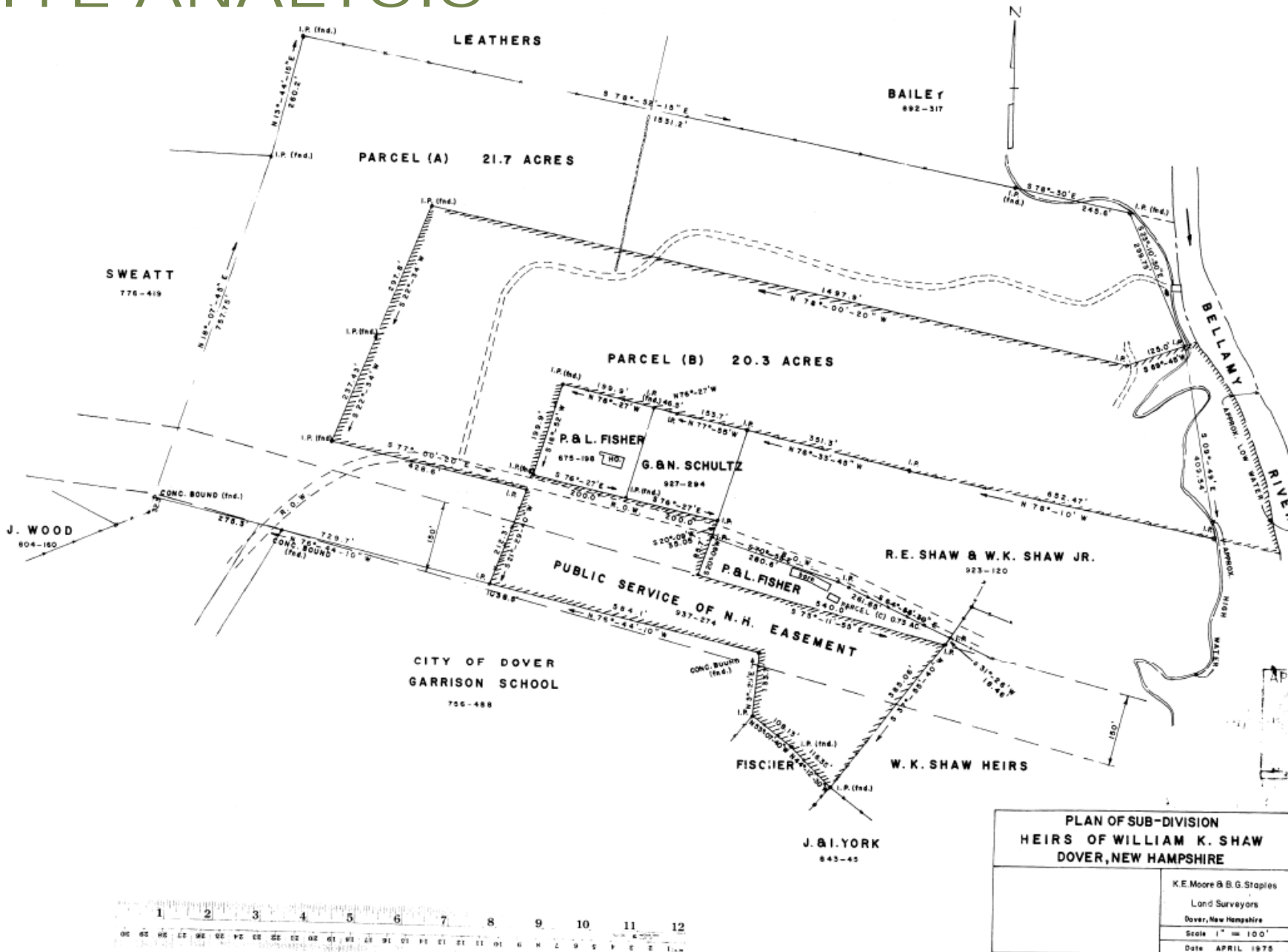


***Garrison Elementary School Facilities Study for
Dover School District, SAU 11***

September 8, 2016

SITE ANALYSIS

