

Ridgefield Police Department Ridgefield, CT

Police Facility Study

February 28, 2002

Prepared by

Kaestle Boos Associates, Inc.
Public Safety Facility Specialists



Ridgefield, Connecticut

Police Facility Study
Executive Summary
February 28, 2002

On January 7, 2002 the Ridgefield Police Department received approval from the Zoning Board of Appeals to add on to the existing Police Facility in accordance with the concept design developed by Kaestle Boos Associates, Inc. of New Britain (KBA). The Town of Ridgefield charged their consultant to further develop the approved design to a point appropriate for the preparation of a cost estimate for construction.

Kaestle Boos working with Legnos and Cramer Engineers of Hartford worked to develop design possibilities for architectural, structural, mechanical, electrical, plumbing and fire protection systems. The evaluations included on site facility inspections and review of available existing building plans. Consideration was given not only to the new construction, but also to upgrading existing building infrastructure components. Foremost among these considerations was the development of a combined emergency services dispatch facility within the existing building envelope. The owner's vendors Chandler Security Systems, Sheet Metal Systems, and MetroCom North were also consulted for input on costs associated with the communication and security equipment acquisition and relocation. The Town of Ridgefield Department of Public Works also assisted by excavating test pits for a preliminary evaluation of subsurface conditions in the area of the addition.

The existing conditions investigation revealed a number of challenges to be addressed during the design. Many of the existing building infrastructure systems were discovered to be antiquated or no longer in compliance with current codes. Specific concerns include:

- Inadequate ventilation
- Inadequate electrical service
- Potential need for a sewage ejector
- Potential need for a fire pump
- Inadequate plenum space for systems distribution (fire protection, ductwork, lighting, plumbing)
- ADA and code compliance

The systems selected for both the addition and renovated existing areas were chosen to mitigate the distribution concern and are not necessarily the most cost effective compared to systems that may have been utilized were more space available.

The proposed addition of approximately 7,200 square feet brings the total police facility area to approximately 24,900 square feet. The construction and renovation estimate is approximately 3.4 million plus an additional \$700,000 for soft costs. At the estimated total project cost of 4.1 million dollars it may be compared to new construction of the same building area for approximately 7 million dollars plus land acquisition and possible excess site development costs.



Ridgefield, Connecticut

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Ridgefield, Connecticut

Police Facility Study Narrative of Existing Conditions - Architectural February 28, 2002

The Ridgefield Police Facility has long served to house the community's law enforcement services. Prior to its renovation as a home for the Ridgefield Police Department this structure served as a State Police Barracks. The architectural features of the building have been fairly well maintained as exemplified by the recent addition of vinyl siding and prior work to resolve a moisture infiltration problem in the basement photo lab. Some of the interior finishes still reflect their 1970's installation by their color selection, but most are in fairly good condition.

The building suffers mostly from programmatic shortcomings. The communications room is very tight for the equipment it houses now. The addition of fire dispatching absolutely necessitates the addition of more space to this area. Likewise the Records office is compact and efficient utilization is hampered by an original chimney location that blocks the view of the public service window. There are no report writing facilities for patrol and many office areas are small or overcrowded. The most dramatic issues however are with regard to staff service areas. The locker rooms are extremely cramped despite periodic addition of adjacent rooms. The female locker room is especially unsatisfactory to the staff needs. Neither of the locker facilities, or indeed the public and staff restrooms on any floor, is accessible in accordance with the Americans with Disabilities Act. The building is also not provided with an elevator to allow accessibility to the upper floors and basement.

In addition to the space concerns associated with the proposed combined dispatch center are issues regarding compliance with code standards for such facilities. The support equipment for the dispatch stations is primarily located in the attic in rooms which lack fire resistive construction as well as appropriate fire suppression systems. The dispatch room itself is also lacking fire resistive construction and suppression systems.

The basement has a very low floor-to-floor height that may impose difficulties in distributing electrical, mechanical, fire protection and plumbing systems. The main and upper floors have more room than the basement, but still may present similar distribution issues.



Ridgefield, Connecticut

Police Facility Study Narrative of Existing Conditions - Structural February 28, 2002

Existing Structure

The Ridgefield Police Facility is a former multi-story house with a two-story addition and two - four story stair towers, which are attached to the original building.

The original building is a wood framed structure with a Lower Level, Main Level, 2nd and 3rd Floors. Mortared field stone foundation walls around the perimeter support the exterior wood framed walls. The 1st, 2nd, 3rd and Attic Floors and roof joists span between the exterior walls and interior wood framed bearing walls. The interior bearing walls continue through to the Lower Level are supported by foundations which are typically concealed.

The 1975 stair tower additions are constructed of masonry block bearing walls, which support the stair assemblies. The Addition to the east side of the original building is a combination of construction types. The 1st Floor consists of a reinforced concrete slab supported by exterior concrete foundation walls and interior steel beams. The steel beams bear on interior masonry block walls and perimeter concrete foundation walls. The 2nd Floor consists of 2 x 10 at 16" o.c. floor joists which span between exterior wood framed walls and interior steel beams or masonry bearing walls. The roof framing is typically constructed of 2 x 6 wood joists supported by exterior and interior wood framed bearing walls.

Existing Conditions

Our observations of the original building and the additions did not reveal any concerns of deterioration or distresses in the structural components viewed. There were no apparent signs of movement in the foundation walls. The limited areas available to view the structure at various locations did not exhibit any concerns.

Summary

The structural integrity of the building appears to be sound based upon our observations and evaluation of the exposed structural components. The recommendations developed from this investigation were based only on the portions of the structure, which were exposed to our view during the visit.



Ridgefield, Connecticut

Police Facility Study Narrative of Existing Conditions – Mechanical/Electrical Systems February 28, 2002

Mechanical:

- Boiler ± 10 years old. Inadequate for new construction.
- Chimney is unlined and in need of repair.
- Burner is in need of repair.
- Inadequate combustion air in the boiler room.
- Facility lacks adequate fresh air.
- No separate systems for prisoner processing and communications areas.
- Limited ceiling space. Will be even worse with introduction of new sprinkler system.
- Systems haven't been maintained. Some not working properly.
- Ventilation of day room discharges into stair tower.

Plumbing:

- ± 2 " water service won't support new fire protection service required.
- Public toilet spaces and fixtures not ADA compliant.
- Sanitary discharge to manhole then to adjacent private property.
- Acid waste discharge from existing photo lab sink reported to go to dry well with no acid neutralizing tank.
- Water heaters are relatively new. They are residential type and lack recirculation piping required by code.
- Slab of new addition ± 12 " below existing. Sewage ejector may be necessary.
- Evidence of leaks at upper level toilet rooms.
- Apparent drainage problems in the past.

Electrical:

- Existing service won't support new addition with elevator and new cooling.
- Panelboards don't meet current requirements of NEC.
- Existing exit signage and emergency lighting inadequate.
- Working clearance about electrical equipment not code conforming.
- Existing generator can be reused but won't support entire facility.
- Communications and communications equipment rooms need to be provided with separate UPS facilities.
- Existing radio and communications wiring is improperly installed and routed throughout facility.
- Leased Verizon space in basement must remain as is.
- Fire alarm system lacks proper ADA visual indication. It's doubtful the existing system will support the new construction.
- Generator transfer switch is not automatic.



Ridgefield, Connecticut

Police Facility Study
Area Analysis
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	Existing Building	Addition	Sub-Total
Lower Floor Level	5,226	2,362	7,588
Main Floor Level	5,353	2,304	7,657
Second Floor Level	4,228	2,380	6,608
Attic Floor Level	2,844	200	3,044
Subtotals	17,651	7,246	24,897 S.F.



Ridgefield, Connecticut

**Police Facility Study
Proposal Narrative - Architectural
February 28, 2002**

The existing building will be fully renovated to accommodate code requirements for a police facility. Aging plaster ceilings will be removed to allow for installation of mechanical and electrical systems with the installation of new acoustical tile suspended ceilings throughout. New ductwork will provide for proper air distribution. A sprinkler system will be installed to protect the structure and occupants from fire and is necessary to allow the expansion of contiguous building functions in three different structural building elements. Insulation will be placed in all walls and floors to incorporate sound isolation between spaces. The new expanded dispatch area, located in the center of the original building will be fire protected with the incorporation of 2 hour fire-rated construction as is required. New lighting, communications and fire alarm systems will be run throughout the building. New finishes will be applied to floors, walls and ceilings.

