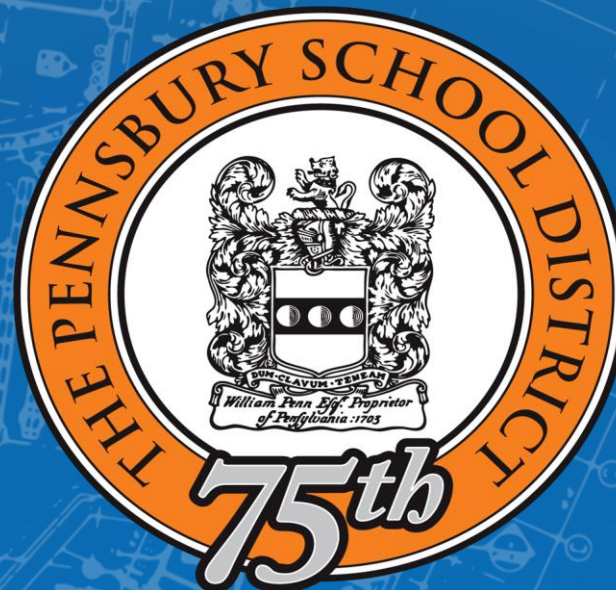


# PENNSBURY SCHOOL DISTRICT HIGH SCHOOL UPDATE

Facilities Committee November 9, 2023



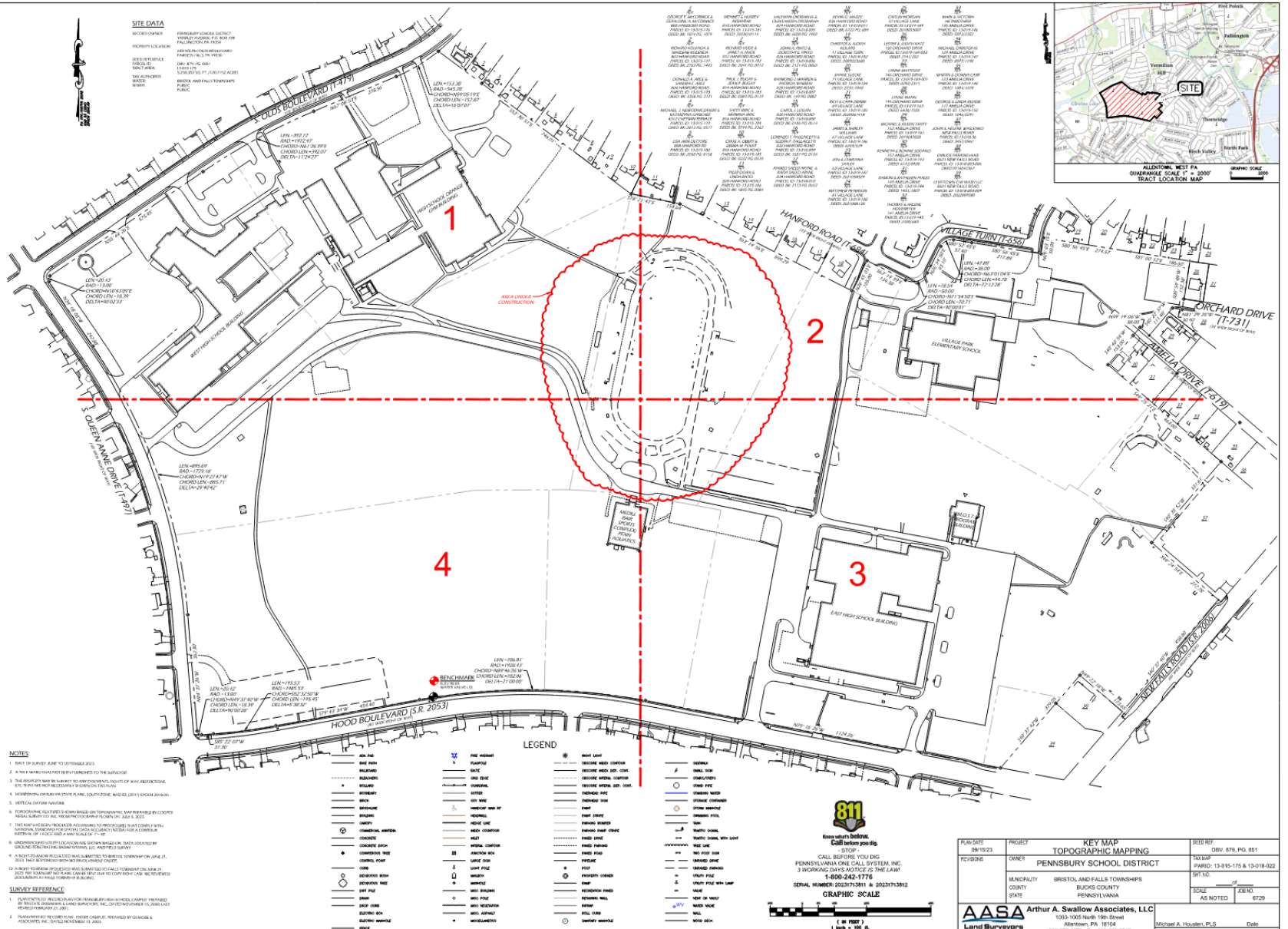
ANNIVERSARY  
1948-2023



# Topography, utility and features survey received



AASA Land Surveyors  
 Arthur A. Swallow Associates, LLC  
 AASA Land Surveyors



D'HUY Engineering, Inc.

# Prelim Geotech Testing Completed



TABLE II INFILTRATION RATES AT TEST LOCATIONS					
Test Hole Number	*Ground Surface Elevation, ft.	Infiltration Depth, ft.	Test Interval, min.	Final Drop in Water Level, in.	**Raw Infiltration Rate, in./hr.
DR-101A	100.0	4.0	30	0.250	0.50
DR-102A	100.0	3.5	30	0.125	0.25
DR-103A	100.0	3.0	30	0.125	0.25
DR-105A	100.0	2.5	30	0.125	0.25
DR-106A	100.0	3.5	30	0.250	0.50
DR-107A	100.0	4.0	30	0.875	1.75
DR-108A	100.0	2.0	30	0.625	1.25
DR-109A	100.0	4.0	30	0.500	1.00
DR-110A	100.0	3.0	30	0.250	0.50