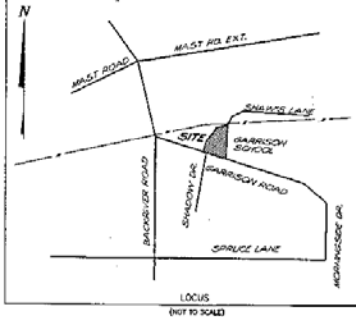
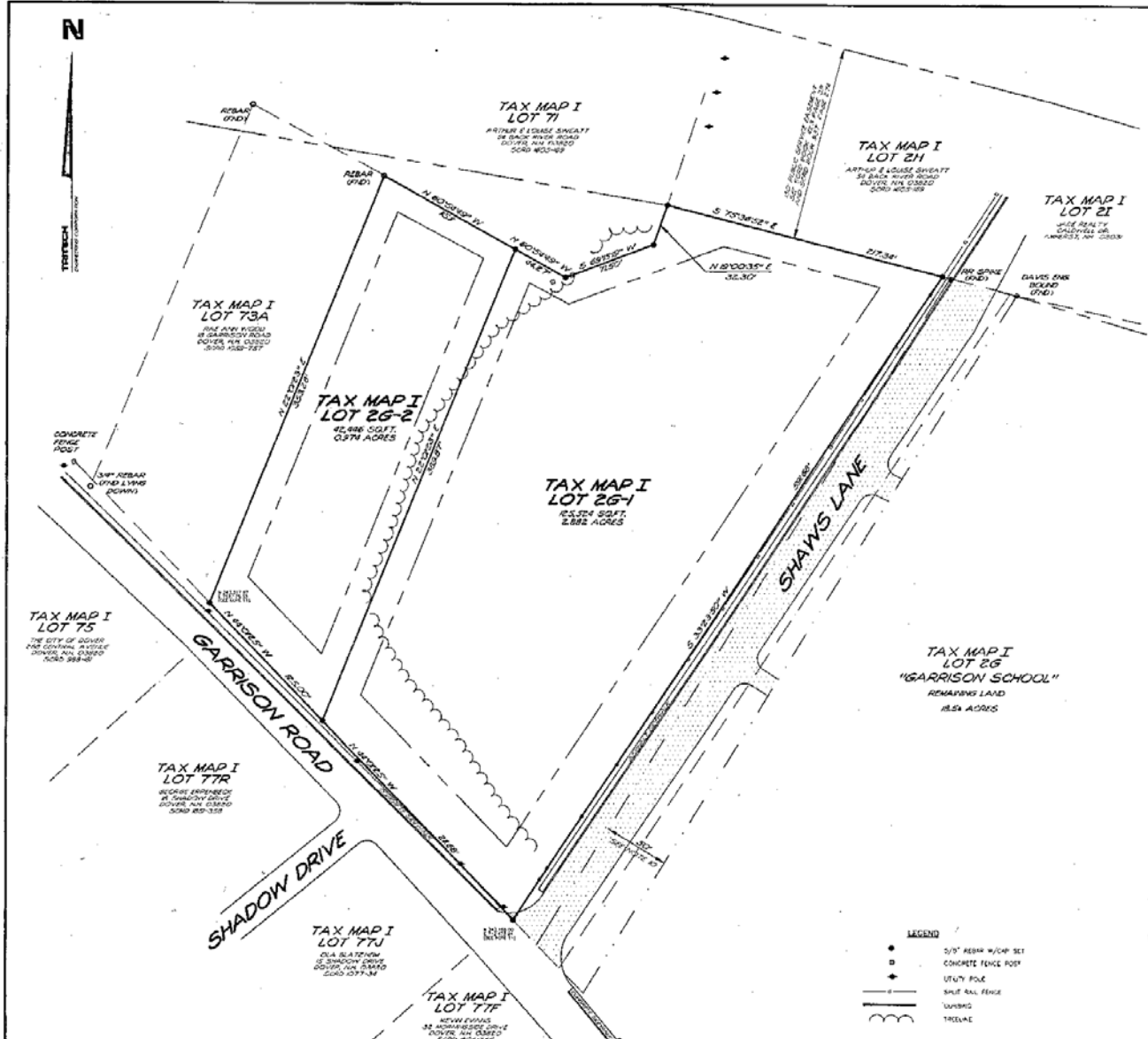


SITE ANALYSIS

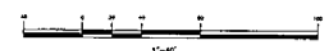
DATE: 01/11/20
 DRAWN BY: J. SMITH
 CHECKED BY: J. SMITH