The new addition of 7,246 S.F. will increase the gross area of the project from 17,651 S.F. to a total of 24,897 S.F. spread over the three levels. The floors will match the floors of the existing original building. The lower level of the addition will house the Men's and Women's Locker Rooms and related toilet facilities meeting ADA and police program requirements. The existing building will house the armory, dayroom, fitness and storage areas.

The main floor will house the expanded communications center and public areas of the facility. Police functions of interview areas, office space, briefing rooms, sally port and cells will be in the existing building. Conference areas, Chief's and Major's office space and elevator will be in the new addition.

The second floor will house the detective group offices and interview rooms, evidence, storage and training areas. The attic area will be used for storage and mechanical functions.

The exterior will be clad with vinyl siding to match the existing and to keep with the character of the existing period architecture. The massing of the new addition is designed to blend with the scale and mass of the existing period architecture of the community. The existing building will be reroofed with architectural grade asphalt shingles and will match the new roofing tying the building together visually. The new windows are vinyl clad wood windows with fixed bullet resistive glazing.



Ridgefield, Connecticut

Police Facility Study
Proposal Narrative - Structural
February 28, 2002

Soil Condition

Site borings have not been completed at the site at this time. The site is relatively level with a paved area occupying a large portion of the proposed building footprint.

Foundation System

Since the loads from the new building will be relatively light, it is anticipated that the proposed foundation system will consist of spread footings with continuous perimeter frost walls and footings. They will bear on natural soils or offsite compacted gravel fill. Cantilevered retaining walls will be required for the elevation separation between floor levels.

The floor slab will be a 4" thick reinforced concrete slab on grade. Beneath the slab, a 12" layer of 3/8" crushed stone will be placed.

Structural Framing

The typical roof construction will be 1½" Type "B" metal roof deck that is supported by steel girders and steel joists. Long span joists will be utilized for the Gymnasium roof.

Typical exterior wall construction will consist of masonry veneer walls that are supported by non-load bearing metal wall studs. The high walls of the Gymnasium will be cavity walls consisting of exterior brick wythe supported by concrete block interior wythe.

Lateral Load Resisting System

Lateral forces, wind or earthquake will be transferred by diaphragm action to braced frames located within the perimeter walls. The location of the frames will be coordinated with the wall opening locations.



Ridgefield, Connecticut

**Police Facility Study
Proposal Narrative – Mechanical/Electrical Systems
February 28, 2002**

Mechanical:

- Delete all existing mechanical systems subject to project phasing. Existing services must remain active until new services are available and connected to new/existing equipment.
- Oil fired boiler located in existing garage with direct buried pre-insulated underground supply and return piping to building. Vent through roof. Combustion air louvers through wall.
- Self contained exterior water cooled chiller mounted on new concrete pad with direct buried pre-insulated underground supply and return piping.
- Mechanical room in new addition with pump sets for hot and chilled water distribution pumps.
- Individual console fan coil units in office spaces with hot and cold water coils with individual controls (four pipe system).
- New air handling units in attic space with hot/chilled water coils for introduction of tempered ventilation air. Duct vertically at multiple locations to minimize duct sizes.
- New stand alone heating / cooling split system for prisoner processing area.
- New stand alone heating cooling split system for communications/equipment areas with 100% redundancy.
- New sallyport exhaust system.
- New building exhaust systems.
- New locker room exhaust system.
- New addition mechanical systems (hot/chilled water console fan coil units).
- New heating, ventilating system for elevator machine room.

Plumbing:

- Delete all existing plumbing systems subject to project phasing. Existing services must remain active until new services are available and connected to new/existing equipment.
- Complete new plumbing piping (sanitary, vent, cold/hot/recirculation piping).
- New ADA compliant plumbing fixtures.
- Line item for sewage ejector (if required).
- Roof drainage to storm system for new flat roof area.
- New storm drainage for connection to new/existing RWL's.
- Relocate and reconnect existing hot water heaters for limited use.
- New hot water heater for new locker/shower areas.
- New water service entrance.



Ridgefield, Connecticut

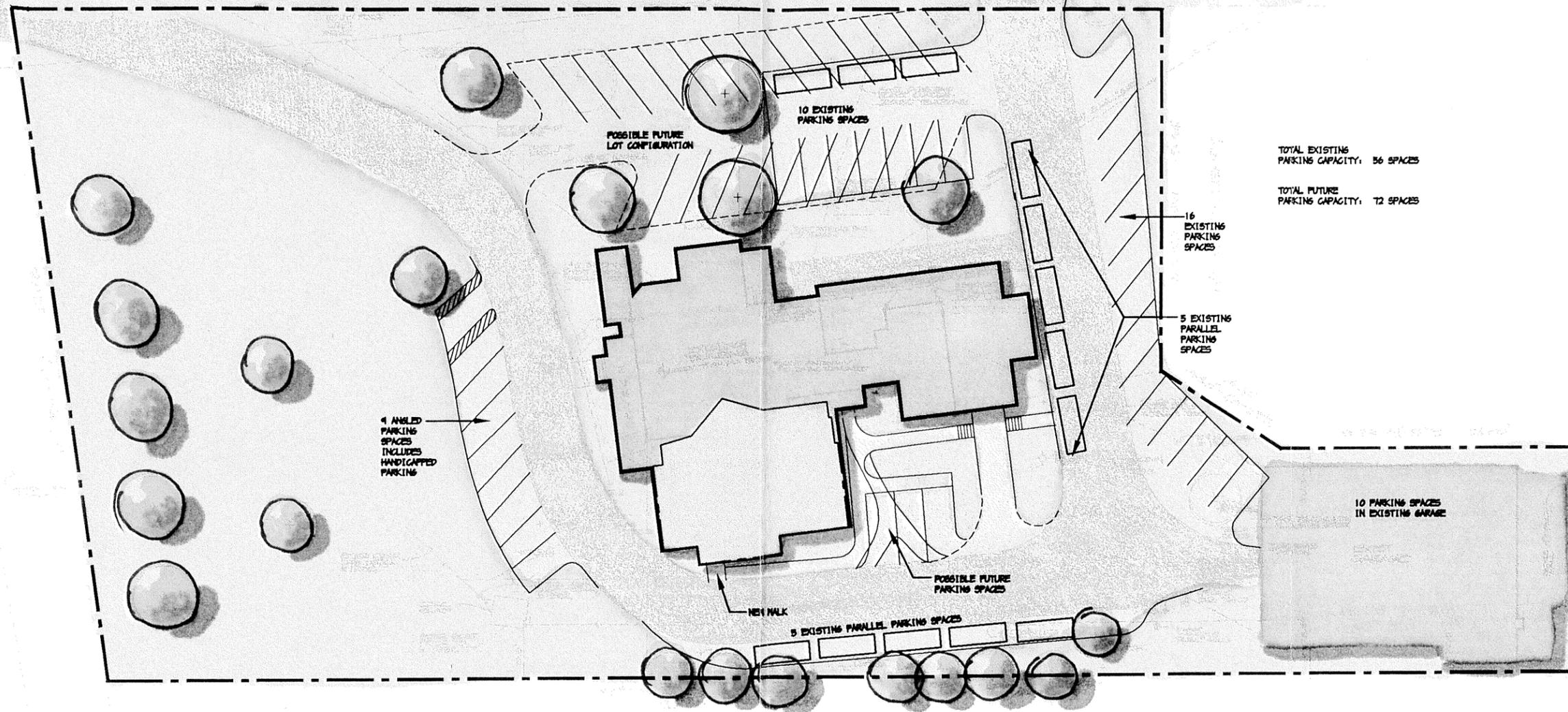
Police Facility Study Proposal Narrative – Mechanical/Electrical Systems February 28, 2002

Fire Protection:

- New fire service entrance with reduced pressure principal back flow preventer.
- Line item for new diesel fire pump. (probably not needed, but we need to verify flow test information)
- New FM200 (or equivalent) system for communications/equipment room. (Interlock with HVAC systems in these spaces).
- Sprinkler protection throughout facility.
- Zoned protection by floor with individual flow and tamper switches.
- Special sprinkler heads in prisoner processing / cell areas.