DR-111A	100.0	4.0	30	0.500	1.00
DR-112A	100.0	3.0	30	0.375	0.75
DR-113A	100.0	4.0	30	1.000	2.00
DR-114A	100.0	3.0	30	0.250	0.50
DR-115A	100.0	4.0	30	0.250	0.50
DR-116A	100.0	4.0	30	0.250	0.50
DR-117A	100.0	4.0	30	0.375	0.75
DR-118A	100.0	3.5	30	0.125	0.25
DR-119A	100.0	3.0	30	0.500	1.00
DR-120A	100.0	4.5	30	0.250	0.50
DR-121A	100.0	5.0	30	0.875	1.75
DR-122A	100.0	3.0	30	0.250	0.50
DR-123A	100.0	5.0	30	0.750	1.50
DR-124A	100.0	4.0	30	0.375	0.75
DR-125A	100.0	6.0	30	0.375	0.75
DR-126A	100.0	6.5	30	0.250	0.50
DR-127A	100.0	6.0	30	0.250	0.50
DR-128A	100.0	3.0	30	0.375	0.75

Notes: \* The ground surface elevations of the test pit and infiltration test are based on an arbitrary surface elevation of 100.0'.  
 \*\* In accordance with the PA BMP Manual, a safety factor should be applied to the raw infiltration rate. For this site and based on the soil types encountered, EEI recommends a safety factor of 2.0.