014307

08 AUG 17 PM 2:38
 REGISTER OF DEEDS
 STRAFFORD COUNTY



- NOTES**
- 1.) INTENT TO SUBDIVIDE DOVER TAX MAP I LOT 26 (CURRENTLY ONE LOT) INTO THREE SEPARATE LOTS.
 - 2.) CURRENT OWNER LAHICAD: CITY OF DOVER, 203 CENTRAL AVENUE, DOVER, NEW HAMPSHIRE 03820
 - 3.) TOTAL LOT AREA: 22.5 ACRES
 - 4.) TAX MAP: 1 LOT 20
 - 5.) PLANNED DEED HYPERLINK: BOOK 730 PAGE 488 & BOOK 1183 PAGE 512
 - 6.) ZONING: RM-15 - RESIDENTIAL
 USE: 20' SETBACK 10,000 SQ.FT.
 MIN. FRONTAGE: 125 FT
 MIN. SIDE YARD: 10 FT
 FRONT: 100 FT
 REAR: 100 FT
 - 7.) BASIS OF SPACING: DETERMINED HORIZONTALLY ON DECEMBER 17, 1997.
 - 8.) PROJECT PLAN REFERENCE:
 PLANNING PLAN OF SHAW'S LANE FOR CITY OF DOVER, NEW HAMPSHIRE
 JUNE 15, 1975. PROJECT: FISHER & WERRY
 DOVER, NEW HAMPSHIRE
 P.C. MOORE & B.G. SHAPLES
 JUNE 11, 1997. SC92-43-12.
 PLAN OF SUB-DIVISION OF SHAW'S LANE BETWEEN CITY OF DOVER, NH AND OLA ANN WOOD. PROJECT: FISHER & WERRY. P.C. MOORE & B.G. SHAPLES. APRIL, 1975. SC92-417-1.
 PLAN OF LAND GRAB BETWEEN CITY OF DOVER, NH AND OLA ANN WOOD. PROJECT: FISHER & WERRY. P.C. MOORE & B.G. SHAPLES. NOV. 1925. SC92-426-64.
 SUBDIVISION OF LAND OF RAY ANN WOOD. GARRISON ROAD, DOVER, N.H. RECORD IN TITLE BOOK: 1800. SC92-28-53.
 - 9.) THE MAIN UNADAPTED CLOSURE OF OUR RANDON POINT TRAVELER WAS 1 FOOT IN 27,000, AND WAS ACCOMPLISHED USING A VERT CURVE TOTAL STATION, BEING THE MONTH OF DECEMBER 1997.
 - 10.) 50' RIGHT-OF-WAY AS DESCRIBED IN SC92-FOOT-13 FOLIO 11 PLAN 12 AND 2000 BORD 750 PAGE 488.
 - 11.) PROPERTY COORDINATES SHOWN ARE BASED ON THE DOVER GIS SYSTEM. THEY DO NOT NECESSARILY RELATE TO THE GRID SYSTEM AND POSITION OF THIS SURVEY OR.