Electrical:

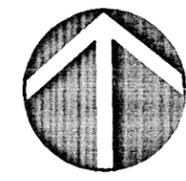
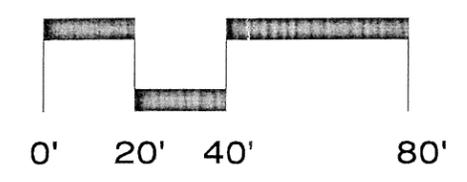
- Delete all existing systems (except generator) subject to project phasing. Existing services must remain active until new services are available and connected to new/existing equipment.
- Primary electrical service from Utility Co. pole to new transformer pad.
- Pad mounted utility company transformer.
- Secondary service entrance conductors from pad to new service entrance switchgear.
- 1200A, 120/208V, 3Ø, 4W electrical service entrance switchboard with C/T's.
- Electrical distribution panel with sub-panels throughout facility.
- Automatic transfer switch. Connect to existing generator.
- Emergency distribution panel(s).
- Inverter and distribution for communications/equipment rooms. Inverter sized to support redundant HVAC systems serving these spaces.
- New interior and exterior lighting.
- Addition electrical services complete with 2'x4' 3-lamp T-8 fluorescent troffers, cast aluminum LED exit lights, wiring devices and support of HVAC systems.
- Complete manual fire alarm system throughout with automatic smoke detection in prisoner processing areas.
- Cross-zoned smoke detection system in communications/equipment room to activate FM200 system. Interlock with system control panel, alarms, abort switches and temperature controls to isolate spaces upon activation.

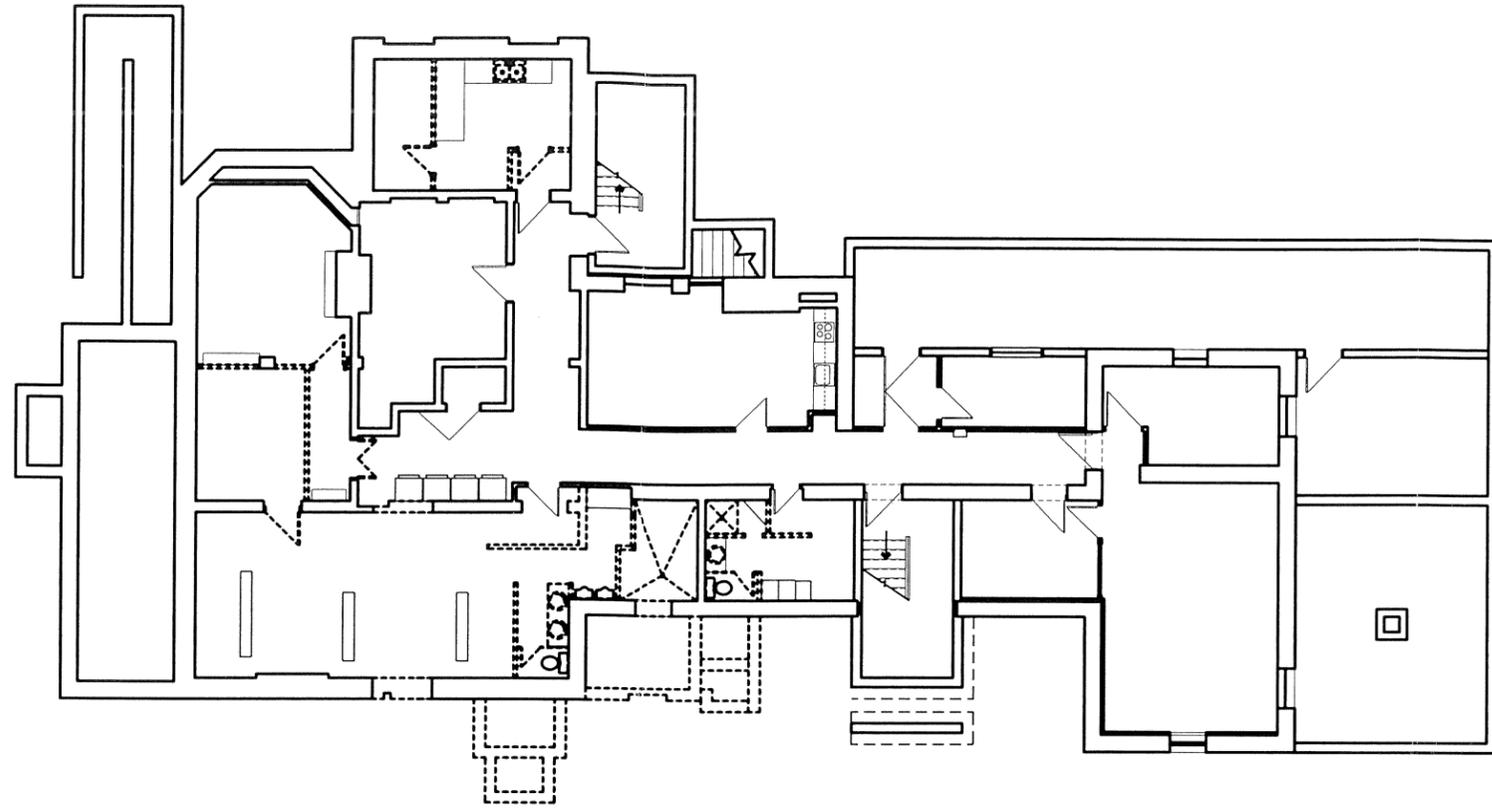


TOTAL EXISTING
PARKING CAPACITY: 36 SPACES

TOTAL FUTURE
PARKING CAPACITY: 12 SPACES

PROPOSED
ADDITIONS AND RENOVATIONS
POLICE DEPARTMENT
RIDGEFIELD, CONNECTICUT
MARCH 1, 2002





**LOWER LEVEL
DEMOLITION PLAN**

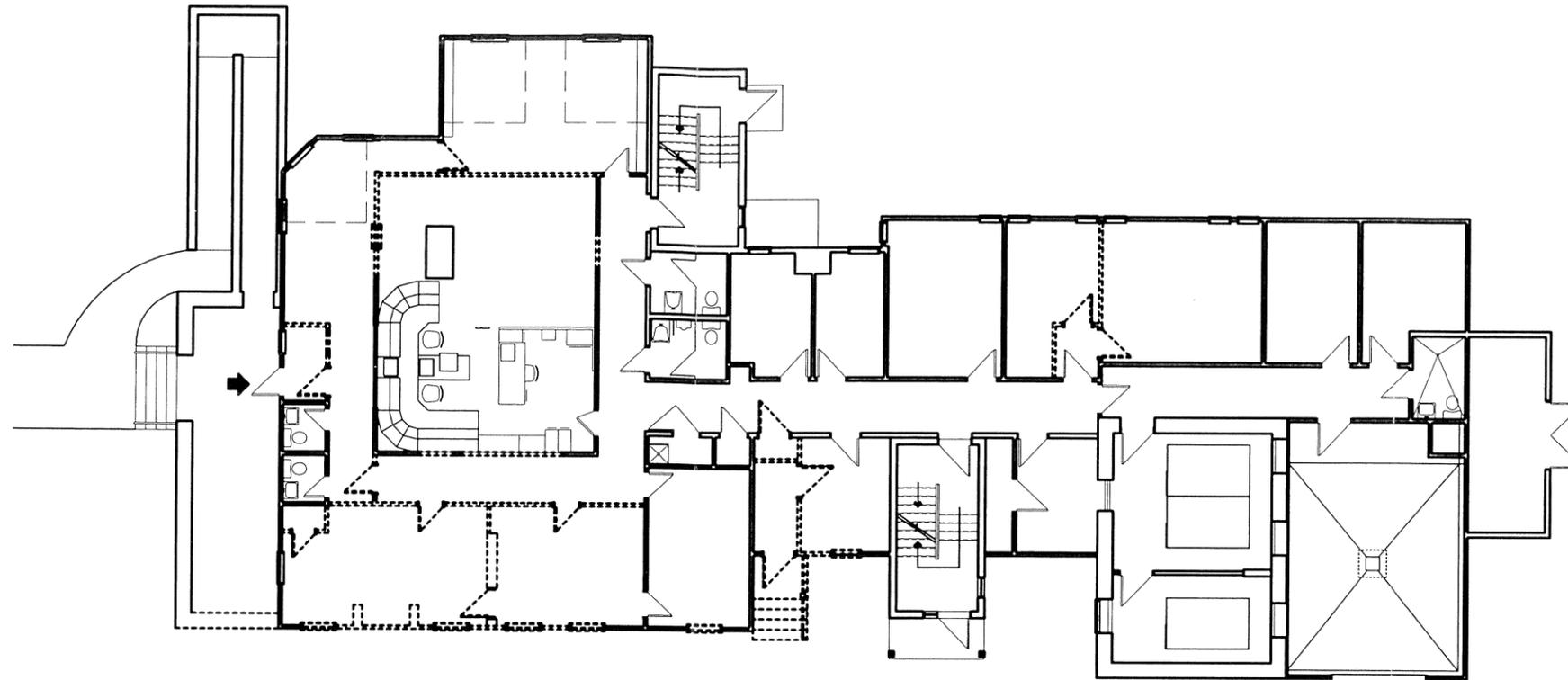
1/16"=1'-0"

