

CAPITAL FACILITIES PROJECT BINDER

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Capital Facilities Project Binder

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Program Spaces	Existing	SB Proposed	FD/PD Proposed	BLC	Remarks
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Police & Fire Shared Space

S H A R E D	Vestibule/Lobby	80	124	100	124	
	Training Room	616	700	700	616	Space for 45 (32) people. Existing Training Room has kitchen area (app. 145 sq.ft.). Police fire and fire departments will share the training room with the public. The training room is sized both for the fire department and to allow outside departments to share the training opportunities. Fire department training functions require the access to a kitchen and the fire department support team uses the kitchen to prepare food for long duration events. When mutual-aid departments are staging at the Norwich Fire Station they need a place to standby. It will also provide for some regional fire and police training to be held in Norwich reducing our travel and overtime costs. It will be available for public use.
	Training Room Storage				46	
	EOC/Small Conference Room	0	0	200	210	Provides for meeting room, alternative location for public works, police and fire radio communications and EOC to manage major emergencies including using DisasterLAN for coordination with VEMHS.
	EOC/Emergency Bunk Room (Meeting Rm/Library)	0	300	300	0	Police, Fire and EOC Staff sleeping room during extended emergency events (storms, flooding etc). During a major emergency, the Emergency Operations Center would function as command center and dispatch facility, whereas the training room would serve as a staging area for emergency workers.
	Eat-In Kitchen	0	300	0	0	Existing training room has kitchen area.
	Public Toilet (2) (1)	47	68	68	138	
	Mechanical Room	90	200	200	187	Includes electrical equipment, compressor and elevator machine room.
	Janitor Closet	0	75	75	60	
	I.T. Closet	0	70	70	0	
Total Police & Fire Shared Space			1,837	1,713	1,381	

Fire Department Space

F I R E	Fire Chief's Office	105	180	180	173	Existing Fire Chief's office is in Police Station.
	FD Office	110	0	100	113	For fire department computer, report writing, records, copier, base station radio and backup dispatch.
	Toilet	30	0	68	0	Second floor toilet.
	Bathroom w/ Shower (M)	0	80	80	112	Bathroom/shower adjacent to Apparatus Bay. Allows for fire and medical gross decontamination.
	Bathroom w/ Shower (F)	0	80	80	112	Second bathroom/shower adjacent to Apparatus Bay. Allows for fire and medical gross decontamination.
	Day Room/Eat-In Kitchen	0	0	300	436	Existing training room has kitchen area.
	Unrequired Common Practice Spaces	0	0	0	0	NOT requested: Tech Rescue/EMS/HazMat Storage, Fitness Room, Men's & Women's Locker Rooms
	Shop/Tool Room	0	0	250	0	Includes SCBA compressor, gear washing machine, work bench (currently stored on apparatus floor).
	General Storage	0	0	300	105	Fire & EMS equipment, supplies, training props, foam (currently stored on apparatus floor).
	Phase One (Administrative Offices) Total		340	808	1,051	
	FD Office in existing space	110	110	0		For fire department computer, report writing, records, copier, base station radio and backup dispatch.
	Shop/Tool Room in existing training room	0	250	0		Includes SCBA compressor, gear washing machine, work bench (currently stored on apparatus floor).
	General Storage in existing training room	0	300	0		Fire & EMS equipment, supplies, training props, foam (currently stored on apparatus floor).
	Phase One (Remodel Equipment Bay and Training Room)		660	0	0	
	FD Office	110		0	0	For fire department computer, report writing, records, copier, base station radio and backup dispatch.
	Apparatus Bays	3,250	4,600	4,600	4,467	3 bays/2 trucks deep. 80 sq ft hose storage, 48 sq ft foam, 317 sq ft turnout gear & donning area, 200 sq ft hose washer & drying racks.
	Shop/Tool Room	0	250	0	440	Includes SCBA compressor, gear washing machine, work bench (currently stored on apparatus floor).
	General Storage	0	300	0	0	Fire & EMS equipment, supplies, training props, foam (currently stored on apparatus floor).
	Phase Two (Apparatus Bay, Shop & Storage)		5,150	4,600	4,907	
Total Fire Department Space After Phase Two			5,490	5,408	5,958	

Police Department Space

POLICE	Administrative Office	208	150	150	165	Provides not only secretarial duties but dispatch duties as well, prep-areas court work and receives visitors / daytime dispatch duties
	Police Chief's Office	208	180	180	190	Plans and directs the operation of the department
	PD Supervisor Office	144	150	150	150	Second in command / needs to plan and direct in the chiefs absence
	PD Shared Office for Officers	115	250	250	320	Shared by all the officers to complete reports / prepare cases etc..
	Interview* X2 (10'x10' EACH)	0	200	200	192	* Keeps suspects and witnesses/victims separated / private area
	Secure Garage	0	350	350	333	Secure area for vehicle and direct entrance to bring in evidence or people
	Evidence Processing	0	50	50	80	Used by the officers to process any evidence they have seized then
	Evidence Storage	35	100	100	116	secured for the evidence officer to log into storage to maintain COC
	Archived Storage	0	100	100	100	Required to keep documents for different lengths of time
	Break Room	120	0	120	166	For officer's breaks and lunch room. The police break room needs to be in the secure area and have some communications capability since there are many times there is only one person in the station.
	Men's Locker Room	98	195	195	248	Officers to keep gear and change into uniforms
	Women's Locker Room	98	144	144	185	See above for Female officers
	General Storage	250	100	100	0	Shared with fire
	Toilet				72	
	Small meeting/conference room	370	0	150	204	Monthly Staff meetings / Plan and direct operations such as Warrants etc. Police meeting space requires privacy from public access and must be connected to other police functions, such as evidence and interview rooms.
	Unrequired Common Practice Spaces	0	0	0	0	Common Practice Rooms NOT requested: Dispatch/Reception, Processing/Booking, Holding Cell (x2), Sally Port
Total Police Department Space			1,969	2,239	2,521	

Summary

SUMMARY		Existing	SB Proposed	FD/PD Proposed	BLC	
	Phase One					
	TOTAL NET Phase One (Administrative Offices)		4,146	4,760	4,953	
	Circulation Space (Hallways, Stairs, Elevator)	6%	24%	24%	1,324	
	GROSS SF MULTIPLIER				13%	
	TOTAL GROSS Phase One (Administrative Offices)		5,141	5,902	6,921	
	TOTAL NET Phase One (Remodel)		660			
	Circulation Space (Hallways, Stairs, Elevator)	6%	10%	24%		
	TOTAL GROSS Phase One (Remodel)	10%	616			
	Phase Two (Apparatus Bay, Shop & Storage)		5,150	4,600	4,907	
	TOTAL NET Police & Fire Space Phase Two	2,724	9,296	9,360	9,860	
	TOTAL GROSS Police & Fire Space Phase Two	2,887	10,391	10,502	11,828	

Site

SITE		Existing	Proposed	FD/PD Proposed		
	Parking Spaces Fire	0	28	28	19	Parking spaces are 9' X18' (162 s.f.) with 12' one way lane.
	Parking Space Police	13	13	13	11	Parking spaces are 9' X18' (162 s.f.) with 12' one way lane.
	Septic and drainage					
	Apparatus Egress and Ingress Lanes	15'	42'	42'		Grange still obstructs apparatus discharge onto Main St.
	Maneuvering Space for Apparatus	0	650 s.f.	650 s.f.		

**Police, Fire and Public Works
Cost Estimates**

Town of Norwich Police, Fire and Public Works Facilities

Cost Estimates

	BLC Fire/Police Two Story	BLC Fire/Police Two Story Add Apparatus Floor	BLC Fire/Police One Story	BLC Fire/Police One Story Add Apparatus Floor	Spates New Two Bay Building, Office and Break Room	Spates Addition to Existing Building Including Repair of Existing Roof	Spates 60' x 150' Pre- Engineered Steel Cold Storage Building
Site Location							
Site	\$ 409,000	\$ 199,000	\$ 416,000	\$ 184,000	\$ 50,000	\$ 50,000	\$ 10,000
Buildings	\$ 1,477,000	\$ 858,000	\$ 1,304,000	\$ 822,000	\$ 443,869	\$ 452,553	\$ 225,000
Total	\$ 1,886,000	\$ 1,057,000	\$ 1,720,000	\$ 1,006,000	\$ 493,869	\$ 502,553	\$ 235,000
SF	8,457	4,940	6,990	5,040	3,420	3,861	9,000
Total Construction Cost	\$ 1,886,000	\$ 1,057,000	\$ 1,720,000	\$ 1,006,000	\$ 493,869	\$ 502,553	\$ 235,000
Building SF Cost	\$ 175	\$ 174	\$ 187	\$ 163	\$ 130	\$ 117	\$ 25
Total SF Cost	\$ 223	\$ 214	\$ 246	\$ 200	\$ 144	\$ 130	\$ 26
8% A/E Fees	\$ 150,880	\$ 84,560	\$ 137,600	\$ 80,480			
Owner Costs	\$ 253,000	\$ 183,000	\$ 253,000	\$ 183,000	\$ 20,000	\$ 20,000	\$ 10,000
Temporary Office for PD	\$ 88,000		\$ 88,000				
PV Contribution							\$ (75,000)
Total Project Budget	\$ 2,377,880	\$ 1,324,560	\$ 2,198,600	\$ 1,269,480	\$ 513,869	\$ 522,553	\$ 245,000

Owner's Cost Breakdown

	Fire/Police	Apparatus Bay
Independent Testing Inspection	\$3,000	\$3,000
Hazardous Mat Assess/Abatement	\$0	\$0
Reimbursable - Printing Cost	\$3,000	\$3,000
Builder's Risk Insurance	\$8,000	\$8,000
Permitting Fees	\$10,000	\$10,000
Power company charges	\$3,000	\$3,000
Other Utility Charges & Fees:	\$3,000	\$3,000
Security and CCTV System	\$25,000	\$10,000
Tele System (Handsets and Hardware)	\$3,000	\$3,000
Intercom / Paging System	\$2,000	\$2,000
Data System	\$5,000	\$5,000
Audio - Visual Equipment	\$2,000	\$2,000
Furnishings-Lockers, Desks, Chairs, etc	\$25,000	\$25,000
Moving & Miscellaneous Expenses	\$5,000	\$5,000
Office Rental During Construction	\$0	\$0
Owner Contingency	\$150,000	\$100,000
Blasting and Rock Removal	NA	NA
Window Treatment	\$4,000	\$0
Interior Signage	\$2,000	\$1,000
Total Owner's Cost	\$253,000	\$183,000

VMBB Loan Process

All applications must be received by VMBB on or before May 15th of the year the bonds are issued.

The VMBB loan application asks for project specific information and municipal data (taxes, financial, outstanding debt, and other comparative data). The VMBB does not charge an application fee, nor does it charge ongoing loan fees. The VMBB pays for all costs of issuing the bonds except the costs associated with the municipality's local bond counsel and the required accountant's financial statements. To assist in the timely completion and submission of bond applications, below is a table outlining key dates in the financing process:

May 1

To be an accepted bond participant, the following must be done prior to submitting an application.

- Contact a qualified local bond counsel. ([Click here](#) to see a listing of Approved Local Bond Counsels)
- Conduct a successful bond vote as required by Vermont statutes (contact your local bond counsel for more information)
- Obtain an accountant's audited financial statements for the most recently completed fiscal year
 - With the permission of the VMBB Board, an accountant's review or compilation may be submitted in lieu of an audit report.
- Request a VMBB application

Need help? Although VMBB cannot complete an application for an applicant, staff is available to assist borrowers with clarification of the information being requested. [Click here](#) to request assistance.

May 15

- Application filing due date

May 15 thru June 1

- VMBB staff review applications, obtain clarifying information from the borrowers and make loan recommendations to the VMBB Board

Mid-June

- VMBB Board approved applications are added to the bond pool
- Applicant signs and delivers its loan agreement to its bond counsel

End of July

- VMBB sells its bonds and deposits the bond proceeds with the trustee
- Bond proceeds are deposited into borrower accounts held in trust by the trustee
- A bond closing announcement letter and final debt repayment schedule is sent to each borrower
- Borrowers may begin filing requisition requests with the trustee

From time to time the VMBB will issue bonds outside of the regular summer bond pool. Check the [Announcements](#) section of this website or contact the VMBB office to see if a bond pool is being considered for issue sometime other than in the summer.

		Bonds		Lease-Purchases		
Fiscal Year	Tracy Hall	Communications	Grader	Communications	Total	
14	\$49,297	\$5,447	\$19,042	\$26,866	\$100,652	
15	46,436	33,904	19,042	26,866	126,248	
16		33,632	19,042	26,866	79,540	
17		33,256		26,866	60,122	
18		32,775		26,866	59,641	
19		32,189			32,189	
20		31,505			31,505	
21		30,738			30,738	
22		29,894			29,894	
23		28,976			28,976	
24		28,000			28,000	
Total	\$95,733	\$320,315	\$57,126	\$134,330	\$607,504	

\$ 380,604

Payments

Mink Brook	\$ 5,000.00
Bread Loaf	\$ 25,194.00
DeWolfe	\$ 1,851.92



SELECTBOARD PRESENTATION
SEPTEMBER 25, 2013


TOWN OF NORWICH, VERMONT
FIRE, POLICE & PUBLIC WORKS FACILITIES STUDY

BreadLoaf
ARCHITECTS
PLANNERS
ENGINEERS



BreadLoaf Corporation

- Founded in Middlebury, VT in 1968.
- Firm of 60+ professionals.
- 11 LEED accredited professionals.
- 7 LEED projects throughout New England.
- 26 municipal projects in 20 communities throughout New England.
- Assume single-source responsibility on projects.
- Integrated approach from planning through construction.



BreadLoaf
ARCHITECTS
PLANNERS
ENGINEERS

Project History


PART 1- Code and Regulation Deficiencies

PART 2- Functional Deficiencies

PART 3- Functional and Space Needs Program

PART 4- Alternatives Development and Analysis

- 2010-2011 study done for the public works facility by American Consulting Engineers & Surveyors and Wiemann Lamphere Architects
- 2006-2008 study done for the public safety facility by Black River Design Architects, ORW Landscape Architects and SVE Associates
- 2012 Mink Brook Management Fire Station code and functional deficiencies
- 2012 Mink Brook Management Police Station code and functional deficiencies
- 2012 Mink Brook Management Public Works code and functional deficiencies



BreadLoaf
ARCHITECTS
PLANNERS
ENGINEERS

Norwich Fire, Police, and Public Works Facilities

PHASE 1 FACILITIES STUDY SCHEDULE
September 18, 2013

	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14
Part 1- Functional and Space Needs Program												
Programming kick-off meeting with Departments												
Programming meetings with Departments												
Two Meetings with Capital Facilities Planning and Budgeting Committee												
Public Forum Meeting												
Part 2- Alternative Development and Analysis												
Site Evaluations												
Schematic Design - Three Options												
Estimate of Probable Costs												
Schematic Design - Three Options (Planning)												
Refine Schematic Design												
Total Project Budget and Overall Project Schedule												
Two Meetings with Capital Facilities Planning and Budgeting Committee												
Public Forum Meeting												





BreadLoaf
FIRE STATION
PLANNING
DESIGN

Need:

- Lack of clearance around apparatus inside the building is a safety issue
- Inadequate space for department training
- Training space only accessible through apparatus bay
- No dedicated space for hose drying
- Built in 1980






BreadLoaf
FIRE STATION
PLANNING
DESIGN

Need:

- Inadequate departmental storage
- Inadequate gear/equipment storage
- No secure storage space
- No decontamination room
- No hose drying facilities
- No fire suppression system
- No office for Fire Chief








BreadLoaf
FIRE STATION
PLANNING
DESIGN

Need:

Code Deficiencies:

- Previous study indicated that the building does not meet structural requirements for the occupancy type determined by IBC.
- Kitchen counter tops and sink are not at ADA required 34" height.
- Bathroom does not provide ADA required clearances to fixtures and clear floor space.
- Ceiling in Training room does not meet IBC minimum height requirement.
- Decontamination area does not meet NFPA 1500 regulations.
- Floor drains in the Apparatus Bay do not drain to an approved oil separator.
- No fire separation between boiler room and building.




BreadLoaf
FIRE STATION
PLANNING
DESIGN

Need:

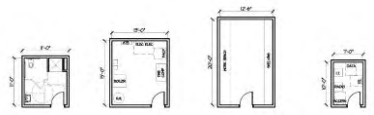
Energy Deficiencies:

- Exterior wall insulation does not meet current Vermont Commercial Building Energy Standards.
- OH Doors are not insulated.
- Windows are single pane glass.
- No fresh air intake for the furnace.
- Boiler is undersized for area it is heating.




BreadLoaf
ARCHITECTURAL
PLANNING
DESIGN


Program Summary – Space Diagrams:



121 SF UNI-SEX TOILET (DEPT USE) 200 SF MECH. RM. 250 SF TOOL ROOM 70 SF I.T. CLOSET



BreadLoaf
ARCHITECTURAL
PLANNING
DESIGN



Norwich Police Department

Location: 10 Hazen Street
Chief: Douglas A. Robinson
Staff: Chief, 3-Full time officers, 2-Part time officers, 1 Administrative Asst.




