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INNOVATION FOR THE BUILT ENVIRONMENT

Alba Architects llp · PO Box 186, 137 Main Street · North Woodstock, NH 03262 · tel: 603.745.4770 · www.albaarchitects.com

TOWN OF TUFTONBORO

240 MIDDLE ROAD, TUFTONBORO, NH

FEASIBILITY BUDGET- PROPOSED NEW POLICE DEPARTMENT

31 JANUARY 2020

member of the American Institute of Architects
member of the US Green Building Council

PREFACE

In late 2018, the Town of Tuftonboro retained the services of Alba Architects and their engineering team to conduct existing conditions review, analysis, and assessment of the existing police department building located at 240 Middle Road, Tuftonboro, New Hampshire.

The team was also contracted to consider the current, and two further locations for the provision of a new or renovated-enlarged facility to provide a police department facility that would satisfy all current and anticipated needs for a minimum of 20 years, with the ability for future expansion.

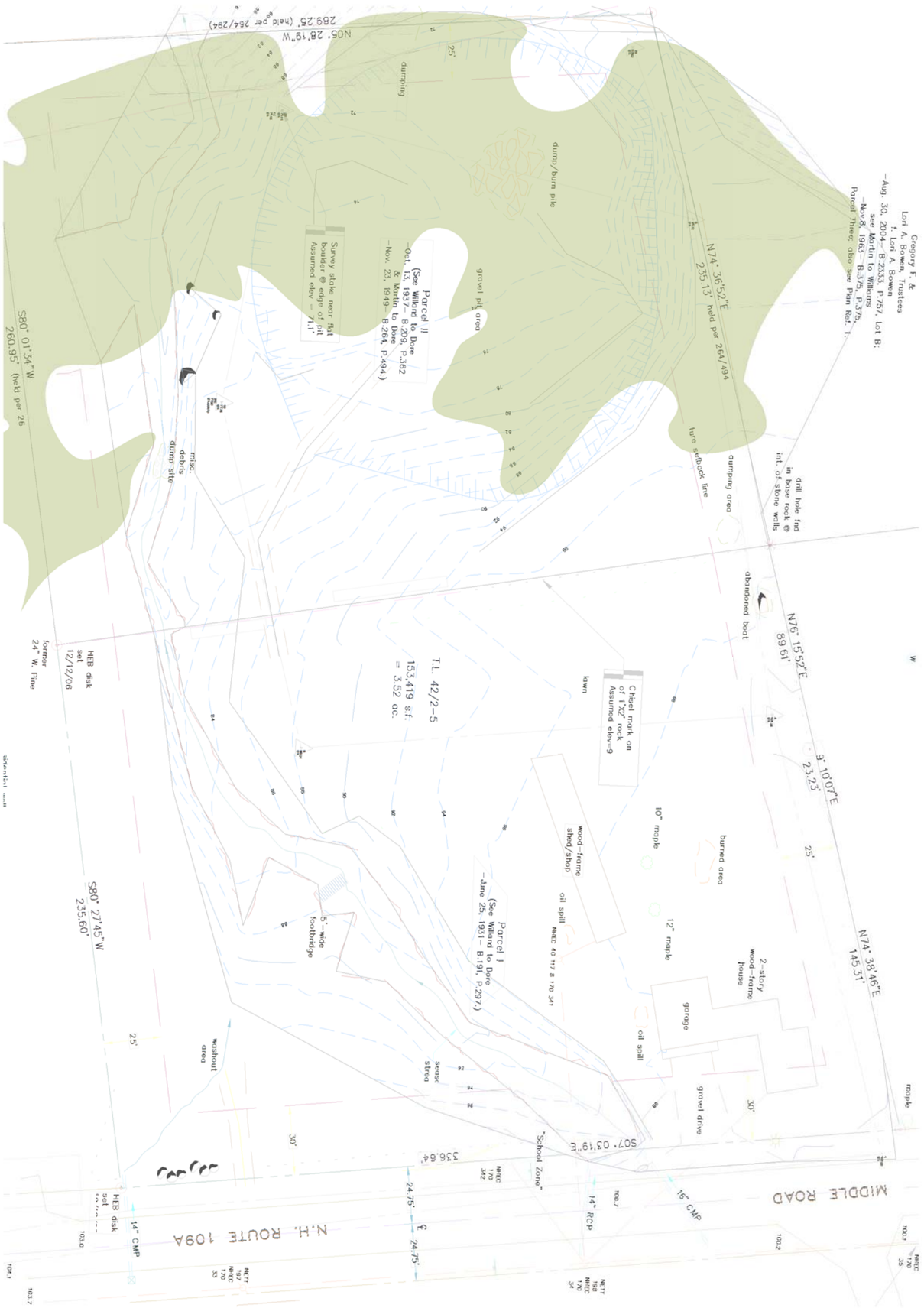
A preliminary assessment report of the existing building was presented in the summer of 2019, along with schematic site and building designs for four potential site locations. The preferred site location was selected and the design team tasked with further developing the selected site and building schematics and providing an updated budget estimate for the construction and soft cost, including the necessary fees to provide construction documents and bidding services during the 2020 financial year. The building program was derived in the original report and is included in this document for information.

The team of professionals and their respective discipline include:

- Architecture & Team Leader:
  ALBA ARCHITECTS LLP, North Woodstock, NH
- Civil and Structural Engineering:
  HEB ENGINEERS, INC., North Conway, NH
- Mechanical, Electrical, Plumbing & Fire Protection Engineering:
  ENGINEERING SERVICES OF VERMONT, Waterbury Center, VT
- Construction Schedule and Cost Estimation:
  COBB HILL CONSTRUCTION, Concord, NH

0.0 **CONTENTS**

1.0 Selected Site and Building



PROJECT NAME & ADDRESS:

Tuftonboro Police Station

Town of Tuftonboro

MIDDLE ROAD, TUFTONBORO NH

PREFERRED SITE 1.1

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1 PROPOSED SITE DEVELOMENT

1" = 50'-0"

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INNOVATION FOR THE BUILT ENVIRONMENT

PROJECT NAME & ADDRESS:

Tuftonboro Police Station

Town of Tuftonboro

MIDDLE ROAD, TUFTONBORO NH

PROPOSED SITE

1.2

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. po box 186 . 137 main street . north woodstock . new hampshire **(603) 745-477**.

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CCTV/ SURVEILLANCE HARDWARE TO GARAGE DOORS

CCTV/ SURVEILLANCE HARDWARE TO BACK ENTRY

SHADED AREA INDICATES EXTENT OF SPACE AVAILABLE FOR EMERGENCY OPERATIONS CENTER

100'-0"

44'-0"

SALLY PORT
421 SF

LARGE EVIDENCE
559 SF

CHAIN-LINK FENCE/ PARTITION WALL

SALLY PORT

LARGE EVIDENCE

BREAK ROOM/ROLL CALL

BREAK/ ROLL CALL
232 SF

MEP
108 SF

REF.

MECHANICAL

SMALL EVIDENCE

REF.

SMALL EVIDENCE
98 SF

DRUG
9 SF

ARMORY
16 SF

WEAPONS CLEANING SUPPLIES
12 SF

FINGER PRINT EVIDENCE PROCESSING
82 SF

EVIDENCE PROCESSING

LOCKER ROOM
121 SF

CHANGE/ SHOWER
44 SF

STAFF TOILET
57 SF

LOCKER/SHOWER ROOM

CIRC 2
25 SF

EQUIP. STORAGE

FITNESS
194 SF

FITNESS/E.O.C. EXPANSION

CUSTODIAL & STORAGE
66 SF

10'-2 5/8"

CUSTODIAL STORAGE

CONF STORAGE
55 SF
5'-11 7/8"

CONFERENCE/E.O.C.

CONFERENCE / E.O.C.
241 SF

JUVENILE
JUVENILE
50 SF

COMMS / I.T.
52 SF

COMMS / I.T.

EOC SMART SCREEN

BATHROOM
57 SF

8'-2"

7'-0"

PROCESSING ROOM
260 SF

INTERVIEW ROOM

HOLDING CELL

INT/ BAIL
99 SF

HOLDING CELL
76 SF

HOLLOW CORE METAL DOORS AND FRAMES THROUGHOUT

CIRC 1
514 SF

CCTV/ SURVEILLANCE HARDWARE TO ALL SUSPECT CONTAINMENT AREAS AND CORRIDORS

RECORDS (ARC)
54 SF

RECORDS

SQUAD
200 SF

SQUAD ROOM

8'-8 1/4"

6'-8 1/4"

STAFF
98 SF

SUPER/ DEPUTY
170 SF

DEPUTY CHIEF

CHIEF
216 SF

CHIEF'S OFFICE

INTERVIEW ROOM

INTERVIEW
86 SF

ADMINISTRATION

ADMIN
132 SF

RECORDS (ACT)
14 SF

CAT 3 BALLISTIC PASS WINDOW

LOBBY

LOBBY
155 SF

ADA
91 SF

CCTV/ SURVEILLANCE HARDWARE TO PUBLIC AREA

DRUG DROP

BENCH FIXED TO FLOOR, WITH SUSPECT RETENTION CLIPS

CCTV/ SURVEILLANCE HARDWARE TO ALL SUSPECT CONTAINMENT AREAS

CAT 3 BALLISTIC RESISTANT WALL/ WINDOW/ DOOR CONSTRUCTION

36'-0"

36'-6"

28'-0"

CCTV/ SURVEILLANCE HARDWARE TO FRONT ENTRY

1 First Floor
1/ 4" = 1'-0"

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE. ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

GENERAL NOTES:

ROOM AREA SCHEDULE

Room Name	Area
LOBBY	159 SF
ADMIN	152 SF
ADA	97 SF
INTERVIEW	86 SF
STAFF	98 SF
SUPER/ DEPUTY	170 SF
CHIEF	216 SF
COMMS / I.T.	52 SF
CONFERENCE / E.O.C.	241 SF
CONF STORAGE	55 SF
FITNESS	194 SF
STAFF TOILET	57 SF
CHANGE/ SHOWER	44 SF
LOCKER ROOM	121 SF
CUSTODIAL & STORAGE	66 SF
JUVENILE	50 SF
RECORDS (ARC)	54 SF
RECORDS (ACT)	14 SF
SQUAD	200 SF
SMALL EVIDENCE	98 SF
FINGER PRINT EVIDENCE PROCESSING	82 SF
BREAK/ ROLL CALL	232 SF
MEP	108 SF
INT/ BAIL	99 SF
PROCESSING	260 SF
HOLDING CELL	76 SF
BATHROOM	57 SF
SALLY PORT	421 SF
LARGE EVIDENCE	559 SF
WEAPONS CLEANING SUPPLIES	12 SF
DRUG	9 SF
ARMORY	16 SF
CIRCULATION	5788 SF