### C. GROUNDWATER

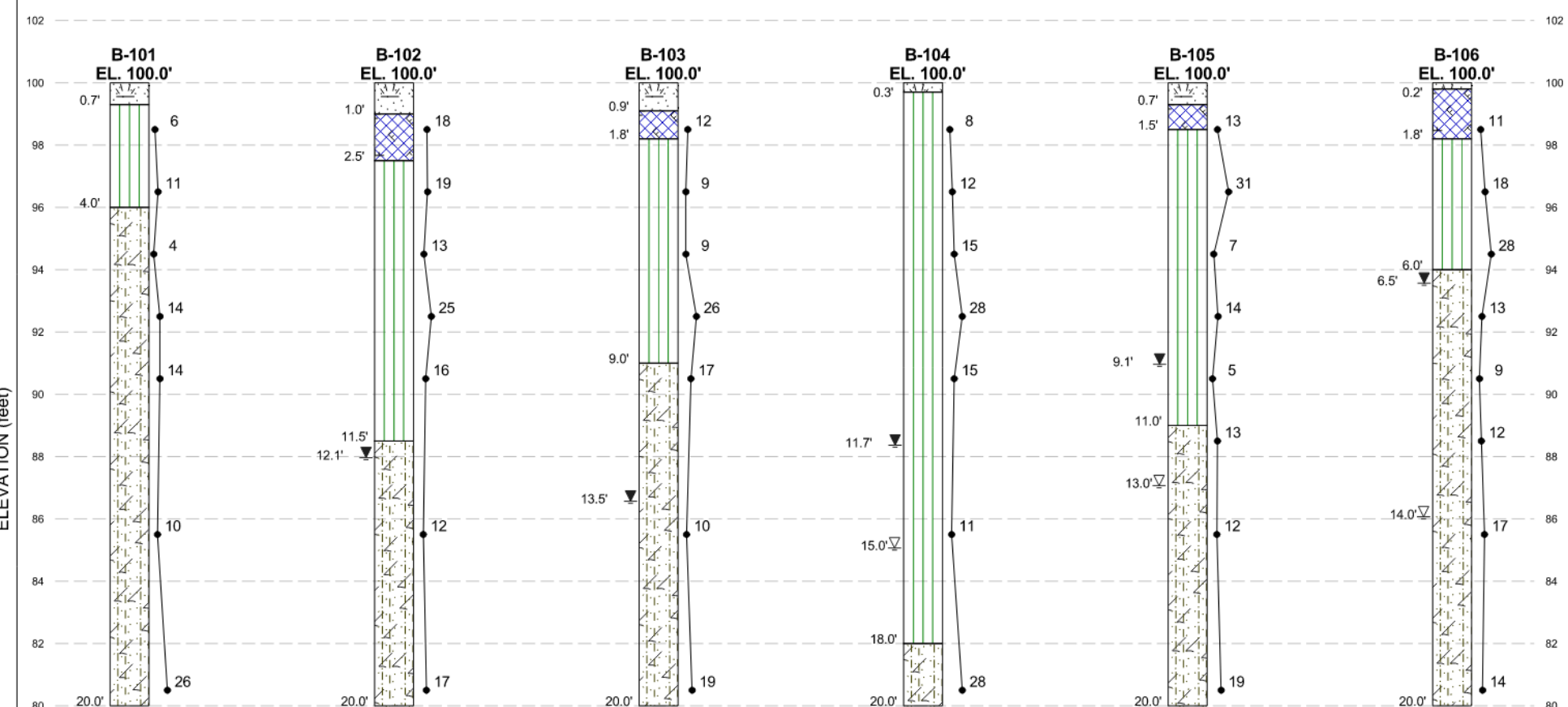
Groundwater was initially encountered at three (3) boring locations at depths ranging from 13.0 to 15.0 feet below the existing ground surface. Subsequent groundwater readings were taken after the completion of the borings. Five (5) borings rendered subsequent groundwater readings at depths ranging from 6.5 to 13.5 feet below the existing ground surface. It should be noted that the groundwater observations were made at the time of the subsurface investigation, and that groundwater elevations fluctuate with daily, seasonal, and climatic variations. The documented groundwater depths during the drilling operation are shown in Table II.

TABLE II GROUNDWATER DEPTHS AND ELEVATIONS		
Testing Location	Initial Groundwater Depth, ft.	Subsequent Groundwater Depth, ft.
B-101	-	-
B-102	-	12.1
B-103	-	13.5
B-104	15.0	11.7
B-105	13.0	9.1
B-106	14.0	6.5

One (1) sample of the Stratum I soil was tested in the laboratory for natural moisture content. The result yielded a natural moisture content value of 26.4 percent. Based on visual observations, supported by laboratory testing, these soils are considered above optimum moisture content for this soil type. Therefore, these soils will require time for aerating and drying prior to use as structural fill.





One (1) sample of the Stratum II highly weathered rock was tested in the laboratory for natural moisture content. The result yielded a natural moisture content value of 20.8 percent. Based on visual observations, supported by laboratory testing, these soils are considered slightly above optimum moisture content for this material type. Therefore, the soils will require moisture treatment and/or time for aerating and drying prior to use as structural fill.







**Rock was not encountered. More study will be required once a design is assembled**

Lithology Graphics

-  TOPSOIL
-  FILL - Brown to Gray Sandy Silt with Rock Fragments
-  STRATUM I - Brown to Gray Sandy Silt to Silty Sand with Gravel
-  STRATUM II - Brown to Gray Silty Clay with Sand to Silt with Sand (Highly Weathered Schist)

-  Initial Groundwater Level
-  Subsequent Groundwater Level



**EARTH ENGINEERING INCORPORATED**  
*Geotechnical Engineers & Geologists*  
[www.earthenengineering.com](http://www.earthenengineering.com)

**BORING PROFILES**  
 PREPARED FOR  
**PENNSBURY HIGH SCHOOL**

FALLS TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

Project Number: 36152.00    Date: 7/31/23    SHEET: A-102



# Materials removal prior to demo/reno



Campus Total (Per E2 Report)  
 \$857,000 East  
 \$624,100 West  
 \$201,750 Village Park  
 \$43,600 Natatorium  
**\$1,726,450 + escalation**