BreadLoaf
ARCHITECTURAL
PLANNING
DESIGN

Existing Conditions





Existing Police Department is 2137 SF




BreadLoaf
ARCHITECTURAL
PLANNING
DESIGN

Need

- Congested parking, especially when there is a fire call
- Inadequate space to maintain equipment and vehicles







BreadLoaf
NORTH VERMONT
FIRE DEPARTMENT

Need

- Existing building is in poor condition
- Rot, moisture and pest problems are evident
- Existing roof leaks
- Pest issues
- Built in 1950's
- Converted Residence
- Originally intended to be a temporary solution




BreadLoaf
NORTH VERMONT
FIRE DEPARTMENT

Need

- Inadequate department training facilities
- Inadequate departmental storage
- Inadequate space for evidence storage
- No fire suppression system






BreadLoaf
NORTH VERMONT
FIRE DEPARTMENT

Need

Code Deficiencies:

- Previous study indicated that the building does not meet structural requirements for the occupancy type determined by IBC.
- Main entry does not have ADA required exterior landing.
- Receptionist counter is not at required ADA height of 34".
- Kitchen counter and sink is not at required ADA height of 34".
- Existing tile ceilings do not meet minimum IBC requirements for flame spread.
- Exposed paper-faced insulation in garage area is a building code violation.
- Bathrooms do not provide ADA required clearances to fixtures or clear floor space.




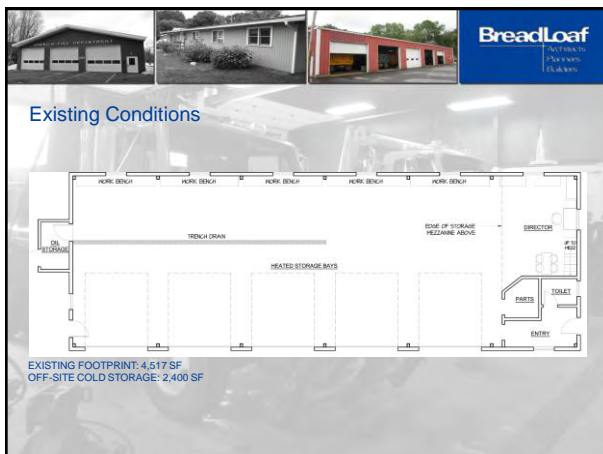
BreadLoaf
NORTH VERMONT
FIRE DEPARTMENT

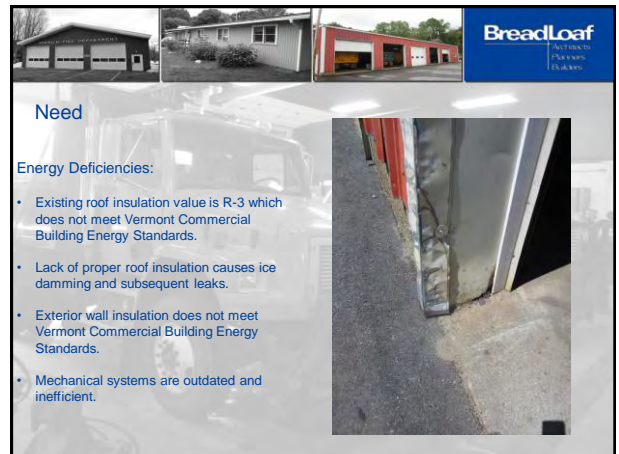
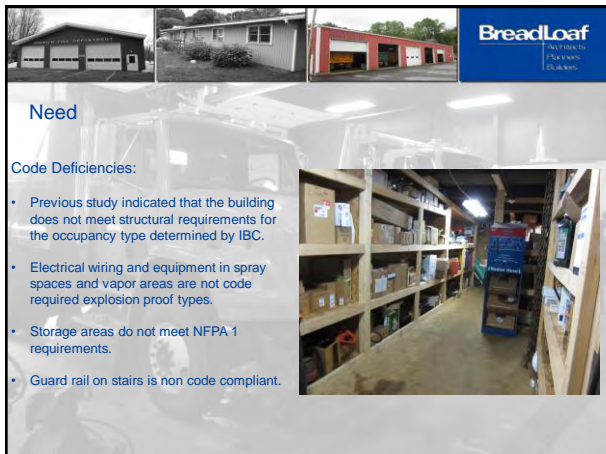
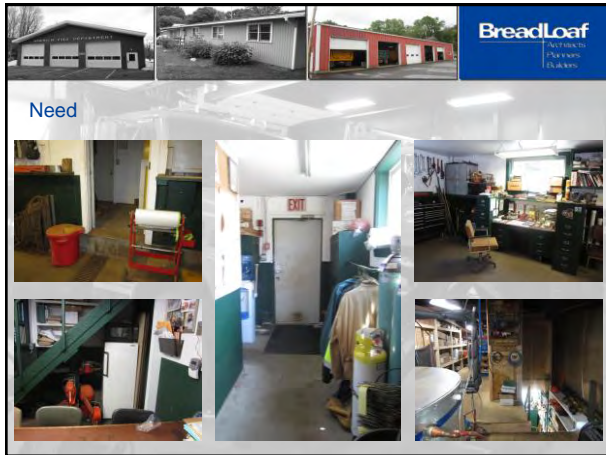
Need


Energy Deficiencies:

- Exterior wall insulation does not meet current Vermont Commercial Building Energy Standards.
- Existing roof needs to be replaced.
- Moisture problems have caused excessive rotting of exterior wood.








Program

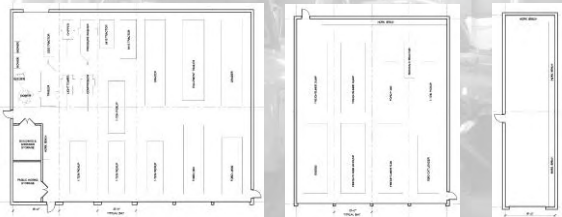
Program Space	Existing	Proposed	Substructure	Interior Floor Finishes	Notes
1. Vehicle	0	100	100' x 20' precast concrete	Group construction 10	
2. Utility	0	200	200' x 40' precast concrete	Group construction 10	
3. Wash	0	100	100' x 20' precast concrete	Group construction 10	
4. Parts	0	100	100' x 40' precast concrete	Group construction 10	
5. Operations Check Area	0	100	100' x 40' precast concrete	Group construction 10	
6. Future Potential Office	0	100	100' x 40' precast concrete	Group construction 10	To be used by 2 people. Future expansion potential?
7. Break Room	0	100	100' x 40' precast concrete	Group construction 10	
8. Wash	0	100	100' x 40' precast concrete	Group construction 10	
9. Vehicle Unleaded Equipment Storage	0	100	100' x 40' precast concrete	Group construction 10	
10. Vehicle Equipment Storage	0	100	100' x 40' precast concrete	Group construction 10	
11. Maintenance Shop	0	100	100' x 40' precast concrete	Group construction 10	
12. Maintenance Shop	0	100	100' x 40' precast concrete	Group construction 10	
13. Oil Room	0	100	100' x 40' precast concrete	Group construction 10	
14. General Storage	0	100	100' x 40' precast concrete	Group construction 10	

Total Net Square Footage: 6,882 SF
Total Gross Square Footage: 15,364 SF

TOTAL AREA PROPOSED: 15,364 SF




Program Summary – Space Diagrams:



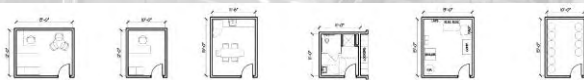
6,882 SF COLD STORAGE BAYS

4,440 SF HEATED STORAGE BAYS

1,406 SF MAINT. BAYS



Program Summary – Space Diagrams:



180 SF DIRECTOR OFFICE

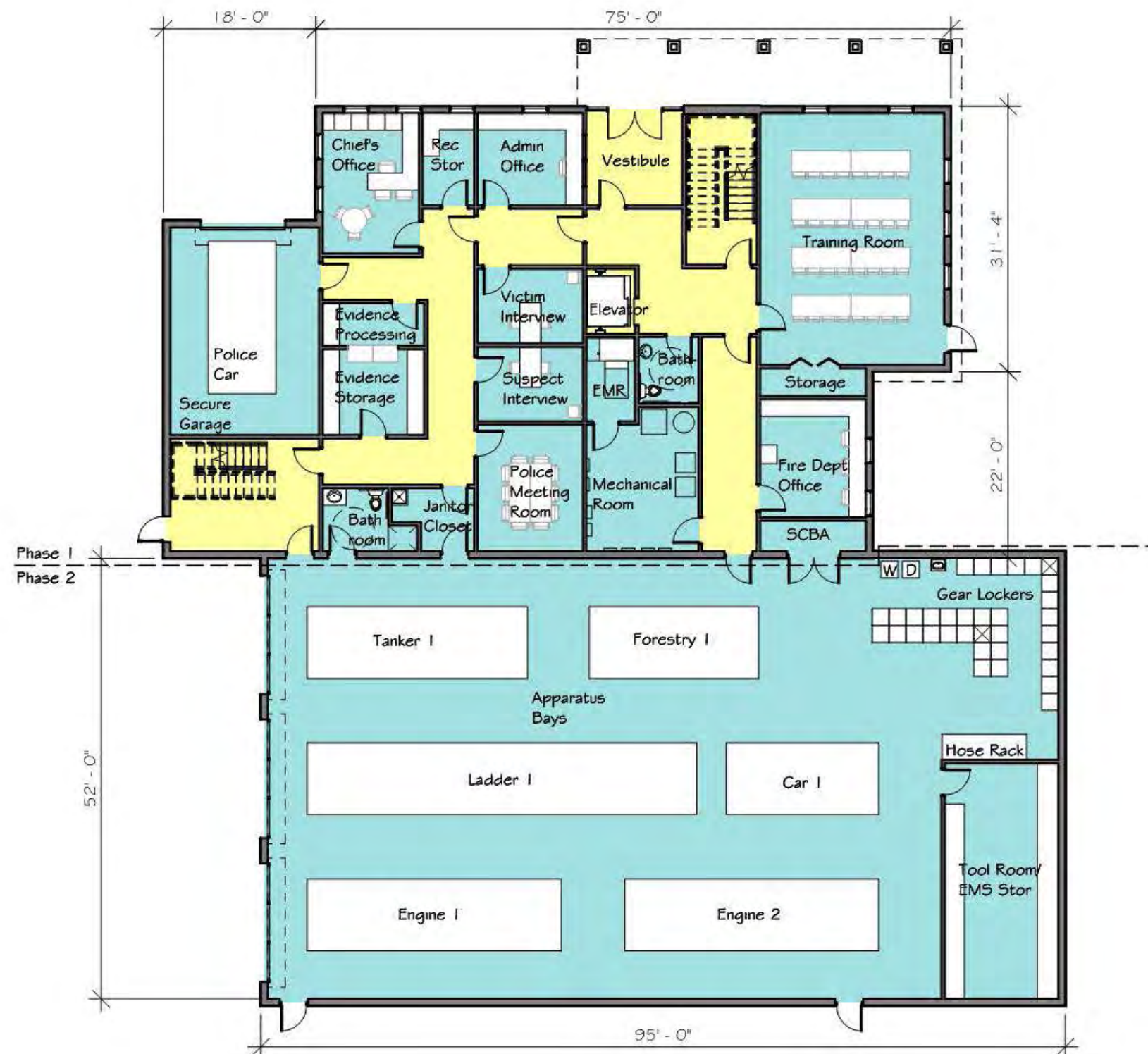
120 SF OFFICE

175 SF BREAK RM

121 SF UNI-SEX TOILET

200 SF MECH RM.

150 SF OIL RM.



First Floor Plan

Norwich Fire and Police Facility



North Scale 1/16"=1'-0"

10/31/14



Second Floor Plan

Norwich Fire and Police Facility



North Scale: 1/16"=1-0'

10/31/14



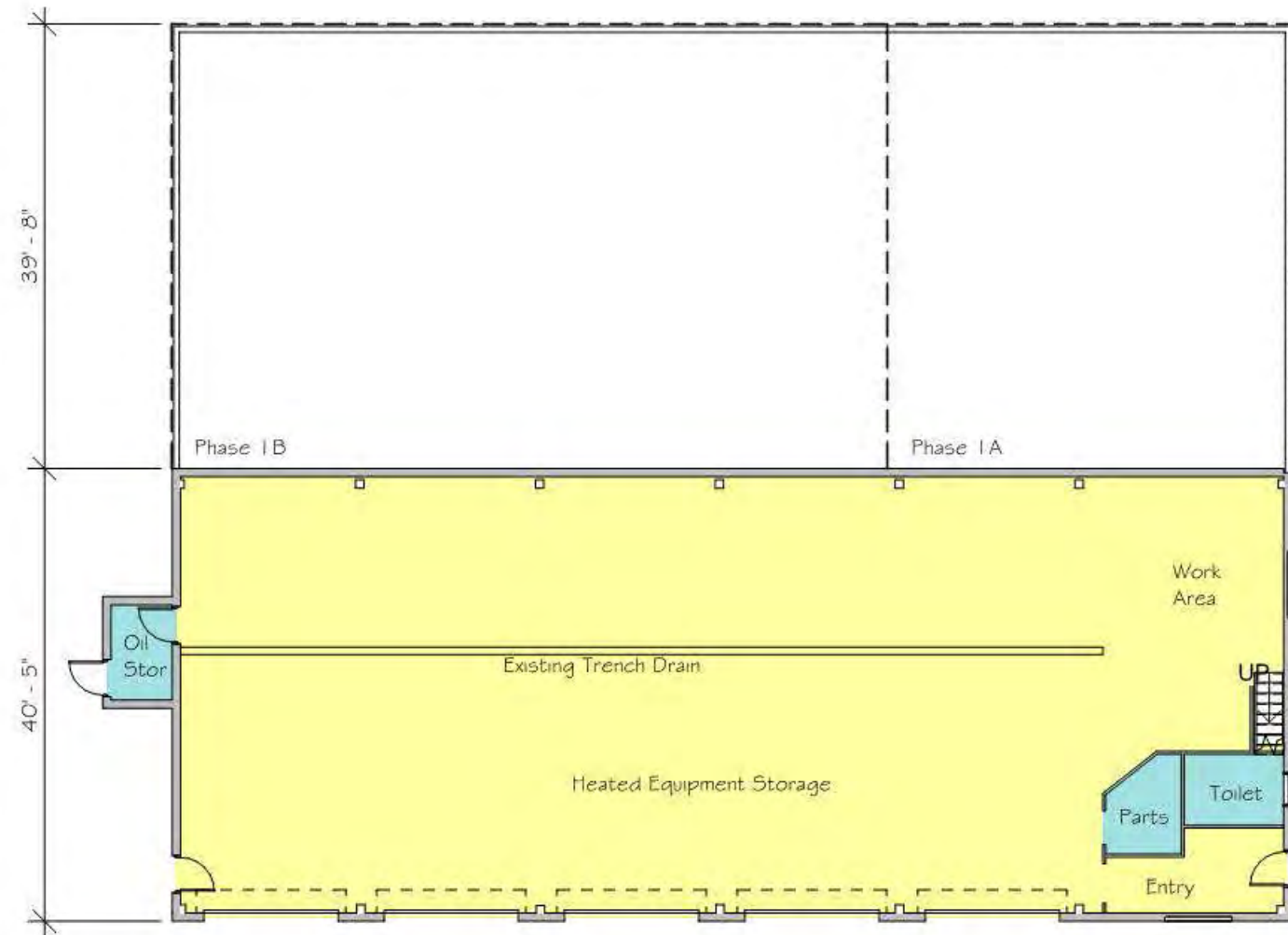
North Exterior Elevation
Norwich Fire and Police Facility

