Jan 28, 2019

New Fairfield Schools – Facility Assessment
High School

DRAFT SUMMARY
The following represent the categories of greatest concern from our preliminary findings:

High School:

SITE:

1. Inadequate drop off drive, parking & poor paving conditions
2. Inadequate site drainage
3. Inadequate site lighting
4. Lack of ADA site circulation compliance to fields
5. Unprotected utilities
6. Inadequate well system
7. Chlorinated septic system difficult to maintain

BUILDING:

8. Lack of energy efficiency of tilt up concrete walls and glazing systems
9. Exterior building concrete damaged in several locations
10. Interior partition systems not adequate for learning and office environments
11. Auditorium floor slope and acoustics unacceptable
12. Pool and all locker rooms aged and very poor condition including finishes, fixtures & equipment
13. Elevators aged (one original, one 1989) and accessible compliance not convenient to potions of the building
14. Ceilings in poor condition in some areas of the building
15. Interior & exterior doors fair to poor condition
16. Flooring fair to poor condition
17. Sharing of the auditorium and kitchen not sufficient for volume of use. Auditorium and servery are not ADA compliant.
18. Limited natural light and views in three story classroom portion, and several learning spaces without any natural light
19. Potential non-compliance with code requirements for egress and plumbing fixtures
20. Code compliance needed to maintain shelter / community center status
21. Lack of collaboration, meeting, office and storage space

MEP SYSTEMS:

22. Building is not fully sprinklered
23. No dehumidification in pool room and lack of ventilation
24. Electric heat not efficient and very expensive, and steam heat is pieced together into the system
25. Heating system mostly end of life
26. Original pneumatic controls for electric heat and domestic hot water still in use
27. Majority of classrooms and assembly spaces are not air conditioned
28. Water heaters are point of use, a maintenance burden, and end of life
29. Fire alarm system is not adequate
30. Lack of heat for the stage, and auditorium heat not sufficient, sound system in auditorium not adequate

RZ Design Associates, Inc.

750 Old Main Street, Rocky Hill, CT 06067
Phone: (860) 436-4336 • Fax: (860) 436-4450
www.rzdesignassociates.com

NEW FAIRFIELD HIGH SCHOOL
MEP EXISTING CONDITIONS REPORT

January 22, 2019

FIRE PROTECTION SYSTEM

Although the building is not fully sprinklered, there is a small fire protection system dedicated to the auditorium stage. The system consists of an aboveground 3,000-gallon hydropneumatic tank located on the lower level of A-wing. Water from the domestic water storage system is used to supply the fire tank via a dedicated pump. Although plans were prepared in 2017 to improve the functionality of the system and address the concerns of catastrophic failure by converting the tank to atmospheric storage and installing a fire pump, this project was not implemented.

The installation of fire sprinklers throughout the building is recommended. The system could either be supplied by an on-site storage and pump system or, ideally, the building should be fed by a municipal water service if feasible.

PLUMBING SYSTEMS

The sanitary system in the building discharges to an on-site septic system.

Although the original building construction included an acid neutralization tank with post treatment water connected to the sanitary sewer, acid waste from the 3rd floor science classrooms is currently run to a concrete holding tank located at the rear of the building. Alternatives to untreated storage should be investigated as the cost for pumping and disposal of this water is costly.

A reported concern with the existing storm water system is that the A-wing roof was originally designed to discharge rainwater into the courtyard under the premise the single yard drain in the courtyard would handle the load. Temporary measures have been taken to reroute the A-wing stormwater away from the courtyard to prevent it from flooding which in turned causes water infiltration into the lower level of A-wing. A permanent solution needs to be determined to remedy this problem.

