDING SYSTEMS



- Repair and service air handling unit and ductwork
- Repair and service boiler and pumps
- Replace controls and provide a BMS system

INTERIOR FINISHES

Investigative Team – KG&D

Existing Conditions/Findings

- Vinyl wall covering on all interior wall surfaces

Corrective Actions

- 1st Floor – Replace all GWB at first floor partitions and exterior walls
- 2nd Floor – Remove all vinyl wall covering and skim coat/paint interior partition walls
- Remove and replace all classroom casework and marker boards
- Remove and replace all acoustic ceiling tiles

TENTATIVE RE-OCCUPANCY SCHEDULE

REMEDiate / IN-KIND RENOVATE WESTOVER MAGNET ELEMENTARY SCHOOL

Engage Architectural/Engineering Team (1 month)

Phase 1 Design & Construction Bid Documents for Permit & Bidding (4 months)

Bid & Award Phase 1 Construction contract (2 months)

Phase 1 Construction Project for re-occupancy (10 months)

Punch list & Re-occupy school (2 months)

*Some timeframes will overlap

In-kind renovation may require multi-phase project. All work to re-occupy occurs in Phase 1



Thank You



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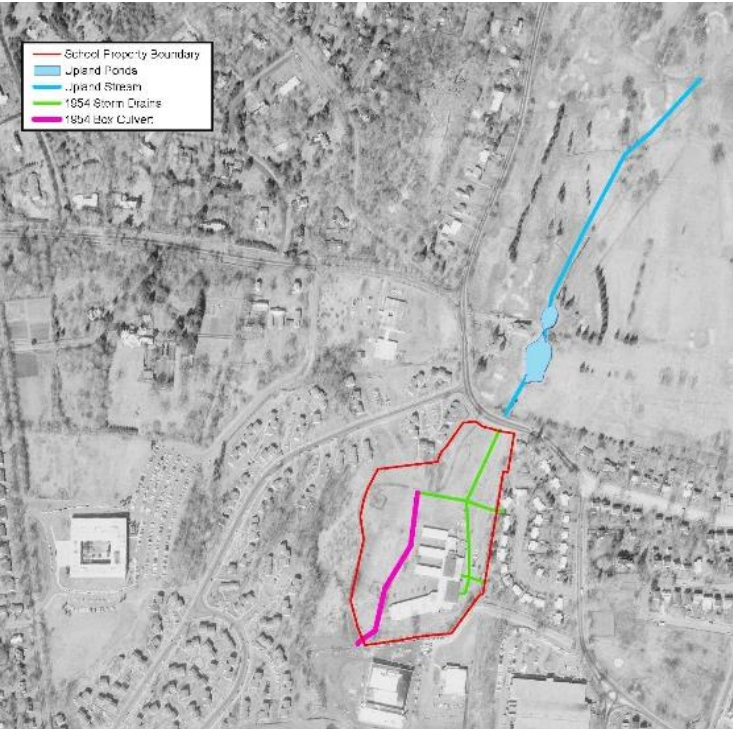


APPENDIX 1

Evolution of the Site



1934



1965



1996

APPENDIX 2

Test Pit Log



TEST PIT LOG					
GZA GeoEnvironmental, Inc. Engineers and Scientists		PROJECT Westover Elementary School 412 Stillwater Road Stamford, Connecticut		Test Pit No. TP-2 File No. 15.0166727.00 Reviewed by NLR	
GZA Engineer B. Carias Weather Overcast, 30's		EXCAVATION EQUIPMENT Contractor Conte Company Operator E. Monroe Make Caterpillar Model 303C Capacity 0.714 cu. yd. Reach 10 ft.		Date 1/25/19 Ground Elevation 38.5± Time Started 0741 Time Completed 0810	
Depth (ft)	SOIL DESCRIPTION		Excav. Effort	Boulder Count Qty. Class	Remark No.
1	TOPSOIL		E	6A	
1	0.5' Brown, fine to coarse Sand and Silt, little fine to coarse Gravel, trace Roots, trace Debris (Fill)		E	4B	
2	2.0' Brown, olive, fine to medium SAND, little Silt, trace Roots (Fill)		E	9A	
3	3.0' Brown, fine to coarse SAND and COBBLES, little Silt, little fine to coarse Gravel, little Wood, trace Roots, trace Debris (Fill)		M	12A	
4			M	7B	
5			H	1C	
6			E	9A	1
7	7.0' End of Exploration at 7 ft.				
8					
9					
10					
11					
12					
13					
REMARKS:					
1. Groundwater encountered 6.5 ft. below ground surface.					