TRITECH
 ENGINEERING CORPORATION

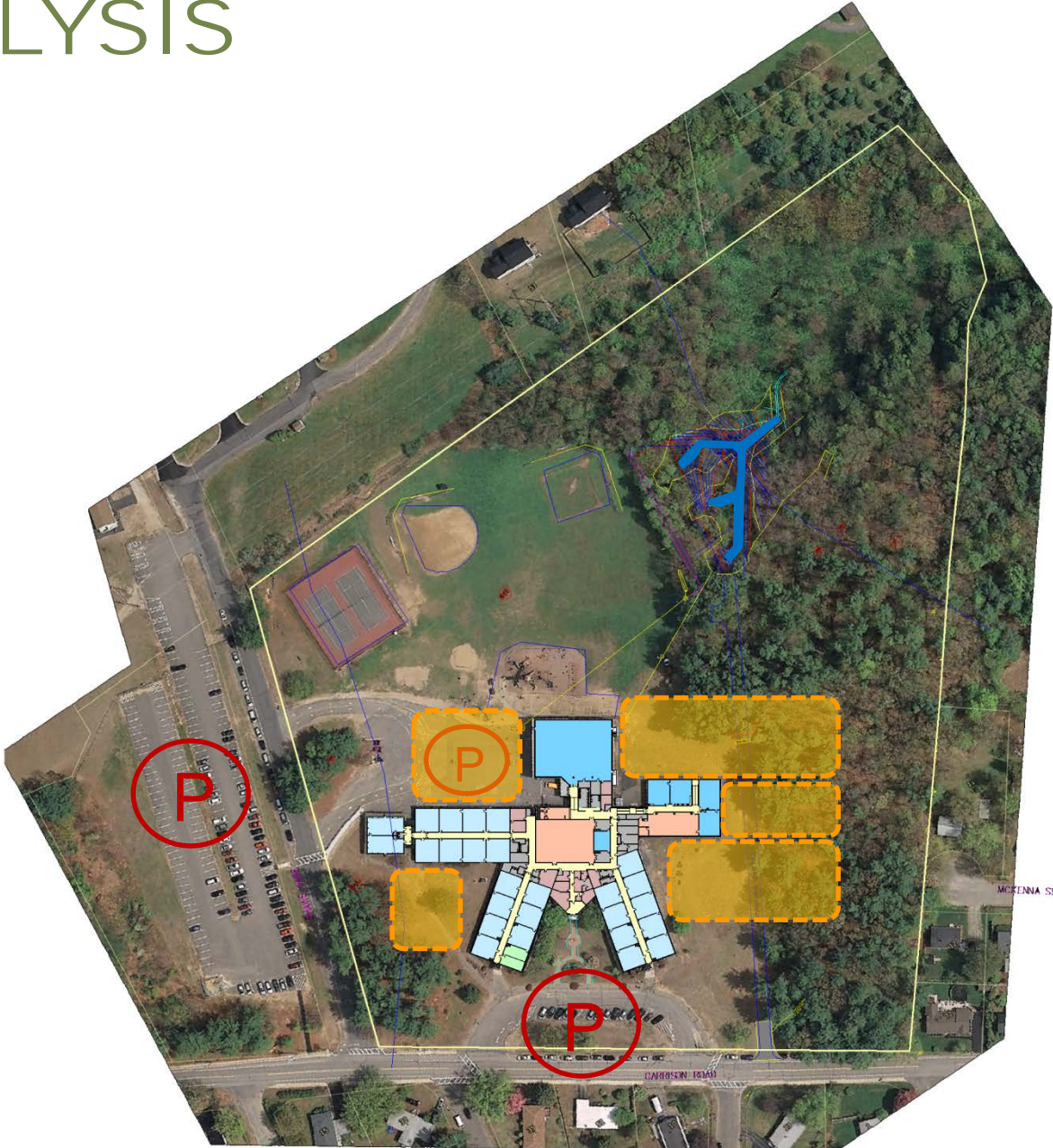
485 DOWNS POINT OFFICE PARK
 COURT WINDHAM VERMONT
 05795-0001
 PHONE: 802-748-0700
 FAX: 802-748-0700

APPROVED
 J. SMITH
 01/11/20

SUBDIVISION PLAN
CITY OF DOVER
 "GARRISON SCHOOL"
 GARRISON ROAD & SHAW'S LANE
 DOVER, NEW HAMPSHIRE
 FEBRUARY 25, 2008
 JOB No. 07785
 SCALE: P. = 40'