Domestic water is provided to the High School and adjoining Middle School by an on-site well system. The well system consists of three drilled wells and bladder type well tanks located in a small pumphouse at the rear of the building. Two of the three well pumps are dedicated to supplying domestic water, while the other supplies both domestic water and irrigation water to the fields. Domestic water from the wells is stored in a 20,000-gallon underground tank located in the front of the building. Water from the tank is treated by a chlorination system before being supplied to the building by a constant pressure variable speed pumping system. Reported concerns with the system include lack of enough well and storage tank capacity and redundancy should one of the pumps fail. Ideally, the building should be fed by a municipal water service if feasible.

Domestic hot water is primarily provided by multiple tank type and instantaneous electric water heaters that are located throughout the building, and local to groups of fixtures. However, there is one relatively new high-efficiency propane-fired gas water heater that was installed to feed to pool locker rooms. The

electric water heaters are of varying ages as they replaced on an as needed basis due to their inherently short life expectancy. The feasibility of the installation of a centralized domestic hot water generation and distribution system, with a more cost-effective fuel supply than electric, should be investigated.

Plumbing fixtures are a mixture of various vintages, but all are well maintained and in good working order.

Problems with leaks in the domestic water and aboveground cast iron sanitary sewer piping have occurred in the past and continue to be an unanticipated problem of the present as the occurrences are random in location and nature. Full replacement of the aboveground water and sanitary piping systems is recommended to combat inevitable future failures.

HVAC SYSTEMS

The heating system in the building is predominantly electric with most of the equipment dating back to the original 1973 construction. However, minor retrofit projects that have occurred in the subsequent years have provided isolated systems such as oil-fired steam heat, propane-fired heat and variable refrigerant heat pumps.

The A-wing of the building is a three-story classroom wing. Most of the HVAC systems serving this wing are the original unit ventilators with electric heat for the perimeter classrooms and two original rooftop heating ventilating units with electric heat for the core classroom spaces. A 2010 renovation of the 3rd floor science classrooms replaced the existing unit ventilators with four new rooftop energy recovery units with dx-cooling and electric heat. Each science classroom was provided with a variable air volume terminal unit with electric heat to provide independent temperature control of the space. A 2018 renovation converted four lower level classrooms into a culinary program. A propane-fired make-up air unit and commercial kitchen ventilation system was provided for the cooking battery and a variable refrigerant flow (VRF) heat pump system and energy recovery units replaced the classroom unit ventilators.

The B-wing of the building contains administrative and classroom spaces as well as the auditorium and stage. The administrative spaces are served by two rooftop units with dx-cooling and electric heat that were installed around 2000 as direct replacements for the existing units. Other original HVAC systems serving the administrative and classroom spaces include perimeter electric baseboard radiation, cabinet nit heaters and unit ventilators. The auditorium is served by the original rooftop heating and ventilating unit with electric heat. Not only is the unit unacceptable noisy for a theater space, it also does not have enough capacity to heat the space on a design day. Lack of enough heat on the stage also makes this space unacceptably cold as well.

The C-wing of the building originally contained kitchen and cafeteria for the high school. However, during the 1995 additions and renovation project at the middle school, an addition was added onto C-wing to house the new location of the high school cafeteria and the original high school cafeteria became the new middle school cafeteria. The kitchen ventilation system and the rooftop heating-ventilating unit that serves the middle school cafeteria are original to the building construction, however, the kitchen make-up air unit and cafeteria rooftop unit was converted from electric heat to oil-fired steam heat with the creation of a small dedicated boiler plant located in the former trash room off the kitchen prior to 1982. A 2,000-gallon underground oil tank supports this boiler plant.

The D-wing of the building contains the pool, gymnasium and locker room facilities. The two indoor heating-ventilating units that serves the gymnasium and the one indoor heating and ventilating unit that serves the locker rooms are original to the building construction, however, these units were converted from electric heat to oil-fired steam heat with the creation of a small dedicated boiler plant located in the

former generator room near the pool prior to 1982. Replacement of the corroded steel roof deck above the pool in 1984 forced the replacement of the original rooftop heating and ventilating units with a new indoor heating-ventilating unit and duct distribution system. Heat in the pool was converted at that time from electric to oil-fired steam from the same boiler plant that serves the gymnasium. A 2,000-gallon aboveground tank installed approximately seven years ago supports the boiler plant.