Room Name	Area
CIRC 2	25 SF
CIRC 1	514 SF
	540 SF

GROSS AREA (FOOTPRINT) = 48108 SF
GROSS INTERIOR= 47126 SF
NET INTERIOR= 41563 SF
NON-USABLE AREA= (WALLS&CIRC) = 8812 SF (21%)
GROSS TO NET FACTOR= 0.93
CIRCULATION= 11.4%

PROJECT NAME & ADDRESS:
Tuftonboro Police Station
Town of Tuftonboro
MIDDLE ROAD, TUFTONBORO NH

FIRST FLOOR PLAN

A1.1

TOWN WARRANT 12.13.19

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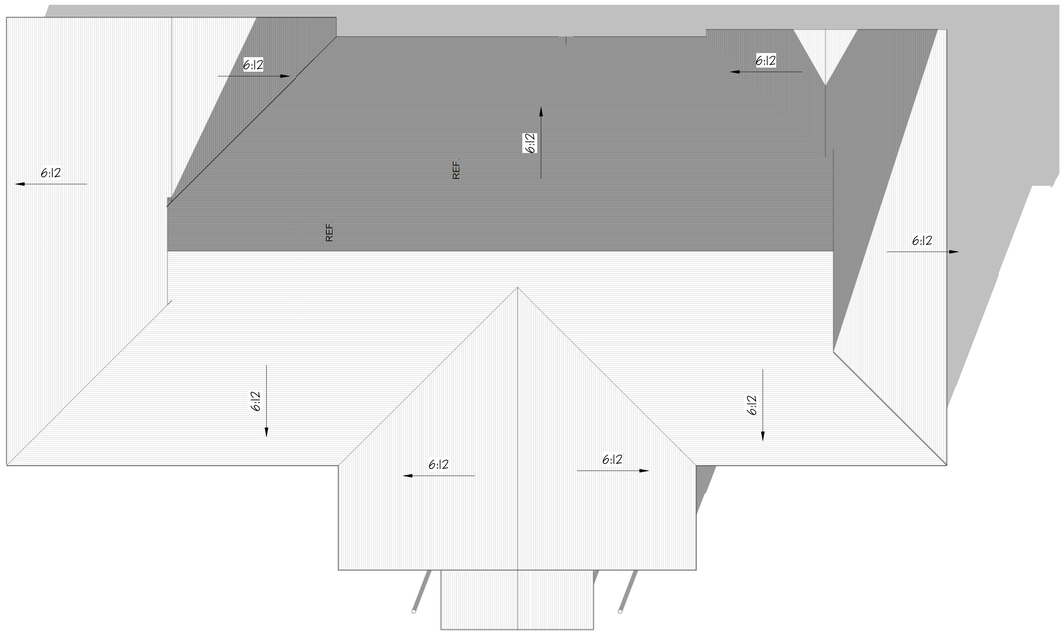
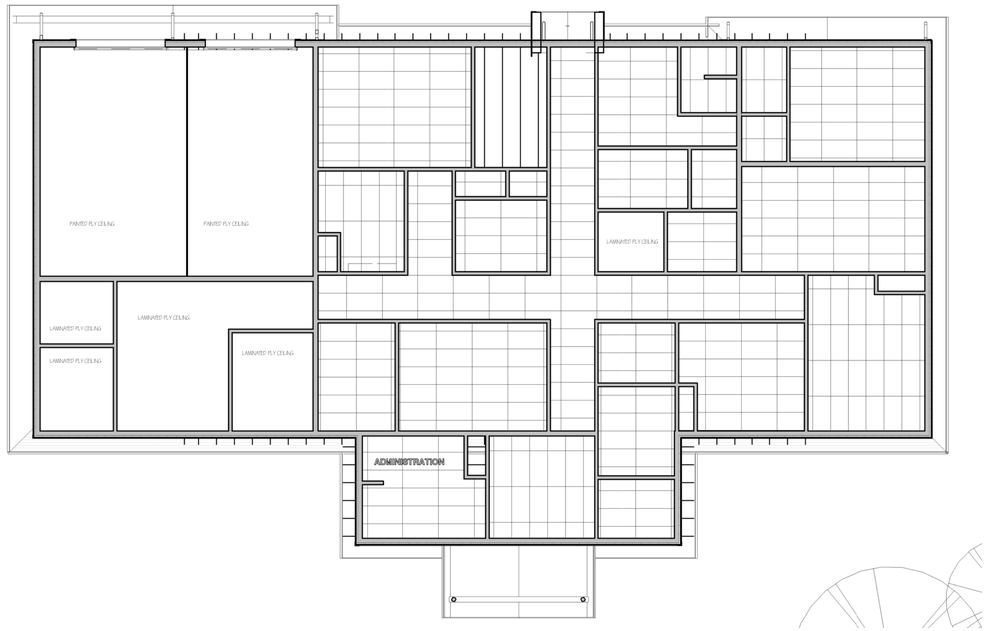


1 Roof Plan
1/8" = 1'-0"



2 First Floor
1/8" = 1'-0"

ROOM FINISH SCHEDULE

Number	Room Name	Ceiling Finish	Floor Finish	Wall Finish	Wall Material	Base Trim	Area
01	LOBBY	ACT	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	186 SF
02	ADMIN.	ACT	CARPET	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	152 SF
03	ADA	PAINTED SHEETROCK	SHEET VINYL	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	57 SF
04	INTERVIEW	ACT	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	86 SF
05	STAFF	ACT	SHEET VINYL	PAINTED SHEETROCK	METAL FRAMING	WELDED VINYL	98 SF
06	SUPER./ DEPUTY	ACT	CARPET	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	170 SF
07	CHIEF	ACT	CARPET	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	216 SF
08	COMMS / I.T.	ACT PLYWOOD CAP OVER	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	92 SF
09	CONFERENCE / E.O.C.	ACT	CARPET	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	241 SF
10	CONF. STORAGE	PAINTED SHEETROCK	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	35 SF
11	FITNESS	ACT	CARPET	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	194 SF
12	CIRC 2	PAINTED SHEETROCK	SHEET VINYL	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	29 SF
13	STAFF TOILET	PAINTED SHEETROCK	SHEET VINYL	PAINTED MR SHEETROCK	METAL FRAMING	WELDED VINYL	57 SF
14	CHANGE/ SHOWER	PAINTED SHEETROCK	SHEET VINYL	PAINTED MR SHEETROCK	METAL FRAMING	WELDED VINYL	44 SF
15	LOCKER ROOM	PAINTED SHEETROCK	SHEET VINYL	PAINTED MR SHEETROCK	METAL FRAMING	WELDED VINYL	121 SF
16	CIRC 1	ACT	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	514 SF
17	CUSTODIAL & STORAGE	TREATED PLYWOOD	SHEET VINYL	PAINTED MR SHEETROCK	METAL FRAMING	RUBBER BASE	66 SF
18	JUVENILE	LAMINATED PLYWOOD	SHEET VINYL	GRBF OVER CEMENT BOARD	PLY/ CEMENT BOARD ON METAL FRAME	WELDED VINYL	50 SF
19	RECORDS (ARC)	ACT PLYWOOD CAP OVER	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	94 SF
20	RECORDS (ACT)	ACT PLYWOOD CAP OVER	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	14 SF
21	SQUAD	ACT	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	200 SF
22	SMALL EVIDENCE	ACT PLYWOOD CAP OVER	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	98 SF
23	FINGER PRINT EVIDENCE PROCESSING	ACT	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	82 SF
24	BREAK/ ROLL CALL	ACT	LVT	PAINTED SHEETROCK	METAL FRAMING	RUBBER BASE	293 SF
25	MEP	TREATED PLYWOOD	SEALED CONC.	PLYWOOD	METAL FRAMING	NONE	108 SF
26	INT./ BAIL	LAMINATED PLYWOOD	SHEET VINYL	GRBF	PLY/ CEMENT BOARD ON METAL FRAME	WELDED VINYL	99 SF
27	PROCESSING	LAMINATED PLYWOOD	SHEET VINYL	GRBF	PLY/ CEMENT BOARD ON METAL FRAME	WELDED VINYL	260 SF
28	HOLDING CELL	LAMINATED PLYWOOD	SHEET VINYL	GRBF	PLY/ CEMENT BOARD ON METAL FRAME	WELDED VINYL	76 SF
29	BATHROOM	PAINTED SHEETROCK	SHEET VINYL	GRBF	PLY/ CEMENT BOARD ON METAL FRAME	WELDED VINYL	57 SF
30	SALLY PORT	TREATED PLYWOOD	SEALED CONC.	PLYWOOD	METAL FRAMING	NONE	421 SF
31	LARGE EVIDENCE	TREATED PLYWOOD	SEALED CONC.	PLYWOOD	METAL FRAMING	NONE	369 SF
							4291 SF

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE. ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER.

GENERAL NOTES:

PROJECT NAME & ADDRESS:
Tuftonboro Police Station
Town of Tuftonboro
MIDDLE ROAD, TUFTONBORO NH

ROOF AND CEILING PLAN

A1.2

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OUTLINE SPECIFICATION: (DESIGN CRITERIA STANDARD, ALTERNATIVES WILL BE ACCEPTABLE)

EXTERIORS/ ENVELOPE:
- -ASPHALT SHINGLES ON PRIMARILY PREFAB TRUSSED CONSTRUCTION (SOME OVER AND STICK FRAME)
- -VINYL SIDING, ON 2" ZIP-R WALL, WITH 1" FLASH TO INSIDE OF FACE OR SHEATHING AND FILL VOID WITH CELLULOSE
- -INTEGRITY FIBRE-GLASS DOUBLE GLAZED WINDOWS WITH TOUGHEN GLASS ONE PANE, LAMINATED THE OTHER (EXCEPT AT MAIN ENTRY AREA)
- -MAIN ENTRY AREA TO HAVE CAT.3 BULLISTIC RESISTANCE GLAZING TO DOORS AND WINDOWS, WALLS WITH CAT.3 BALLISTIC LINER TO INSIDE FACE, LOCATIONS MARKED ON PLAN
- -PAINTED INSULATED STEEL OVERHEAD GARAGE DOORS, 9.5'h X 10'w
- -PVC TRIMS, FACSIAS, CORNER BOARDS
- -ROOF INSULATION 16" DENSE PACK CELLULOSE AT TRUSS BOTTOM CHORD LEVEL