First floor finish slab elevation is 39.5.
Ground water elevation is 32.0 at TP-2.

[Link to GZA Report](#)

APPENDIX 3

Test Pit Summary

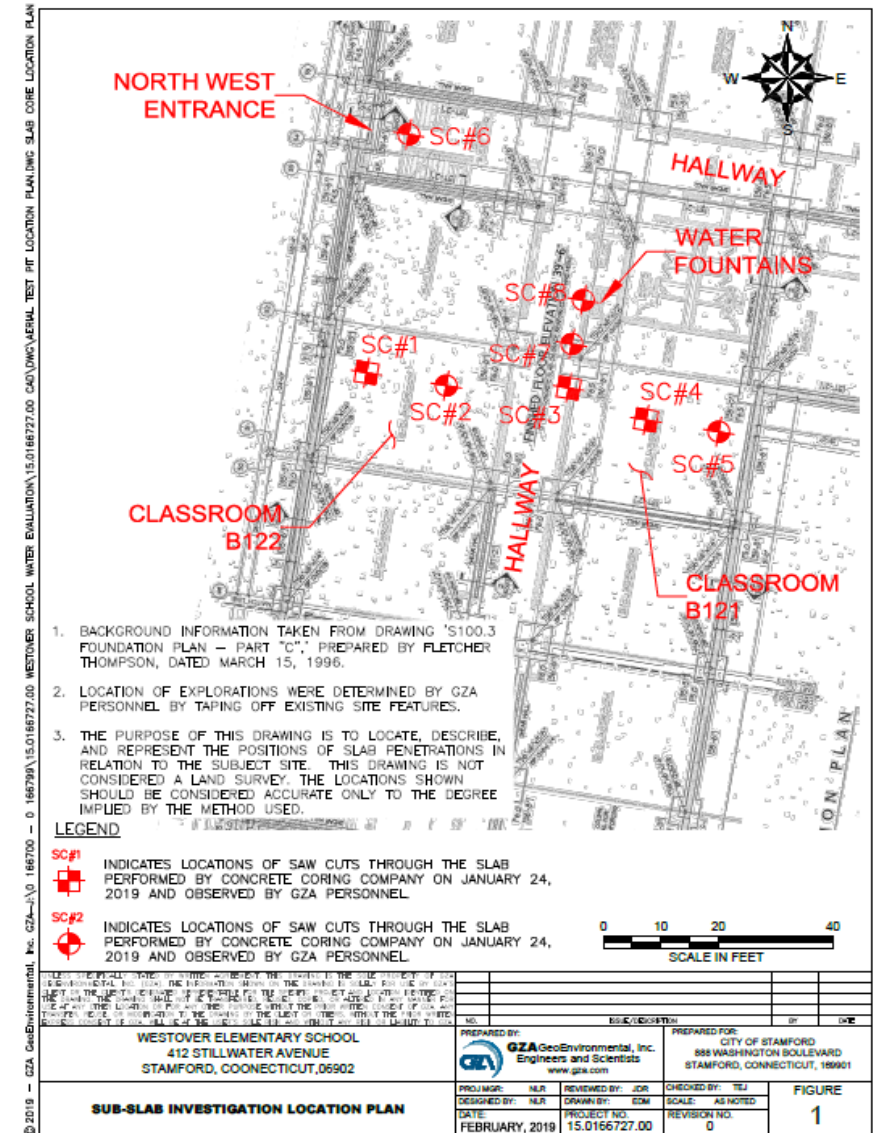
Table 2: Test Pit Summary

Test Pit	Ground Surface Elevation ¹ (FT)	Test Pit Depth (FT)	Depth to Groundwater ² (FT)	Groundwater Elevation (FT)
TP-1	39.0	5.0	4.0	35.0
TP-2	38.5	7.0	6.5	32.0
TP-3	37.0	5.0	4.5	32.5
TP-4	39.0	8.0	>8 ³	<31.0 ³
TP-5	38.5	7.8	6.5	32.0

Notes:

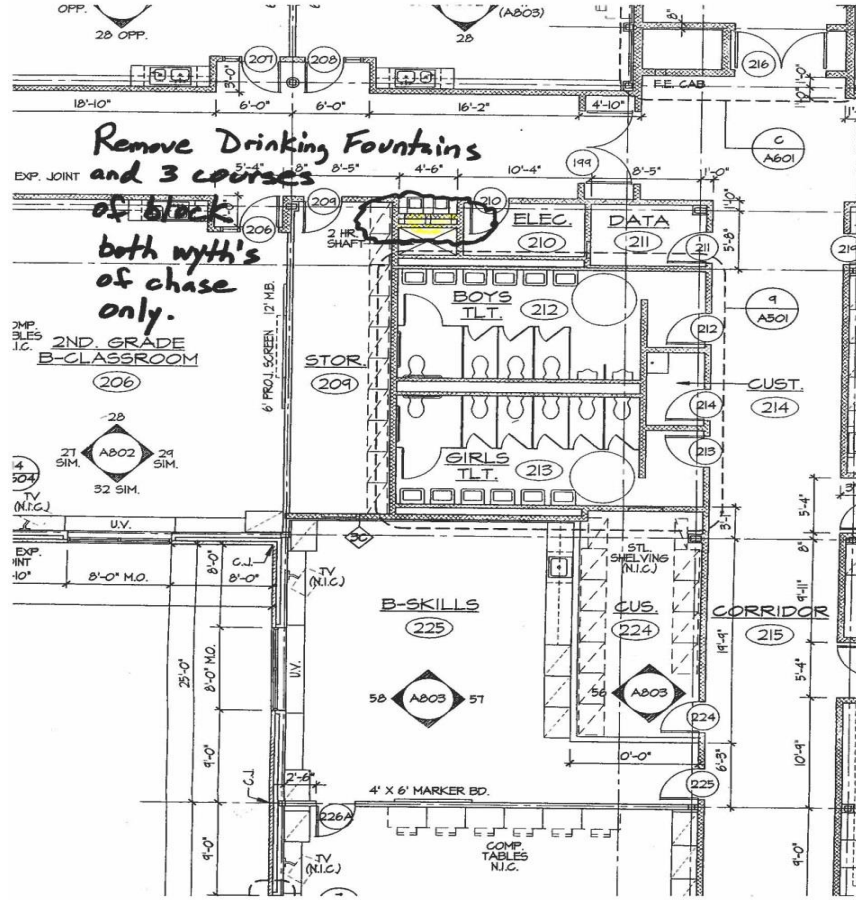
1. Ground surface elevations, in feet, were estimated from the drawing "Grading Plan, New Westover Elementary School," prepared by Fletcher Thompson, dated March 15, 1995 and revised July 9, 1996. Vertical datum: NGVD 1929.

First floor finish slab elevation is 39.5



APPENDIX 4

Rule out domestic waterline and sanitary sewer line pipe leaks



The attached highlighted sanitary line was examined by One Vac. A total of 284 feet was videoed. The pipe was in good condition, no breaks or cracks were found.