**Budget for \$2M + escalation**

Table 2 - Summary of Findings and Estimated Removal Costs - High School East

Location	Material Description	Estimated Quantity	Estimated Cost
Throughout Addition	1' x 1' Floor Tile and Mastic (Black)	6,640 S.F.	\$46,500.00
Throughout 1955 (Original) Building	9" x 9" Floor Tile and non-Mastic (Black) - Some Under carpet	63,320 S.F.	\$380,000.00
Electrical Room, Gym/Locker Rooms	Spray-on Fireproofing	5,315 S.F.	\$107,000.00
Boiler Room/Incinerator Room	Spray-on Fireproofing (Above Plaster Ceiling)	2,750 S.F.	\$82,500.00
First Floor Science Rooms (Addition)	Science Lab Tabletops/Sinks (Black)	605 S.F.	\$3,000.00
First Floor Science Rooms (1955)*	Science Lab Tabletops (Black)*	To Be Determined*	\$3,000.00
Throughout 1955 (Original) Building**	Thermal Pipe/Hangar Insulation (Above Drop Ceilings - 2 Lines)**	1,425 L.F. (so far)**	\$57,000.00
Throughout Building (Original/Addition)	Chalkboard/Tack-Board Adhesive (Brown/Black)	Not Quantified	\$42,000.00
Gymnasium	Felt Vapor Barrier under Wood Floors (assumed ACM)***	12,250 S.F.	\$122,500.00
Auditorium Stage	Stage Light Wiring (assumed ACM)	240 L.F.	\$1,500.00
<b>TOTAL - Asbestos Abatement (Includes identified and assumed ACM)</b>			<b>\$845,000.00</b>
Throughout Building	Light Tubes (Assumed Mercury-Containing)	5,400 Tubes	\$5,400.00
Throughout Building	Light Ballasts (No PCB's)	2,300 Ballasts	\$4,600.00
Throughout Building	Misc. Devices (Thermometers, Thermostats, Gauges, etc.)	Not Quantified	\$2,000.00
<b>TOTAL - Hazardous Materials (Recycling fees only, does not include labor for removal or transportation fees)</b>			<b>\$12,000.00</b>

\*Further investigation is required due to inconsistent analysis results in 1955 Building (2 samples - brown/black non-ACM, 1 sample - black ACM)

\*\*Further investigation is required once original piping drawings are available, to confirm locations and quantities of the 2 ACM-insulated lines

\*\*\*Assumed ACM until core sampling of the wood floor is feasible and the assumed ACM under wood floors is accessible for sampling



No.	Existing		Capacity		Comments
	NSF	Total	Per Room	Total	

**SCHOOL COMMONS**

**Food Services**

Cafeteria A	1	8,250	8,250	School store in center of caf
Kitchen, Serving, and Storage A	1	2,600	2,600	
Cafeteria B	1	4,034	4,034	
Kitchen, Serving, and Storage B	1	2,000	2,000	
<b>Subtotal</b>	<b>4</b>	<b>16,884</b>		

**Assembly**

Orange Auditorium	1	6,880	6,880	
Storage	1	245	245	
Balcony	1	2,700	2,700	
Keller Hall Auditorium	1	6,730	6,730	
Storage	1	530	530	
<b>Subtotal</b>	<b>5</b>	<b>17,085</b>		

**COMMONS TOTAL 9 33,969**

**INSTRUCTIONAL PLANNING CENTERS**

**Department Offices**

Faculty Room	1	700	700	Between D202 & D203
Faculty Room	2	1,235	2,470	C208 & C207, C121A & C121
Conference Rooms (small)	2	320	640	Next to B156 & G108
Storage	1	350	350	Next to B156 & Conf. Rm
Storage	1	500	500	Next to D208
Conference Rooms (medium)	1	450	450	Across from Keller Hall
Staff Development	1	3,870	3,870	E13
Offices	4	420	1,680	A203, A205, A207, A209
Office	1	430	430	A216
Office Cluster	1	1,470	1,470	Across from Cardio Rm
Office	1	320	320	Next to D209
Office	1	315	315	D101
Office	1	360	360	Between D209 & D210
<b>Subtotal</b>	<b>18</b>	<b>13,555</b>		

**ADMINISTRATIVE CENTER**

**Health Office**

Nurse Suite	1	1,184	1,184	
<b>Subtotal</b>	<b>1</b>	<b>1,184</b>		

**School Administration Offices**

High School Main Office and Guidance	1	4,887	4,887	Total Area across from G106
<b>Subtotal</b>	<b>1</b>	<b>4,887</b>		

**ADMIN. CENTER TOTAL 20 19,626**

ACADEMIC TOTAL	196	164,709		
COMMONS TOTAL	9	33,969		
INSTRUCTIONAL PLANNING	18	13,555		
SCHOOL ADMINISTRATION TOTAL	2	6,071		
<b>BUILDING NET TOTAL</b>		<b>218,304</b>		
<b>BUILDING GROSS TOTAL</b>		<b>351,276</b>		
GROSSING FACTOR		1.61		
<b>SQUARE FEET PER STUDENT</b>		<b>178.22</b>	1,971	