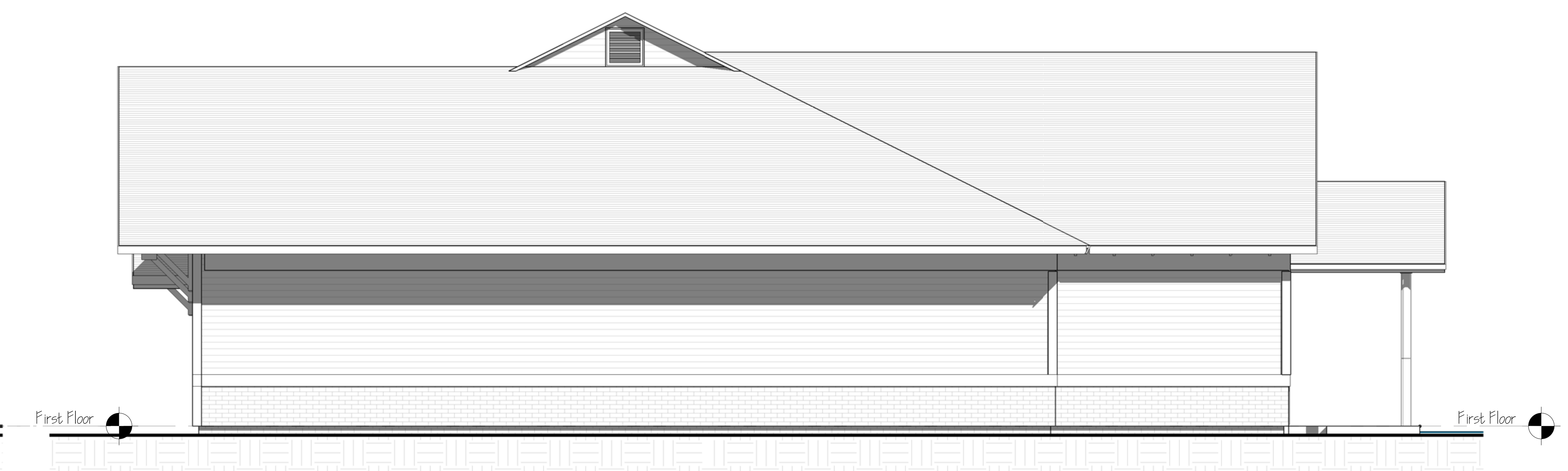
INTERIORS:
- -5 / 8" GYPSUM BOARD TO OFFICES, PUBLIC SPACES, MR BOARD TO BATHROOM, LOCKER, EXERCISE ROOM
- -LAMINATE FACED OSB SHEATHING TO INTERIOR OF ALL AREAS FOR PROCESSING SUSPECTS
- -LVT FLOORING TO ALL OFFICES, PUBLIC SPACES, WITH RUBBER BASE
- -ROLL SHEET VINYL FLOORING TO ALL AREA FOR PROCESSING, WITH WELDED COVE BASE
- -SEALED CONCRETE WITH PVC BASE TO SALLY PORT AND LARGE STORAGE
- -SUSPENDED ACT CEILING SYSTEM TO ALL OFFICES, PUBLIC SPACES
- -LAMINATED OSB TO CEILINGS IN ALL AREAS FOR PROCESSING SUSPECTS

SPECIALTY COMPONENTS:
- -AUDIO/ VISUAL CAMERAS AND MONITORING TO ALL PROCESSING AREAS (INCLUDING JUVENILE AREA) , FRONT ENTRY (OUTSIDE) , MAIN RECEPTION AREA, BACK ENTRY DOOR (OUTSIDE) , AND CORRIDORS.
- -AUDIO/ VIDEO RECORDING AVAILABLE FOR ALL PROCESSING AREAS (INCLUDING JUVENILE AREA)
- -ALL INTERIOR LOCKABLE DOORS TO HAVE PROXIMITY/ CARD READER SYSTEM WITH ACCESS DATE AND TIME STAMP RECORDING

NOTE:
DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

1 ROAD ELEVATION
3/16" = 1'-0"

4 SIDE ELEVATION 2
3/16" = 1'-0"



2 SIDE ELEVATION
3/16" = 1'-0"

3 BACK ELEVATION
3/16" = 1'-0"

ELEVATION

Window Schedule

Mark	Operation	Manufacturer	Model	Frame Size Width	Frame Size Height	Jamb Depth	Head Height	Comments
AA	CASEMENT	MARVIN		3'-0"	4'-0"		6'-8"	ALUM FRAME CAT 3 BALLISTIC RESISTANT WINDOW
AA: 2								
B	CASEMENT	MARVIN		3'-0"	4'-0"		6'-8"	FIBREHGLASS WINDOW
B: 15								
CC	SLIDING			4'-0"	3'-8"		6'-8"	ALUM FRAME CAT 3 BALLISTIC RESISTANT RECEPTION WINDOW
CC: 1								
D	PICTURE			2'-6"	6'-0"		7'-0"	ALUM FRAME SINGLE GLAZED TOUGHENED / LAMINATED GLASS
D: 2								
Grand total: 20								

PRELIMINARY DRAWINGS
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GENERAL NOTES:

PROJECT NAME & ADDRESS:
Tuftonboro Police Station
Town of Tuftonboro
MIDDLE ROAD, TUFTONBORO NH

EXTERIOR ELEVATIONS

A3.0

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1.5 Needs Assessment Building Program

ADMINISTRATIVE SPACE	Size- sq.ft.			
Administration/Reception	150	B	2	
Records (active)	32	S	0	
Records (archive)	60	S	1	

PUBLIC SPACE	Size- sq.ft.	Occ. Type	Occupancy	comments
Lobby	60	B	3	
Public Restroom	56	B	1	
Private Interview Room	80	B	2	

STAFF SPACE	Size- sq.ft.			
Chief's Office	175	B	2	
Squad Room	200	B	4	
Roll Call/Break Room/Mail	250	A	8	
Staff Toilet	56	B	1	
Locker Room/Shower	200	B	4	
Fitness Room	200	B	5	
Supervisory/Deputy Chief	150	B	1	
Armory/Weapons Cleaning	120	S-2	1	
Training/Conference w/Storage	225	A	15	

PROCESSING SPACE	Size- sq.ft.			
Processing with holding bench	225	I-3	1	
Interview/Bail Room	50	I-3	2	
Toilet Room	56	I-3	1	
Sally Port	400	U	1	
Juvenile	75	I-3	1	

UTILITY SPACE	Size- sq.ft.			
MEP	250	B	1	
Custodial	36	U	0	
General Storage	*80*	*S-2*	*0*	
Communications	16	S-2	0	

EVIDENCE/PROPERTY	Size- sq.ft.	Occupancy	Occupanc	comments
Receiving/Processing	25	I-3	2	
Large Evidence Storage	350	S-2	2	
Drug Storage	25	S-2	0	
Weapon Storage	25	S-2	0	
Vehicle Compound/Large Storage	(1200)			*not included in area totals*
Parking Spaces				*nine staff, four public*

TOTALS				
Sub-Total	**3630**			
Walls/Circulation @ 25%	910			
TOTAL	**4540**			

1.6 Outline Building Specification

Division 3- Concrete

-New concrete footing, foundation walls
-New 4" concrete slab on grade
-New 4" concrete slab on grade (on well drained materials) to all site walkways

Division 5- Metalwork

-Cold formed structural metal wall framing, load bearing and partition walls

Division 6- Carpentry

-Fire-treated wood blocking for all door and window openings and at location of fixtures, furniture, cabinetry etc.
-2 " structural insulated wall panels (Zip-R panels R-7 minimum)
-Shop fabricated wood trusses to majority of roofs, all options, with stick-framed infill as indicated on drawings.
-Finish carpentry: interior casework to windows
-Prefabricated cabinetry to staff break room, with laminated countertops

Division 7-Thermal and Moisture Protection

-Asphalt shingles, min. 50yr rated, to all roofs
-Tri-Flex underlayment to all roofs
-16" dense-pack cellulose roof insulation at truss bottom chord level
-5.5" dense-pack cellulose insulation to all exterior walls (total R-value min. 30)
-Solid PVC siding (simulated clapboards and shakes, Royal Celect cellular composite siding)
-GFRP interior wall finish to all holding/processing areas
-Concrete water proofing to frost walls
-2" rigid foam board under all slabs

Division 8- Doors and Windows

-Integrity All-Ultrex fiberglass windows to all areas except entryway/reception office/waiting area
-Purpose made aluminum windows with Cat. 3 ballistic resistance glass and frames, as indicated on drawings
-Insulated hallow metal doors and frames to exterior doors and doors at holding areas/suspect processing spaces
-Flush solid core wood veneer doors to all interior spaces other than holding areas
-Hardware in accordance with security demands of facility

Division 9-Finishes

-Resilient flooring throughout:
    -Sheet vinyl and pvc coves, welded seams, to all holding/processing areas, toilets, exercise rooms, showers, wet areas in general.
    -LVT, or equal, to all office spaces, conference room staff areas, public areas
-Walk-off matts to reception/waiting area
-PVC cove to all areas
-All holding area/processing areas to have 5/8" fire-rated ply backer boards to walls, with GFRP panels for finish.

-Type X MR sheetrock to all exterior/load bearing walls.
-MR sheetrock to all interior partitions
-All exposed sheetrock for painting
-Sally Port/large evidence areas to have epoxy paint finish

Division 10- Specialties
-Metal lockers to changing rooms
-Pass through evidence lockers to small evidence storage
-Cat. 3 Ballistic resistant wall inserts to areas indicated on plans
-Glazed Cat. 3 Ballistic resistant reception area window/passthrough, in alum frame
-Secure furniture to all holding/processing areas, inclusive of secure grab rails for securing suspects
-Vandal resistant stainless steel toilet accessories to holding area bathroom(s)

Division 11- Appliances
-Residential refrigerator for staff room; one for secure cold storage for evidence and one for temporary storage outside evidence room.