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**MAIN LEVEL
DEMOLITION PLAN**

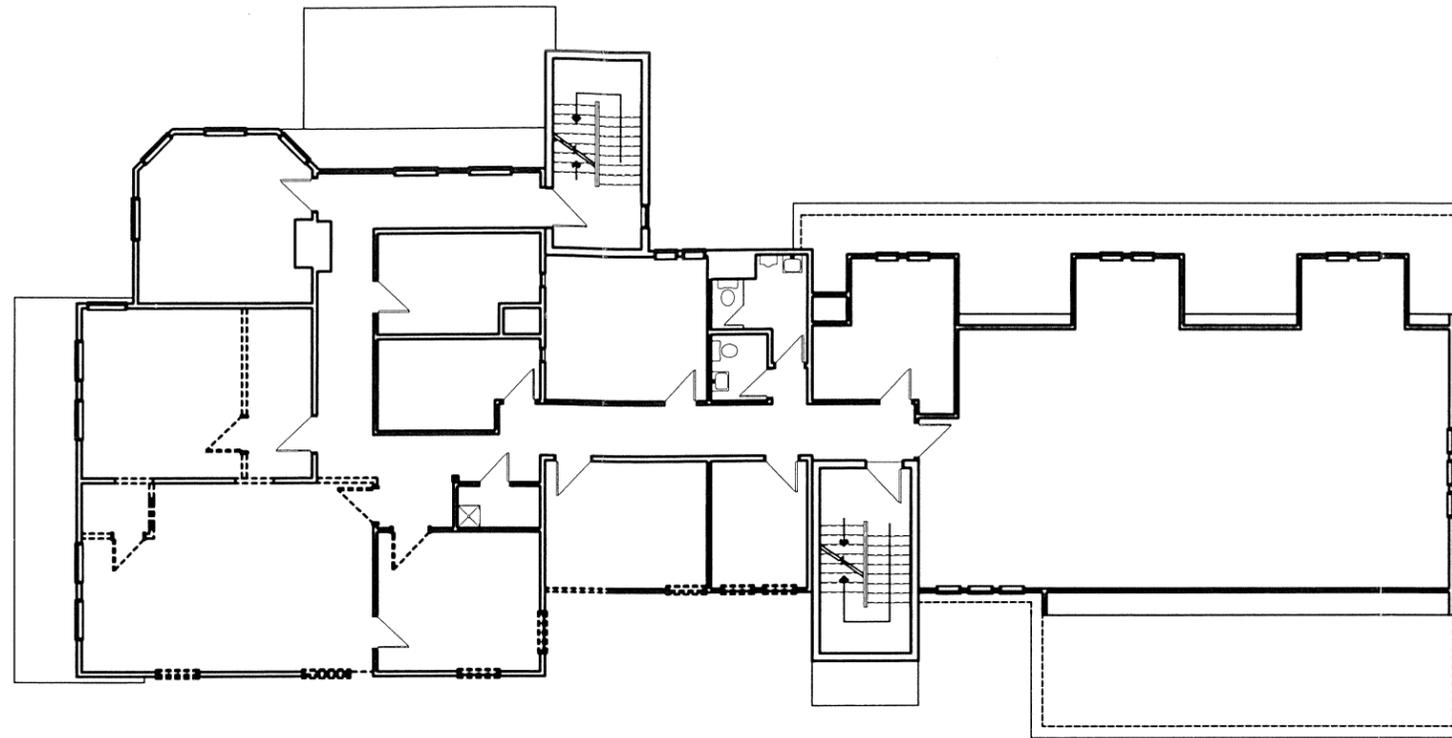
1/16"=1'-0"

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**SECOND LEVEL
DEMOLITION PLAN**

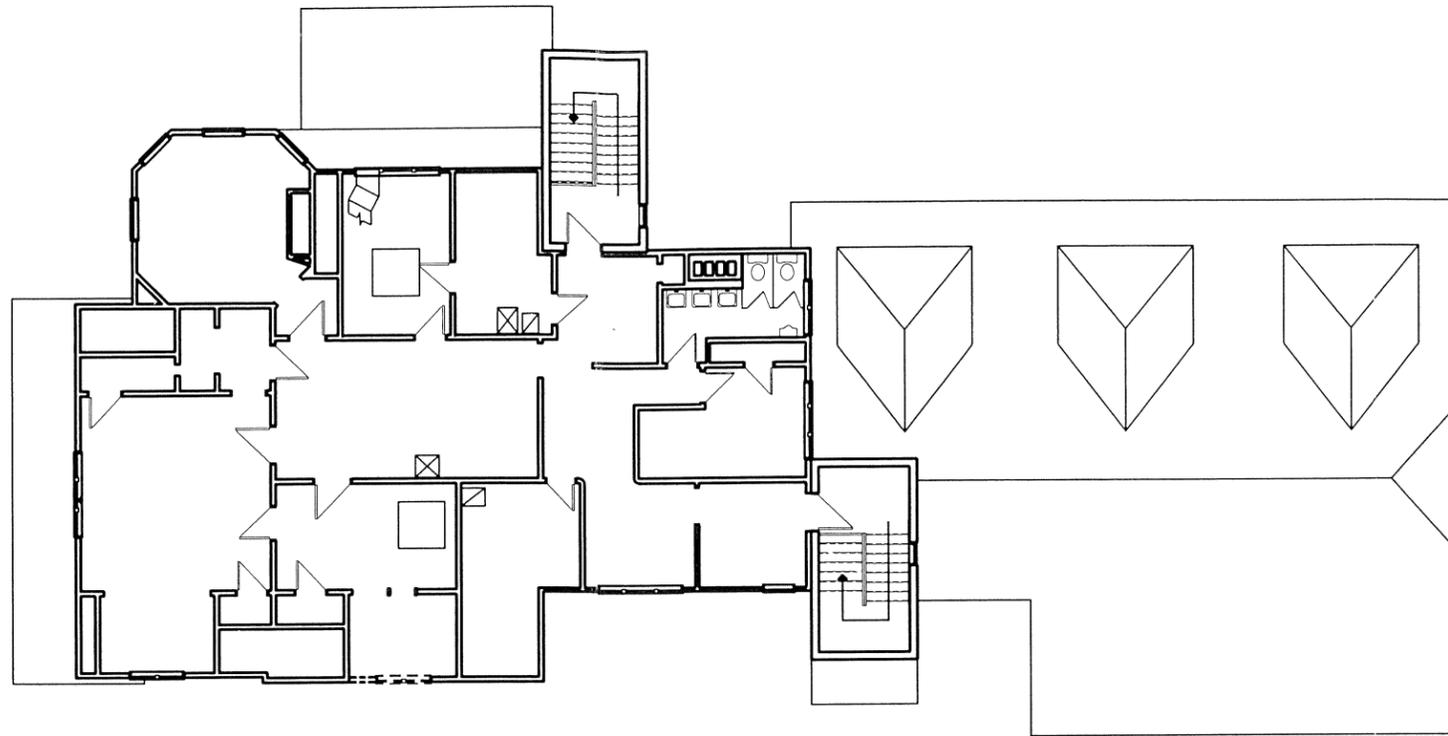
1/16"=1'-0"

PROPOSED
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**ATTIC LEVEL
DEMOLITION PLAN**