# Existing SF

**West HS 351,276 SF**

**Auditorium (Cave) seating – 620**

**Keller Hall - 580**

**Gym seating - 100 (one bleacher)**

**East HS 208,729 SF**

**Auditorium seating – 910**

**Gym seating – 1272**

**Natatorium 15,000 SF**

**MOST 3,600 SF**

**578,005 SF**



# Building Program for 2,800 Students built by your team



PENNSBURY SCHOOL DISTRICT									
PENNSBURY HIGH SCHOOL									
PROPOSED ACADEMIC PROGRAM	Requested based on every teacher has a room			Proposed to match Capacity			Student Capacity calculation		
	No.	NSF	Total	No.	NSF	Total	No.	Per Room	Total
<b>INSTRUCTIONAL PLANNING CENTERS</b>									
<b>Department Offices</b>									
9th Grade Departments	4	300	1,200	2	450	900			
English Department	1	500	500	2	450	900			
Math Department	1	500	500	2	450	900			
Social Studies Department	1	500	500	2	450	900			
World Language Department	1	500	500	2	450	900			
Mixed Department	2	500	1,000	2	450	900			
<b>Subtotal</b>	<b>13</b>		<b>4,200</b>	<b>13</b>		<b>5,400</b>			
<b>ADMINISTRATIVE CENTER</b>									
<b>Health Office</b>									
Nurse Suite	2	1,920	3,840	1	2,000	2,000			
<b>Subtotal</b>	<b>2</b>		<b>3,840</b>			<b>2,000</b>			
<b>Administration Offices</b>									
Main Office	1	3,000	3,000	1	4,000	4,000			
Guidance Suite	1	2,000	2,000	1	1,680	1,680			
9th Grade Administration	1	1,800	1,800			-			
Assistant Principal Office Suites	7	400	2,800	7	250	1,750			
Security Office	1	250	250	1	200	200			
Faculty Dining	2	750	1,500	2	700	1,400			
Small Conference Room	2	250	500	3	250	750			
Larger Conference Room	2	500	1,000	1	375	375			
IT technician				4	450	1,800			
<b>Subtotal</b>	<b>17</b>		<b>12,850</b>			<b>11,955</b>			
<b>ADMIN. CENTER TOTAL</b>			<b>16,690</b>			<b>13,955</b>			
<b>ACADEMIC TOTAL</b>			<b>240,366</b>			<b>226,214</b>			
<b>COMMONS TOTAL</b>			<b>45,100</b>			<b>42,700</b>			
<b>INSTRUCTIONAL PLANNING</b>			<b>4,200</b>			<b>5,400</b>			
<b>ADMINISTRATION TOTAL</b>			<b>16,690</b>			<b>13,955</b>			
<b>BUILDING NET TOTAL</b>			<b>306,356</b>			<b>288,269</b>			
<b>BUILDING GROSS TOTAL</b>			<b>505,487</b>			<b>475,644</b>			
<b>GROSSING FACTOR</b>			<b>1.65</b>			<b>1.65</b>			
<b>SQUARE FEET PER STUDENT</b>			<b>180.53</b>			<b>169.87</b>			<b>2,800</b>

475,000-505,000 SF including:  
(Spaces/sizes to be determined)

- 9-12 education spaces
- 19,000 SF/1000 seat Auditorium
- MOST, JROTC, Pre-K Learning Lab
- Right sized classrooms for 28 seats
- Gymnasium to seat 3000
- 8 Lane Pool (if existing is not saved)
- Cafes (2) for 3000 with one kitchen
- Right sized Admin with Nurse
- Support spaces