Division 12-
-Stainless steel casework/furniture to holding/processing areas
-Entrance floor mat to main entry/reception area

Division 21- Fire Suppression
-Include Add-Alternate for fully monitored/alarmed fire suppression system throughout

Division 22- Plumbing
-New well; New septic
See Engineering Services for Plumbing basis of design

Division 27/28- Communications/Electronic Security and Safety
-Data/Telecom (CAT-VI) to all offices, conference rooms, squad room, roll-call/break room, processing and interview rooms
-CCTV with cameras covering all entry points, holding and processing areas, juvenile room, and overall building/circulation areas. Monitors in Chief, Deputy, Admin and Squad room.
-All servers/recording equipment located in secure IT/COMMS room
-Intrusion detection throughout
-Fire/smoke alarm throughout

Divisions 32- Exterior Improvements
-Asphalt paving as indicated on drawings
-Seeding/planting (anything not indicated as hard landscaping)
-Concrete paths/walkways
-Chain-link fence, compacted bluestone base to vehicle impound/compound

2.0 **Proposed Building and Site Engineering**

Engineering Services of Vermont, LLC
Mechanical-Electrical Consulting Engineers

9 Washington Street
Rutland, Vermont 05701
Tel: 802-855-8091

5430 Waterbury-Stowe Rd, 2nd Floor
Waterbury Center, Vermont 05677
Tel: 802-882-8449

Tuftonboro Police Station
Town of Tuftonboro
Tuftonboro, New Hampshire

Mechanical, Electrical & Plumbing Systems Schematic Design Descriptions

December 15, 2019

DIVISION 22/23 MECHANICAL & PLUMBING

1. GENERAL

   a. Refer to the Architectural plans for the building layout and construction details affecting the scope of work.

   b. The contractor shall be responsible for providing a complete mechanical and plumbing system which is in complete compliance with all National and State of New Hampshire Codes and Standards.

   c. The "Scope of Work" describes the required mechanical and plumbing work that is needed.

   d. This section covers general provisions that are applicable to all mechanical and plumbing work and the testing of the completed mechanical and plumbing systems. The requirements of other Sections shall take precedence over the requirements of this Section.

   e. Division 23 covers, in broad detail, the extent of the mechanical work and the equipment to be provided and shall not be construed as a complete description of all the details of design and construction requirements.

   f. The contractor shall review all architectural, civil, landscape, structural, mechanical, plumbing, electrical, and all other drawings made available to all other contractors of all disciplines to fully understand the extent of all work required.

   g. Provide all labor, materials, equipment and transportation as required to completely install the HVAC and Plumbing Systems as shown on the Drawings and as specified in this Division.

h. Reasonable changes required by job conditions (including offsetting of piping and ductwork, etc.) shall be made at no additional cost to the owner.

2. CODE CONFORMANCE

a. Install all systems of Division 23 sections in conformance with all applicable State of New Hampshire Codes and Town of Tuftonboro, NH codes in addition to the standards listed in the Division 23 specifications.

b. Codes include but are not limited to the following:

I. 2015 International Building Code
II. 2015 International Energy Conservation Code
III. 2015 International Mechanical Code
IV. 2015 International Plumbing Code
V. 2017 National Electrical Code
VI. State Fire Code Saf-C 6000

3. PROJECT DESCRIPTION

a. This is a new police station being constructed in Tuftonboro, NH. It consists of roughly 4,300 square feet of finished space on one floor. The building has a pitched roof. The general spaces included in this Project include but are not limited to the following:

i. Administration
ii. Squad Room
iii. Evidence
iv. Storage
v. Chief and Deputy Rooms
vi. Conference
vii. Fitness/Locker Room space
viii. Break Room Space
ix. Circulation Corridors
x. Processing and Interrogation
xi. Sally Port/Large Evidence Storage space

b. Refer to the Architectural Plans, site, and civil plans, Sections and Details for further information on this PROJECT.

c. Work of this Mechanical Specification shall be coordinated with all other Specifications and trades prior to installation in an effort to prevent interferences and relocations.

d. All HVAC systems shall be properly sized for each building using Air Conditioning Contractors of America (ACCA) Manual J Calculations (or equivalent computer software computation procedure). The calculations shall be provided to the Owner and the Authority along with the plans and specifications.

e. All HVAC ductwork shall be pressure tested prior to being enclosed in walls, soffits, etc.… Pressure classification shall be as dictated by the International Mechanical Code and SMACNA.

f. All HVAC system balancing shall be performed by a third-party balancing contractor regularly engaged in balancing work and who shall be independent of the HVAC system installer. All balancing work shall be done in accordance with the procedures of the Associated Air Balance Council (AABC) or the national Environmental Balancing bureau (NEBB).

g. All HVAC equipment shall operate quietly with minimal to no equipment vibration. The MC is responsible for providing and installing a quiet system.

h. Provide all ductwork, piping and controls for a complete system installation.

i. Mechanical insulation requirements for piping and ductwork shall meet or exceed the current New Hampshire energy code requirements.

4. MECHANICAL HVAC SYSTEMS DESIGN

a. Design Conditions

i. Heating outside air: -20°F
ii. Heating inside air: 70°F
iii. Cooling outside air: 88°Fdb/71°Fwb
iv. Cooling inside air: 73°F
v. Refer to Architectural Drawings, Elevations and Sections for the building construction, building insulating R-values and window U-values and solar heat gain coefficients.

b. Heating & Air Conditioning – This building shall be heated and cooled with a Variable Refrigerant Flow (VRF) system including but not limited to the following:

i. An outdoor air-to-air, cold climate, air-to-air heat pump with heat recovery (the ability to provide simultaneous heating and cooling).
ii. Indoor fan coil units; a mix of wall mounted, ducted and ceiling fan coil units.
iii. Basis of design is a Daikin Aurora cold climate 208V/3ph/60Hz REYQ96 Series Heat Recovery Unit with associated indoor fan coil units.

iv. The zoning and nominal sizing of fan coil units shall be as follows: Refer to the Mechanical HVAC Zoning Plan dated 12/15/19 for a diagram of the zoning. One thermostat shall be provided for each zone.

1) Administration/Lobby – 09 size unit
2) Squad/Core Area – 24 size unit
3) Chief/Super/Deputy – 09 size unit
4) Conference – 09 size unit
5) Fitness/Locker Areas – 15 size unit
6) Break Room/Roll Call – 07 size unit
7) Processing Area – 15 size unit
8) N/A for air conditioning; see heating only item d. below.

v. Provide branch selector box (zone heat recovery device) as required to allow for simultaneous heating and cooling.

c. Ventilation – Mechanical balanced ventilation shall be provided utilizing an engineered heat recovery or energy recovery ventilation system. Ventilation systems shall conform to the latest versions of ASHRAE 62.1 and 90.1 standards. MC shall provide and install a packaged Energy Recovery Unit located in the mechanical room as follows:

i. Renewaire Model EV450IN-ECM
ii. 350 cfm of supply air and 350 cfm of exhaust air
iii. Exterior wall louver at the mechanical room for fresh outdoor air intake and an exterior wall louver possibly above the break room (minimum of 10'-0" of separation between fresh air intake and exhaust air discharge). Louvers shall be insulated and thermally broken.
iv. ERU to have motorized dampers on the outdoor air and exhaust air streams.
v. MERV 13 filters
vi. Vibration isolation kit
vii. Wall mounted digital timeclock Model TC7D-W.
viii. Fresh air shall be supplied to the spaces and/or return air plenum on the fan coil units.
ix. Exhaust air shall be removed from the bathrooms/locker rooms/fitness and returned to the energy recovery unit for discharge to the exterior.

d. Heating Only – Sally Port/Large Evidence

i. Option #1 if LP gas tank is provided: Provide a high-efficient LP gas-fired unit heater, Modine, or approved equal, in the Sally Port/Large Evidence space to maintain space temperature. This shall be oversized to account for the potential of untampered outdoor air being introduced to the space if the exhaust fan is operating during the winter months.

ii. Option #2 if no LP gas will be onsite: Provide a nominal 2-ton ducted fan coil unit connected to the VRF cold climate heat pump heat recovery system.

e. Exhaust

iii. Mechanical Room Exhaust: Exhaust air fan ducted to floor with a line voltage thermostat to prevent overheating, as required. There would be an associated outdoor air intake louver with motorized damper.

iv. Clothes Dryer Exhaust (as required): Insulated smooth round metal ductwork. Ductwork shall be extended from the laundry room with a common exhaust air ductwork to the exterior wall.

v. Toilet at Processing: Provide a ceiling exhaust fan with a smart timer switch with ductwork extended to the exterior.

vi. Sally Port & Large Evidence: An exhaust fan shall be provided in the space ducted to an exterior wall louver. This fan shall be able to be operated from a manual switch, timer switch or CO gas detection sensor mounted in the space. An adjacent intake louver with motorize damper on the opposite corner from the exhaust air fan shall be provide.

vii. All other bathrooms/locker rooms shall be exhausted via energy recovery unit; see Ventilation discussion above.

5. DOMESTIC & HVAC PIPING

a. Water: Type L Copper or Pex-A, all piping over 1" will be Copper Type L.

b. Refrigeration: ASTM B280 Seamless Copper Tubing with brazed joints.

c. Waste & Vent: All sanitary waste and vent piping above and below slab shall be DWV PVC. Exposed sanitary waste traps and cleanouts to be chrome plated. All exposed plumbing on ADA fixtures shall be provided with an insulation kit.

d. LP Gas Piping: LP gas piping shall be galvanized on the exterior of the building and shall be schedule 40 steel piping indoors. All piping less than 2-1/2" shall be threaded steel.

6. PLUMBING FIXTURES

a. Bathroom Sinks: Wall hung unit. Provide with wall carrier s.s. flexible stops, chrome tail piece and trap, pop-up drain. All to meet the accessible design standards for depth where required.

b. Ligature resistant stainless steel fixtures shall be provided in the Processing Room bathroom area, both for the toilet and lavatory, as required. Manufacturer shall be Acorn Engineering Company Penal Ware ADA 2010 Compliant Unit, 1449-RO-2, or an approved equal.

c. ADA 36"x36" Shower: Provide an Aquarius or Comfort Design ADA shower with 0.5" threshold, reinforced blocking, grab bars, folding seat and a showerhead with slide bar, shower drain.

d. Frost Free Hose Bib: Recessed Woodford Model B67, determine locations. Assume two locations.

e. Janitor Sink: Fiat Model 2424, floor mounted. With SS trim between top and FRP paneling.

f. Toilets: Toto, 1.28 gpf, elongated, universal height, provide with flexible s.s. supplies and waxless ring.

g. Break Room Sink: Double bowl, ADA depth, minimum 20 gauge, 4-hole sink with faucet and spray assembly. Elkay or an approved equal. Provide with braided stainless steel stops, chrome p-trap, grid strainer.

h. Washer Hookups (as required): Automatic water shutoffs with leak detection.

i. Indoor hot water/cold water hose bibb for Sally Port to be reviewed with the Architect/Owner.

j. Interior Floor Drains, Zurn or approved equal, shall be provided and installed at the following locations:

i. Mechanical Room
ii. Staff Bathrooms
iii. Staff Shower Room
iv. Staff Locker Room
v. Processing Bathroom
vi. Sally Port and Large Evidence

7. DOMESTIC HOT WATER HEATING

a. One heat pump water heater. The water heater shall be set to maintain a tank storage temperature of 140degF. This shall be located in the mechanical room.

b. Provide with a stainless steel domestic hot water recirculation pump with aquastat control.

c. Thermostatic mixing valve for tempering of the domestic hot water stored in the tank down to 110 degF.