Control of the HVAC equipment in the building is a mix of modern electronic and original pneumatic. All the rooftop units and unit ventilators are controlled by a direct digital control system, while electric baseboard heat and exhaust systems remain pneumatically controlled.

Since most of the existing HVAC equipment is original, a full HVAC replacement in the building is recommended. The feasibility of the installation of a centralized heating hot water generation and distribution system, with a more cost-effective fuel supply than electric, should be investigated. A full upgrade to new direct digital controls is also recommended throughout the facility.

ELECTRICAL SYSTEMS

The Main Electrical Service is a 5000A, 480/277V service with a Bolt-Loc main disconnect switch and fused switch type distribution sections. The service equipment is original to the building and is in fair condition. The service equipment is near the end of its useful life and should be considered for upgrading. Distribution panelboards throughout the building are mainly from the original construction, with some newer panelboards from various renovations. Many of the original panelboards are showing signs of wear, such as ill-fitting covers, rust, and exposed bus bars. It is recommended that panelboards that are in disrepair be replaced for safety concerns.

The building has a small propane-fired generator that provides emergency lighting to stairs, corridors, and interior (windowless) classrooms. In addition to the on-site generator, there are two generator connection boxes for roll-up generator connection. One generator connection is dedicated to the kitchen, and the other serves various loads in the rest of the building. We would recommend installation of a single on-site generator to serve all the building's emergency/standby loads.

Lighting throughout the building is mainly recently installed LED lighting fixtures, or fluorescent fixtures with LED retrofit lamps, though many areas still have fluorescent lighting fixtures. We would recommend upgrade, either by new LED fixture or by LED retrofit lamps, of any remaining fluorescent fixtures. Emergency lighting is achieved via dual-head battery units, and via the generator as noted above.

The building's Fire Alarm System is currently a combination of conventional and addressable equipment. The building's original Fire Alarm Panel was replaced with an addressable panel in the 2000's, but the buildings original non-addressable detection devices remain. This causes maintenance difficulties when the system reports a trouble condition, as it does not report the device with trouble only the zone with trouble. In addition, several of the existing devices have mounting heights that do not meet current accessibility requirements. We would recommend replacement of the building's fire alarm system with a new fully addressable fire alarm system.

Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033
www.benesch.com
P 860-633-8341
F 860-633-1068

New Fairfield High School/Middle School
Existing Site Conditions Report

ISSUED BY:	Will Walter, PE
	Senior Project Manager
PROJECT NO.:	70529.00
DATE:	January 21, 2019

Pedestrian Entrance to the High School

Sidewalks and ADA accessibility: Overall, sidewalks leading up to the school are in fair condition with some cracking present. Concrete expands and shrinks with changes in moisture and temperature. Expansion joints, present to prevent cracking, are not consistent in all areas. There are no detectable warning strips embedded in the concrete accessibility ramps which presents a hazard to impaired pedestrians. The pedestrian walkway leading up to the entrance is in good condition and is aesthetically pleasing with a colored concrete pattern. (Figure 1)


Figure 1

General drainage and structures: There are no apparent drainage issues directly in front of the main entrance. The pedestrian walkway leading up to the entrance has a stone band near the foundation of the school, allowing water to recharge the water table. It is not ideal to guide water against structures however, this is more desirable that pooling against the building. Connecting the school's roof leaders directly into the storm water system would be the most ideal situation to avoid drainage issues. Unformalized riprap near the maintenance retaining wall and excess sediment eludes to drainage issues. (Figure 2)


Figure 2

Utilities: The elevated water tank riser manhole at the entrance is a tripping hazard. The electrical box directly adjacent to is not concealed or protected from pedestrians. (Figure 3)


Figure 3

Features and Aesthetics: An interesting site feature in this area is the large tower clock which is in good condition. The feature provides a landmark on-site for the correct entrance to use to enter the building. Landscaping planters surrounding this area are in fair condition despite being dated. However, weep holes at planters may be clogged and will need cleaning. There is no pedestrian lighting near the area.