Program – 475,644 to 505,487

West HS – 351,276 SF

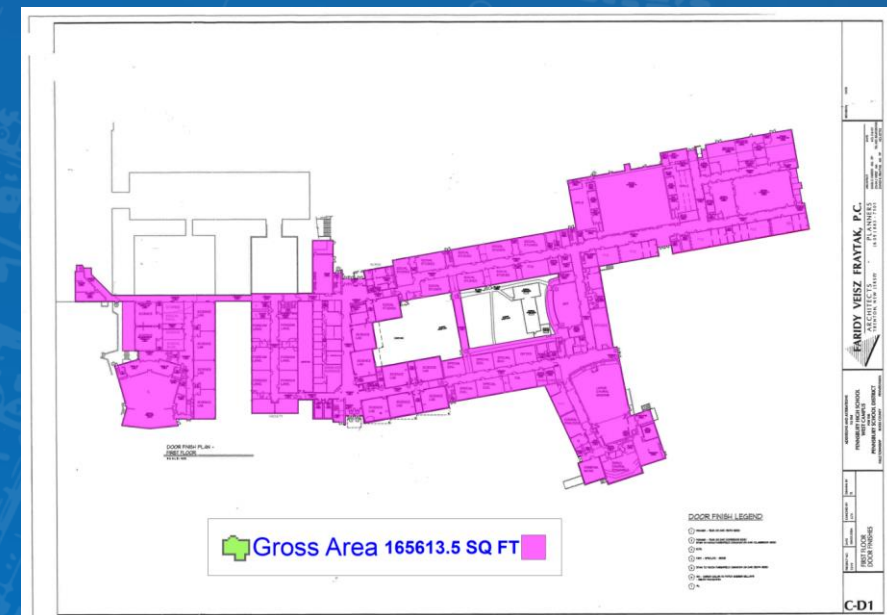
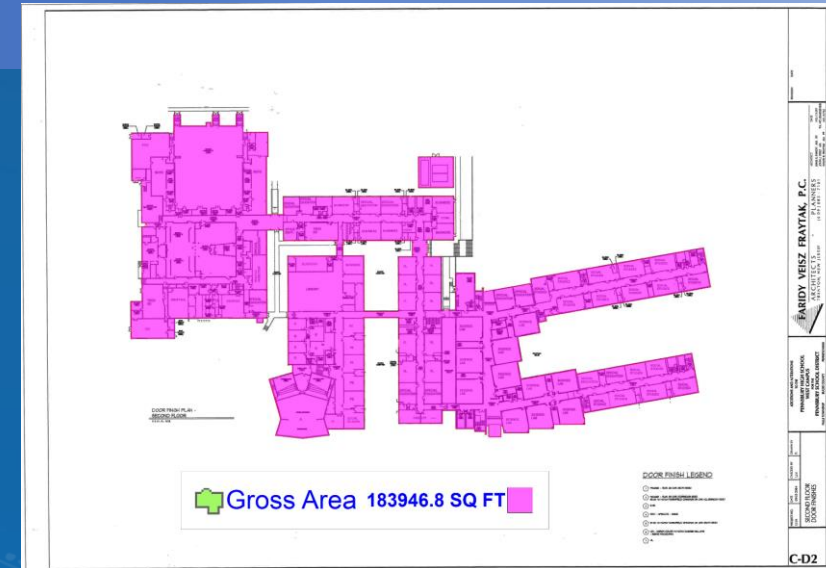
Additions – 124,368 to 154,211

But...

- Pool would be new (15,000)
- Gym would be new (27,000)
- Auditorium would be new (23,200)

Additions – 189,568 to 219,411 SF

Part of an Architect's role will be to work with the plan to "right size" this program with you.





# Building Program for 2,800 Students



## New Building

475,000 to 505,000 SF

## Renovation/Additions to West

Additions – 189,568 to 219,411 SF

Demolition – 22,630 (minimum)

Renovation – up to 328,646

(There will be both “heavy and light” reno)

518,214 to 548,057 SF



# Budgetary Ranges for Renovations & Additions

Renovate West (351,276 SF + partial demo) and  
Build Addition (189,000 – 220,000 SF)      **Total SF 515,000-550,000**

- Renovate Existing West High School Range:      \$ 265- \$290/ SF  
    How much renovation is performed? It cannot be every SF. What is demolished? TBD
- Building Addition Range:      \$ 375- \$410/SF  
    Pool (if included) and Cave Auditorium scope need to be determined
- Abate & Demolish East High School/VP Range:      \$ 2M - \$4M
- Site Improvements Range:      \$ 15M- \$20M
- Soft Cost, Contingency Range:      \$ 40M- \$60M

Total Cost      \$185M - \$240M

Depends upon the “intensity” of the renovation



# Budgetary Range for New Construction

New 9-12 High School Total 475,000 – 505,000 SF

- New Construction Range: \$ 375-\$410/SF

Pool (if included), Auditorium & Trans scope need to be reviewed

- Abate & Demolish East & West High School Range: \$ 4M - \$5.5M

Determine Village Park scope

- Site Improvements Range: \$ 25M- \$30M

- Soft Cost & Contingency Range: \$ 28M- \$33M

\$235M- \$275M

Desire to target a program/cost for less than \$250M

Escalation to be determined when project scope and timelines are final

# Project FAQs



## 1. *How to renovate West without disruption to school?*

Strategic phasing of the project using the new addition as swing space to relocate students/staff during the renovation activities and hard barriers for separation of work areas from student spaces will minimize disruption. Renovation work can be scheduled over summer breaks but will result in longer construction phase. Roof work needs to be cold applications to avoid odors. Summers will be intense. Night work will be necessary all year

## 2. *Time length difference between two options for construction (renovation v new).*

Renovation: 2 years addition for swing space + 2 more years for reno + 2 years of abatement and demo  
New construction period 3 years (New building) + 2 years abatement, demo, paving and fields.