8. UNDER SLAB MITIGATION SYSTEM

a. Under slab mitigation system to be similar to a typical radon system. Venting to be fan activated and extend through the roof. Underslab perforated PVC piping to be distributed. A manometer shall be provided on the vertical piping as it penetrates the slab. *Confirm if required.*

DIVISIONS 26/27/28 ELECTRICAL

1. General
    a. Provide a complete electrical system in accordance with all applicable codes, to include electrical service, electrical distribution, general power, lighting, lighting controls, telecommunications and security system cabling pathways and fire alarm systems as appropriate for this building. Codes applicable to the electrical work on this project are the Code of Ordinances of the Town of Tuftonboro and the State of New Hampshire which include, but are not limited to:
        i. State of New Hampshire, State Fire Code Saf-C
        ii. IBC-2015, International Building Code, with State of New Hampshire amendments
            1) Business Group B
            2) Storage, Moderate Hazard Group S-1
            3) Section 406 Motor-Vehicle-Related Occupancies,
        iii. NFPA 1-2018, Fire Code, with State of New Hampshire amendments
            1) NFPA 101-2015, Life Safety Code, with State of New Hampshire amendments
                a. Chapter 22 – New Detention and Correction Occupancies
                b. Chapter 38 – New Business Occupancies
                c. Chapter 42 – Storage Occupancies
            2) NFPA 72-2016, National Fire Alarm Code, with State of New Hampshire amendments
            3) NFPA 70-2017, National Electrical Code (NEC), with State of New Hampshire amendments
    b. Provide electrical installation, specifically lighting, lighting controls and maximum voltage drops meeting the requirements of the New Hampshire State Commercial Energy Standards and the Federal Energy Code, as appropriate.
    c. Coordinate with power utility companies and their requirements as necessary.

d. Coordinate with contractors of other trades (general, civil/site, mechanical, plumbing, temperature control) as necessary to provide an overall professional and complete project.

e. All devices and controls that may need to be accessed by occupants for adjustment, control or communications shall be arranged and located to meet 2015 IBC Chapters 11 and 34 with New Hampshire Amendments.

   i. Maximum height: 48" AFF to centerline
   ii. Minimum height: 18" AFF to centerline

f. Close-out Documents:

   i. Operation and Maintenance Manuals: Provide one electronic copy of the Electrical Systems Operation and Maintenance Manual to include all electrical inspection reports, equipment and system manufacturer installation and operation manuals, closed out electrical permits, all electrical submittal information including wiring diagrams for systems pertinent for the building.

   ii. Test, Adjustments, Cleaning and Lubrication:

      1) Provide system performance test runs. Coordinate test runs of electrical systems with test runs of equipment served thereby (heating, air conditioning, plumbing, etc.). Check each item in each system to determine that it is set for proper operation. With Owner's Representative present, operate each system in a test run of appropriate duration to demonstrate compliance with performance requirements. Demonstrate that controls and items requiring service or maintenance are accessible.
      2) After final performance test run of each electrical system, clean system both externally and internally. Comply with manufacturer's instructions for lubrication of both power and hand operated equipment, and remove excess lubrication. Touch-up minor damage to factory painted surfaces.

   iii. Identification:

      1) Provide neat, printed labeling of all equipment (panelboards, motor switches, disconnect switches, motor control equipment).
      2) Provide completed, accurate, typed panelboard directories for each panelboard.
      3) Provide warning labels to include arch flash labeling as required by NEC and equipment clearance labeling.

2. Electrical Service and Distribution

   a. Provide coordination with NHEC for electrical service to the building. All aspects of the service wiring installation shall be as per NHEC requirements.

b. Electric service to the building will be underground from NHEC owned, pole top transformers.
    i. The pole top transformers will provide service to the building.
c. The electric service is preliminarily sized be 120/208V, 3 phase, 4 wire, 200 Amp.
    i. Refer to Schematic Design Electrical One Line Diagram drawing EC1. This one line diagram should be utilized for schematic design planning, modified and adjusted as necessary by the Electrical Design Build Team as necessary to best suit the facility.
d. A Diesel Gas fired generator shall be provided which will power life safety and standby building loads as well as the electric fire pump.
    i. Generator is tentatively sized as 80KW/100KVA with weatherproof, level 1 sound attenuated enclosure, battery charger, engine heater and three service rated circuit breakers to serve standby loads.
    ii. Provide non-fused disconnects, if required by AHJ, at exterior of building for life safety and stand-by power.
    iii. Generator basis of design is Generac 80KW/100KVA diesel genset. Generator shall have 24 hour base fuel tank, Level 1 sound attenuated weather protective enclosure, battery charging system, engine heater and automatic transfer switch.
e. Provisions for a solar photo-voltaic generation system shall be provided on the building. Conduits shall be provided from the riser pole into the electrical room for direct connection to utility.
f. Basis of design for electrical distribution equipment is Square D. Equal products from General Electric, Eaton or Siemens shall be considered, as well. All equipment shall be provided from a single manufacturer.
    i. Basis of design products for distribution panelboards and lighting panelboards are indicated on the Schematic Design Electrical One Line Diagram.
    ii. Distribution panels shall have bolt-on circuit breakers, panels may be series rated.
    iii. Lighting panels shall have plug-on circuit breakers and may be series rated.
    iv. All panels shall have door-in-door front enclosure covers.
g. Wiring Methods:
    i. Follow all applicable codes and use good electrical construction practices when determining types of wiring methods and sizing of

conductors and conduit. Install all power, control and signal wiring using methods as follows.

1) Underground Wiring or Beneath Concrete Slab: Individual conductors in schedule 40 PVC rigid non-metallic conduit (RNC) for direct burial; transition to galvanized steel rigid metallic conduit (RMC) where conduit rises to be exposed above grade or concrete slab, from a minimum of 24" below finished grade.

2) Beneath roadway or parking area: Individual conductors in schedule 80 PVC rigid non-metallic conduit (RNC) for direct burial; transition to galvanized steel rigid metallic conduit (RMC) where conduit rises to be exposed above grade or concrete slab, from a minimum of 24" below finished grade.

3) Exposed Exterior Wiring: Individual conductors in galvanized steel rigid metal conduit (RMC).

4) Exposed Wiring in Utility Areas (Mechanical, Electrical Rooms, etc.): Individual conductors in electrical metallic tubing (EMT) with set screw fittings. Non-metallic (type NM) cable may be used minimally for final equipment connections.

5) Concealed Wiring above accessible ceilings: Individual conductors in electrical metallic tubing (EMT) with set screw fittings and metallic clad (type MC) cable.

6) Concealed Wiring in inaccessible walls and ceilings: Individual conductors in electrical metallic tubing (EMT) with set screw fittings and non-metallic (type NM) cable.

7) Final connections to mechanical/vibrating equipment will be maximum 4' flexible metallic conduit (FMC) in dry areas and liquid tight flexible metallic conduit (LFMC) in damp/wet areas.

ii. All wiring in finished areas will be routed concealed and devices will be flush/recessed mounted. Wiring in the utility areas will be exposed where no wall finish exists. Wiring routed exposed on vertical surfaces will be routed vertically; horizontal wiring will be routed at the ceiling level of these spaces, not on the walls.

iii. Service and feeder wiring shall be aluminum conductors, XHHW insulation. All branch wiring shall be copper, THHN/THWN-2 insulation.

iv. Provide an insulated equipment ground conductor within all cables and raceways.

3. Lighting

a. All general lighting will utilize LED (light emitting diode) light source luminaires. Lighting controls spaces will incorporate automatic measures allowing the

lighting levels to be reduced or lights turned off based upon occupancy and/or daylight contribution, as possible, as required by the Energy Code, as a minimum.

i. Interior automatic lighting controls will operate through the "vacancy" technique requiring manual control to turn lights on, and either manual or automatic control to turn lights off. This will require occupancy sensor switches for smaller spaces and power packs with sensors and low voltage manual controls in larger spaces.
ii. All spaces with daylight controls where required by Energy Code shall incorporate 0-10VDC daylighting dimming controllers, dimming the light to maintain a set, minimum light level in the space.
iii. Basis of design for general use interior lighting controls are products from Acuity, nLight localized, space-by-space lighting controls.

b. Luminaires: Luminaire appearance and locations shall be coordinated with and acceptable to the Owner and Architect. All locations shall be coordinated with Owners equipment and mechanical equipment and services to ensure luminaires are accessible for maintenance and do not hinder access to mechanical equipment.

c. Controls: Controls will be coordinated with the size, use and arrangement of the space as well as to accommodate building and operations equipment. Automatic (occupancy, time) lighting controls shall be incorporated where required by Code. Daylight controls will be provided if a source of daylight is available in the space and it is required by Code.

i. Occupancy sensor controls shall be adjusted to accommodate the use of the space, fine tuning the "off delay" of the control to ensure the luminaires do not turn off prematurely.

d. Pole top and building mounted exterior lighting will be provided to illuminate the driveways, parking areas and the building perimeter. Luminaires will be LED light source luminaires, full cut-off type pole top shoe boxes, wall packs or downlights.

i. Pole top area lighting shall have controls to reduce light output by at least 50% when no human presence is detected.

ii. Exterior lighting shall be controlled utilizing a multi-channel time astronomic controller with photocell input. Building mount and pole mount lighting shall be on separate exterior lighting control channels.

e. There will be a lighted sign, externally illuminated, at the front entrance. Ground mounted flood lighting shall be provided to illuminate both sides of the sign. Sign shall be controlled on its own channel in the exterior lighting controls.

f. Provide floodlighting of a flagpole at the front of the building, controlled via a channel in the exterior lighting controls.

g. The life safety lighting within the building (exit and emergency lighting) will be provided throughout the public areas of the building and in the utility spaces as necessary. Exit signage will be LED type powered from the life safety portion of the generator power distribution. Emergency lighting fixtures will be general use luminaires powered from the life safety portion of the generator power distribution system.

   i. UL924 relays shall be utilized to energize emergency lighting luminaires in the Corridors during a loss of utility power, bringing luminaires to 100% output. All other life safety lighting shall operate on/off through the manual and automatic lighting controls in the space they are located. All automatic lighting control devices shall be fail-safe (fail "on").

   ii. Exit signs shall be white with red letters, internally illuminated with LED source, >2 Watt per face.

h. Spaces, light levels, luminaires, controls

   i. Area light levels shall be as per Illuminating Engineering Society, North America (IESNA) "The Lighting Handbook", 10th Edition. Minimum egress lighting light levels are as per NFPA 101-2015 "Life Safety Code".