Landscaping: Turf needs replacement around sidewalks and is fair in other areas. Plantings are used in elevated planters and planting beds. Plantings are sparse around the main entrance. Existing plantings in this area include but, are not limited to: *Acer saccharum* (sugar maple), *Picea pungens* (Colorado blue spruce), *Spiraea japonica* (Japanese spirea), etc.


Figure 4

Pedestrian Entrance to Middle School

Sidewalks and ADA accessibility: Overall, sidewalks leading up to the school are in fair condition with cracking present. There are no detectable warning strips embedded in the concrete accessibility ramps which presents a hazard to impaired pedestrians. There is no direct access to accessible parking spots in the adjacent lot; impaired pedestrians must travel a long distance to find a ramp. (Figure 4) The pedestrian walkway leading up to the entrance is in fair condition.

Figure 5

General drainage and structures: There are no apparent drainage issues directly in front of the main entrance or near the pavilions.

Figure 6

Features and aesthetics: Upper stones on seat wall are not stagnant which present a hazard to those who sit on them or may bump into them. (Figure 5) Some railings at ramped areas need repair or replacement. Some are completely removed from their concrete foundation. (Figure 6) Others are at too short of a height and are not to code. Therefore, they present a tripping hazard. (Figure 7) Bicycle racks are minimal but are in fair condition. Landscaping planters surrounding this area are in fair condition despite being dated. However, weep holes at planters may be clogged and will need cleaning. The pavilions, used by student during pick-up and drop-off times, are in fair condition. The feature provides a landmark on-site for the correct entrance to use to enter the building. There is no pedestrian lighting near the area.

Figure 7

Landscaping: Turf needs replacement around sidewalks and is fair in other areas. Plantings are used to frame the existing school and there is an allée of trees leading up to the main entrance. Existing plantings in this area include but, are not limited to: *Spiraea japonica* (Japanese spirea), *Prunus subhirtella (*higan cherry), *Euonymus fortune (*wintercreeper euonymus), *Betula nigra (*river birch), *Oxydendrum arboretum (*sourwood), Rhododendron, *Taxus* × *media* (yew), *Ilex* (holly), *Phlox subulata* (moss phlox), etc. It should be noted that *Euonymus alatus* (burning bush) is being used as a landscaping plant. It is listed as a potentially invasive plant as determined by the Connecticut Invasive Plants Council in accordance with Connecticut General Statutes §22a-381a through §22a-381d.

Figure 8

Main Road (means of ingress and egress)

Asphalt and curbing: The main access drive that provides the core means of ingress and egress to the school is in fair condition and looks recently established. (Figure 8) The fair condition extends from the eastern entrance to the southern drive parallel to the face of the school. At the intersection of the main drive to the western entrance, the road condition begins to weaken. Alligator (fatigue) cracking is prominent in the road. (Figure 9) Bituminous curbing is broken or non-existent on the western access road.

Figure 9

Figure 10

General drainage and structures: New drainage structures are apparent in the newer parts of the road. Much of the storm water discharged north into the forest / wetlands. The wooded area was saturated with standing water which is noticeable in the brush. On the western access road, formalized drainage is non-existent. All runoff sheets off the pavement into nearby brush or pools in the road. The lack of

formalize drainage has led to the formation of alligator (fatigue) cracking and potholes. (Figure 9)

Sight distances: The means of ingress and egress at Gillotti Road has potential sight line issues at both entrances. At the eastern entrance, the left sight distance seems to be sufficient. However, to the right, the sight distance is hindered by unkept shrubs and steep increase in grade in the major roadway. (Figure 10) At the western entrance, the left sight distance is hindered by unkept shrubs and steep increase in grade in the major roadway. (Figure 11) The right sight distance is hindered by unkept shrubs. (Figure 12)