\*Depends on level of renovation and phasing of work during school year vs Summer work.

## 3. *Sequence of events - Demo / Renovation / Build*

HS Reno/Addition – Build new addition, renovate existing spaces, abate/demolish East, VP

New HS – Build new, abate/demolish, sitework for parking and access

## 4. *Increase operating cost (renovation vs. build).*

HS Reno - addition will naturally increase operation costs, new systems should be more efficient

New HS – less square footage + new efficient M/E/P systems should reduce operating costs

Renovation will have roughly 50,000 SF of added space and utility costs



# Project FAQs



## *5. Student disruption with renovation? Is a renovation even safe?*

*Yes. Properly phased and hard separation of students and construction is paramount.*

Rooms adjacent to new construction areas will experience some level of noise.

Relocation of students within the building during the school year as phased work areas change will require coordination by the staff and Administration.

- Swing space must accommodate “the walk”
- Temporary removal of ceilings and temporary lights (like Pennwood and Boehm)
- Abatement extends the renovation time
- Requires dustproof barriers
- Negative air machines in reno areas
- Continual waterproofing of renovation areas
- Temporary measures
- Lack of gym and auditorium space during reno

## *6. Will a new building attract staff? Athletic facility attraction?*

Commonly, a new 21<sup>st</sup> century facility attracts staff, is a community attraction and sometimes results in the return of private/charter students.



# Project FAQs



## *7. What grants/other funding is available for efficiencies/cost savings?*

*Applications can be submitted for RACP Grant (we have already prepared an allocation request for when the window re-opens), Federal or State Energy Grants and Utility rebate programs as they become available throughout the design process. The Inflation Reduction Act is a new program that may offer opportunities.*

## *8. Safety/Security - Opinions of police/fire on issues/benefits of both options. New HS – design secure*

New construction with smaller footprint, proper design that incorporates security needs and new compliant life safety systems is preferred. Local and County emergency responders are always engaged by the project team as part of the design. Lower Makefield was very helpful with Pennwood and Boehm.

## *9. Cost escalation potential for renovation.*

Costs generally escalate each year. Escalation needs to be determined when the project scope and schedule are finalized. The possibility of “unforeseen” is always higher with a renovation than with new construction. Investigations are important, a 3D building scan is very useful but there will always be inherent issues that will only show themselves when walls are taken down and ceilings are removed.

## *10. What can be reused?*

Existing furniture and classroom equipment at the discretion of the District



# Project FAQs



*11. What is the detail behind the estimated costs for each category? (i.e. \$2 million for tech).*

Allowances are being included in the soft costs for budgeting purposes, final design and District requirements will determine final cost. For a school building, the costs applied to furniture/tech etc. are based on past experience. Contingency and escalation is adjusted once the scope and schedule are determined.

*12. Percent of renovated building that wouldn't be code.*

*The percentage of building renovation required for this project would likely require all elements be brought up to code.*

*13. Pro/con list to communicate to community renovation vs. build (i.e. safety, aging)? What are you not getting in a renovation?*

- Many existing classrooms are undersized. The Admin area is undersized. The Library is small. The Cafeterias are on opposite ends of the building
- Corridors are undersized and lockers are rarely used
- Mechanical systems are original to building and will require replacement within very short ceiling spaces
- Many spaces are either not ADA compliant or not easily accessible.
- Undersized Gymnasium, undersized Auditorium are suggested to be replaced with new



# How the selection process works for the architect



D'HUY Engineering, Inc.

- A Request for Proposal (RFP) has been drafted to seek architects with a successful track record of Pennsylvania public school design experience.
- The site survey, programming information and reports about the site have been included for information.
- A pre-proposal meeting will be held to allow the respondents to examine the buildings and site.
- On the basis of the data provided and their experience, the architects and their engineering teams will be asked to assemble concept drawings of the proposed project together with their credentials, references and fees.
- The District will examine the concepts and architects and create a shortlist prior to examining the fees.
- The Board and Administration will interview the architects, ask questions and make a selection on the basis of selection criteria.
- The solicitor has reviewed a design agreement that will be the basis for the submissions by all of the teams for consistency.