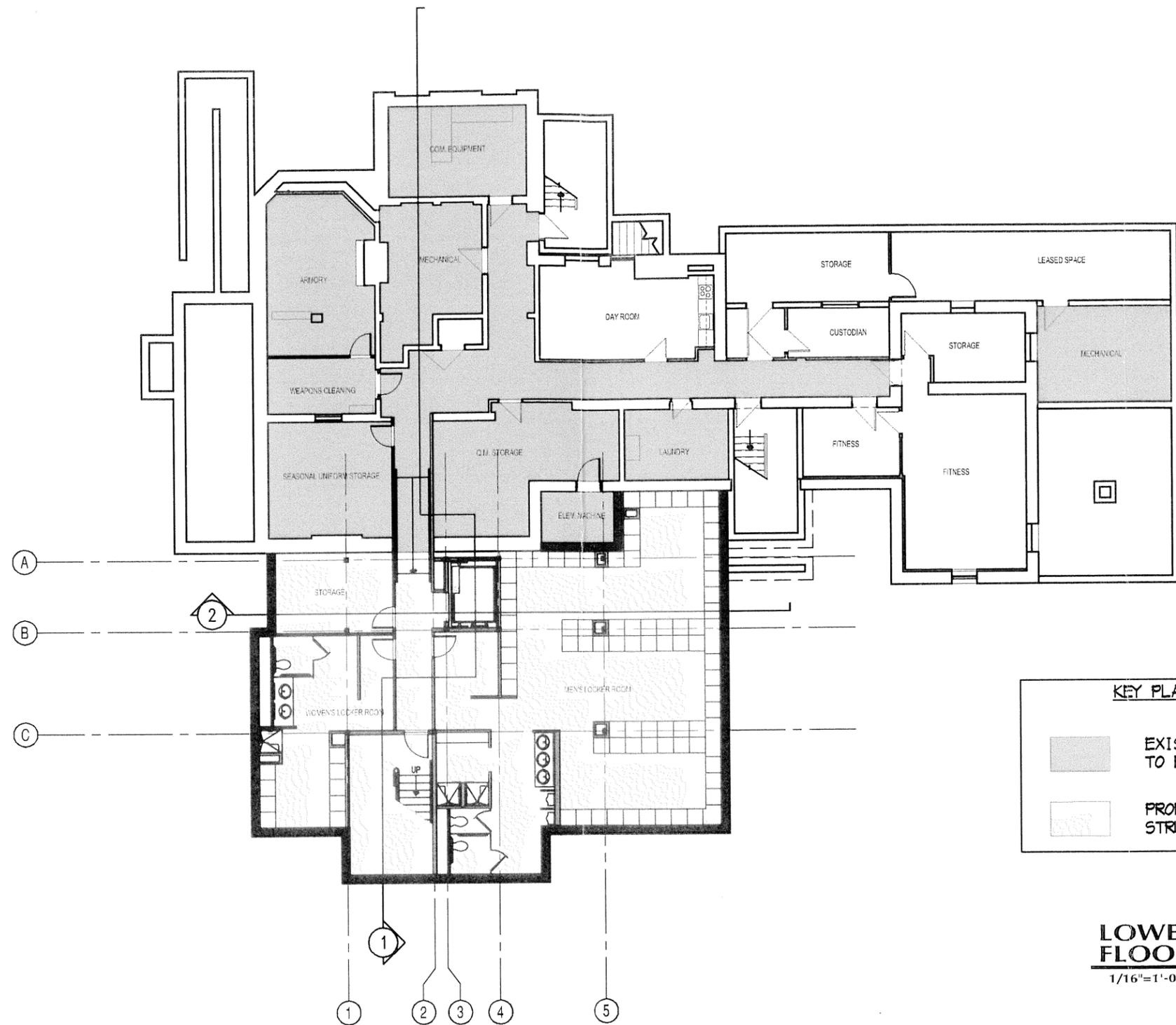
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ADDITIONS AND RENOVATIONS
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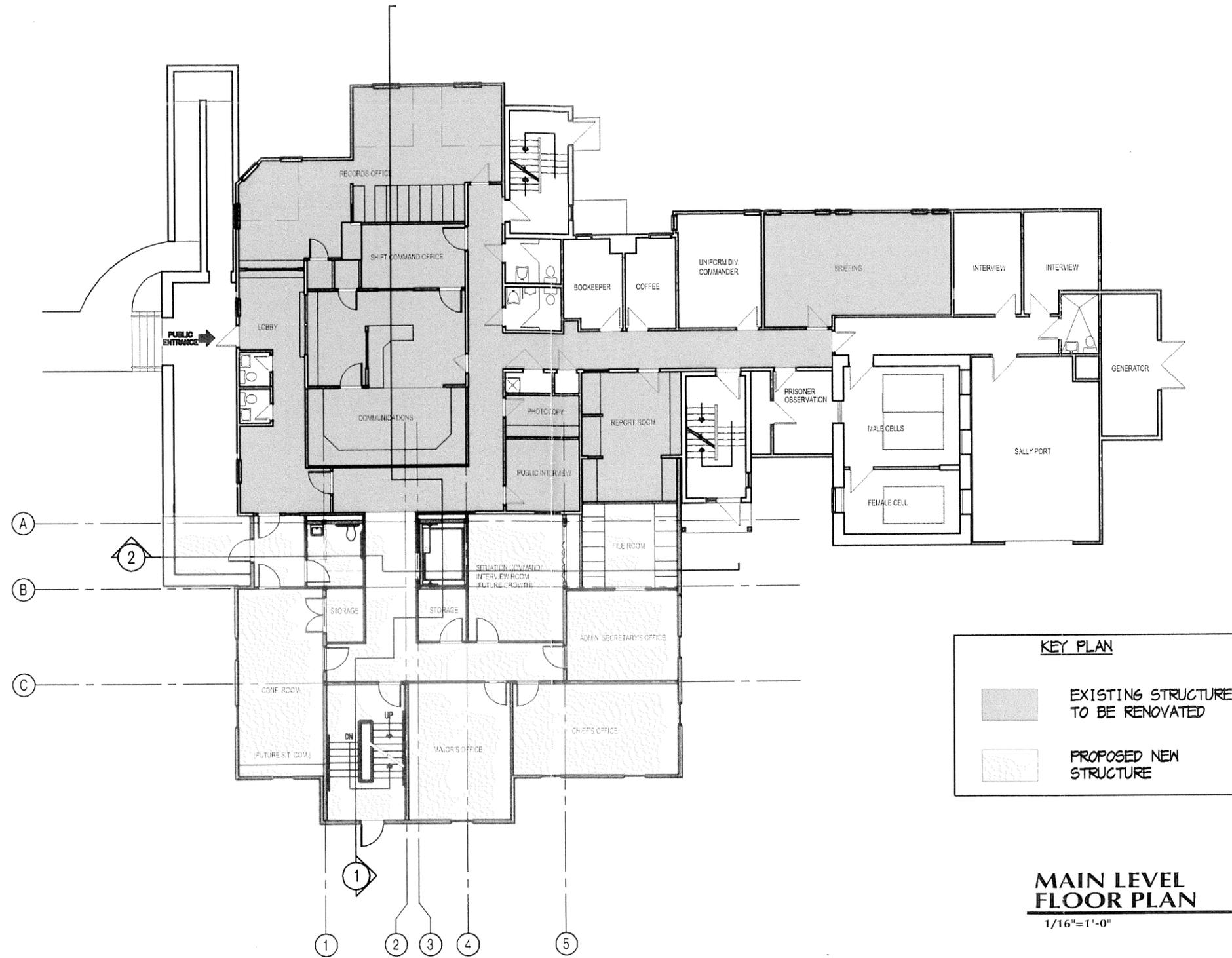
KEY PLAN

EXISTING STRUCTURE TO BE RENOVATED
 PROPOSED NEW STRUCTURE

LOWER LEVEL FLOOR PLAN
 1/16"=1'-0"