Figure 11


Figure 12

Parking Lot and Maintenance Area

Asphalt and curbing: In general, the parking lot displays common pavement distress. Alligator (fatigue) cracking can be seen throughout the parking area. The most severe conditions of alligator cracking are located at the main entrance in front of the high school and at the maintenance access area west of the main entrance. Repeated vehicular loading and lack of drainage in these areas can lead to moisture infiltration which can worsen the issue. At the maintenance access to the west, the asphalt condition is localized, has worsened and has developed into potholes. (Figure 13) Block cracking can also be seen throughout the parking lot most notably in front of the middle school entrance. Generally, aged asphalt binder leads to block cracking. (Figure 14) Many drainage structures have been replaced which has led to asphalt patching in these areas. The southeastern portion of the parking lot sheets to a leak off that guides the runoff to a grass depression, which exhibits significant erosion and rutting. (Figure 15) The maintenance access drive that extends all the way around the school is primarily gravel. The inconsistent grading and material of the maintenance access drive has led to inefficient drainage and pothole issues. (Figure 16) Most curbing is bituminous and is damaged. There are some areas where curbing is non-existent.


Figure 13


Figure 14


Figure 15

Sight distances and circulation: Overall, the current parking lot is designed with undesirable angles to the main access road. These angles create undesirable sight lines which means it is difficult to see on-coming traffic.

Sidewalks and ADA accessibility: The bituminous paths leading down to the recreational fields are very steep and may not be ADA compliant. (Figure 17) Alligator (fatigue) cracking are seen on these paths which will break the pavement up and worsen over time if not corrected. The paver ramp at the southeast courtyard is has an unstable base making the ramp sag to one side. This instability is increasing the cross slope which may not be ADA compliant. It is also causing the pavers to separate from one another which may worsen over time. (Figure 18)


Figure 16

General drainage and structures: Some storm drainage structures are updated, others are not. In other areas, depressions in the asphalt are directly next to storm grates. These depressions accumulate sediment and make drainage inefficient or very poor. Not all roof leaders are connected directly into the system. Unconnected roof leaders have led to pooling in some areas. At the northern face of the school, near the maintenance storage area, there is severe pooling at one building entrance. (Figure 19) Directly abutting the school at the northern and eastern sides are very steep hills leading down to the recreational fields. Water sheets off the hillside and

pools at the bottom on pedestrian paths causing drainage issues. Water also traverses accessible paths leading down to the fields and ices there in the winter. At the eastern face of the school, the grade pitches towards the school. Directed water runoff percolates at stone strip at the base of the exterior wall.


Figure 17

Utilities: Utilities in this area include but, are not limited to: acid waste, gas, propane (protected by PVC bollards), air conditioning units in the eastern courtyard, septic, water and multiple transformers for underground cable. Nearly all utility structures protruding from the ground are unconcealed.


Figure 18

Site features and aesthetics: Galvanized chain link fencing at the northwest portion of the school is in fair condition. Black vinyl coated fencing at the northeast and eastern portions of the school, surrounding recreational fields, need a replacement. These portions of fencing have bowed out from users pushing up against them, are completely dismantled from their posts or are damaged from vehicular movement. (Figure 20) Nearly all retaining walls have railings where repairs have been made to the sealant around the railing-to-wall joint condition. Site lighting fixtures are inconsistent across the entire site. For most of the access drive, exterior lighting is minimal to none except at overhead lights coming from the building. At the eastern courtyard, there are dated pedestrian lights. Within the parking area, cobra-like lighting fixtures are used to illuminate the area. Many of the concrete footings in the parking lot are damaged. (Figure 21) Concrete steps in the back of the building have inconsistent risers and exposed rebar due to damage. A wood stair on the east-facing side of the building provides a connection to the recreational fields below are in fair condition despite being dated.