      1) Minimum level egress lighting allowed per 101 for egress pathways under normal conditions:

         a. Stairs 10 foot-candle, minimum
         b. All egress paths except stairs: 1 foot-candle, minimum

      2) Minimum level egress lighting allowed per 101-2012 under emergency lighting conditions (loss of normal power) is not less than an average of 1 foot-candle and, at any point, not less than 0.1 foot-candle measured along the path of egress at floor level.
      3) All lighting levels listed are foot-candle, average, maintained.

   ii. Provide for slight, initial over lighting of the spaces which will be trimmed down to proper light levels during the programming of the lighting control system.

   iii. Corridors

      1) Light level 10 foot-candle
      2) Controls Utilize occupancy sensors to bring lighting to 100% when occupancy is detected. When no occupancy is detected lighting levels shall reduce to approximately 20%. Utilize time control to have lights off at night when no presence is detected.

   iv. Public Lobbies, Vestibules

      1) Light level 10 foot-candle
      2) Controls Utilize occupancy sensors to bring lighting to 100% when occupancy is detected. When no occupancy is detected

lighting levels shall reduce to approximately 20%. Utilize daylight sensors to dim the luminaires in the vestibules when there is adequate daylight.

v. Lockers/Showers/Restrooms

1) Light level 10-15 foot-candle
2) Controls Manual control with dual-technology occupancy sensors, programmed for occupancy control.

vi. Offices

1) Light level 35-40 foot-candle
2) Controls Manual switch with dimming control with dual-technology occupancy sensors, programmed for vacancy control. When lights are turned on, they shall be programmed to provide approximately 20FC at the desk allowing manual dimming control to bring luminaires to full brightness. Offices with windows shall be provided with daylight dimming control to maintain 35FC at desktops, unless otherwise dimmed by the control system or manual control.

vii. Conference Room

1) Light level 35-40 foot-candle
2) Controls Manual switch with dimming control with dual-technology occupancy sensors, programmed for vacancy control. When lights are turned on, they shall be programmed to provide approximately 20FC at the table top level allowing manual dimming control to bring luminaires to full brightness. The space shall be provided with daylight dimming control to maintain 35FC at table top level, unless otherwise dimmed by the control system or manual control.

viii. Break Room

1) Light level 35-40 foot-candle
2) Controls Manual switch with dimming control with dual-technology occupancy sensors, programmed for vacancy control. When lights are turned on, they shall be programmed to provide approximately 20FC at the table top level allowing manual dimming control to bring luminaires to full brightness.

ix. Processing Areas

1) Light level 45-55 foot-candle
2) Luminaire Tamper/vandal resistant
3) Controls Manual switch with dual-technology occupancy sensors, programmed for vacancy control.

x. Misc. Storage Room

1) Light level 35-40 foot-candle
2) Controls Manual switch with dual-technology occupancy sensors, programmed for occupancy control.

xi. Sally Port/Large Evidence

1) Light level 35-40 foot-candle
2) Controls Manual switch, on/off to control each bay of lighting with dual-technology occupancy sensor control to dim lighting to approximately 10FC when no occupancy is detected.

xii. Utility Rooms, Janitor Closet, Storage Spaces

1) Light level 25-30 foot-candle
2) Controls Manual switch, passive infrared occupancy sensor, programmed for vacancy control.

xiii. Mechanical, Electrical, Plumbing Rooms

1) Light level 20 to 25 foot-candle
2) Controls Manual switch, dual-technology occupancy sensor, programmed for vacancy control.

xiv. Parking, Driveways, Walkways (exterior)

1) Light level 0.5 to 2 foot-candle
2) Controls On/off control via time-controller with photocell input (photocell on, time clock off), both building and pole mount luminaires. Pole mount luminaires shall be outfitted with motion sensors and dimming controls. Luminaires to turn on at dusk, full brightness for 4 hours, then dim down to 20% output. When a motion sensor on a luminaire senses human luminaire will return to 100% output until 10 minutes after no longer sensing a person or vehicle. Automatic raising and lowering of light levels shall be gradual, not instant.

i. Provide point by point lighting plan calculations for each space and the exterior, to include schedule of luminaires utilized in calculation and space calculation statistics. Calculations shall be performed based on the proposed luminaires and shall be submitted for review and approval with the luminaire submittal package.

4. General Power

a. All interior spaces shall have general use receptacles at reasonable locations. Generally maximum 12' spacing in offices and similar, 20' spacing in corridors. Ground fault interrupting type receptacles and circuit breakers shall be provided as necessary within the Sally Port, Large Evidence, Kitchen and Bathrooms and within 6' of sinks.
    i. All receptacles will be labeled with panel and circuit number.

ii. Provide floor receptacles with CAT6 jacks where required by Code (Multi-Purpose Room, Meeting and Conference Rooms). Basis of design is Walker RFB2 recessed activation floor box. Receptacles in floor boxes shall be powered from a circuit breaker with integral GFCI protection.

iii. Conference/EOC/Fitness spaces shall have duplex receptacles paired with a CAT6 ethernet jack on 6' spacings around the perimeter of the rooms.

b. All receptacles will be specification grade 20A 120VAC rated.

i. Receptacles with integral ground fault circuit interrupter (GFCI) shall be provided where required and where appropriate. Where the GFCI receptacle would be concealed behind equipment where deemed "not accessible for resetting", a standard receptacle shall be provided with GFCI integral to the circuit breaker serving the circuit.

c. All power receptacle devices shall be white finish with high-impact resistant thermoplastic wall plates, unless otherwise directed by the Architect.

d. All exterior, damp and wet location receptacles shall be provided with a metallic, weatherproof, while-in-use cover. All exterior receptacles shall be mounted in flush-mount boxes; surface FS/FD boxes shall not be allowed.

e. Power connections shall be provided to all new HVAC and plumbing equipment provided as part of this project, as well as all 120 VAC systems control wiring.

f. Power feeds will be provided to all building equipment, including the kitchen equipment, fire department equipment, handi-cap access door operators and building controls.

5. Contractor shall price EV charging station as an add alternate. Base bid, include conduit from the Electrical Room out to the front of the building, only.

6. Life Safety Systems

a. Life safety lighting was addressed in the Lighting portion of this design concept.

b. A manual fire alarm system will be provided with manual stations and audible/visual signals throughout the building.

i. Automatic initiation of the fire alarm system will be provided from sprinkler system flow switch(s), smoke detectors in the Mechanical and Electrical Rooms and Holding Cell. The fire alarm system will provide supervisory functions as necessary to monitor the sprinkler system.

1) Provide an aspirating smoke detection system to serve the Holding Cell.

2) Provide smoke detection in all corridors, lobbies and storage rooms.

3) Provide carbon monoxide detection in all corridors

4) Provide full heat detector coverage of the Sally Port and Large Evidence bays.

ii. The fire alarm system control panel and power supplies will be in the main Electrical Room. A remote annunciator at the main entrance to the building for firefighter interface.

iii. Audible and visual alarm signals shall be provided throughout the building as required by Code a minimum.

1) Audible signaling shall be by means of fire alarm system speakers providing a voice evacuation signal.

2) System visual signal strobes will be throughout the building.

iv. Fire alarm system shall monitor status and alarms of the Sally Port and large evidence bay area gas detection systems.

v. Fire alarm system shall have the means to communicate to a central station through two paths.

vi. Provide an annunciator/local operator console and fire-fighters key box. Locations shall be determined as per Fire Department direction.

7. Telecommunications:

a. Service conduits with pull wires shall be provided from the utility pole underground to a backboard in the Mechanical Room. Three conduits total, to serve telephone and CATV service provider.

i. Telephone will utilize CAT6 cabling

ii. CATV will utilize RG6 cabling

iii. Racking will be specified with patch panels for telephone and CATV.

b. Provide a complete telecommunications system including but not limited to racking, cabling, wall devices, wireless access points, etc. labeled and tested by Contractor.

i. Conference/EOC/Fitness spaces shall have a CAT6 ethernet jack paired with duplex receptacles on 6' spacings around the perimeter of the rooms.

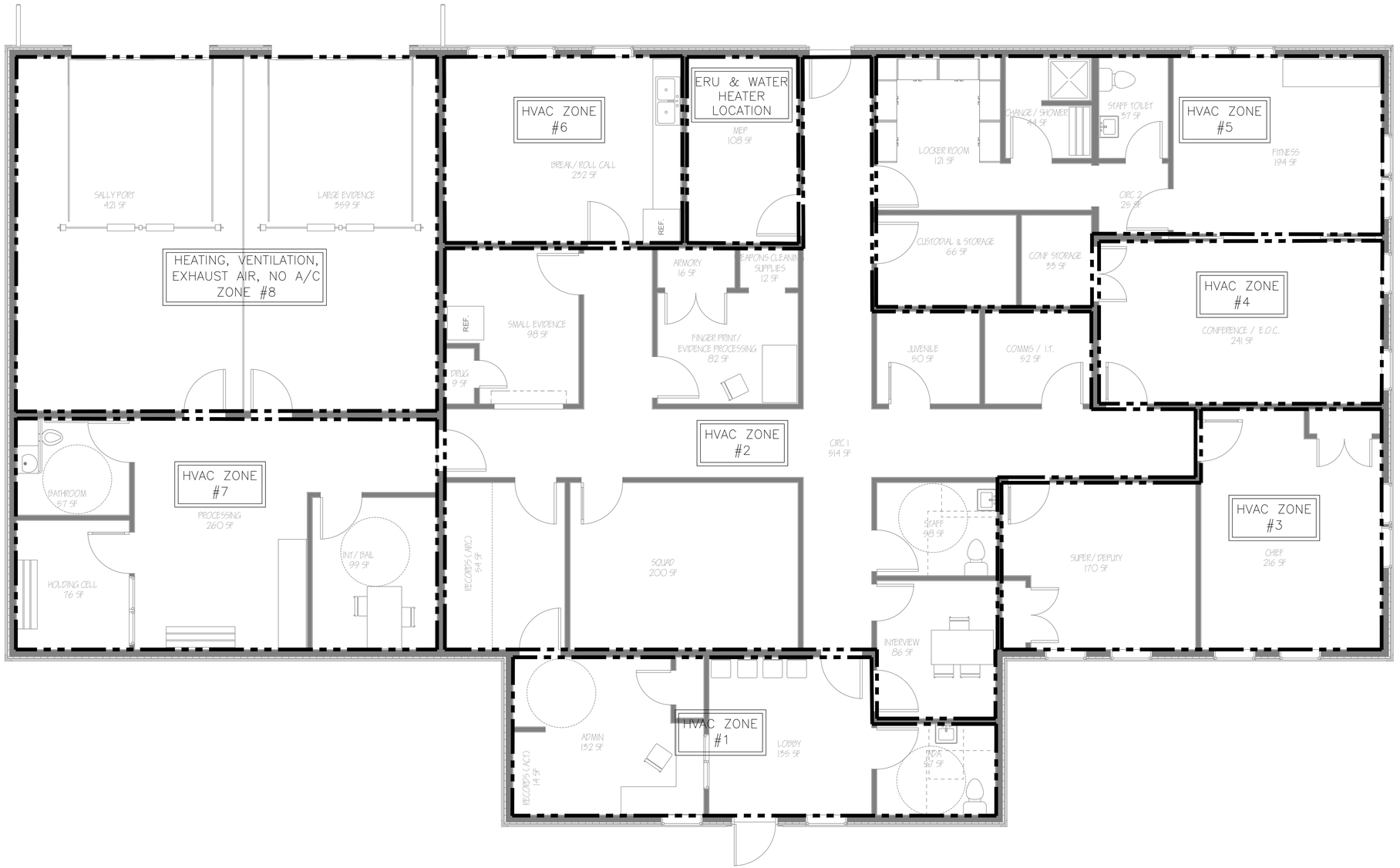
ii. Provide a two CAT6 ethernet jack in each office space at the desk location.

iii. Provide a two CAT6 ethernet jack in each floor box where they are required by Code (Multi-Purpose Room, Meeting and Conference Rooms).

iv. Provide CAT6 jacks at ceilings for wireless access point use. WAP's to be provided by the Owner.

c. Audio recording system: Provide conduits, boxes and power supplies for the audio recording system which will serve processing spaces. Requirements to be coordinated with the Owner's audio recording system Vendor.