SHEET NO.
5-1

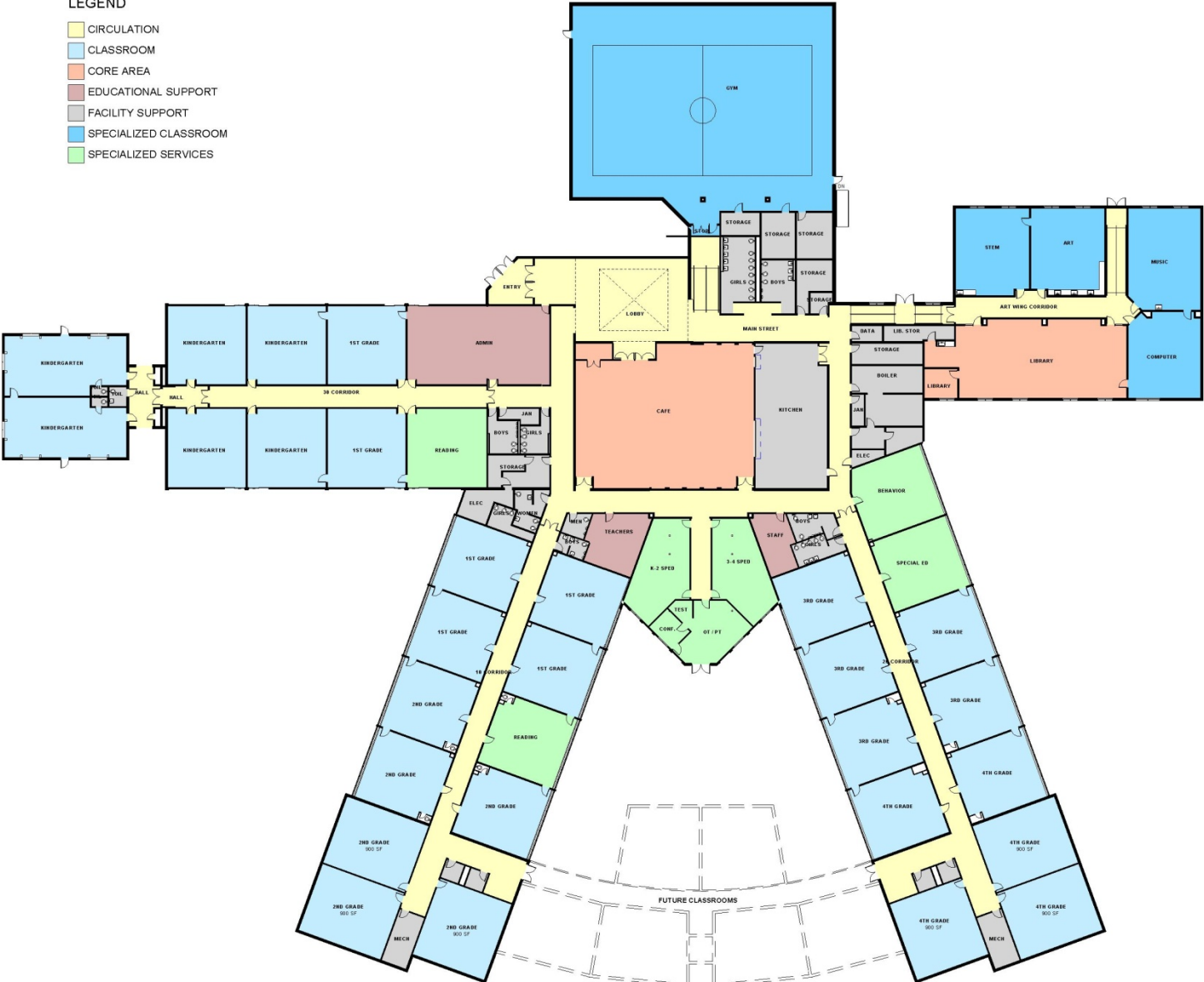
SITE ANALYSIS



REVISED SCHEME

LEGEND

- CIRCULATION
- CLASSROOM
- CORE AREA
- EDUCATIONAL SUPPORT
- FACILITY SUPPORT
- SPECIALIZED CLASSROOM
- SPECIALIZED SERVICES



FACILITIES ANALYSIS

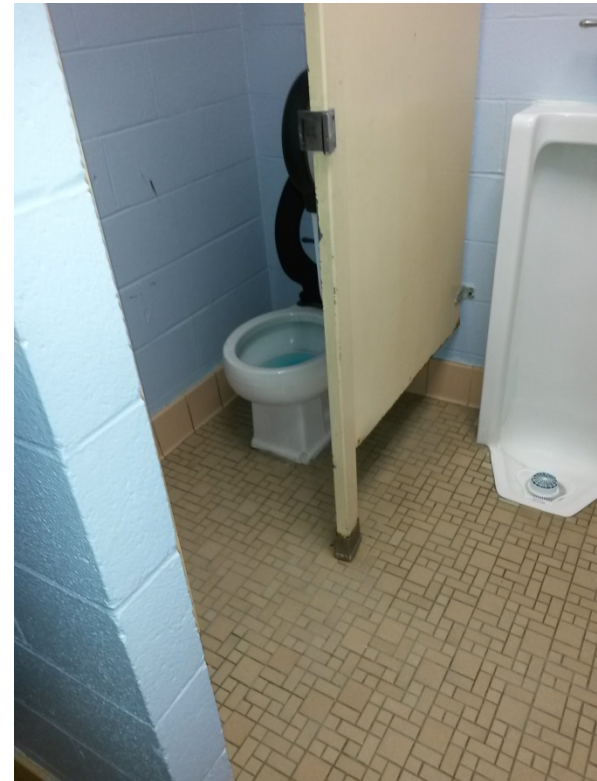
ARCHITECTURE

ADA *(Code)*

- Toilet rooms
- Water fountains,
- Accessible routes
- Door hardware/clearances
- Play area
- Fire Alarm Devices

Security *(Heath/Safety/Security)*

- Secure Main Entrance
- Security Cameras
- Access Control System
- Door Hardware
- Perimeter Fence



FACILITIES ANALYSIS

ARCHITECTURE

Classrooms Renovations

- Replace VAT Flooring (*Heath/Safety/Security*)
- Replace Lighting (*Efficiency, Learning Environment*)
- Upgrade Finishes (*Learning Environment*)
- Replace Doors and Hardware (*Code, Health/Safety/Security*)
- Replace Exterior Windows (*Efficiency, Health/Safety/Security*)
- Replace Built-ins (*Learning Environment, Code*)
- *Replace sinks with two separate bowls, one for sink and one for bubbler (Code)*