Figure 19

Landscaping: Turf needs replacement around the gravel access drive and is fair in other areas. Existing plantings in this area include but, are not limited to: *Acer saccharum* (sugar maple), *Prunus (*cherry), *Forsythia x intermedia* (forsythia), etc. At naturalized locations, woodland corridors include but, are not limited to: *Quercus rubra* (red oak), *Betula papyrifera* (paper birch), *Acer saccharum* (sugar maple), *Cornus florida* (flowering dogwood), etc. It should be noted that *Celastrus orbiculatus* (oriental bittersweet) was located within natural corridors surrounding the site. It is listed as an invasive plant as determined by the Connecticut Invasive Plants Council in accordance with Connecticut General Statutes §22a-381a through §22a-381d.


Figure 20


Figure 21

Interior Courtyard

General drainage and structures: The courtyard is infilled with a gravel base, making it easy for water to percolate into the ground. Many roof leaders outlet to this location; some leaders are connected, some are not. A catch basin lies at the low point. An interior mesh is inserted into the basin to catch extraneous gravel that may fall in. (Figure 22)


Figure 22

Utilities: A large HVAC system is located at the southwest portion of the courtyard. Other building utilities can be maintained and accessed at this area.

Site features and aesthetics: The interior courtyard is not readily accessible and is locked. Scattered picnic benches and singular benches are spread throughout the site. There are small memorials for teachers and mentors who have passed.

Landscaping: The courtyard includes a variety of diverse, significant and individual plant specimens. The area is generally unorganized with significant room between each plant to allow visual analysis. Many plantings are uncommon and therefore, could not be identified. However, those that could be identified include: *Cornus kousa* (kousa dogwood), *Buxus sempervirens* (boxwood), *Juniperus virginiana* (red cedar), *Pinus strobus* (White Pine), Rhododendron, *Taxus* × *media* (yew), *Ilex* (holly)

Figure 23

Loading Area

Asphalt and curbing: In general, the parking lot displays common pavement distress with some cracking present. Close parking seems to be in high demand as current users park on nearby turf for easy access. Bituminous curbing needs repair.

General drainage and structures: Drainage issues are evident with the large amount of sediment trapped before the catch basin. A depression point before the drainage structures traps water, making the system inefficient. (Figure 23)

Utilities: The electrical box directly adjacent to the road is protected with PVC bollards.

Site features and aesthetics: Stairs leading up to Middle School entrance are in poor condition. Chipping of concrete and repairs are evident. In addition, rusting of railings and metal stair nosing need replacement. (Figure 24)

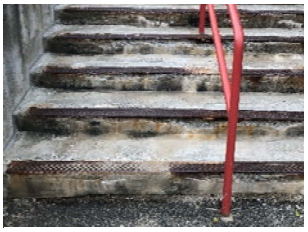

Figure 24

Eastern Parking Lot (Recreational Fields)

Figure 25

Asphalt and curbing: In general, the parking lot displays common pavement distress with some cracking present. Alligator (fatigue) cracking is the most prominent damage within the lot. Cracking is likely due to the lack of drainage and curbing. (Figure 25)

Sight distances and circulation: Geometry and layout of the lot could be more efficient. Eliminating single bay parking stalls and rearranging drive aisles could possibly fit more parking in the same amount of space.

General drainage and structures: A drainage system is not existent in this parking lot. Drainage issues are obvious with excess sediment and cracking of asphalt. (Figures 25 & 26)

Figure 26

Utilities: The electrical box directly adjacent to the road is not concealed or protected from pedestrians.

Site features and aesthetics: Black vinyl coated fencing at the northeast and eastern portions of the school, surrounding recreational fields, need a replacement. These portions of fencing have bowed out from users pushing up against them or are completely dismantled from their posts. (Figure 27)

Figure 27

Landscaping: Turf needs replacement around curbs and is fair in other areas. Existing plantings in this area include but, are not limited to: *Quercus palustris* (pin oak),

Cornus kousa (kousa dogwood), *Platanus* × *acerifolia* (London plane tree), *Acer saccharum* (sugar maple), *Pyrus calleryana* (callery pear), etc.