Scale 1/8"=1-0'
10/31/14

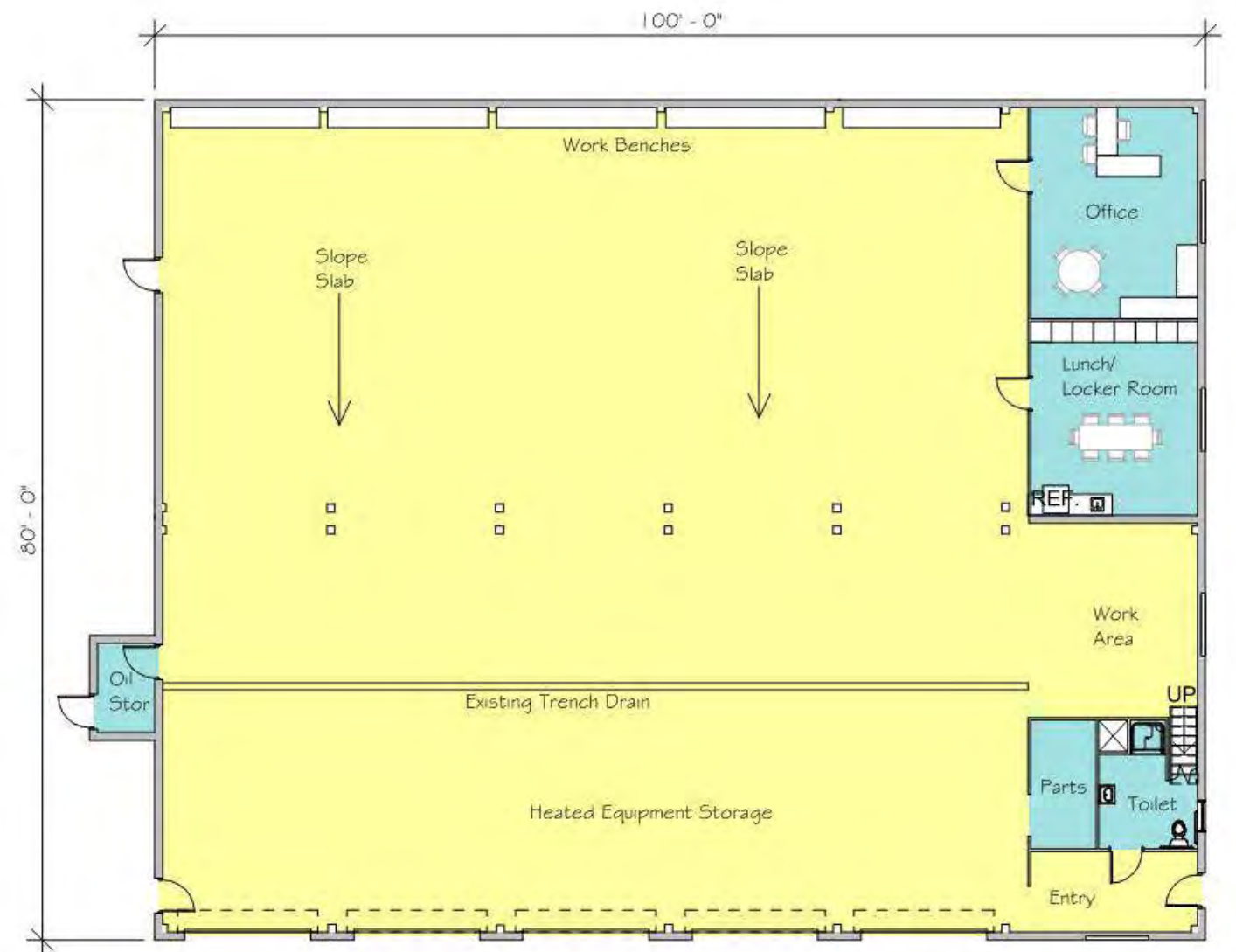


East Exterior Elevation
Norwich Fire and Police Facility

Scale 1/8"=1'-0
10/31/14

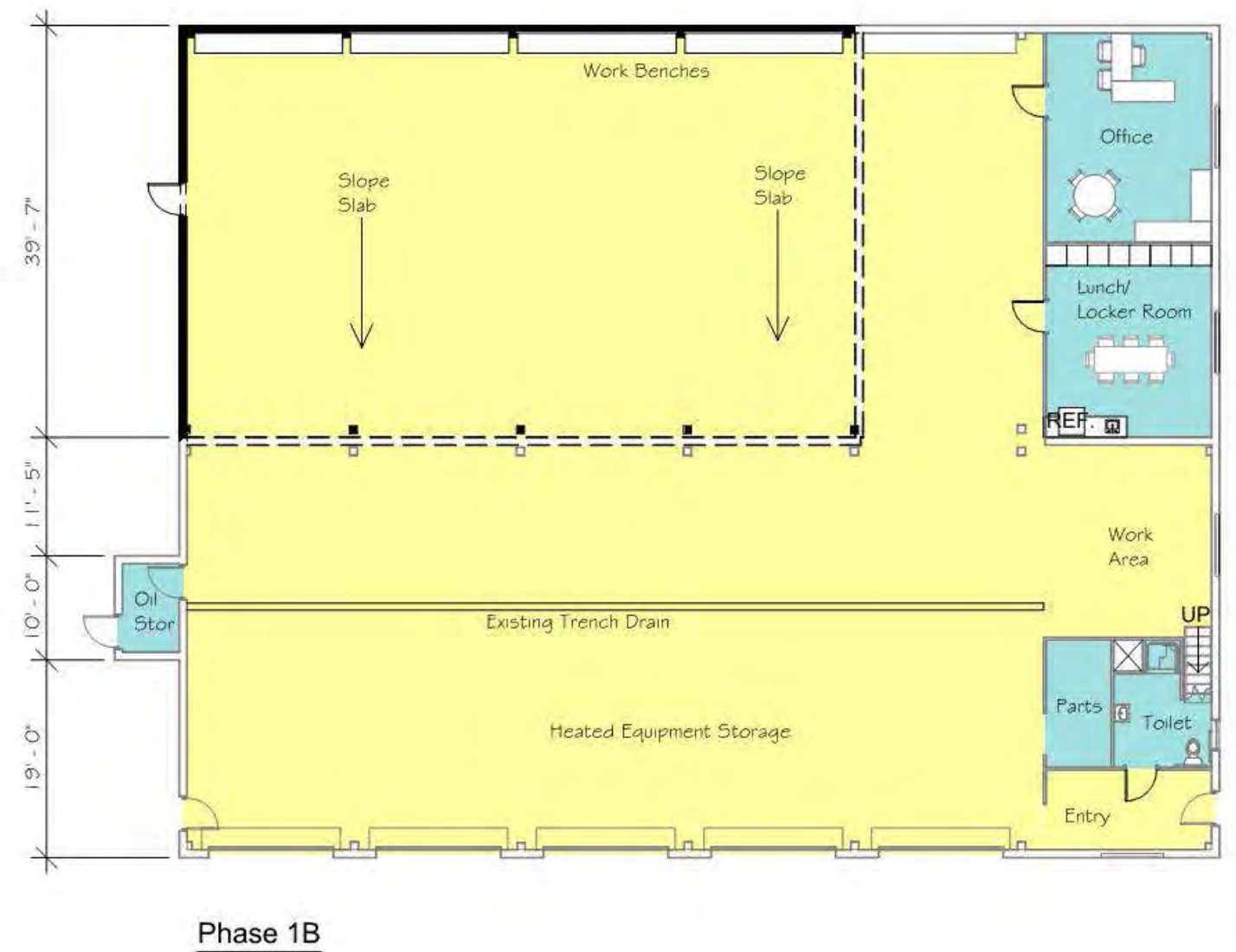
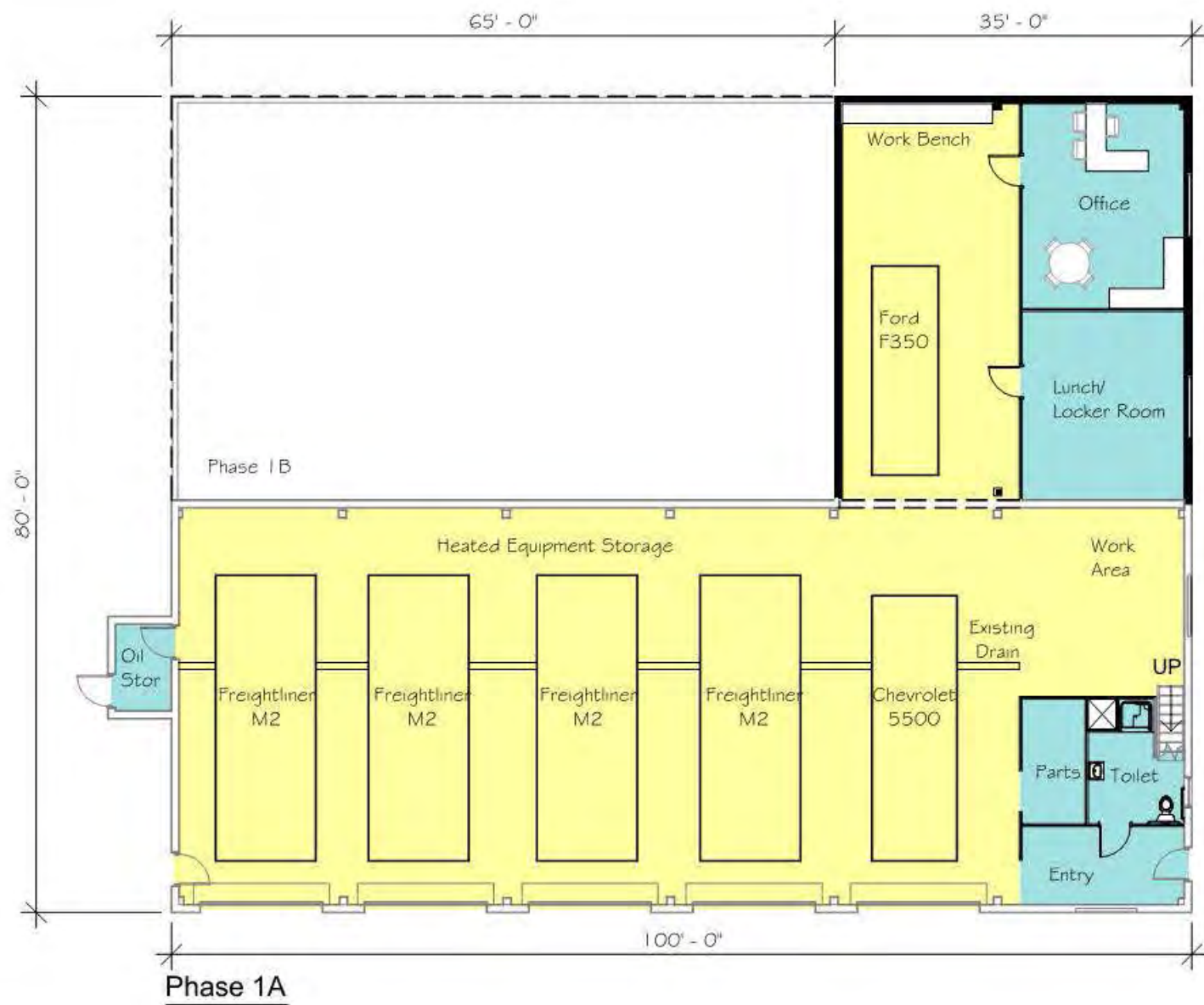


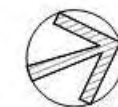
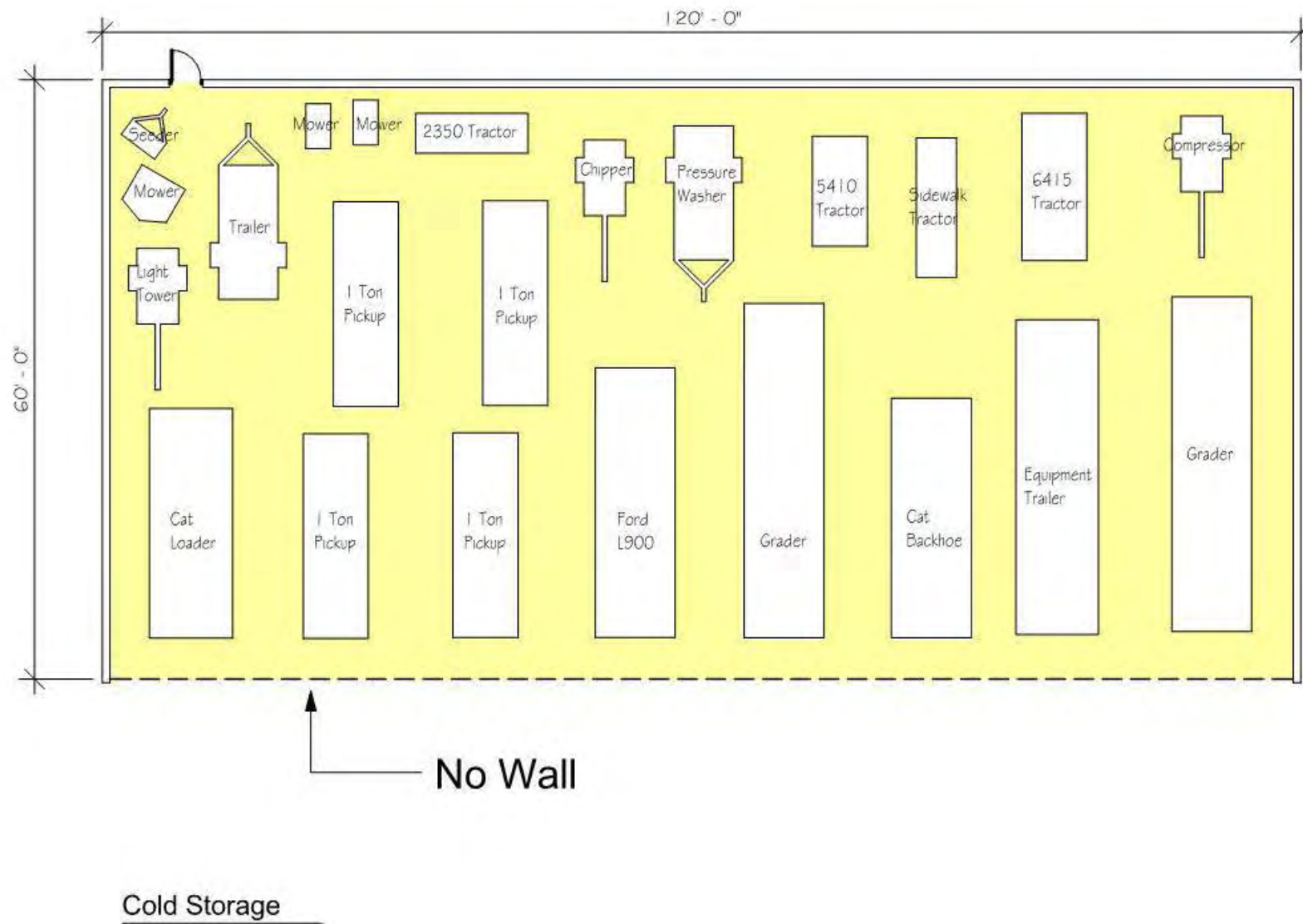
Existing