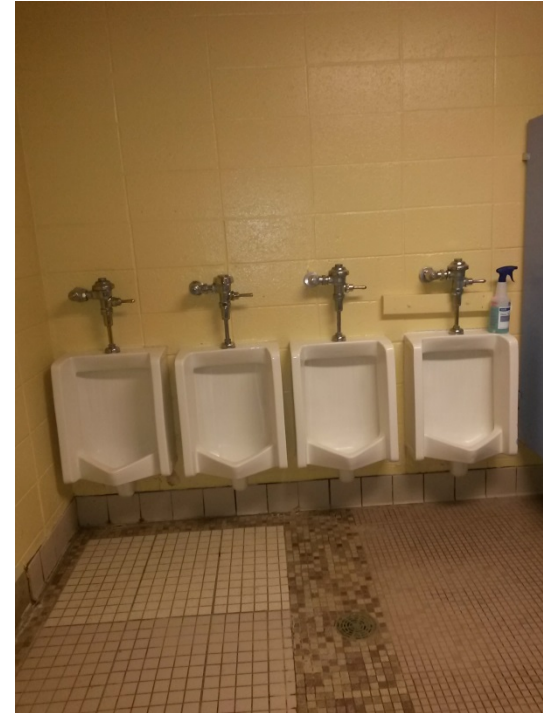


FACILITIES ANALYSIS

ARCHITECTURE

Toilet Room Renovations

- **ADA Fixtures (Code)**
 - *Water closets, Urinals, Lavatories, Mirrors, Grab Bars, Accessories*
- **Toilet Partitions (Code, Deferred Maintenance)**
- **Floor and Wall Tile (Deferred Maintenance)**
- **Door Hardware and Clearances (Code, Deferred Maintenance)**



FACILITIES ANALYSIS

MECHANICAL

Boiler Plant *(Efficiency, Deferred Maintenance)*

- Replace Boilers, Combustion Air, Controls

Classroom Wings 1, 2 *(Efficiency, Health/Safety/Security, Deferred Maintenance, Learning Environment, Code)*

- New Central HVAC, Controls
- New Hot Water Piping

Classroom Wing 3 *(Efficiency, Health/Safety/Security, Deferred Maintenance, Learning Environment, Code)*

- New Hydronic UV's, Controls
- New Hot Water Piping

FACILITIES ANALYSIS

MECHANICAL

Cafeteria *(Efficiency, Health/Safety/Security, Deferred Maintenance, Learning Environment, Code)*

- New HVAC, Controls

Kitchen *(Efficiency, Health/Safety/Security, Deferred Maintenance, Code)*

- New NFPA 96 compliant kitchen exhaust hood with fire suppression system
- Integral gas fired make-up air unit to temper air
- Condensate hood for dishwasher

Controls *(Efficiency, Health/Safety/Security, Deferred Maintenance, Learning Environment)*

- Replace controls, integrate various existing controls and equipment
- Update sequence of operation to provide:
 - Demand control ventilation
 - Variable speed control for pumps.

FACILITIES ANALYSIS

ELECTRICAL

Distribution, Panelboards and Circuiting *(Efficiency, Deferred Maintenance)*

- Original portion of the building (1960's vintage)
 - Eliminate old antiquated equipment
 - Eliminate aluminum feeders
 - Eliminate Non-metallic sheathed (Romex) cabling
- Main Electrical Room:
 - Remove the original switchboard currently used as a junction and extend feeders
- Add receptacle circuits throughout (particularly in classrooms)

Lighting *(Efficiency, Health/Safety/Security, Deferred Maintenance, Code, Learning Environment)*

- Replace all lighting in the original portion of the building (1960's vintage)
- Replace all interior and exterior metal halide fixtures
- Add site lighting to illuminate all parking areas and building perimeter

FACILITIES ANALYSIS

ELECTRICAL

Life-Safety (egress) Lighting *(Efficiency, Deferred Maintenance)*

- New inverter system with new Life-Safety lighting system
- Generator connect to Life-Safety Lighting, minimal mechanical equipment with freeze protection and to kitchen cooler and freezers

Lighting Controls *(Efficiency, Health/Safety/Security, Deferred Maintenance, Code)*

- Provide occupancy sensors in offices and classrooms
- Provide Low Voltage Lighting Control System to control exterior lighting and interior lighting in common spaces
- Lighting controls would comply with current energy codes