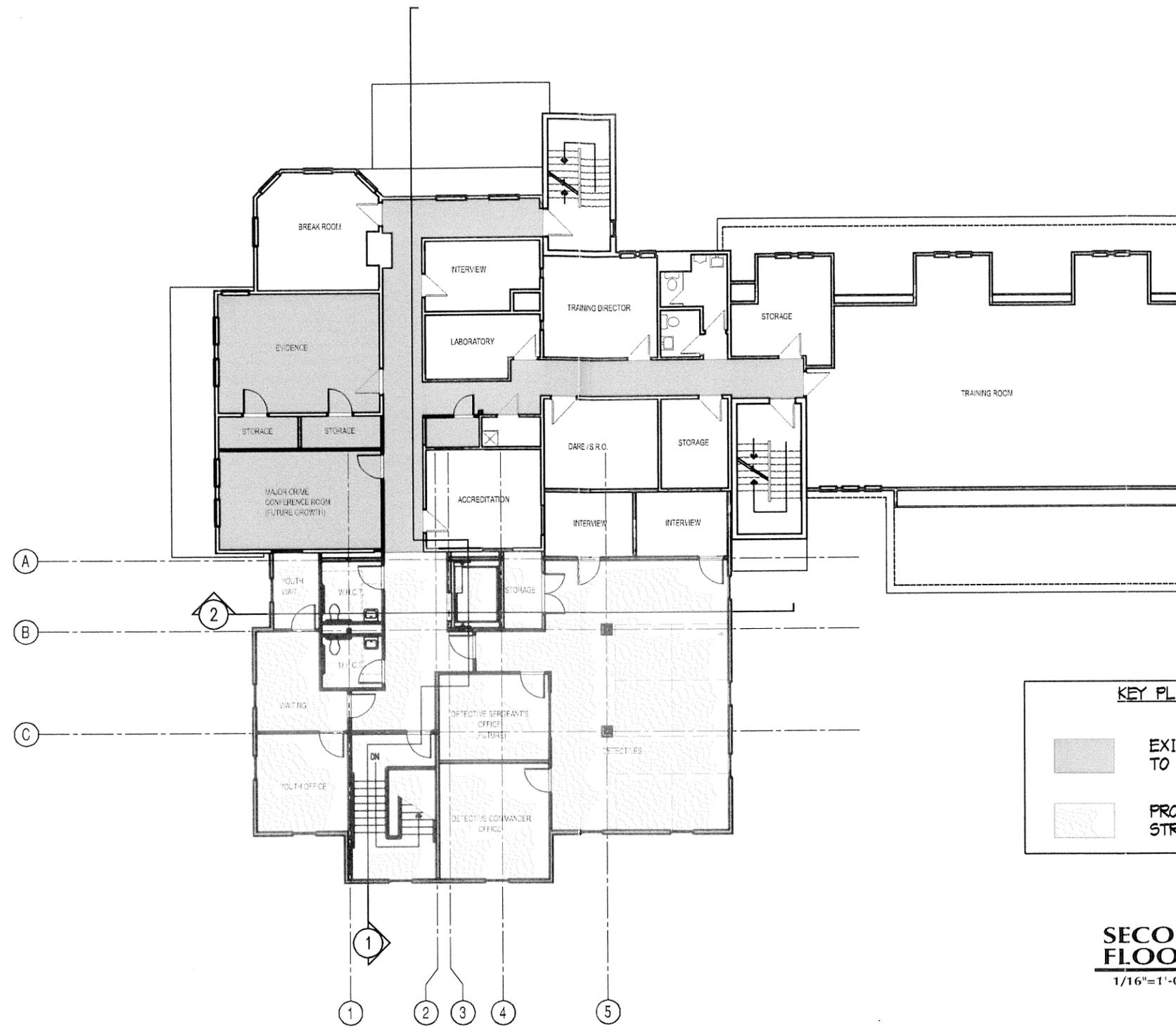
**PROPOSED
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 RIDGEFIELD, CONNECTICUT**
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PROPOSED
ADDITIONS AND RENOVATIONS
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RIDGEFIELD, CONNECTICUT
MARCH 1, 2002

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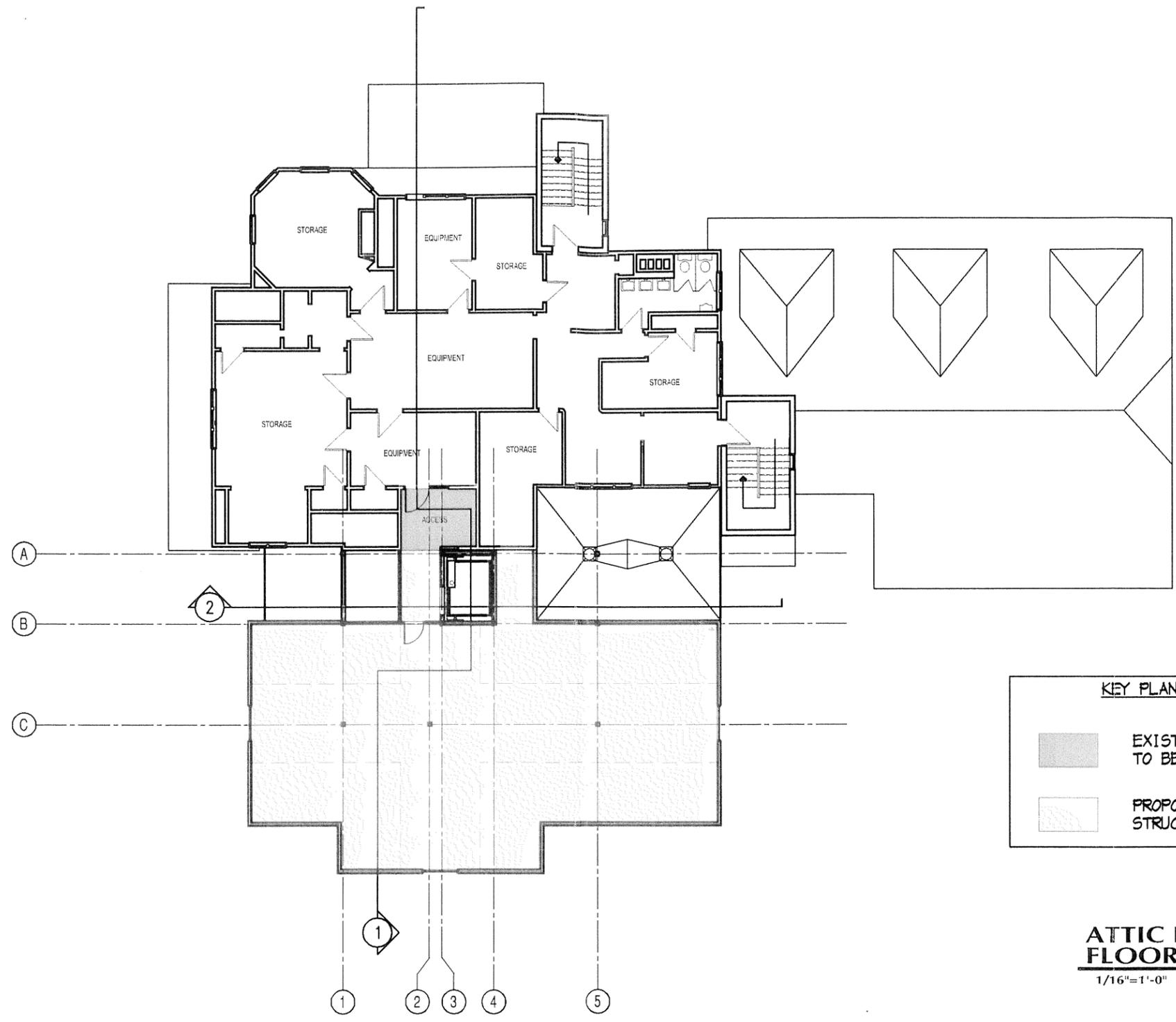
KEY PLAN

- EXISTING STRUCTURE TO BE RENOVATED
- PROPOSED NEW STRUCTURE

SECOND LEVEL FLOOR PLAN
 1/16"=1'-0"