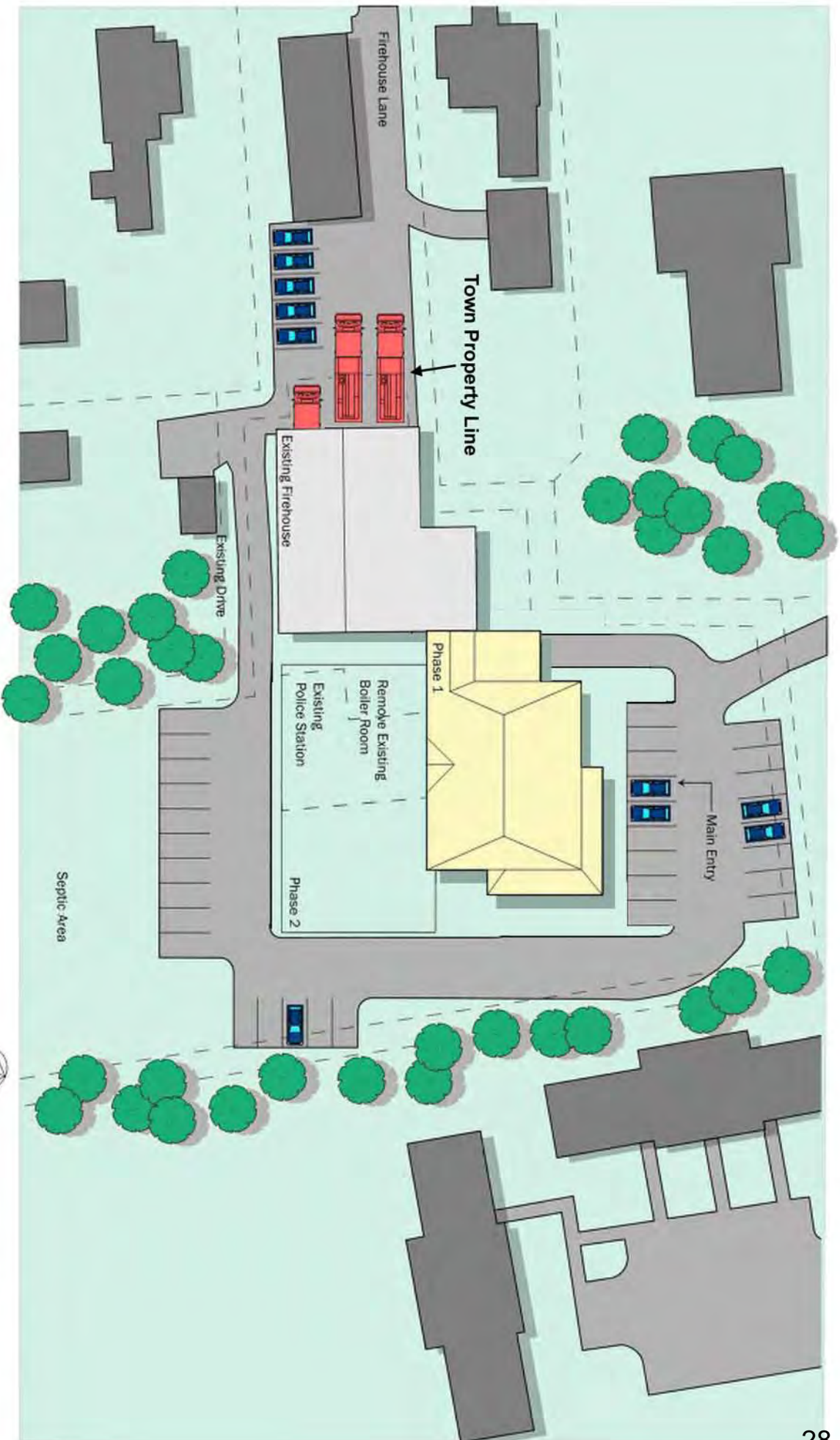


Complete Phases 1A & 1B





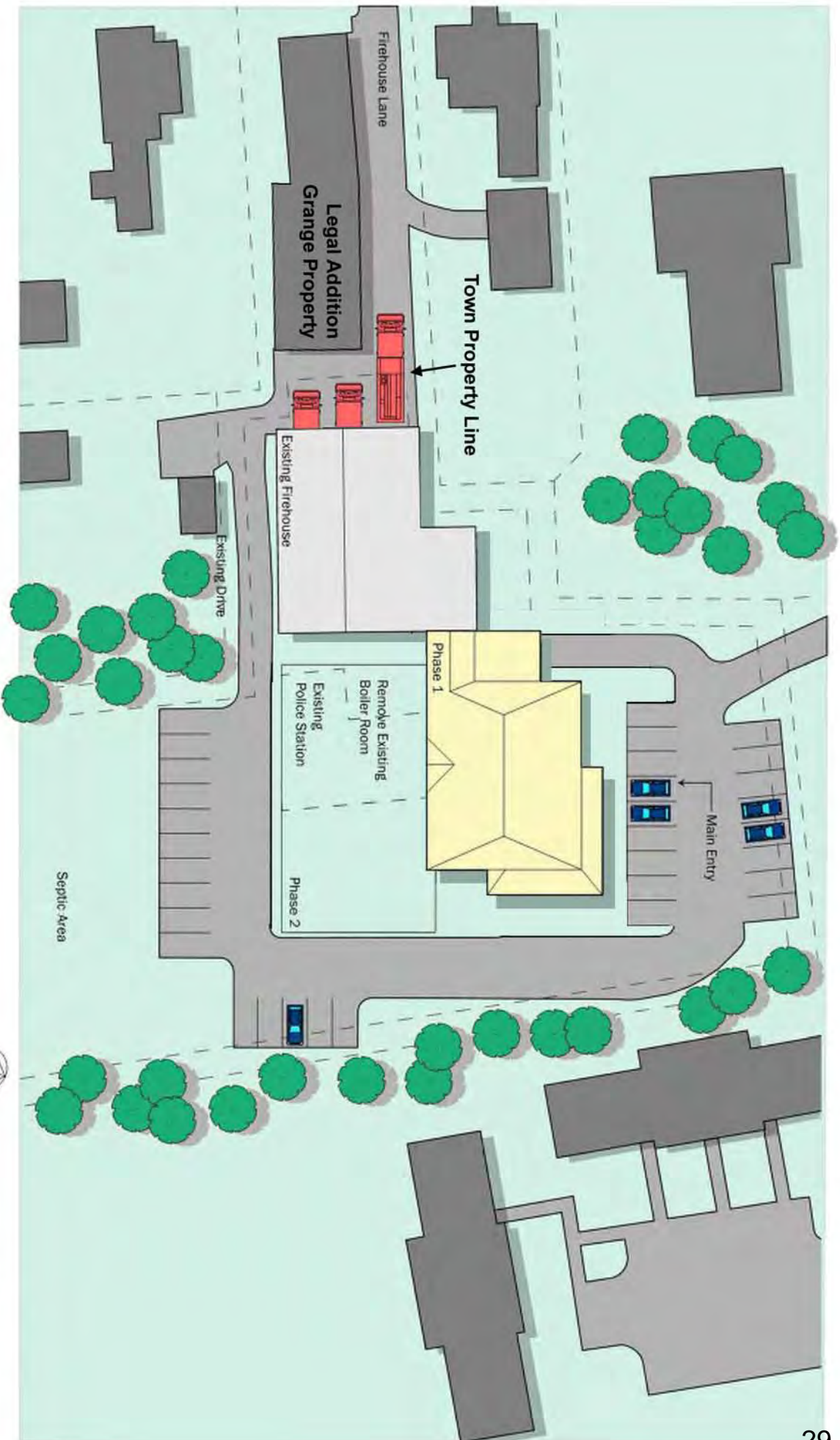




Site Plan- Phase I
Norwich Fire and Police Facility



Scale 1/32" = 1'-0"
10/31/14

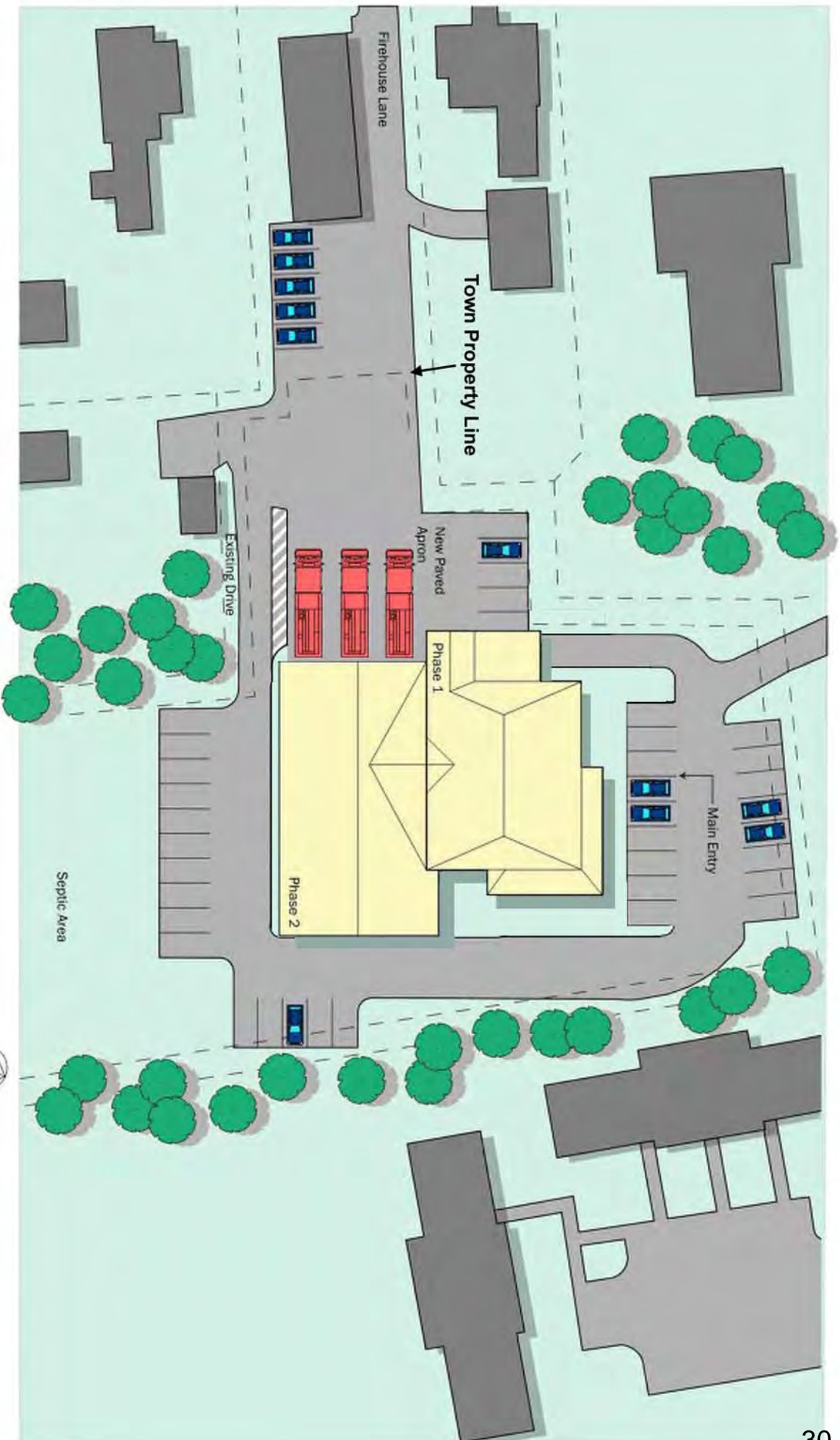


Site Plan- Phase I
Norwich Fire and Police Facility



North

Scale 1/32" = 1'-0"
10/31/14



Site Plan- Phase II
Norwich Fire and Police Facility



Scale 1/32"=1'-0"
10/31/14

Architects
Planners
Builders

1293 Route 7 South
Middlebury, VT 05753
p. 802.388.9871
f. 802.388.3815
www.breadloaf.com

Civil Engineer

Structural Engineer

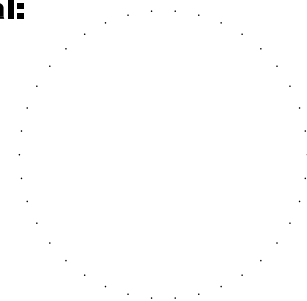
Mechanical Engineer

Electrical Engineer

Fire Protection

© 2014, Bread Loaf Corporation

Seal:



Revised

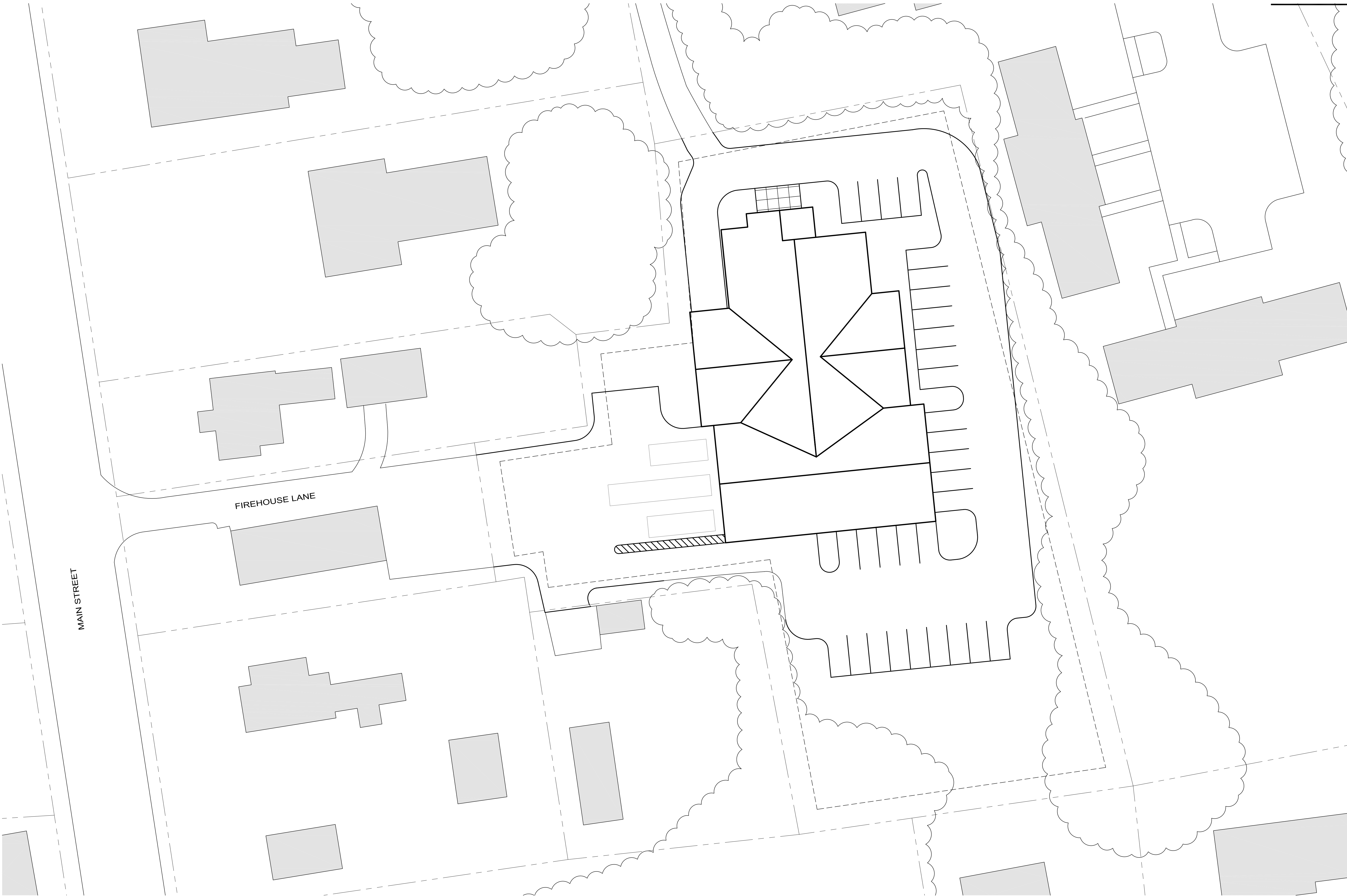
No	Date	Description

Town of Norwich, VT
Fire, Police & Public
Works Facilities
Norwich, VT

Proj No: 13306 Drawn: KL
Date: 12/16/14 Ch'd: CH
Sheet Title
Phase 2
Site Plan
Sheet Number

FP-1.2

NOT FOR CONSTRUCTION



I move that the Selectboard authorize the Town Manager to work with Bread Loaf Corporation to prepare a one-story design (preferred) with cost estimate and informational material for police and fire facilities for not to exceed \$5,000 with the following scope:

A **combined police and fire administration building** with approximately 4,760 programmed **net square feet** of space to replace the existing police station with following **shared** functions:

- Vestibule/Lobby
- Training Room with space for 45 people
- Emergency Operations Center (EOC) and conference room that provides for public works, police and fire radio communications and other EOC functions, necessary to manage major emergencies, including a *DisasterLAN* connection to the Vermont Emergency Planning and Response Database System for coordination with Vermont Division of Emergency Management and Homeland Security.
- Emergency Bunk Room that provides emergency police, fire and EOC billeting during extended emergency events.*
- Eat-in Kitchen
- Public Toilet
- Mechanical Room
- Janitor Closet
- I.T. Closet

With the following **Police Department** functions in the administration building:

- Administrative Office
- Police Chief's Office
- Supervisor Office
- Shared Office for Officers
- Interview rooms (two)
- Secure Garage
- Evidence Processing
- Evidence Storage
- Archived Storage
- Break Room*
- Men's Locker Room
- Women's Locker Room
- General Storage
- Small meeting/conference room (potential future suspect processing with holding cell)*

With the following **Fire Department** functions divided between the administration building and the **existing apparatus building**, taking advantage of the current training room:

- Fire Chief's Office

* Recommended by department heads

- FD Office for fire department computer, report writing, records, copier, base station radio and backup dispatch
- Toilet
- Men's Bathroom w/ Shower
- Women's Bathroom w/ Shower
- Shop/Tool Room in existing training room
- General Storage in existing training room

With the following parking capacity:

- Police: 13 spaces (preferred)
- Fire Department: 28 spaces (preferred)

The design must be configured to attach to a future apparatus bay.

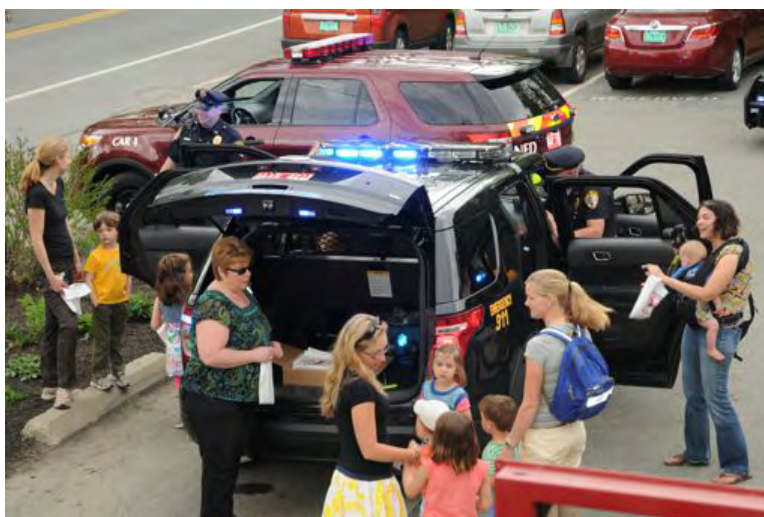
POLICE & FIRE STATION PROGRAM

Addressing Current & Future Needs

“People Serving People Since 1920”



“Commitment to the Community”





Norwich Fire Department

11 Firehouse Lane, Norwich, VT 05055 • 802-649-1133

MEMORANDUM

TO: NORWICH SELECTBOARD
FROM: STEPHEN LEINOFF, NORWICH FIRE CHIEF
SUBJECT: FACILITIES NEEDS ASSESSMENT SUMMARY
DATE: NOVEMBER 12, 2014

The Norwich Fire Department needs 6,707 square feet of space to provide adequate fire and emergency medical services, to protect its equipment from damage and contamination and to keep its emergency responders safe.

We propose that the Fire Department share approximately 1,713 square feet of space with the Norwich Police Department, so half of that shared space is reflected in the total square footage (6,707) above. The use of shared space saves more than \$250,000, based on a cost level of \$150 per square foot.

- ***The proposed 6,707 square feet is 27% less*** than the 9,138 square feet cited by Bread Loaf as “common practice” for fire stations it has designed for similar area towns.
- ***It is also less space than cited*** in a 2012 study by Mink Brook Management putting the needs of the NFD at 6,976 square feet, including the fire department’s share of space that will be used by both the fire and police departments.
- ***There are compelling reasons*** — supported by Bread Loaf, Mink Brook and experienced fire department personnel — why the NFD needs more than the existing 4,096 square feet of space.
- ***According to Mink Brook’s study, “Facilities within the building for both physical requirements of modern firefighting, secured areas for safety and proper storage and sanitary/safety accommodations for staff are virtually non-existent.”***

None of the spaces proposed by the NFD exceed Bread Loaf’s “common practice” in terms of square footage. Here is a list of program spaces that Bread Loaf has identified as “common practice,” but which the NFD has NOT INCLUDED in its proposal: technical rescue storage; hazmat equipment storage; EMS secure storage; fitness room; men’s locker room; and women’s locker room.

The goal of this assessment is to address current and future needs of the Norwich Fire Department. As the program for the Police and Fire Departments continues to be refined and diminished we risk losing sight of this goal. The existing fire station was completed in 1981 and

served the department well at the time. Since that time, there have been considerable changes in level of services, operations, apparatus, equipment, technology, regulations and personnel. The current facility is not adequate for current needs and will become even more inadequate in future years.

Here, in order of square footage, are the program spaces required by the NFD.

Apparatus Bays

Existing: 3,250 s.f.; Proposed: 4,600 s.f.; Common Practice: 4,600 s.f.

NFD has three bays, two of which are two trucks deep, with one bay solely for the ladder truck.

Besides the trucks, here's what the space is used for:

- Storage of turnout gear, and space to don gear during a response.
- Storage of hose, and space to dry hose after fires.
- Compressor, tanks and SCBA equipment.
- EMS equipment & medical supplies.
- Washer/extractor for gear exposed to smoke, carcinogens and dirt.
- Tools used for maintenance and repair of trucks and equipment.
- Storage of traffic cones, flares, HazMat mitigation.
- Storage of equipment for training, testing, etc.

The Mink Brook report noted that “This space is certainly too small to meet this storage demand.”

Industry-wide, trucks have gotten larger over the years, and, with so much stored along the walls of the apparatus bays, there is little side clearance to access equipment. Further, with the trucks backed together tightly, it is difficult to access equipment, including hose, along the rear wall.