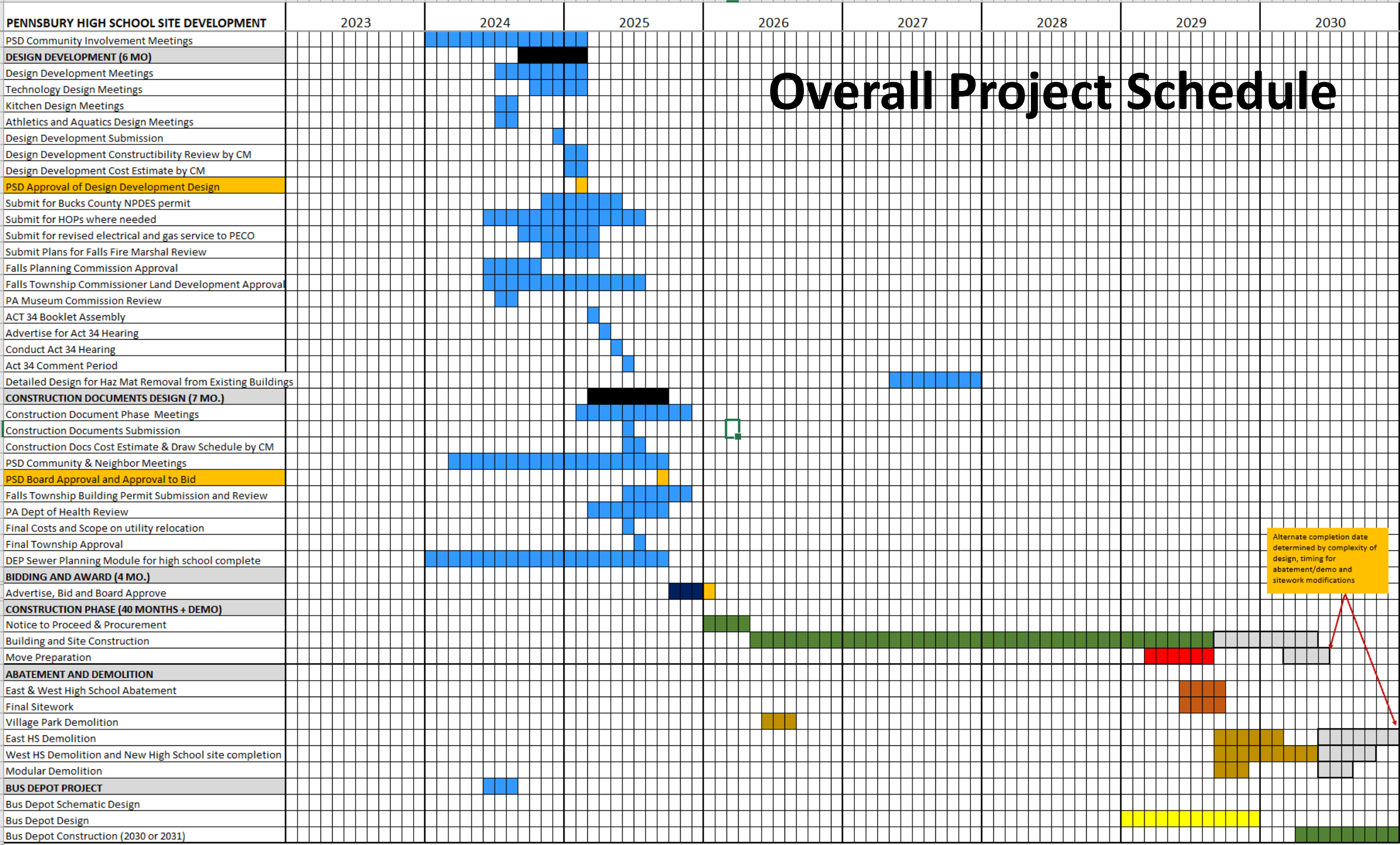


# Architect Selection Schedule



PENNSBURY HIGH SCHOOL SITE DEVELOPMENT	2023												2024											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
<b>PROJECT PLANNING AND DEVELOPMENT</b>																								
Preliminary Budget & Financing Plan	█	█	█	█	█																			
Preliminary Geotechnical Investigation						█	█	█																
Site Boundary and Topographic Survey						█	█	█																
Existing Building Hazardous Materials Investigation						█	█	█																
Ground Penetrating Radar Utility Location								█																
Board Meeting to Authorize Issuance of Architect RFP																								
<b>PROJECT DESIGNER SELECTION</b>																								
Assembly of Architectural/Civil/MEP Design RFP & Contract																								
Architect RFP Issuance, Interviews and Board Selection																								
Pre-proposal meeting and site visits																								
Architect RFP Due																								
Community Meeting to review concept																								
PSD Architect Interviews																								
Facilities Meeting to review Architect																								
Board Meeting to Select Architect																								
<b>SCHEMATIC DESIGN PHASE (5 MO)</b>																								
Design Meetings																								
End User Meetings by Architect																								
Schematic Design Submission																								
Schematic Design Value Engineering by CM																								
Schematic Design Cost Estimate by CM																								
PSD Facilities and Board Review																								





Alternate completion date determined by complexity of design, timing for abatement/demo and sitework modifications



Thank you!