Fire Alarm System *(Deferred Maintenance, Code)*

- Replace existing system

FACILITIES ANALYSIS

ELECTRICAL

Intrusion Detection System *(Health/Safety/Security, Deferred Maintenance)*

- New system that monitors door contacts and motion sensors

CCTV System*(Health, Safety, Deferred Maintenance)*

- CCTV cameras to cover building and site
- System will be coordinated with local police

Data Systems *(Learning Environment)*

- Determined via further discussions with IT Department and administrators

Public Address System *(Health/Safety/Security, Deferred Maintenance, Code)*

- Replace with new system
- Explorer to incorporate the PA and Fire Alarm speakers

FACILITIES ANALYSIS

PLUMBING AND SPRINKLER

Boiler Rooms *(Efficiency, Deferred Maintenance, Code)*

- See Mechanical for Boiler replacement
- New efficiency tankless heaters and a storage tank
- New mixing valve arrangement including circulating pump
- Relocate the existing backflow preventers near the water meters

Plumbing Fixtures *(Efficiency, Health/Safety, Deferred Maintenance, Code)*

- Replace all of the plumbing fixtures installed prior to 1999
- Provide battery sensor flush valves and faucets for all fixtures
- Replace the sinks in each classroom with two separate bowls, one for sink and one for a bubbler
- Replace water coolers and drinking fountains that are not ADA compliant

FACILITIES ANALYSIS

PLUMBING AND SPRINKLER

Kitchen *(Efficiency, Code)*

- Remove propane tank serving the kitchen and pipe natural gas
- Provide an exterior gravity type grease interceptor

Domestic Piping *(Health/Safety, Code)*

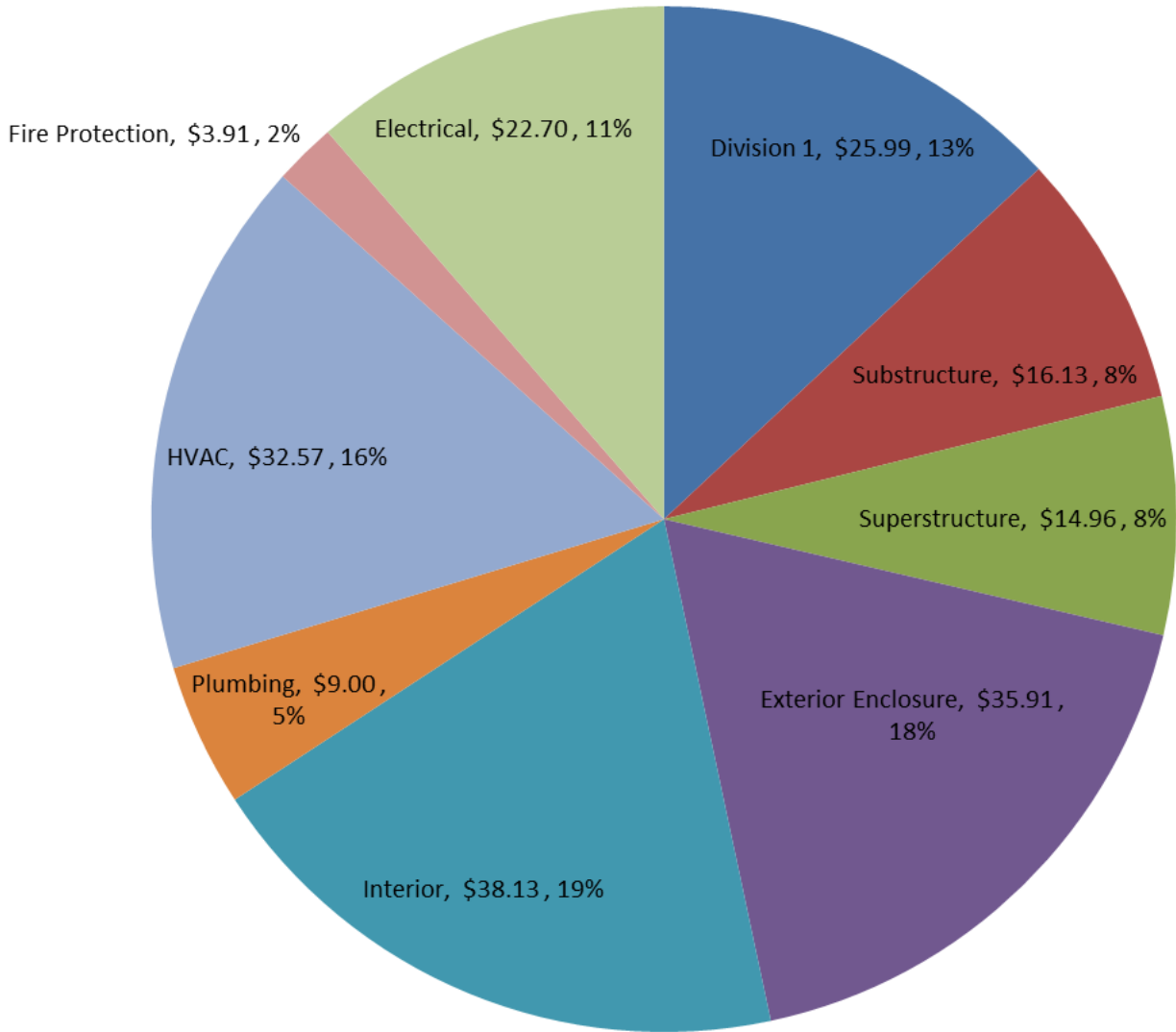
- Replace domestic water piping installed prior to 1988 (noted that all water piping installed prior to 1988 utilized a 50/50 mix of lead and tin solder)