Informational note: The town's property end's about 16 feet in front of the firehouse. When trucks leave the station, they are almost immediately on Grange property, which is used by permission. Parking behind the Grange, routinely used by responders, is also owned by the Grange and used by permission. With the proximity of the Grange and two residences, there will continue to be little if any room for training exercises in front of the existing building until the apparatus bay is moved further back during Phase 2 of the program.

There are fundamental deficiencies that would continue if the existing apparatus bay remains where it is.

- Fire apparatus exits to Main St. through a driveway adjacent to the Grange. This is the same driveway responders use to respond to alarms, and there is not enough room for two-way traffic. Near-collisions of departing apparatus and arriving firefighters have occurred.
- Returning apparatus must stop on Main St. and back down the driveway because there is not room to drive straight in and turn around on the existing apron in front of the building. A traffic light would have slight benefit for responding apparatus; this significant expense would NOT solve other problems.
- There is no space to wash and dry hose in the apparatus bays. Washed hose must be left on the floor (between apparatus) to dry for several days. This creates tripping hazards, exposes hose to any floor contaminant and interferes with post-fire clean-up activities.

Training Room

Existing: 616 s.f.; Proposed: 700 s.f. (Shared FD / Police); Common Practice: 700 s.f.

This space will be shared by the fire and police departments, and the department of public works. This room is now routinely used by the Boy Scouts, and will be available for public meetings. This area is used to the maximum during training, and especially during required recertification programs (CPR, Hazmat, bloodborne pathogens, Incident Command System, etc.), many of which are attended by not only firefighters, EMTs and police, but also members of the Department of Public Works and other town employees.

General Storage

Existing space: 0; Proposed: 300 s.f.; Common Practice: 300 s.f.

This will be used for storage of fire and EMS equipment and supplies, getting them off the apparatus floor.

Eat-in Kitchen

Existing space: 0; Proposed: 300 s.f.; Common Practice: 500 s.f.

This space, located adjacent to the training room, will be used for meals and snacks after calls, during day-long training, for firefighters at the station awaiting calls during extreme weather, and food prep by the fire department auxiliary that brings food to fire scenes during especially long calls. *The existing eat-in kitchen is in the training room.* Since the kitchen and the training room serve two separate functions, they should be separated.

Shop/Tool Room

Existing space: 0; Proposed: 250 s.f.; Common Practice: 250 s.f.

This is for the SCBA compressor and tanks, washer/extractor for turnout gear, and tools for maintaining and repairing apparatus.

Mechanical Room

Existing: 90; Proposed: 200 s.f. (Shared FD / Police); Common Practice: 200 s.f.

This is for heat, electric, and elevator equipment if the program requires to two stories.

Fire Chief's Office

Existing: 105; Proposed: 180 s.f.; Common Practice, 200 s.f.

The fire chief's office is now in the police station because there is no room for it in the fire station. Personnel files and secured records are among the materials kept here.

Uni-sex Bathroom w/Shower

Existing: 0; Proposed: 120 s.f.; Common Practice: 120 s.f.

After fire or medical calls with exposure to smoke, chemicals/carcinogens, blood and other bodily fluids, firefighters/EMTs (and their families) are best served if they shower at the station rather than introduce contaminants and pathogens into their homes. It is also best to have the shower and bathroom in the same area as the fire apparatus, so as not to expose other rooms at the station to contaminants. There is no shower in the existing building.

Fire Department Office

Existing: 110 s.f.; Proposed: 100 s.f.; Common Practice: 150 s.f.

This room is for a desk, computer, printer, filing cabinets, phone, etc. Adjacent to the apparatus bay, it is used for filing call reports required by law, private meeting space between officers and firefighters/EMTs, and secured storage for equipment used for testing (such as SCBA mask fitness tests), etc.

Vestibule

Existing: 0; Proposed: 100 s.f. (Shared FD / Police); Common Practice: 100 s.f.

This vestibule will be shared with the police department. It will be a space for the entering public, and as a way to protect the building interior from cold whenever the door is opened in winter.

Janitor's Closet

Existing: 0; Proposed: 75 s.f. (Shared FD / Police); Common Practice: 75 s.f.

I.T. Closet

Existing: 0; Proposed: 70 s.f. (Shared FD / Police); Common Practice: 75 s.f.

This space will be shared with the police department, meaning the fire department's share will be 35 s.f.

Public Toilet

Existing: 30; Proposed: 68 s.f. (Shared FD / Police); Common Practice: 75 s.f.

	Program Spaces	Phase	Existing	Proposed	Common Practice	Remarks
Police & Fire Shared Space						
	Vestibule/Lobby	Now	0	100	100	
S	Training Room	Now	616	700	700	Space for 45 people. Existing Training Room has kitchen area (app. 145 sq.ft.).
H	Emergency Bunk Room	Now	0	300	300	Police. Fire and EOC Staff sleeping room during extended emergency events (storms, flooding etc). Male and female cots.
A	Mechanical Room	Now	90	200	200	
R	Janitor Closet	Now	0	75	75	
E	I.T. Closet	Now	0	70	75	
E	EOC/Small Conference Room	Now	0	200	200	
D	Public Toilets	Now	47	68	68	
	Total Police & Fire Shared Space			1,713	1,718	* Shared spaces SAVES over \$250,000 @ \$150/sq. ft.

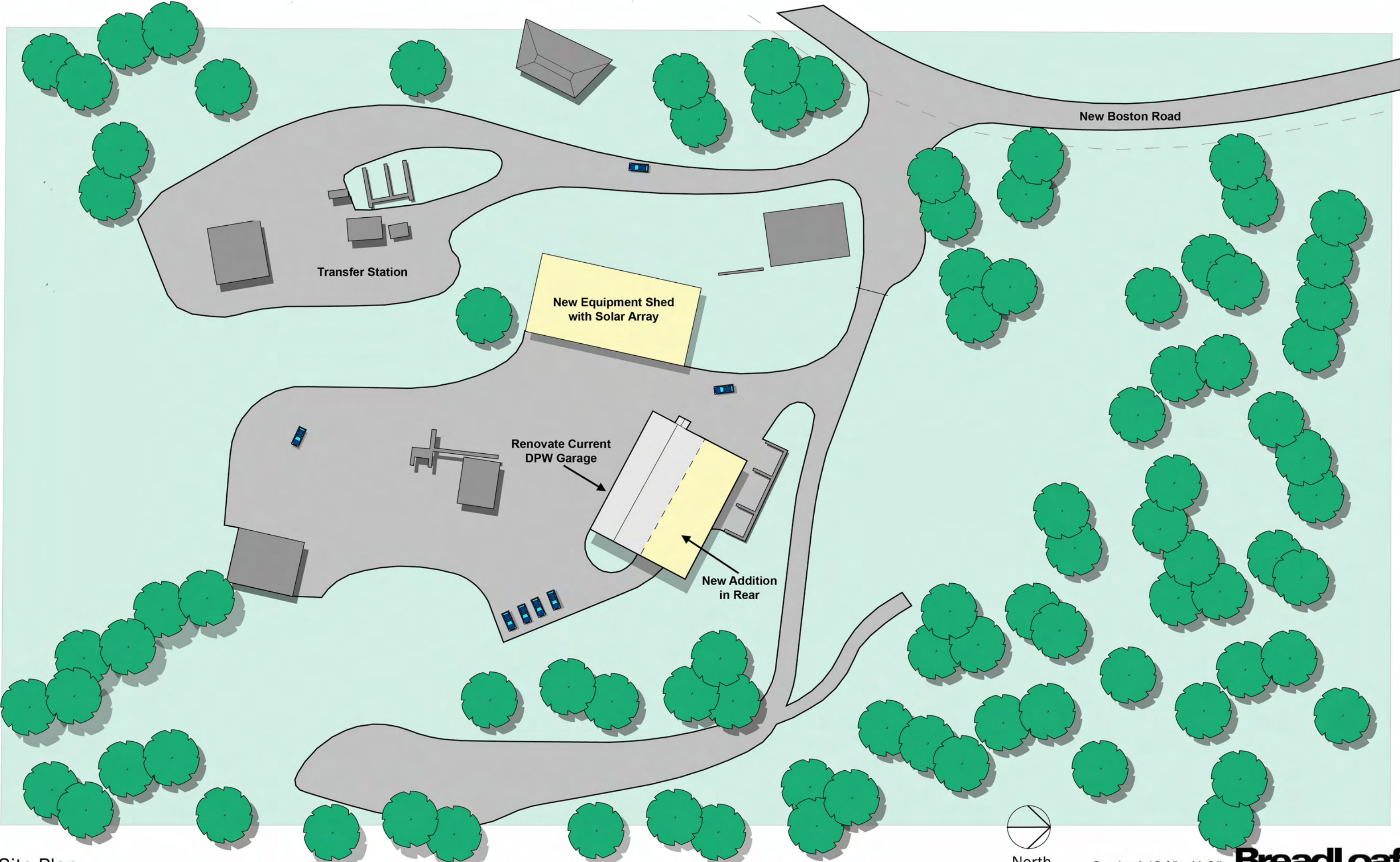
Fire Department Space

	Fire Chief's Office	Now	105	180	200	Existing Fire Chief's office is in Police Station.
	FD Office	Now	110	100	150	
	Apparatus Bays	Future	3,250	4,600	4,600	3 bays/2 trucks deep. 80 sq ft hose storage, 48 sq ft foam, 317 sq ft turnout gear & donning area, 200 sq ft hose washer & drying racks.
F	Uni-Sex Bathroom w/ Shower	Now	30	120	120	Existing bathroom has no shower.
I	Eat-In Kitchen	Now	0	300	500	Existing training room has kitchen area.
R	Shop/Tool Room	Now	0	250	250	Includes SCBA compressor, gear washing machine, work bench (currently stored on apparatus floor).
E	General Storage	Now	0	300	300	Fire & EMS equipment, supplies, training props, foam (currently stored on apparatus floor).
	Unrequired Common Practice Spaces	Never	0	0	1,200	Common Practice Rooms NOT requested: Tech Rescue/EMS/HazMat Storage, Fitness Room, Men's & Women's Locker Rooms
	Phase One (Administrative Offices)			1,250		
	Phase Two (Apparatus Bay)			4,600		
	Total Fire Department Space			5,850	7,320	

Police Department Space

	Administrative Office	Now	208	150	150	Provides not only secretarial duties but dispatch duties as well, prep-areas court work and receives visitors / daytime dispatch duties
	Police Chief's Office	Now	208	180	160	Plans and directs the operation of the department
	PD Supervisor Office	Now	144	150	150	Second in command / needs to plan and direct in the chiefs absence
	PD Shared Office for Officers	Now	115	250	300	Shared by all the officers to complete reports / prepare cases etc..
	Interview * (x2)	Now	0	100	200	Keeps Suspects and witnesses/victims separated / private area
P	Carport (Secure Garage)	Now	0	350	350	Secure area for vehicle and direct entrance to bringin evidence or people
O	Evidence Processing	Now	0	50	80	Used by the officers to process any evidence they have seized then
L	Evidence Storage	Now	35	100	150	secured for the evidence officer to log into storage to maintain COC
I	Archived Storage	Now	0	100	200	Required to keep documents for different lengths of time
C	Break Room	Now	120	120	150	For officer's break's and lunch room
E	Men's Locker Room	Now	98	195	250	Officers to keep gear and change into uniforms
	Women's Locker Room	Now	98	144	150	See above for Female officers
	General Storage	Now	250	100	200	
	Small meeting/conference room	Now	0	150	150	Monthly Staff meetings / Plan and direct operations such as Warrants etc....
	Unrequired Common Practice Spaces	Never	0	0	870	Common Practice Rooms NOT requested: Dispatch/Reception, Processing/Booking, Holding Cell (x2), Sally Port
	Total Police Department Space			2,139	3,510	

			Existing	Proposed	Common Practice	
S						
U	Phase One (Administrative Offices)			5,102		
N:	Phase Two (Apparatus Bay)			4,600		
	Total Police & Fire Space		6,378	9,702	12,548	



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November 11, 2014

Neil Fulton, Town Manager
Town of Norwich, VT
P.O. Box 376
Norwich, VT 05055

Subject: **DPW Building Analysis**
New Boston Road, Norwich, VT

Dear Neil:

As requested, on October 14, 2014, I visited the above referenced site to review the existing roof structure in order to determine the existing load capacity and the structural acceptability of adding new insulated roof panels.

Our analysis and review of the building are based upon the requirements of the 2012 Vermont Fire and Building Safety Code which incorporates the 2012 International Building Code. According to the Vermont Fire Building and Safety Code, the on ground snow load for Norwich, Vermont is 50 pounds per square foot (psf). In our analysis we factored the snow loads to account for exposure, thermal, and importance factors. For computation of importance factors, the building was assigned to Risk Category II as defined in the IBC. These factors produced a design flat roof snow load of 35 psf, however, the State of Vermont requires that all roofs be designed for a minimum snow load of 40 psf. Therefore, we have used the code required 40 psf for roof analysis. The code also requires that gable roofs be analyzed for unbalanced snow load conditions.

The existing DPW building is an approximately 40'-0" wide x 98'-0" long single story steel framed building. The roof is framed with 8" deep, 14 gage zee purlins spaced at 3'-10"+/- on center. The zee purlins are supported by custom fabricated tapered steel plate girders at 16'-0" on center. The tapered steel beams are supported by W8x13 steel columns. The roof deck, roof deck attachment, and composition of the roofing were not visible due to the existing continuous batt insulation.

In the southern-most bay, a wood framed storage mezzanine has been constructed within the steel framed building. A painted sign on the outside face of the interior mezzanine indicates "THE LIVE LOAD CAPACITY OF THIS MEZZANINE IS 55 PSF."

The existing light gage zee purlins are adequate for the typical existing dead loads and code required balanced and unbalanced snow loads. The existing purlins would be adequate for a small increase in dead load due to the addition of new lightweight

Surveying

Permitting

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Site Development

Act 250 Permitting

Forensic Engineering

Environmental Permitting

Transportation Engineering

Structural Inspection Services

Commercial Building Design

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Building Assessment

Pedestrian Bridges

Stream Alterations

Sewer Design

Water Supply

Storm Water

Hydrology

Grading

317 River Street
P. O. Box 1576
Montpelier, VT
05601-1576
phone: 802.223.4727
fax: 802.223.4740
www.dirtsteel.com

insulated roof panels.

The tapered steel roof beams and the rolled wide flange columns are adequate for the typical existing dead loads and code required balanced and unbalanced snow loads. The existing tapered steel beams would be slightly over-stressed, but within commonly accepted structural engineering limits, for a small increase in dead load due to the addition of new lightweight insulated roof panels.

Based on our calculations, the existing roof purlins and adjacent roof beams are not adequate to support the additional wind and snow drift loads created by the roof mounted solar panels.

For approximately 2/3 of it's length, the existing storage mezzanine is framed with 2x12 wooden floor joists at 16" o.c. These joists would be slightly over-stressed, but within commonly accepted structural engineering limits, for the posted live load of 55 psf. Based on the observations made during our site visit, it appears that, at the inner end of the joists, this portion of the existing mezzanine is hung from the light gauge roof purlins with wooden 2x4 "hangers" at each purlin. Each vertical "hanger" is attached to each purlin with (2)- $\frac{1}{2}$ " diameter carriage bolts. The attachment of the hanger to the mezzanine floor structure was not visible. There are numerous structural issues with this method of support. Based on our calculations, the (2)- $\frac{1}{2}$ " diameter carriage bolts attaching the 2x4 hangers to the purlins are adequate for a uniform mezzanine live load of 14.5 psf. Therefore, the bolts would be over-stressed by 165% +/- with the currently posted 55 PSF live load. Second, the existing roof purlins when supporting the hung loads are over-stressed by 11% +/- . Third, the existing tapered steel beam nearest the end of the mezzanine (located approximately 2'-0" from the end of the mezzanine), is already slightly over-stressed due to dead loads and snow loads and would be over-stressed by 26% +/- with the currently posted live load of 55 PSF.

The portion of the mezzanine which is not hung from the roof structure supports mechanical equipment associated with the roof mounted solar hot water system. This equipment includes a 4'-0" deep, 7'-2 $\frac{1}{2}$ " diameter water storage tank. The existing floor framing in this area is 2x6 @ 2'-0" o.c. floor joists spanning approximately 7'-0. Based on our calculations, these members are over-stressed by 200%+. In places, the floor joists are face nailed to face mounted ledgers which do not appear to have the necessary connection strength to resist the 250 +/- PSF load potentially created by a full 4'-0" deep water tank.

The lateral load resisting elements (braces, moment frames, etc) of the existing building were not visible in the sidewalls and the back wall during the site visit. The only wall where evidence of a lateral load resisting system was noted was the in the front wall, where a moment frame was located in one of the overhead door bays. Code requirements for existing buildings specify that if the loads to the lateral resisting systems of existing buildings increase by more than 10%, the entire lateral system must be upgraded to current code requirements. For this building, we have determined that a net dead load increase of 1.5 PSF is allowable without a full analysis/upgrade of the lateral load resisting systems.

On November 7, 2014, I received an email from you indicating that you have determined there is a 4.5" x 12" glulam beam that supports the inside edge of the mezzanine. You also indicated that this glulam beam is supported at both ends by 4.5" x 12" glulam columns that extend down to the concrete floor. We have analyzed this beam, assuming it is made of very high grade material, and have

determined that it does not have adequate strength or stiffness to support the mezzanine with the currently posted live load.

Based on our calculations, neither the glulam beam, or the hanger system from the roof, are adequate to support the mezzanine for the posted live load by themselves. It is likely that the two systems work together to support a load greater than the calculated capacity of either system acting independently. However, it is difficult to predict the amount of load sharing between systems due to variations in materials and workmanship which can have a large effect on the relative stiffness of each system, which directly affects the amount of load sharing.