Septic System

The original septic system was constructed as part of the school complex in 1974. The current septic system consists of a septic tanks, a grease trap, d-boxes, piping, a dosing chamber, and approximately 3,991 LF of leaching trenches, located to the east of the synthetic turf stadium, tennis courts and baseball field. This system, except for the tanks, was constructed in approximately 1995 because the original septic system was not functioning properly at that time. The original septic tanks were replaced in approximately 2012.

The system is registered under a DEEP General Permit to Discharge Subsurface Sewage Disposal Systems Serving Existing Facilities ("General Permit"), Registration No. 201301167, Permit No. GSSD000078. It is permitted for an average daily flow of 9,666 GPD and a maximum daily flow of 14,500 GPD. In accordance with the permit, regular inspection, maintenance and monitoring is required, as well as quarterly sampling of groundwater associated with monitoring wells.

Based on discussions with Facility Personnel, the General Permit is current and in good standing. There are no known issues with the septic system (smells, clogs, backup, etc.). Due to the current permit, age of the system, and known functionality of the system, we recommend continued utilization of the existing system as part of any school renovations, as long as the total flow is within the permitted level.

Well System

The school complex was developed in 1974 with three (3) wells (Figure 28) to be utilized for school potable water, all located on the western part of the site. A fourth well was constructed in approximately 1994, in the same general location, to be used exclusively for irrigation of playing fields. One of the original wells was removed from service in 1994 due to the presence of MTBE. Although it was removed from service, it has never been formally abandoned. After this well was removed from service, the irrigation well was connected into the piping system of the two (2) original, functioning wells and this configuration remains. Two (2) wells are used exclusively for potable water and one (1) well is used for both potable water and irrigation. Although the wells, associated piping, and wiring are functional, the majority of this system is approximately 45 years old and would be expected to be exhibit normal deterioration.

Figure 28

Figure 29

All three (3) wells pump to a 20,000-gallon underground atmospheric tank, which is located in the front of the facility, between the building and the main parking lot, and accessed via a concrete riser. (Figure 29) A tank inspection report was performed in August 2017 that indicated the tank was in conformance with DPH requirements for drinking water storage, portions of the tank exhibited normal wear and tear for a 45-year old tank.

The original well system also included a hydropneumatic tank located in the basement but at some point it developed a leak, and was abandoned and replaced with two (2) constant pressure, variable speed pumps in the basement. (Figure 30) These pumps pull water from the 20,000-gallon storage tank and distribute flow to the school. The High

School and the Middle School each has a dedicated water main. The two (2) pumps are interconnected and provide flow to each school. A chlorination system was installed in 2003 per DEEP requirements. The High School water main has a meter assembly but the Middle School water main does not.

Figure 30

CT DPH performed a sanitary survey of the well system in 2016 and found the wells to have a combined pumping capacity of 28 GPM. The report identified several minor deficiencies and no significant deficiencies, including issues with the chlorine system.

Based on discussions with Facility Personnel, the well system is not capable of providing the required school demand during the day. Demands are able to be met due to the 20,000-gallon storage and the associated night-time replenishment. The indoor pool is not able to be replenished during the day without a noticeable drop in pressure and flow to water fixtures located throughout the school. If one of the wells were to fail, it is possible that the nigh time replenishment would not be sufficient. Given the age of the well infrastructure, as well as the apparent inability to meet current school demand at times, we recommend the following upgrades be a part of any future school renovation project:

- Utilize the existing irrigation/potable water well exclusively for irrigation.
- Utilize the other two (2) existing wells for potable water and add capacity by constructing one (1) or more wells, dedicated for potable water. A water demand analysis would be required to determine the amount of additional wells that should be considered.
- Replace all exterior and interior piping, wiring, tanks, pumps, meter assemblies, and all other associated appurtenances.