8. Radio Antenna Cabling
   a. There will be radio antennas on the roof of the building. Antenna cabling shall be provided from the antenna to the Police radio equipment, likely located in the Admin room.



MECHANICAL HVAC ZONING PLAN

1/4"=1'-0"

SCHEMATIC DESIGN
NOT FOR CONSTRUCTION
12/15/2019

Engineering Services of Vermont, LLC
9 Washington Street
Rutland, Vermont 05701
www.ENGINEERINGSVERMONT.com
Phone: 802-855-8091
CONSULTING ENGINEERS
MECHANICAL - ELECTRICAL

NO.	ISSUED FOR	DATE

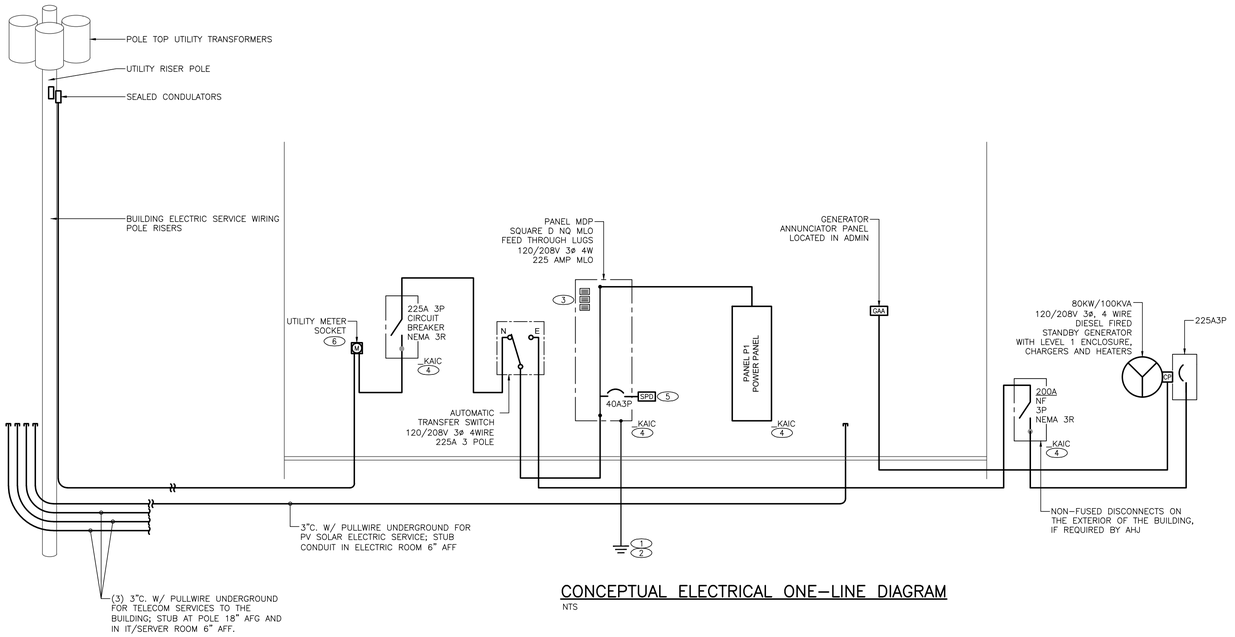
TOWN OF TUFTONBORO
TUFTONBORO, NEW HAMPSHIRE

TUFTONBORO POLICE STATION

MECHANICAL HVAC ZONING PLAN

PROJ NO:	19079W
DRAWN:	JLM
DATE:	12/15/2019

M1



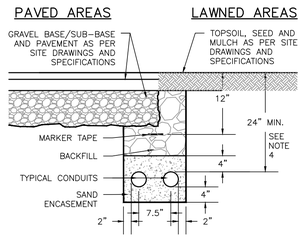
CONCEPTUAL ELECTRICAL ONE-LINE DIAGRAM

NTS

DRAWING NOTES:

THESE DRAWING NOTES APPLY TO THIS DRAWING, ONLY.

1. PROVIDE (1) #6 7 STRAND BARE COPPER BONDING JUMPER IN 1/2" NON-METALLIC RIGID CONDUIT TO THREE(3) 3/4" X 10' GROUND RODS, SPACE 7' APART, MINIMUM, CREATING AN EQUILATERAL TRIANGLE. CADWELD ALL GROUND ROD CONNECTIONS. (NEC 250.52(5), 250.66(A))
2. PROVIDE (1) #2 7 STRAND BARE COPPER BONDING JUMPER IN 1/2" NON-METALLIC RIGID CONDUIT TO A 1/2" DIAMETER (OR GREATER) MINIMUM 20'-0" LONG CONCRETE ENCASED REINFORCING BAR IN A SLAB OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH. MINIMUM 2" CONCRETE ENCASEMENT. WHERE ADEQUATE REINFORCING ROD IS NOT AVAILABLE, PROVIDE 20' OF #4 COPPER CONDUCTOR INSTALLED IN THE CONCRETE, METALLICALLY TIED TO THE METALLIC REINFORCING RODS. (NEC 250.52(3), 250.66(B))
3. PROVIDE LABELS IDENTIFYING CONDUCTOR COLOR IDENTIFICATION, ROTATION AND AVAILABLE SHORT CIRCUIT CURRENT.
4. SHORT CIRCUIT CURRENT IS CALCULATED BASED UPON INFINITE AVAILABLE UTILITY SHORT CIRCUIT CURRENT, MOTOR CONTRIBUTIONS, (3)25KVA UTILITY TRANSFORMER WITH 1.5% IMPEDANCE.
5. PROVIDE A SURGE PROTECTIVE DEVICE. CONNECT TO A 40A3P CIRCUIT BREAKER; WIRING SHALL BE (4#8, 1#10G) 3/4"C. LOCATE SURGE SUPPRESSION DEVICE ADJACENT TO THE PANEL. PROVIDE LEVITON 52000 SERIES OR APPROVED EQUAL; 120/208V, 3 PHASE, 3 WIRE, 100KA PEAK SURGE CURRENT PER PHASE IN A NEMA 1 ENCLOSURE.
6. COORDINATE ELECTRICAL SERVICE ENTRANCE WITH GREEN MOUNTAIN POWER, INCLUDING POLE RISER CONSTRUCTION, TRENCHING AND METERING.



NOTES:
1. DETAIL IS TYPICAL FOR ALL SITE WIRING.
2. COMPLY WITH OSHA TRENCH PROTECTION REQUIREMENTS.
3. PROVIDE CONDUIT SPACERS/SADDLES EVERY 6 FEET.
4. BURIAL DEPTH IS SHOWN FOR DIRECT BURIAL PVC RIGID NON-METALLIC CONDUIT. WHERE SPECIFIED BURIAL DEPTH IS NOT POSSIBLE, UTILIZE GALVANIZED STEEL RIGID METALLIC CONDUIT. NOTIFY ENGINEER PRIOR TO ANY CHANGE OF WIRING METHODS.
5. CONDUIT DEPTH SHALL BE 36" TO TOP FOR CONDUITS FROM TRANSFORMER AND GENERATOR INTO THE BUILDING.
6. **DETAIL IS TYPICAL INSTALLATION; PROVIDE QUANTITY OF CONDUITS AS REQUIRED FOR THE INSTALLATION AND AS DIRECTED IN THE PLANS AND DETAILS.**

TYPICAL ELECTRICAL DUCTBANK DETAIL

NO SCALE

SCHEMATIC DESIGN
NOT FOR CONSTRUCTION
12/15/2019

Engineering Services of Vermont, LLC
9 Washington Street
Rutland, Vermont 05701
www.ENGINEERINGSVERMONT.com
Phone: 802-855-8091
CONSULTING ENGINEERS
MECHANICAL - ELECTRICAL