Our recommendations are the following:

- reinforce the roof structure in the area of the solar panels to resist the code required snow drift loads and wind loads
- re-support the main area of the mezzanine so that the mezzanine is not hung from the roof structure. This would typically involve either adding new columns below the existing beam, adding a new beam below the existing beam, or removing and replacing the current beam with a new beam of adequate strength and stiffness.
- re-frame the remainder of the mezzanine, where the mechanical equipment is located, to eliminate ledger connections, provide new deeper members, and provide joist hangers
- additional onsite investigation, including removal of existing finishes as necessary, to determine if structurally reliable lateral load resisting elements exist in the sidewalls and back walls, and if these elements do not exist, to determine acceptable locations and methods to add these elements to the existing structure.
- if a new shed roof addition is added to the back of the structure, we recommend that the new roof be located at least 2'-0" below the existing eave. This will limit the amount of additional snow that the existing roof must support in an unbalanced snow load condition.

Please let me know if you have any questions regarding this report or my findings.

Sincerely,


Nathan Phillips, P.E.



Proposed 120 kW roof-mount array on proposed new construction vehicle building



Request for Information (RFI)
Public Works Building Budgetary Estimate
Town of Norwich, Vermont

1. PURPOSE

1.1 The Town of Norwich (Town) is seeking a budget estimate for a proposed new building for the public works department to be constructed at 26 New Boston Road.

2. DESCRIPTION OF PROPOSED BUILDING

2.1 A pre-engineered steel metal building for the Norwich Public Works Department that meets the Vermont Building and Energy Codes

2.1.1 Main Building

2.1.1.1 Clear height of a minimum of 14'

2.1.1.2 Two bays with 14' wide by 14' high insulated sectional garage doors

2.1.1.3 One 55' deep bay that is fitted for occasional spray painting

2.1.1.4 One 55' deep bay that is fitted for performing vehicle maintenance

2.1.1.5 Concrete floor with floor drain and oil separator

2.1.1.6 Heating – Ceiling mounted radiant propane

2.1.2 Attached Office Style Building

2.1.2.1 180 sq. ft. office for Director

2.1.2.2 200 sq. ft. break room and locker room for employees.

2.1.2.3 Unisex restroom with shower

2.1.2.4 Heat and Air Conditioning – Forced cool and hot air with propane heat

2.1.2.5 Restroom to connect to existing mound septic system

2.1.2.6 Restroom to connect to non-potable water supply well that will be provided by the Town and located adjacent to the existing dry hydrant.

3. SITE TOUR

3.1 There will be a tour of the public works site located at 26 New Boston Road, Norwich VT on Thursday, December 18, 2014 at 9:30 am.

4. BUDGET ESTIMATE

4.1 It is requested that all budgetary estimates include

4.1.1 The estimated project cost.

4.1.2 A line drawing of the building layout

4.1.3 Any special conditions

5. GENERAL INFORMATION

5.1 All questions and request for additional information should be directed to Town Manager Neil Fulton at:

5.1.1 Email: nfulton@norwich.vt.us.

5.1.2 Phone 802-649-1419 X102.

5.2 The requested information should be emailed or sent to the following by Wednesday, January 7, 2015:

Neil R. Fulton
Town Manager
Town of Norwich
300 Main Street
Post Office Box 376
Norwich, VT 05055

Spates Construction, Inc.

P. O. BOX 860

802-766-5000

Derby, VT 05829

802-766-2142 fax

E-mail: spates@together.net

BUDGET PROPOSAL

Page 1 of 1

Proposal Submitted To: Town of Norwich, VT	Date: January 7, 2015
Street:	Job Name: New Town Garage Options New structure and addition to existing
Town, State & Zip Code: Norwich, VT	Job Location: Norwich, VT
Attn: Neil Fulton	Architect: None

We hereby submit budget pricing for two options for a town garage. The first option is a new 57' x 60', stand alone pre-engineered structure with two bays and a section with an office, lunch room and a handicap accessible bathroom with an accessible shower. The second option is to add on to the existing garage as shown on the plan prepared by Breadloaf, dated 10/27/14. The third price is the cost to re-roof the existing town garage with a membrane roof system. This system would tie into the roof system we have spec'd for the addition building.

Please find attached a scope of work that breaks out what is included and excluded from all of the proposals.

- | | |
|---|------------|
| 1. Budget for new 57' x 60' pre-engineered steel building for garage and office area. | \$443,869. |
| 2. Budget for addition and renovation to the existing town garage bldg. Addition is 39'8 x 98' | \$417,293. |
| 3. Budget for retrofitting the existing screw down roof on the existing town garage with an new insulated membrane roof. There would be strips of 1 1/2" rigid insulation installed between the ribs and then a layer of 2 1/2" insulation over that. | \$32,200. |

BREAKOUT:

- | | |
|--|-----------|
| 1. The cost for the 10,000 gal holding tank installed is as follows. This system seemed like over-kill to me. I wanted you to know what kind of money is included for this item in the addition price. | \$33,300. |
| 2. The price to provide a performance and payment bond for either option would is | \$ 6,200. |

~~We Propose~~ hereby to furnish material and labor - complete in accordance with above specifications, for the sum of:

TO BE SELECTED FROM THE ABOVE PRICING

dollars and no cents

\$

Payment to be made as follows: To be determined

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance.

Authorized
Signature

Oscar Thayer

Note: This proposal may be withdrawn
by us if not accepted within 30 days.

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified.

Signature: _____

Payment will be made as outlined above.

Date of Acceptance: _____

Engineered Construction



"OUR BUSINESS IS BUILDING YOURS"

Town of Norwich, VT
New Town Garage/Renovated Town Garage
Budget Pricing
SCOPE OF WORK
January 7, 2015

GENERAL REQUIREMENTS:

1. Any work not specifically noted as included is to be hereby considered excluded from our budget quote.
2. All Testing by others.
3. The pre-engineered building structure will be designed and stamped by a Star Engineer registered in the State of Vermont.
4. As you know the materials market is in a constant state of flux. We will need to review this proposal after 14 days.
5. No performance or payment bond costs included in the building budgets. We have broken this cost out separately on the bid proposal.
6. No utility company charges included.
7. No permit fees included. (Subcontractor permits are included in the budget pricing)

SITEWORK:- NEW

1. Excavation, backfill and compaction for the foundation of the new 57 x 60 structure.
2. Includes a 100' tie in allowance for underground water, sewer and power.
3. A patch paving allowance is included in the budget to bring the existing pavement up to the face of the new addition.
4. A 10,000 gallon holding tank is carried to receive the out flow from the trench drain. The holding tank will be fitted with floats and an alarm that will sound when the tank is approx. 80% full.

SITEWORK:- ADDITION

1. Excavation, backfill and compaction for the foundation of the 100 x 40 addition of the back of the existing structure.
2. No work is included water, sewer and power since these services are already in place.
3. A patch paving allowance is included in the budget to bring the paving around the perimeter of the addition and back to the existing where cut for construction.
4. We did not include a drain trench or holding tank with this option. We are assuming that the existing trench drain has a method in place to take care of the out flow from the system.

CONCRETE: - NEW

1. Includes the forming and pouring of footings and frostwalls for the new bldg. Footings 24" x 12" and nominal 5' high x 8" thick frost walls with rebar.
2. The slab would be 6" thick reinforced with #5 rebar at 16" o.c. e.w.
3. We have included a 38' +/- trench drain running across the two bays. The grating will be hot dip galvanized and sized to accommodate the loading of dump trucks, loaders, etc.

Town of Norwich, VT
New Town Garage/Renovated Town Garage
Budget Pricing
SCOPE OF WORK
January 7, 2015

CONCRETE: - ADDITION

1. Includes the forming and pouring of footings and frostwalls for the footprint of the addition off the existing bldg. Footings 24" x 12" and nominal 5' high x 8" thick frost walls with rebar.
2. The slab would be 6" thick reinforced with #5 rebar at 16" o.c. e.w.
3. There is no trench drain with this option. The floor slab will be designed to slope to the existing trench drain. As shown on the sketch provided with budget prep documents.

METAL BLDG.: - NEW

1. The pre-engineered metal bldg. systems will be as manufactured by Star Building Systems out of Oklahoma City, OK. The building will be a single slope structure, 57' x 60' with 20'-0" eaves at the high end, and a 1/2 on 12 roof slope. Minimum clearance under the frames at the low end is 14'.
2. The building structure will be designed according to the IBC 2012 building code and the pre-engineered building plans will bear the stamp of an Engineer registered in the State of Vermont.
3. The exterior wall siding for both buildings will be a 26 ga. Star PBR panel and will have a "Signature 300" paint finish. This panel is an exposed fastener panel. I have attached product data for this panel and paint/finish information with this package.
4. Star siding will be all one color.
5. The roof will also be a Star Doublelok standing seam profile, 24 ga. with a galvanized finish.
6. We have based the building's design using tapered columns.
7. We have included framed openings for the five 14' x 14' overhead doors scheduled.
8. All steel framing, primary structural and secondary, to be provided with a red primer coat finish. No other finishes/painting of the framing steel is included in this budget.
9. We have provided an alternate to add an 8' tall metal liner around the perimeter of the interior. Above the liner you will see the white insulation facing as the finish for both the roof and walls. ***The added cost for the liner in the addition building would be \$4,430.***
10. In the building shell steel erection budget we have included the setting of the red steel, siding and roofing including an R-40 fiberglass roof insulation system. We have an R-25 faced fiberglass insulation system for the exterior walls. Also included is the installation the pass doors and overhead doors.

Town of Norwich, VT
New Town Garage/Renovated Town Garage
Budget Pricing
SCOPE OF WORK
January 7, 2015

METAL BLDG.: - ADDITION

1. The pre-engineered metal bldg. system for the addition will be as manufactured by Star Building Systems out of Oklahoma City, OK. The building will be a single slope structure, 39'-8" x 100' with 20'-0" eaves at the high end, and a 1/2 on 12 roof slope. Minimum clearance under the frames at the low end is 14'.
2. The building structure will be designed according to the IBC 2012 building code and the pre-engineered building plans will bear the stamp of an Engineer registered in the State of Vermont.
3. The exterior wall siding for both buildings will be a 26 ga. Star PBR panel and will have a "Signature 300" paint finish. This panel is an exposed fastener panel. I have attached product data for this panel and paint/finish information with this package.
4. Star siding will be all one color.
5. The roof system for the addition will be a membrane roof installed over a metal deck. The insulation will be rigid with an R value of 40.
6. We have based the building's design using tapered columns.
7. All steel framing, primary structural and secondary, to be provided with a red primer coat finish. No other finishes/painting of the framing steel is included in this budget.
8. We have provided an alternate to add an 8' tall metal liner around the perimeter of the interior. Above the liner you will see the white insulation facing as the finish for both the roof and walls. ***The added cost for the liner in the addition building would be \$3,060.***
9. In the building shell steel erection budget we have included the setting of the red steel, siding and roof decking. We have an R-25 faced fiberglass insulation system for the exterior walls. Also included is the installation the pass doors and overhead doors.
10. Due to the 16' eave height of the existing building the clearances under the main building rafters will be under 14'. At the high side the clearance under the rafter would be 12'-10" +/- and at the low end the clearance would be 11'-5" +/-.

INSULATION: - NEW/ADDITION

1. The roof insulation is part of the membrane roof system. The insulation will provide an R-40 rating. There will be a membrane roof system installed over the insulation.
2. We have provided an alternate price for the addition of rigid insulation and a membrane roof for the existing building.
3. The wall insulation system uses metal bands with prongs designed to hold the insulation in place. The sidewall cavity is filled with fiberglass to achieve an R-25. There is also a thermal break material that is installed over the building secondary support framing that separates the siding from the framing.
4. All areas of the roof and wall insulation will have the standard white facing. The facing used is able to be left exposed and meet the building code.

Town of Norwich, VT
New Town Garage/Renovated Town Garage
Budget Pricing
SCOPE OF WORK
January 7, 2015

DOORS/WINDOWS: - NEW

1. Hollow metal insulated steel doors and steel frames are included. There are two exterior pass doors and three for the interior. The exterior entry doors, (All @ 3' x 7'), are provided with NRP Butts, Grade 1 lever handled lockset, weatherstripping and threshold. Doors and frames are provided with a primer coat for finishing in the field.
2. The interior doors and frames are also 3' x 7' and are constructed from steel. All are provided with butts, Grade 1 lever handled lockset and wall/floor stop. Doors and frames are provided with a primer coat finish for finishing in the field.
3. We have included separate pricing for four (4) 14' x 14' ground level overhead doors. Pricing includes installation and necessary blocking. The OHD would be provided with an electric operator and with three button control mounted inside. Doors are priced with flush panels, (no windows).

INTERIOR FINISHES:

1. The interior rooms are priced being framed with metal studs with 5/8" drywall, taped and painted.
2. The balance of the interior, exterior walls and roof, of the main addition will be left with the vapor barrier of the insulation systems left exposed. We have provided an alternate price to provide an 8' high liner around the perimeter of the addition exterior walls.
3. We have figured providing VCT flooring for the office, break and bathrooms. On the walls will be a 4" vinyl base. This will be for both the new construction and the addition.
4. On the slab for the main areas of both the new construction and addition we are carrying ***a floor sealer allowance of \$4.00 per sf. \$11,160. for the new construction and \$13,600. for the addition slab area.***
5. I have included pricing for a divider curtain to be installed for the new construction only. The curtain would run under the main building rafter between the two bays.

HEATING & PLUMBING:

1. Unfortunately I was only able to get one contractor to throw me some budget pricing.
2. The budget would include the HC bathroom and shower.
3. Heating for the main garage area (addition or new)
4. Heating and cooling for the office area. (addition or new)
5. Exhaust venting for the garage (addition or new)
6. Exhaust venting for paint area (new only)

FIRE PROTECTION: NONE

Town of Norwich, VT
New Town Garage/Renovated Town Garage
Budget Pricing
SCOPE OF WORK
January 7, 2015

ELECTRICAL: - NEW

1. The scope of work includes a new 200 amp three phase service from the existing garage. This is assuming adequate power there.
2. Installing a 3" conduit for tel/data.
3. Includes an allowance for installing new LED lighting with sensors. This lighting package will exceed the Eff VT standards for maximum energy savings and rebates.
4. Exit and emergency lighting as required.
5. Typical GFCI receptacles around the perimeter, welding and compressor receptacles as well. Outlets in the area where painting may be done will be Class 3, not hazardous rated.
6. Providing power for the heating and cooling equipment.
7. Providing power for ventilation and exhaust fans.
8. Providing labor and materials for paddle fans.
9. No fire alarm is included in the budget. Would not be required by code.
10. Conduit runs would be surface in the main area.
11. CAD plans for the work would be provided. Plans and design will not be stamped by an Engineer.
12. Fee for Electrical permit carried in budget.

ELECTRICAL: - ADDITION

1. The scope of work assumes that the existing panel will be able to be fitted to add a subpanel to provide power to the new addition.
2. Includes the labor to remove the existing wiring, outlets, devices that are located on the wall that is being opened up between the existing and addition areas.
3. Includes an allowance for installing new LED lighting with sensors throughout the existing and new addition areas. This lighting package will exceed the Eff VT standards for maximum energy savings and rebates.
4. Exit and emergency lighting as required.
5. Typical GFCI receptacles around the perimeter, welding and compressor receptacles as well.
6. Providing power for the added heating and cooling equipment.
7. Providing power for ventilation and exhaust fans.
8. Providing labor and materials for paddle fans.
9. No fire alarm is included in the budget. Would not be required by code.
10. Conduit runs would be surface in the addition area.
11. CAD plans for the work would be provided. Plans and design will not be stamped by an Engineer.
12. Fee for Electrical permit carried in budget.



Trumbull-Nelson Construction Company, Inc.

PO Box 1000, 200 Lebanon Street
Hanover, New Hampshire 03755
tel/ 603-643-3658 fax/ 603-643-2924
e-mail address: trumbullnelson@t-n.com

January 7, 2015

Town Manager
Town of Norwich, Vermont
PO Box 376/300 Main St
Norwich, VT 05055

Attn.: Neil Fulton

Re: Public Works Building

Dear Neil,

Based on the program needs described in the Request for Budget Information (12/8/14) and site visit with associated Response to Questions (12/18/14), I suggest a budget range of \$485,000 - \$535,000 for the Free Standing Building. The budget includes all of the requested features except for the 10,000 gallon storage tank; for this element we have substituted a 2,000 storage tank.

Based on discussions during the site visit and the Breadloaf Plan (complete phase 1A & 1B, 10/27/14), I suggest a budget range of \$600,000 - \$625,000 for the addition and partial renovations to the existing Public Works Building.

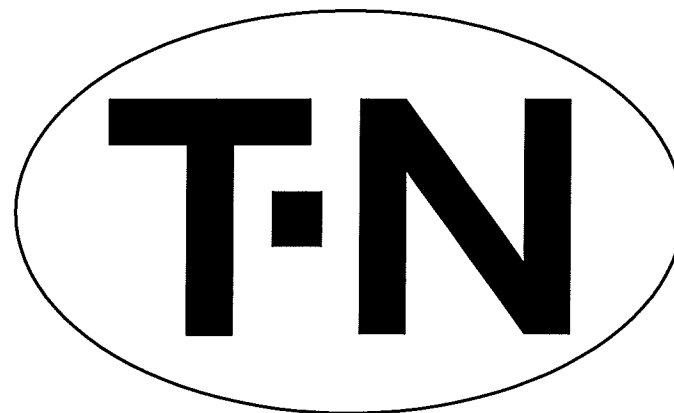
We have attached basic drawings of the free standing building along with a schedule for your consideration. I hope these are useful for planning purposes and trust we can meet soon to review the details of these estimates and confirm our assumptions. Please contact me if you have any questions or concerns with this proposal.