Sprinkler *(Maintenance)*

- Inspect pipe which showed corrosion at the seam. Review the lot number stamped on the pipe and research if a recall may have been issued for that lot of pipe
- Conduct a survey for corrosion at several existing piping locations
- Inspect the Victaulic and other fittings
- Ensure each sprinkler zone does not exceed a coverage area of 52,000 square feet

CONCEPT ESTIMATE

New Construction Cost Per SF (Does not include site costs)



CONCEPT ESTIMATE

Harriman

Opinion of Probable Construction Costs

	Area	Cost
A NEW CONSTRUCTION		
1 Classroom Additions	8,100	\$ 1,620,000
2 Entry	<u>2,000</u>	<u>\$ 400,000</u>
Subtotal	10,100	\$2,020,000
B RENOVATIONS		
1 Admin Area	1,635	\$ 245,250
2 Classroom Wing 1	10,400	\$ 1,196,000
3 Classroom Wing 2	10,400	\$ 1,196,000
4 Classroom Wing 3/Kindergarten	12,000	\$ 1,380,000
5 Kitchen	1,500	\$ 450,000
6 Multipurpose	3,500	\$ 350,000
7 Other Misc Areas	<u>3,000</u>	<u>\$ 375,000</u>
Subtotal	42,435	\$4,817,250
C SITE WORK		
1 Site work (Allowance)		<u>\$ 500,000</u>
Subtotal		\$ 500,000
D TOTAL CONSTRUCTION COST		\$7,337,250

PROJECT BUDGET

A CONSTRUCTION

1 Construction	\$7,337,250
2 Bid Contingency (5%)	<u>\$366,863</u>
Subtotal	\$7,704,113

B ADMINISTRATIVE COSTS & RESERVES

1 Land Purchase and Related Costs	\$0
2 Furniture/Equipment (6%)	\$385,206
3 Technology (3%)	\$231,123
4 Advertising and Legal	\$77,041
5 Project Reserves	\$0
6 Project Construction Contingency (5%)	<u>\$385,206</u>
Subtotal	\$1,078,576

C FEES AND SERVICES

1 Architect / Engineer Basic Services	\$693,370
2 Architect / Engineer Reimbursables	\$38,521
3 Permitting & Approvals	\$80,000
4 Survey and Soils	\$55,000
5 Construction Testing	\$40,000
6 Clerk of the Works	\$96,000
7 Commissioning	<u>\$50,000</u>
Subtotal	\$1,052,891

D TOTAL PROJECT COST

\$9,835,579

PROJECT BUDGET

A CONSTRUCTION

1 Construction	\$5,100,000
2 Bid Contingency (5%)	<u>\$255,000</u>
Subtotal	\$5,355,000

B ADMINISTRATIVE COSTS & RESERVES

1 Land Purchase and Related Costs	\$0
2 Furniture/Equipment (6%)	\$267,750
3 Technology (3%)	\$160,650
4 Advertising and Legal	\$53,550
5 Project Reserves	\$0
6 Project Construction Contingency (5%)	<u>\$267,750</u>
Subtotal	\$749,700

C FEES AND SERVICES

1 Architect / Engineer Basic Services	\$535,500
2 Architect / Engineer Reimbursables	\$26,775
3 Permitting & Approvals	\$60,000
4 Survey and Soils	\$55,000
5 Construction Testing	\$40,000
6 Clerk of the Works	\$96,000
7 Commissioning	<u>\$50,000</u>
Subtotal	\$863,275

D TOTAL PROJECT COST

\$6,967,975