PROPOSED
 ADDITIONS AND RENOVATIONS
 POLICE DEPARTMENT
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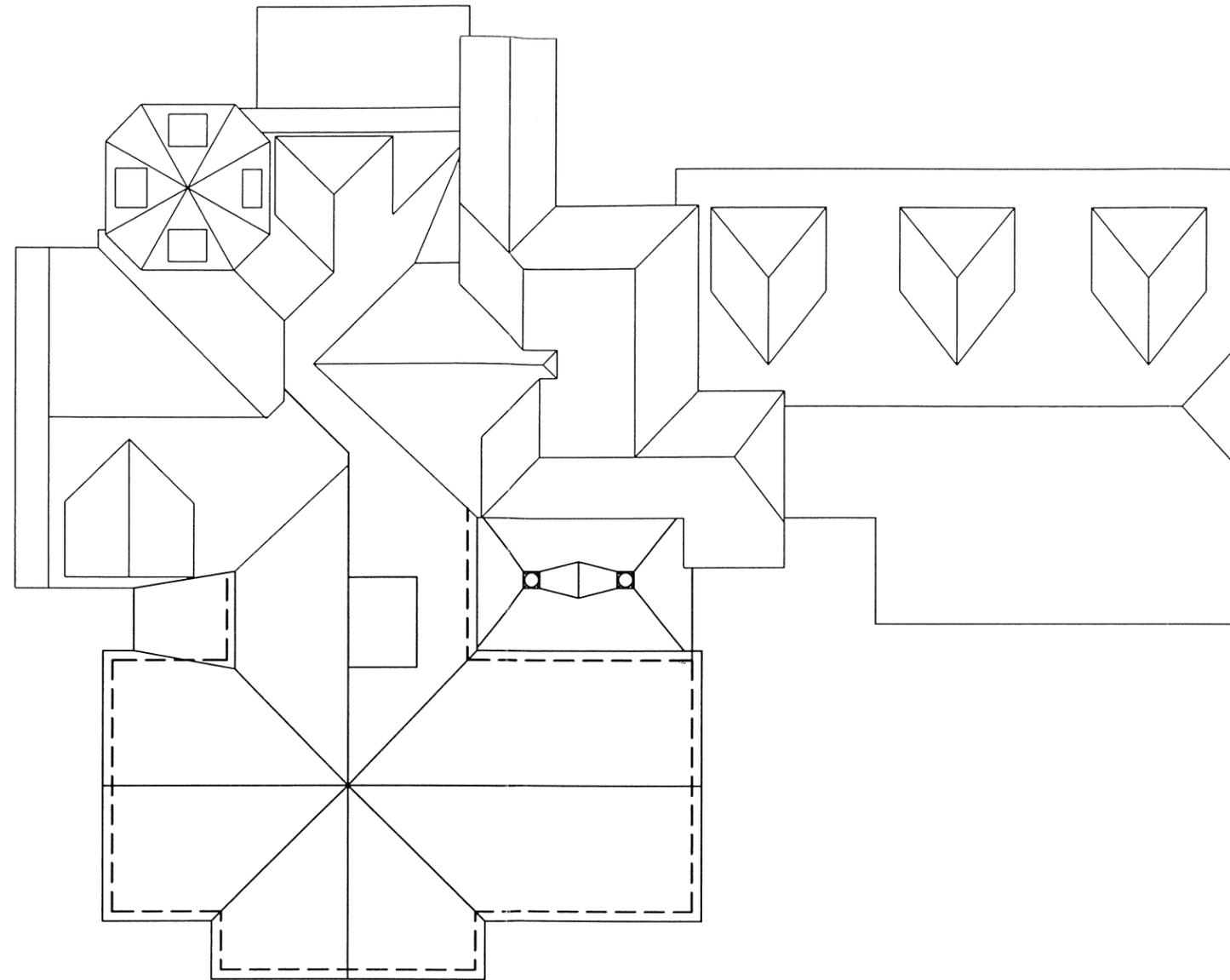
KEY PLAN

	EXISTING STRUCTURE TO BE RENOVATED
	PROPOSED NEW STRUCTURE

ATTIC LEVEL FLOOR PLAN
 1/16"=1'-0"

PROPOSED
 ADDITIONS AND RENOVATIONS
 POLICE DEPARTMENT
 RIDGEFIELD, CONNECTICUT
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ROOF PLAN

1/16"=1'-0"

PROPOSED
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WEST ELEVATION

3/32"=1'-0"

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SOUTH ELEVATION
 3/32"=1'-0"

PROPOSED
 ADDITIONS AND RENOVATIONS
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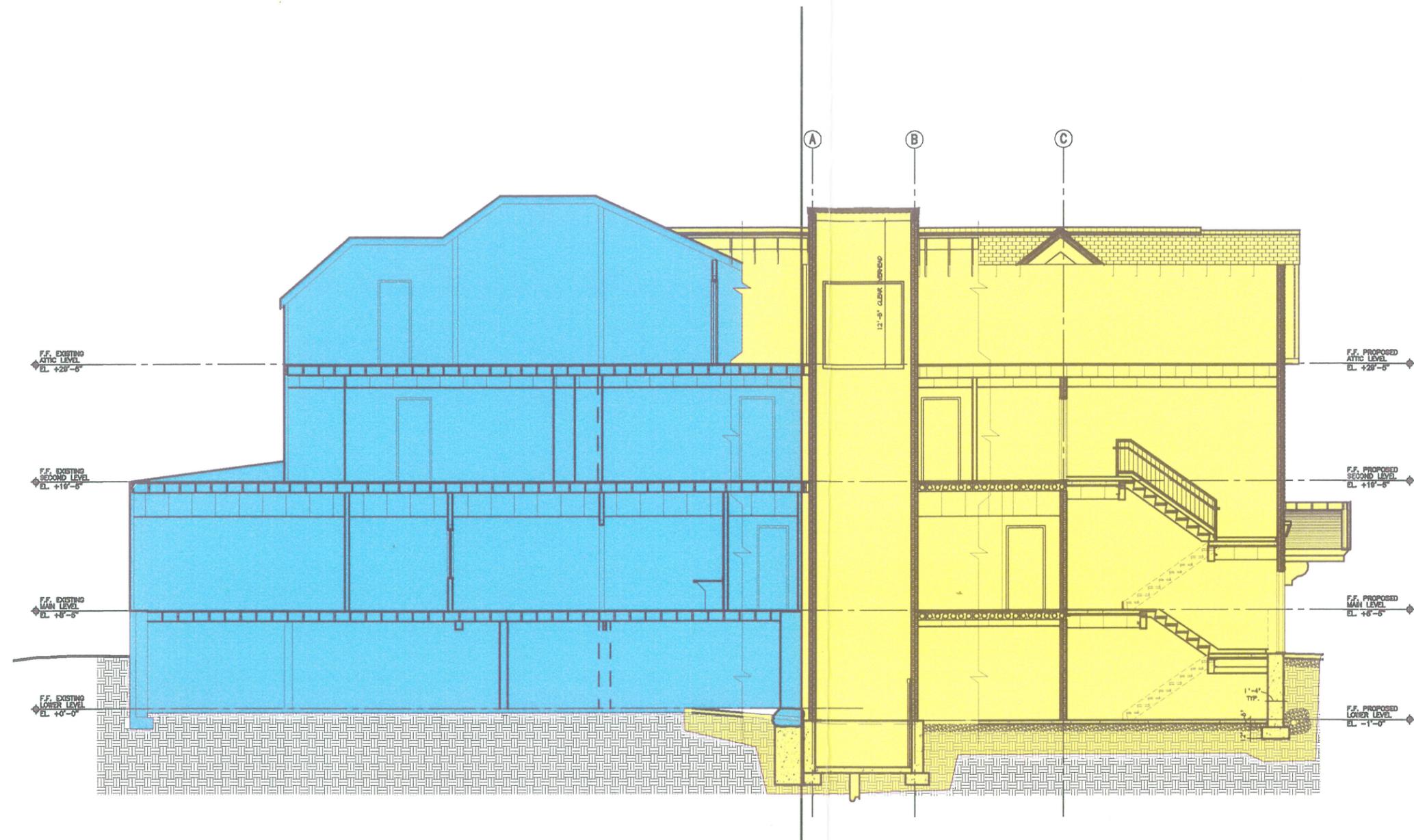


EAST ELEVATION

3/32"=1'-0"