NO.	ISSUED FOR	DATE

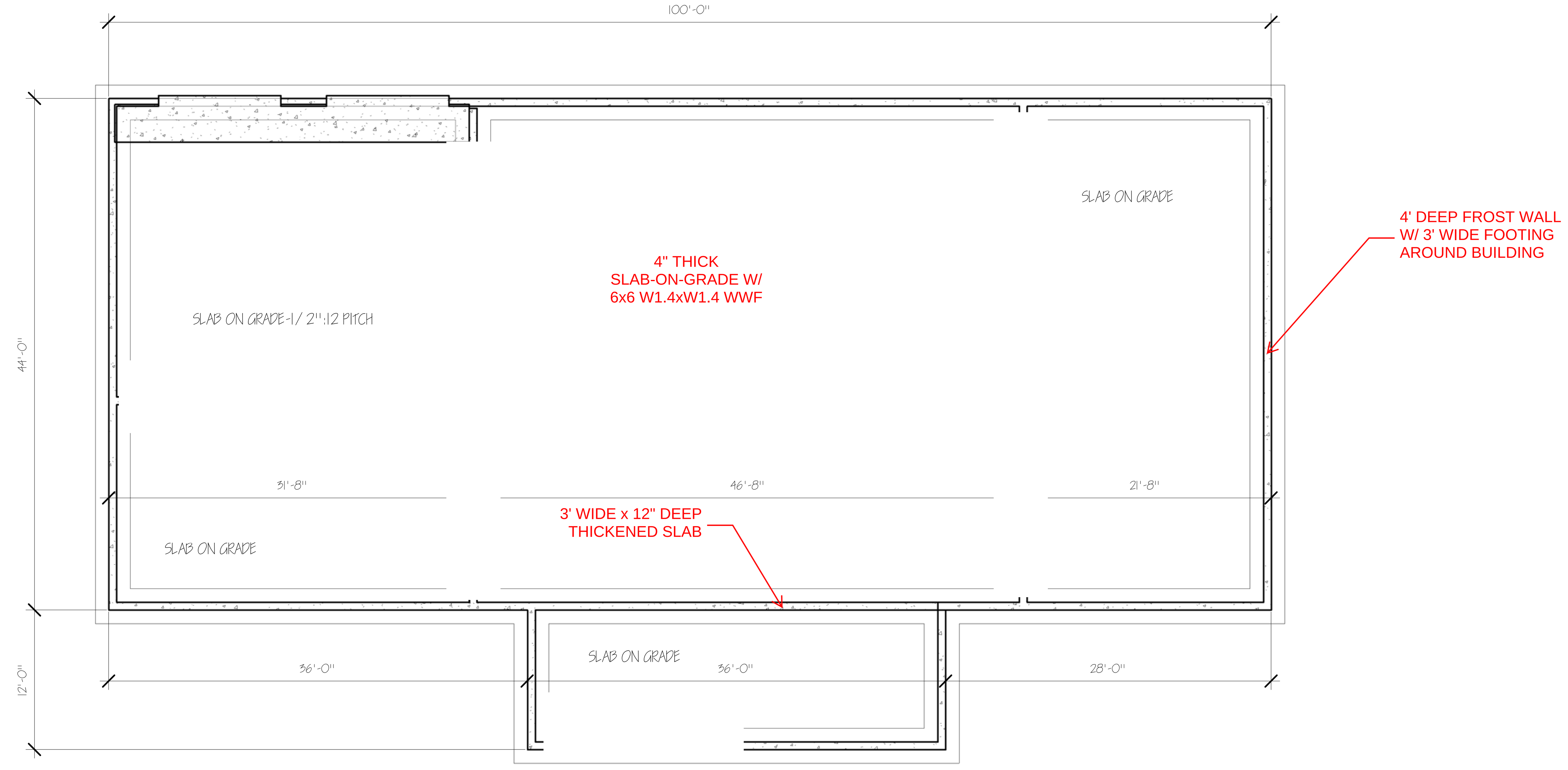
TOWN OF TUFTONBORO
TUFTONBORO, NEW HAMPSHIRE

TUFTONBORO POLICE STATION
CONCEPTUAL
ELECTRICAL ONE LINE DIAGRAM

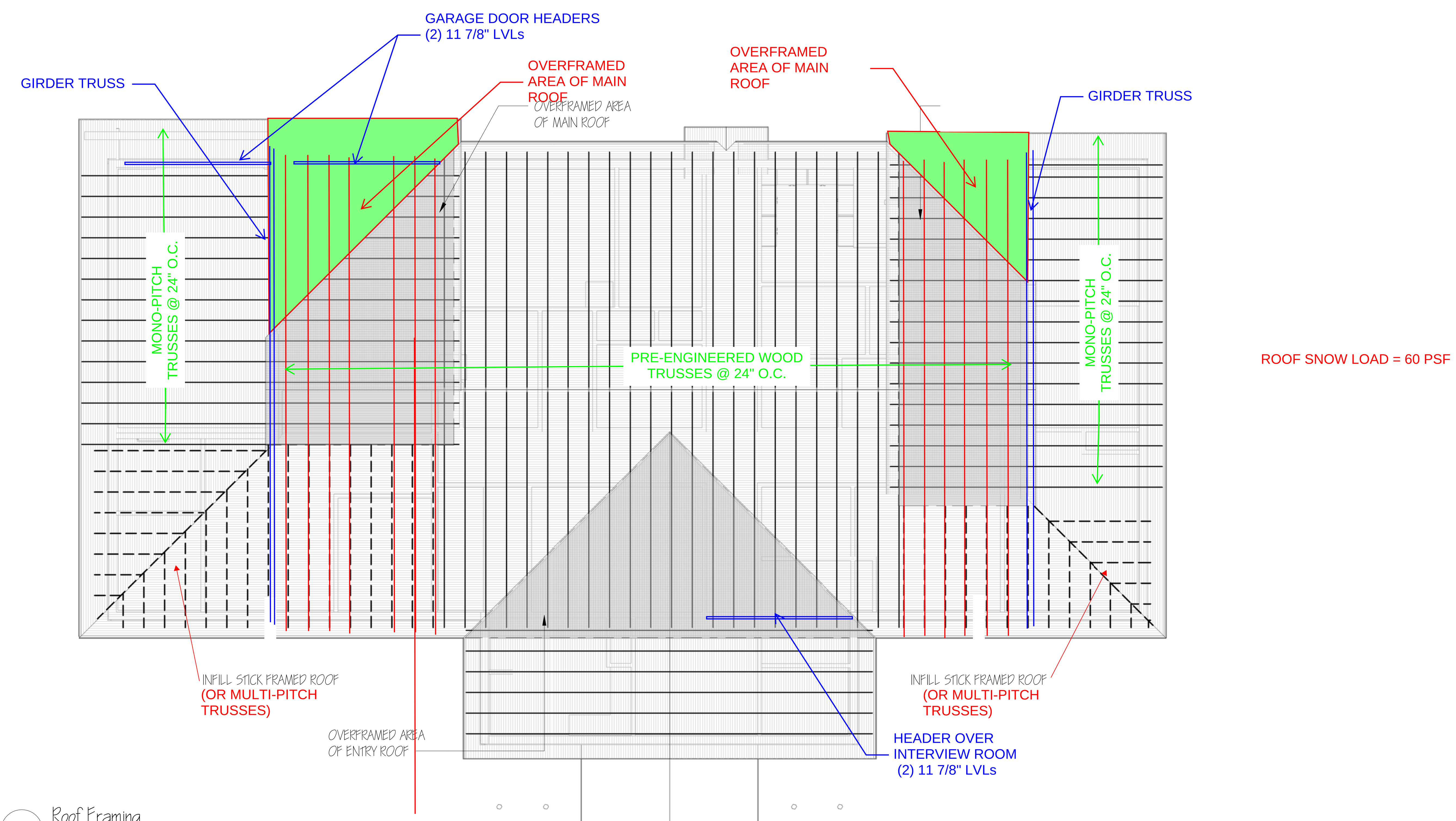
PROJ NO:	19079W
DRAWN:	PJP
DATE:	12/15/2019

EC1

NOTE:
DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.



1 Foundation
1/8" = 1'-0"



2 Roof Framing
1/8" = 1'-0"

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE. ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

GENERAL NOTES:

PROJECT NAME & ADDRESS:
Tuftonboro Police Station
Town of Tuftonboro
Street Address, City, State, Zip

STRUCTURE PLANS

A1.0

preliminary UPDATE 12.06.19

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . new hampshire . 03262 . (603) 745-4770 . www.albaarchitects.com

NOTE:
DRAWINGS ARE BASED ON INFORMATION PROVIDED BY OTHERS. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

EXISTING SITE REDEVELOPMENT:
- NEW WELL FOR NEW FACILITY
- NEW SEPTIC SYSTEM FOR NEW FACILITY
- NEW CURB-CUT AND FORM NEW PARKING AREA
- ADD ALTERNATE FOR FIRE SUPPRESSION SYSTEM WATER CISTERN

1 DEAR BORN SITE REDEVELOPMENT
1/16" = 1'-0"

PRELIMINARY DRAWINGS
NOT FOR CONSTRUCTION

DRAWINGS ARE SUBJECT TO CHANGE, ANY ASSUMPTIONS BASED ON THESE DRAWINGS ARE AT THE SOLE RESPONSIBILITY OF THE ASSUMER

GENERAL NOTES:

PROJECT NAME & ADDRESS:
PROJECT NAME
Project Owner
Street Address, City, State, Zip

DEARBORN PROPERTY Site Plan

A 0.2

preliminary 12.06.19

alba architects llp . stuart j anderson & philip m bennett . po box 186 . 137 main street . north woodstock . new hampshire . 03262 . (603) 745-4770 . www.albaarchitects.com

3.0 **Construction Budget and Associated Cost**

Cobb Hill Construction, Inc.
206 North State Street • Concord, NH 03301 • 603.224.8373 • Fax: 603.224.0375 • www.cobbhill.com • email: info@cobbhill.com

January 8, 2020

Town of Tuftonboro, NH
Tuftonboro Police Department

Attn.: Phillip Bennett, alba Architects

Cobb Hill Construction is pleased to submit budgetary cost estimate for preferred schematic building and site design to be located at the 'Dearborn Site Location'.

This proposal is based on our interpretation of means and methods of construction to provide the expected finishes. To perform the work as requested, Cobb Hill will proceed with development services to finalize the scope of work that will be provided.

*This Proposal is valid for 30 days
The Scope of Services is as follows

1) **Construction for New Police Dept Building** **$1,482,700.00**
   a) Construction of new 4900 sqft. new structure per proposed layout

Alternates: (Pricing listed below is not included in price above)

- **Fire suppression system add alt for new building** **$73,567.00**
  - System in building $61,387
  - Cistern $12,180
- **EV Charging Station (1) – Uses standard SAE J1772** **$4,270.00**
- **Nichiha Cement Fiber Siding – Brick** **$16,500.00**
- **18-20 KW Solar System** **$68,000.00**

Feel free to contact me if you have any questions.

Sincerely,

Alessio Bares

Alessio Bares

3.2 Construction Soft Cost and Overall Budget

Estimated Project Soft Cost		*estimate*
1.1	Consultant Fees (through construction documents) Architecture, Mechanical, Electrical, Plumbing, Structural, Civil Engineering	$53,498
1.2	Bidding Fees (Consultants' submittal review not to exceed fee)	$3,000
1.3	Permitting	$2,000
1.4	Site Survey-Update	$1,000
1.5	Financing Fees	TBC
1.6	*Clerk of Works Fee (estimated)	$65,000
1.7	Construction Insurance	TBC
1.8	**Construction Administration Fees (consultants estimated)	$37,500
1.9	Construction Testing Agency (estimated)	$4,000
1.10	Special Inspections	TBC
1.11	Site Security	$2,500
1.12	Owner's Contingency (5%)	$74,960
SUB-TOTAL		**$243,458**

ASSUMPTIONS / CLARIFICATIONS:

1. Note: Items 1.3-1.11 are estimates only. No bids have been sought for these items at this stage.
2. Professional Fees are based on design/program as indicated in preface and previous studies. Should the project differ significantly from this, the Architect reserves the right to revise this proposal accordingly.
3. Professional Fees noted above exclude standard reimbursable expenses.
4. *Clerk of Work Fee is estimated based on past experience. Should CoW not be required, consultants can agree method to address site observations typically carried out by CoW.
5. ** Construction Administration Fee is an estimate of anticipated fees incurred during a nine-month construction period. Fee will be agreed with client at completion of construction documentation phase of work.

EXCLUSIONS:

Owner supplied furniture, fittings and equipment.
Department relocation cost.
Permit application fees.
Town required bonding fees.
Geotechnical inspection/survey fees (not anticipated)
Soft landscaping (beyond soil/seed)

Construction for New Police Dept Building	$1,482,700
Nichiha Cement Fiber Siding-Brick	$16,500
Estimated Project Soft Cost	$243,458
Anticipated Total Construction Cost	**$ 1,742,658**
Add-Alternates (not included in construction cost)	
Fire Suppression System	$73,567
18-20KW Photovoltaic Array	$68,000
EV Charging Station	$4,270