Sincerely,

Todd Thompson
Project manager

TOWN OF NORWICH NORWICH, VERMONT

PUBLIC WORKS BUILDING



TRUMBULL-NELSON CONSTRUCTION CO., INC.
200 LEBANON ST. P.O. BOX 1000
HANOVER N.H. 03755-1000
TEL. (603) 643-3658 FAX (603) 643-2924
e-mail address trumbullnelson@t-n.com

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TITLE SHEET	--
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PRELIMINARY MAIN FRAME CROSS SECTION	A2

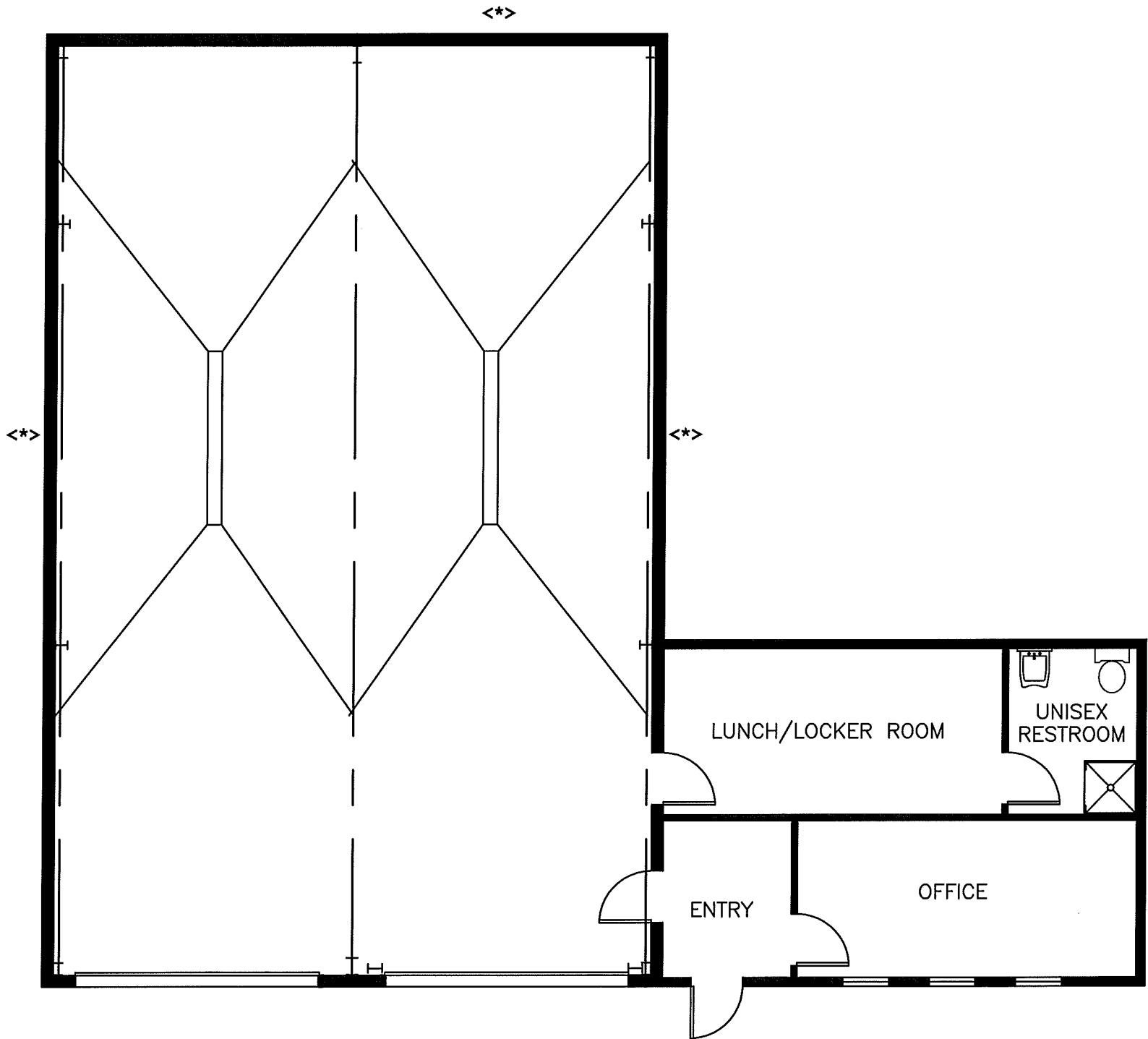
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TOWN OF NORWICH
NORWICH VERMONT

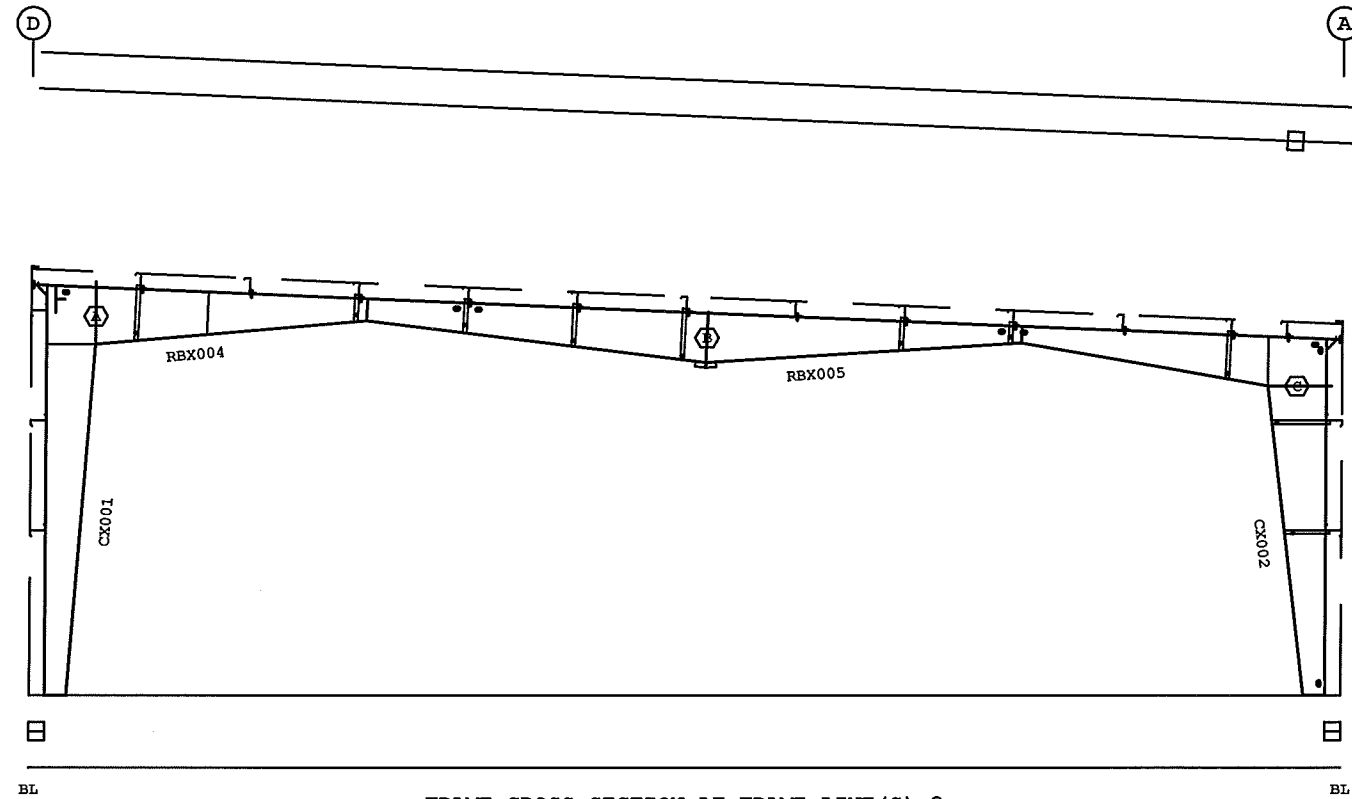
PUBLIC WORKS BUILDING

PRELIMINARY FLOOR PLAN

DRAWN BY	EJF	SCALE	1/8" = 1'-0"
DATE	1-6-2015	REVISION DATE	1-6-2015

A1

Sheet of



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TOWN OF NORWICH
NORWICH VERMONT

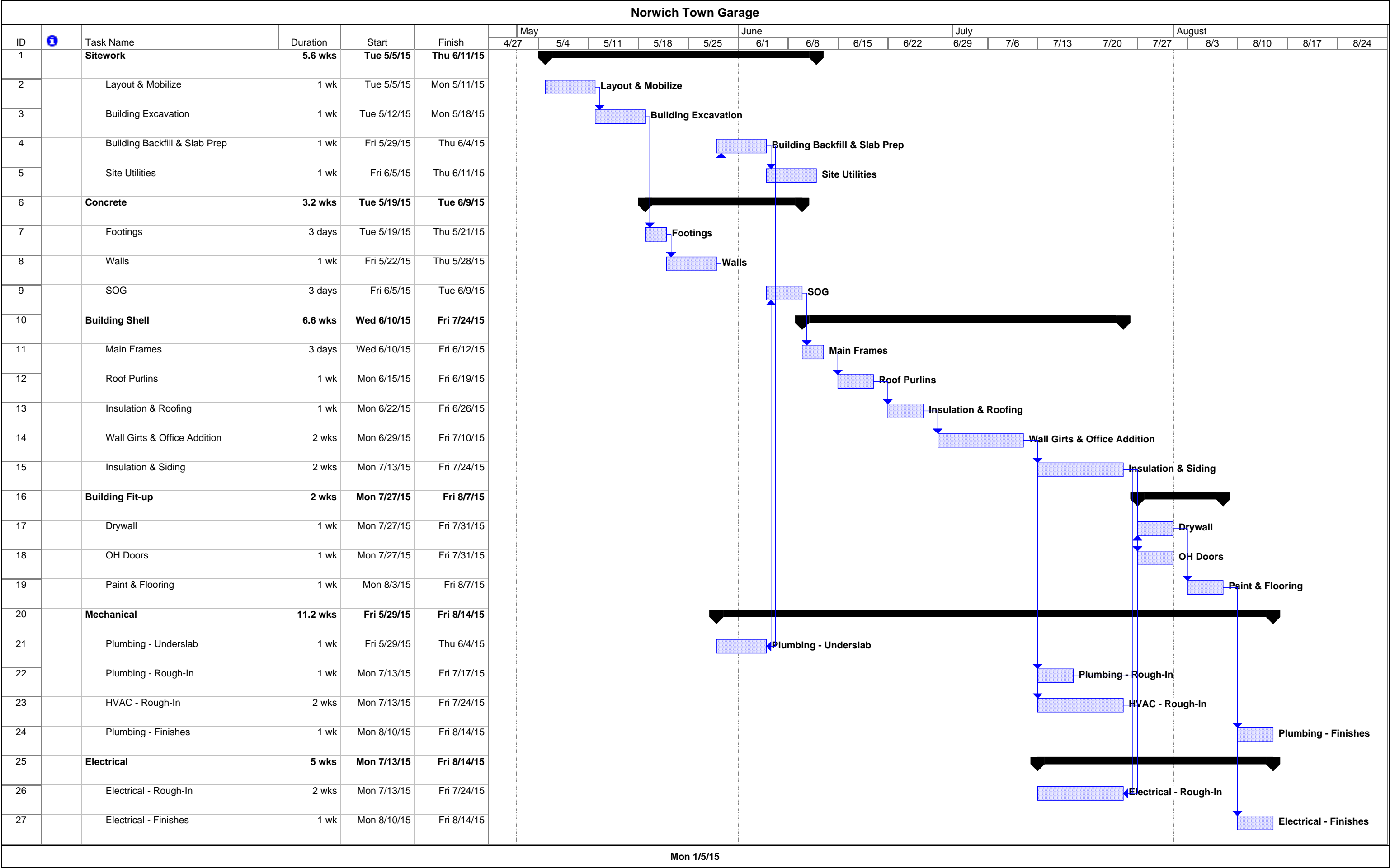
PUBLIC WORKS BUILDING

PRELIMINARY MAIN FRAME CROSS SECTION

DESIGNED BY	SCALE
EJF	1/8" = 1'-0"
DATE	REVISION DATE
1-6-2015	1-6-2015

A2

Sheet of



CONTRACT

CONTRACT made this 9th day of May, 2013 by and between the TOWN OF NORWICH (hereinafter called "TOWN") and Bread Loaf Corporation whose mailing address is 1293 Route 7 South, Middlebury, VT 05753 (hereinafter called "CONTRACTOR").

The TOWN and CONTRACTOR, in consideration of the mutual undertakings hereinafter set forth, agree as follows:

1. The Project

The furnishing of planning and architectural services related to facilities studies of the Norwich Fire, Police and Public Works Departments.

2. Contract Documents

This Contract shall consist of the following contract documents:

- This executed Contract;
- Exhibit A – Norwich's Request for Proposals (RFP), Planning and Architectural Services, Fire, Police and Public Works Facilities dated February 14, 2013.
- Exhibit B – The Contractor's Proposal dated March 15, 2013 in response to the Request for Proposals including the Informational Mailer.

3. Payment:

The Town agrees to purchase and pay for the subject project with a not-to-exceed cost of \$25,944.00 as follows

The Town shall make progress payments to Contractor towards the total balance due on the Contract less ten percent (10%) of the material and labor amount which shall be withheld by the Town. The remaining 10 percent (10%) of the total Contract amount will be paid by Town to the Contractor within thirty (30) days following the satisfactory completion of all terms of the Contract. Satisfactory completion of all terms of the Contract shall not be unreasonably withheld.

The Town shall not owe interest to the Contractor on any retained amounts of money due to the Contractor under this Contract.

4. Ownership of Documents

The latest original drawings, specifications and the latest electronic data prepared by the Contractor for the Project shall become the property of the Town. This conveyance shall not deprive the Contractor of the right to retain electronic data or other reproducible copies of the drawings and specifications or the right to reuse information contained in them in the normal course of the Contractor's professional activities.

5. Waiver of Lien

The Contractor's application for payment shall include conditional lien waivers for the Contractor and the subcontractors whose work is included in the pay application as a condition precedent to receiving payment.

The Contractor's application for payment shall provide unconditional lien waivers for the Contractor and the subcontractors who have received payment for work reflected and paid for in previous pay applications.

The Contractor's application for final payment shall provide unconditional lien waivers for the

Contractor and the subcontractors.

6. Time of Performance

The project schedule is as shown in Section 3 of the Contractor's Proposal modified for a start date based on the execution date of this contract.

7. Satisfactory Completion

Satisfactory completion of all terms of the Contract shall include delivery of all items of this Contract as specified.

8. Indemnification and Insurance:

The Contractor agrees to defend and save harmless the Town of Norwich, its officers, agents and employees against all claims, demands, payments, suits, actions, recovery, and judgments of every kind and description arising out of the performance of this Contract, including personal injury or property damage brought or recovered against it by reason of any negligent action or omission of the Contractor, its agents, or employees and with respect to the degree to which the Town or their contractors or agents are free from negligence on the part of themselves, their employees and agents.

The Contractor shall also maintain Automobile Liability Insurance providing limits prescribed by the Town and Umbrella or Excess Liability Insurance in the amount shown below. The Contractor's Workers' Compensation Insurance shall provide coverage pursuant to 21 V.S.A. §600 et seq.

The Contractor shall have and require all sub-Contractors to have and maintain insurance coverage and list the Town as an additional insured in accordance with the minimum amounts listed below. Prior to the start of any work, the Town shall be furnished with an insurance certificate as proof that coverage is in place.

- General Liability – \$1,000,000 per occurrence
- Product Liability – \$1,000,000 per occurrence
- Property Damage – \$1,000,000 per occurrence
- Personal Injury – \$1,000,000 per occurrence
- Automotive Liability – \$500,000 per occurrence
- Worker's Compensation – Statutory Requirement

9. Identification

Name of Town: Town of Norwich, Vermont

Address of Town: 300 Main Street
Post Office Box 376
Norwich, VT 05055-0376
Tel: (802) 649-1419 Ext. 102

Project Manager for the Town: Neil Fulton, Town Manger

Name of Contractor: Bread Loaf Corporation
Address of Contractor 1293 Route 7 South
Middlebury, VT 05753-4735
Tel: 802-388-9871

Project Manager for Bread Loaf Chris Huston

10. Amendment of Contract

This Contract, including all Amendments, embodies the entire understanding between the parties relating to the subject matter contained herein and merges all prior discussions and contracts between them. No agent or representative of the Contractor has the authority to make any representations, statements or Contracts not expressed herein. All modifications or amendments, including change orders, of this Contract must be in writing and must be signed by an authorized representative of each party.

11. Disputes

If a claim or dispute arises out of this Agreement or its performance, the parties agree to endeavor in good faith to resolve it equitably through negotiation, or if that fails, through non-binding mediation under the rules of the American Arbitration Association, before having recourse to the courts. However, prior to or during negotiation or mediation, either party may initiate litigation that would otherwise become barred by a statute of limitations.

12. Assignment

This Contract and the duties of the Contractor hereunder shall not be assigned or subcontracted without the written approval of the Town.

12. Force Majeure

In no event shall Town have any claim or right against the Contractor for any failure of performance due to causes beyond its control, including but not limited to: acts of God, fire, flood or other catastrophes; any law, order regulation, direction, action or request of the United States Government, or of any other government, including state and local governments having or claiming jurisdiction over Town or Contractor or of any department, agency, commission, bureau, corporation, or other instrumentality of any federal, state, or local government, or of any civil or military authority; national emergencies; unavailability of materials or rights-of-way; insurrections; riots; wars; or strikes, lock-outs, work stoppages, or other labor difficulties.

13 Applicable Law:

This Contract is made and executed in the State of Vermont and shall be construed and interpreted in accordance with the laws of Vermont.