PROPOSED
 ADDITIONS AND RENOVATIONS
 POLICE DEPARTMENT
 RIDGEFIELD, CONNECTICUT
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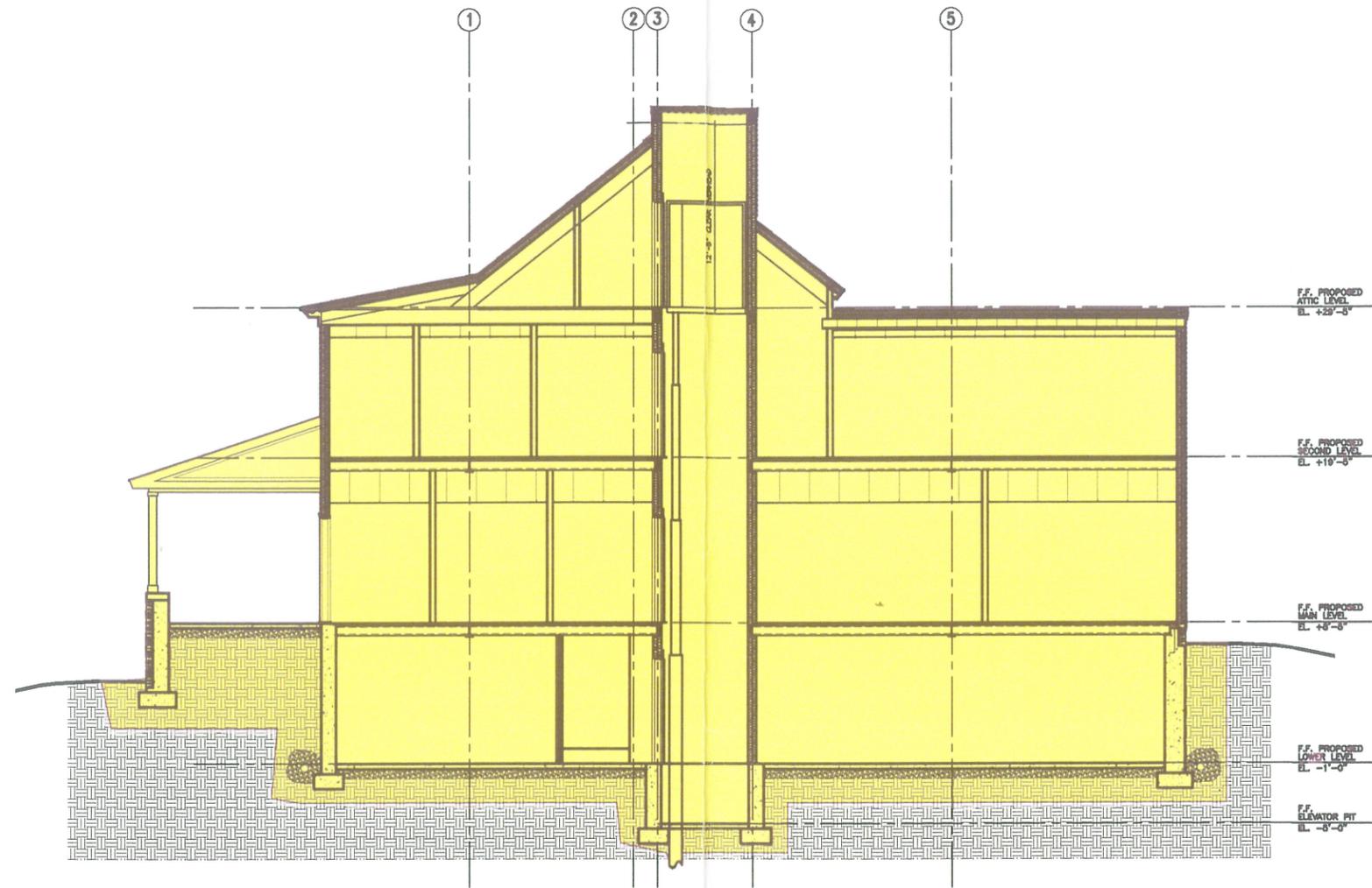
KEY PLAN

- EXISTING STRUCTURE TO BE RENOVATED
- PROPOSED NEW STRUCTURE

BUILDING SECTION-#1
 3/32"=1'-0"

PROPOSED
 ADDITIONS AND RENOVATIONS
 POLICE DEPARTMENT
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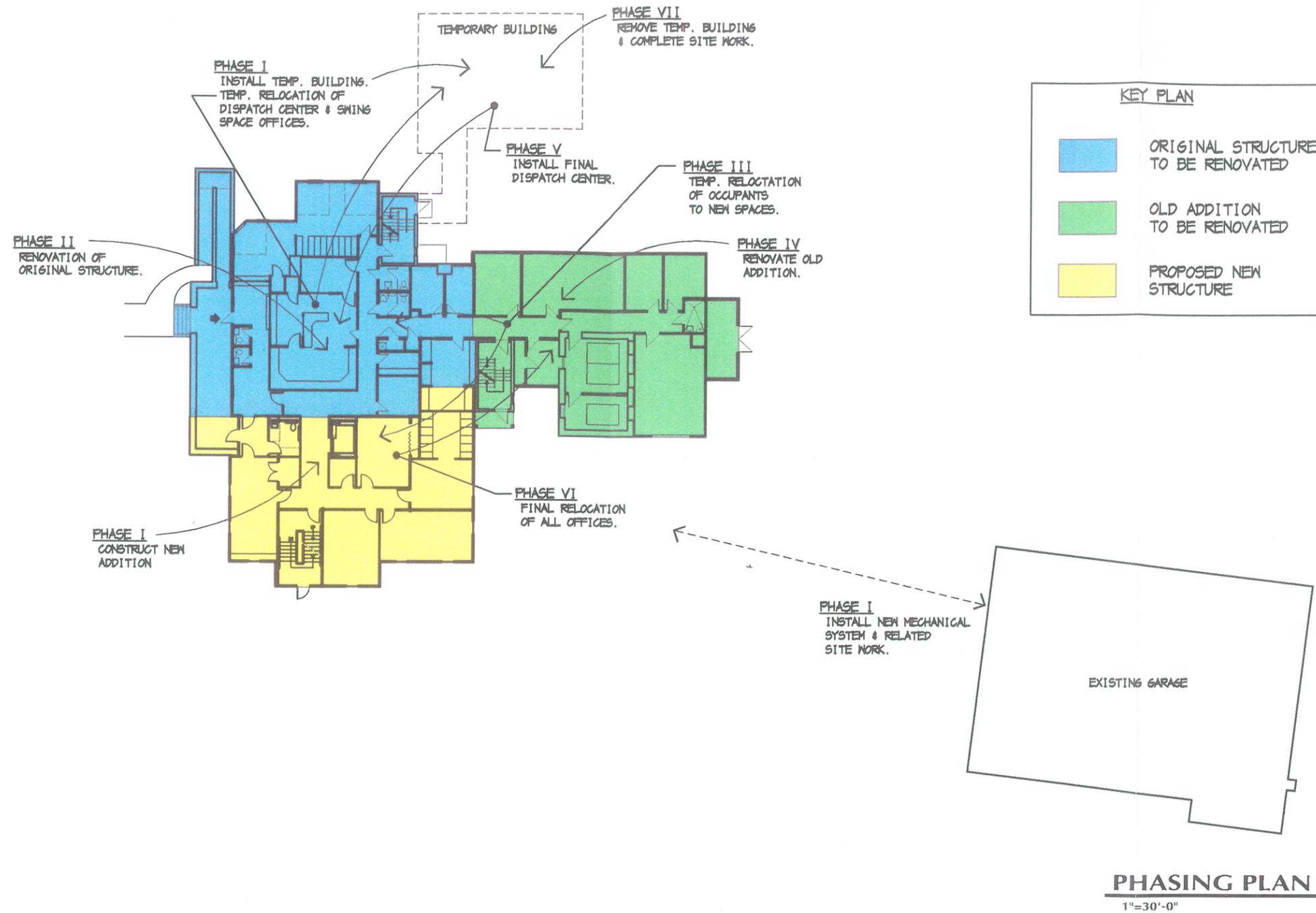
KEY PLAN

	EXISTING STRUCTURE TO BE RENOVATED
	PROPOSED NEW STRUCTURE

BUILDING SECTION-#2
 3/32"=1'-0"

PROPOSED
 ADDITIONS AND RENOVATIONS
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PROPOSED
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Ridgefield, Connecticut

Police Facility Study
Cost Estimate
February 28, 2002

Division Construction Costs

1	General Conditions @ 6 %	149,340	
2	Site Work	105,000	
3	Concrete	150,000	
4	Masonry	14,000	
5	Steel	30,000	
7	Thermal & Moisture Protection	265,000	
8	Doors & Windows	90,000	
9	Finishes	300,000	
10	Specialities	30,000	
13	Special Construction	100,000	
14	Conveying Systems	65,000	
15	Fire Protection Systems		
	Plumbing Systems		
	Mechanical/HVAC Systems	740,000	
16	Electrical Systems	600,000	2,489,000
	Subtotal	2,638,340	
	Bonds	35,000	
	General Contractor OH & P @ 15%	401,001	2,673,340
	Subtotal Construction Cost	3,074,341	
	Contingency	300,000	
	Total Project Cost	3,374,341	
	Add Alternates		
	Sprinkler Fire Pump	45,000	
	Wireless Fire Alarm	15,000	
	Hard Costs		\$ 3,434,341
	Additional Costs		
	Temporary Facilities	40,000	
	Communication System Relocations	35,000	
	Communications Console/Furniture	75,000	
	Security/Access Control/CCTV	35,000	
	Fire Department Radio	TBD	
	Tel/Com Allowance	15,000	
	Relocation Expenses	15,000	
	Legal Expenses	10,000	
	Printing Costs & Advertizing	15,000	
	FF&E	50,000	
	A&E Fees - <i>Antechnical + Engineering</i>	425,000	
	Soft Costs		\$ 715,000
	Total Estimated Project Cost		\$4,149,341