14. Signatures

TOWN
Town of Norwich
Norwich, VT

CONTRACTOR
Bread Loaf Corporation
Middlebury, VT

By: _____

Neil R. Fulton, Town Manager

By: _____

Printed Name: _____

Town of Norwich Police, Fire, Public Works

SCOPE OF SERVICES FEE ESTIMATE - ADDITIONAL SERVICES

November 12, 2014

No.	Activity/Deliverable	Hours	Rate	Cost
1.1	Revise Schematic Design, Presentation Drawings, and Cost Estimate			
	VP of Architecture	16	\$85	\$1,360
	Design Assistant	24	\$65	\$1,560
	VP of Estimating	40	\$77	\$3,080
	Subtotal	80		\$6,000
1.2	Public Works Structural Deficiencies in DeWolfe Report			
	VP of Estimating	2	\$77	\$154
	Subtotal	2		\$154
1.3	Public Works Two Bay Addition to Exist Bldg for Break Rm and Off and New Restroom and Shower			
	VP of Estimating	2	\$77	\$154
	Subtotal	2		\$154
1.4	Public Works Full Addition to Existing Building			
	VP of Estimating	1	\$77	\$77
	Subtotal	1		\$77
1.5	Attend Three Meetings to Make Presentations and Answer Questions			
	VP of Architecture	24	\$85	\$2,040
	Design Assistant	8	\$65	\$520
	Subtotal	32		\$2,560
1.6	Misc Correspondence			
	VP of Architecture	8	\$85	\$680
	Subtotal	8		\$680
Total Hourly Cost		125		\$9,625



SECTION 1

FIRE STATION – 11 FIREHOUSE LANE

INTRODUCTION

The following report was prepared for the Town of Norwich Vermont by a team of professionals assembled by Mink Brook Management, LLC with the intent to identify the code and functional deficiencies within the three Town buildings housing the Department of Public Works, the Town Police Department, and the Town Fire Department. We have included in this report budget figures showing estimated costs to bring these buildings up to code and meet the functional standards typical for each department if these buildings were new today. The standards were identified by the team of professionals who have designed and constructed complexes in each of the categories discussed. We understand that each of these buildings is in need of maintenance work at this time and there are line items in the budget showing some of the maintenance repairs identified during our inspections. It is not the intent of this report to try to sway the Town of Norwich to perform the remedial work as described as it may not be in the best interest of the Town to do so. It is the intent of the report to inform the Town of Norwich of the costs associated with the work described if in fact remedial work was to be done to each of the existing buildings. The results from previous studies were reviewed and considered while going through the inspection process in each of the buildings mentioned.

The Fire Department Building was originally built in 1925 as a wood frame building and was replaced in 1980 with a steel frame garage and brick veneer façade, and a wood framed training / social room. Much of that work was completed by the department staff as volunteers. The building is marginally heated and there was an exhaust extraction system for the fire apparatus installed in 2009. Facilities within the building for both physical requirements of modern firefighting, secured areas for safety and proper storage and sanitary/safety accommodations for staff are virtually nonexistent. The building has a fire alarm system but no sprinkler system. The steel framed building is 4,096 square feet, Type IIB, unprotected non-combustible construction.

Generally the facility with all its storage needs is past capacity even though the Town has eliminated one truck several years ago. The apparatus floor stores 2 engines, 1 tanker, 1 aerial ladder, and 1 forestry truck. There is still room for one small vehicle to be added to the fleet. Unfortunately the departments' other equipment is stored in the apparatus area as well. This includes PPE, hose, foam concentrate, tools, SCBA, and hand tools. This space is certainly too small to meet this storage demand.

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1. Summary

- 1.1. The building is of adequate size to house the fire apparatus and equipment but does not have enough room for essential support activities. The existing kitchen/meeting room could function as a decontamination area, workshop, and storage for EMS supplies, fire equipment etc. Apparatus floor storage would include turnout clothing, hose and foam.
- 1.2. Bathroom facilities are inadequate and there is no room for expansion.
- 1.3. There is no room for a training room, Chief's office, members' room, and showers.
- 1.4. The building needs some energy efficiency improvements.
 - 1.4.1. Insulate walls
 - 1.4.2. Replace overhead doors with insulated door.
 - 1.4.3. Replace single pane windows.
 - 1.4.4. Replace fluorescent lights.
- 1.5. The building is code compliant. It meets ADA standards for existing buildings. The expense associated with meeting the requirements for new buildings is not prudent and would not solve any of the functional deficiencies.
- 1.6. Parking and traffic flow for responding members is poor. The Grange building restricts responses and parking. Additional parking could be added behind the building but the current configuration of the building would have to be altered to maximize the effects of new parking.
- 1.7. There is a lack of space on the front ramp to train with fire apparatus.
- 1.8. The current fire station has value and can serve as part of a new public safety building.

2. Functional Deficiencies

- 2.1. Inadequate space for training.
 - 2.1.1. The department has approximately 40 members. There is not sufficient room to conduct training with table and chair seating for more than 20 members.
 - 2.1.2. The low ceiling height interferes with effective presentation because it is difficult to see presentations.
 - 2.1.3. This space is used by outside groups. These groups must enter the room through the apparatus floor.
 - 2.1.4. The front ramp area is not an effective area for apparatus training. There is not sufficient area to train with apparatus without restricting access to the private homes located adjacent to firehouse.
- 2.2. Storage Areas
 - 2.2.1. EMS supplies are in several cabinets on the apparatus floor. Access to these cabinets is difficult due to proximity of the fire apparatus and other storage.
 - 2.2.2. No secure storage for fire/rescue supplies. There is one small closet that can be locked. There are some supplies and equipment that needs to be secured to maintain inventory control and distribution.

- 2.2.3. Fire hose storage is directly behind Engine 2. There is no room between Engine 2 and the hose racks. The hose racks are not large enough to store all of the spare hose. As a result hose is stacked in any available space around the rack. The amount of hose rack space would have to be doubled to properly store all the hose. There is no room to put any additional hose racks.
- 2.2.4. There is no space to dry fire hose. Hose is washed then left on the apparatus floor to dry. This creates a tripping hazard because hose must be spread out between the apparatus. There is not enough room to dry the amount of hose typically used at a building fire. A hose dryer could solve this problem except there is no room for one.
- 2.3. Decontamination area.
 - 2.3.1. The small bathroom is the only sink that can be used to decontaminate equipment. VOSHA regulations do not permit decontamination operations in kitchen areas.
 - 2.3.2. Inadequate space/location for laundry. The washer/extractor for cleaning protective clothing is on the apparatus floor. There is no space for a dryer so garments must be dried on “make shift” racks.
- 2.4. Office
 - 2.4.1. The fire station office is about 120 gross square feet and contains several file cabinets, a copier, and desk. The electric panel is in the office and the National Electric Code requires 3 feet of clear space in front of the panel. There is a lack of adequate space for records storage and use of the space by more than two people is impractical.
 - 2.4.2. The Fire Chief does not have an office in the fire station. There is no space to add an office in the firehouse. The Chief’s office is in the police station and is too small (110 square feet); about 200 square feet are needed.
- 2.5. Parking.
 - 2.5.1. The existing parking lot areas around the Fire Station and Police Station have adequate square footage for ample parking for both facilities. However, the parking configuration is not operationally effective for response by fire department members.
 - 2.5.2. The primary parking area at the Firehouse is owned by the Grange who has given permission for the fire department to use the space. Members have to “double” park in the lot when responding to alarms. This forces members to park on Main St. and walk down the alley to the firehouse. This delays their response and creates a traffic hazard when the fire apparatus enters Main St. The Grange has three regular events each month. On these days there is no room for the first arriving members.
 - 2.5.3. The only area where additional parking can be developed is behind the firehouse. The buildings adjacent to the firehouse make it impossible to expand parking for responding firefighters to the front or side of the firehouse.
- 2.6. Servicing self contained breathing apparatus (SCBA) and filling air bottles.
 - 2.6.1. The SCBA service area is on the apparatus floor. The compressor is noisy and there are no areas to wash SCBA components other than the bathroom sink.
- 2.7. Personnel Areas
 - 2.7.1. There is one small bathroom with a sink. This is inadequate for the number of members particularly since the sink may be required for decontamination procedures.
 - 2.7.2. There is no shower for members to use after calls. Members should have the opportunity to clean up following a call to avoid bringing contaminants to their homes.
 - 2.7.3. The building does not have an area for sleeping that is code compliant. There may be occasions during extended emergencies where personnel would be needed to staff or remain at the station for extended periods of time. This is not permissible in the current building.

3. Building Components and Systems

3.1. Structural components

3.1.1. The Fire Station had a new roof constructed over the existing with added insulation value of R 30 using two layers of 1½" rigid insulation. This roof added weight to the existing metal roof system with a pitch of 4:12. The original metal roof was installed on 8" purlins at approximately 4' on center. This is an essential facility (fire station) and in today's standards needs to meet Occupancy Category IV. Due to the stringent standards for Category IV buildings it is our opinion that none of the buildings included in this report would meet Category IV, and a structural evaluation would be expensive for each building. The new roof installed over the existing had the following evaluation from Stantec representative Gerry Vezina PE and reported to the Town in August of 2010. "Our calculations showed that the roof framing will marginally support the load of the existing and new roof with the design snow load of 42 PSF; with the building frame being the weakest part of the system. However, simply stated; the new roof system will carry approximately 5 PSF less snow load than before the new roof was added.¹ We encourage you to monitor the roof during periods of heavy snow and to remove the snow if the weight becomes excessive."

3.1.2. This facility is an Occupancy Category IV facility as defined in Table 1604.5 of IBC. The "Importance Factor" (or "I") is used in calculating snow, wind and seismic forces (NOT dead loads or other live loads). IBC does not include formulas to determining these forces but refers the designer to ASCE 7 "Minimum Design Loads for Buildings and Other Structures" to determine the magnitude of environmental forces. In ASCE 7, there are a number of formulas for calculating these forces and these formulas include the variable "I" along with numerous other variables (i.e. for exposure, site topography, building thermal characteristics, building size/height, soil characteristics, etc.) depending on what environmental force is being calculated. This increases the required design load significantly compared to an occupancy in a lower category. This implies, but does not conclude without further verification, that the existing facility may have a serious code deficiency in terms of the structural requirements of an essential facility. In order to determine whether or not this building would meet the Category IV requirements there would have to be a structural inspection and study performed. This study would have to identify any deficiencies in the building structural frame and supports and identify what procedures would have to be done in order to have the building comply with the regulation. It is our opinion that none of the buildings that we are looking at for the Town of Norwich would comply with this regulation. The buildings are too old and the requirement was not in place when the buildings were first utilized. The building has stood for over 40 years and is structurally as sound as it was when it was built. The new roof actually will serve to lower the amount of snowing loading by eliminating ice damming. The use of Category IV requirements for this building is setting a higher standard than is required by the VT Fire Prevention and Building Code (VTFPBC). The estimated cost for a structural report is \$7,500 per building but the costs could run anywhere between \$5,000 and \$15,000. The mean price of \$7,500 was used in this report.

3.2. Energy Efficiency

3.2.1. The new roof has an R factor of 30 which meets current energy efficiency standards.

¹ The actual weight of the new roofing was less so the net result was the snow load capacity was reduced by 1 PSF. The new roof eliminated ice jams so the actual load on the roof was less than in previous winters.

- 3.2.2. The existing Fire Station exterior walls are poorly insulated and remain at an R factor of 3. The standard R factor for a 2' x 6' wooden frame in anyone's home would be R-19. It would be a very good idea to improve the insulation characteristics of the Fire Station by implementing the foam procedure proposed by Dayco, Inc. (See Attached Proposal) Estimated cost ... \$5,000
- 3.2.3. The three overhead doors are not insulated.) Estimated cost ... \$5,000
- 3.2.4. The windows are single pane glass and need replacing.) Estimated cost ... \$4,000
- 3.2.5. The fluorescent light fixtures on the apparatus floor are not energy efficient. Efficiency Vermont offers rebates for the purchase of qualifying lights; it does not include installation cost. Estimated cost \$1,200

3.3. Apparatus floor

The apparatus floor drains do not drain to an approved oil separator. There is an existing grate and drain in the floor of the apparatus bay that does not meet underground injection control regulations. The Vermont Department of Environmental Conservation would govern what would need to be done to this existing drainage system so it was approved. This may require the installation of oil and grease interceptor and then a storage tank that could be pumped when needed. Floor drains require UIC (underground injection control) registration at a minimum. UIC registration does not guarantee acceptance by the VDEC (Vermont Department of Environmental Conservation). Oil and grease interceptor may be a necessity to obtaining approval from the VDEC. Please review the options under Appendix B in the upcoming pages. We would recommend using the option of a holding tank that could be pumped periodically. Based on discussion with Fire Station Personnel our belief is that holding tank may have to be pumped two times a year. This appears to be the most economical way to meet the code. Estimated cost ... \$4,500

- 3.3.1. The finish on the floor makes the floor slippery when wet.

3.4. Mechanical Systems

3.4.1. Heating System. The furnace room that is attached to the metal building in the back has no provisions for fresh air intake for the furnace and there is no fire separation between the furnace room and the Fire Station. The heating plant is an oil fired boiler that circulates hot water. It is old, problematic, and undersized for the area it's trying to heat.

3.4.2. Exhaust Extraction System. A source capture vehicle exhaust system was installed in 2009. This had dramatically improved the indoor air quality and prevents the build up of exhaust residue on equipment and the building. This system meets the requirements of NFPA 1500 Fire Department Occupational Safety and Health Program.

3.4.3. Electrical. The electrical system complies with the National Electric Code. Project Worksafe identified several electrical violations. These were corrected in July 2012. There is a need for additional electrical outlets (apparatus floor and kitchen) and lighting (overhead storage area and boiler room).

4. Americans with Disabilities Act (ADA).

- 4.1. It is our firm belief that all public buildings should comply with American with Disabilities Act (ADA) requirements for handicap access. Existing buildings are not required by the VTFPBC to be upgraded to meet all ADA standards. The VTFPBC does require that any new addition or construction meet ADA standards. The following codes and associated costs represent the items that would need to be completed in order to have the Fire Station comply with ADA requirements for new construction.

4.1.1. ADA standards requirements for doors.

- 4.1.1.1. All doors on an accessible route within the building shall have a minimum clear width of not less than 32" and a minimum height of 80". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.5)

- 4.1.1.2. All doors on an accessible route within the building shall have a minimum maneuvering clearance on the pull side of the door of 18". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.6 and figure 25)
- 4.1.1.3. Maximum allowable height of a door threshold is ½" with 1:2 bevel. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.8)
- 4.1.1.4. Code requires that door handles, pulls and latches be no higher than 48" above finished floor and that the handle shall not require tight grasping, pinching or twisting. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.9)
- 4.1.2. The existing doors do not meet ADA standards for new construction. There are at least five doors that would need to be replaced in order to meet the criteria set forth in the code. The replacement of these doors would entail removing the existing doors, frames, and hardware, adjusting the location of the door opening to fit within the confines of the room entered and allow the 18" clear to obstruction on the handle side of the door, patch and repair the finishes and install a new pre hung door unit, including hardware in its place. Replacing these doors is impractical due to the extensive modifications and the limited benefit. There is no requirement to change these doors even if the existing building was retained and used as part of a public safety building. Estimated cost ... \$20,000
- 4.1.3. Accessible kitchens are required to have a sink with a maximum height of 34" and an accessible counter with a maximum height of 34". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.24 and 4.32.4)
 - 4.1.3.1. The existing counter, sink, and base cabinets are at a height of 36" above the finish floor. The lower base cabinets would have to be cut down in order for the heights to work for the ADA requirement. The sink would have to be lowered to fit the condition as well. Renovating the kitchen is impractical due to the extensive modifications and the limited benefit. There is no requirement to modify the kitchen even if the existing building was retained and used as part of a public safety building. If this building is retained for use with an addition this space would not be used as kitchen. Estimated cost ... \$4,000
- 4.1.4. Toilet facilities are required for men and women and shall be accessible. There are numerous code violations (IBC, ADA) with the existing toilet room and the room is not large enough to do anything that will comply with the code requirements. It appears to be virtually impossible to correct these deficiencies without providing additional space through renovation (and/or building addition). The existing facility does not have adequate space to accommodate such a renovation without losing other necessary functional space. Looking at the existing facility and adding an addition 15' x 22' to house two bathrooms, one for men and one for women. These two bathrooms would have all handicap accessible dimensioning, handicap grab bars, doors, and hardware. Estimated cost ... \$50,000
- 4.1.5. Ceiling in the Day Room/Training Room does not meet the required clearance height for such spaces, which is 7'-6" minimum. (2006 IBC – Section 1208.2) Raising the ceiling is impractical due to the extensive modifications and the limited benefit. There is no requirement to change the ceiling height even if the existing building was retained and used as part of a public safety building.

5. Compliance with Applicable Codes and Standards

- 5.1. VT Fire Prevention and Building Code.
 - 5.1.1. The building is in compliance with the VTFPBC. The VTFBC includes NFPA 101 Life Safety Code and the 2006 International Building Code.
- 5.2. Vermont Occupational Health and Safety Administration (VOSHA)
 - 5.2.1.1. The project WorkSafe inspection identified several VOSHA violations. All of these have been corrected.

5.3. NFPA Standards

5.3.1. NFPA 1500. The decontamination area does not meet NFPA 1500 standards.

5.3.2. A smoke alarm connected to the fire alarm system should be installed in the training room.

6. Functional and Operational Needs Program

- 6.1. Fire and Police can be collocated in a public safety building. This will be more efficient by using shared spaces and other resources. Police needs to be a secured area. Fire does not. Police can have full access to fire space. Access to police space is restricted to police only.
- 6.2. The space needs in the table below may be subject to modification to reduce the need for renovations to spaces that would function but do not meet the exact size.
- 6.3. Meeting/ training room for 50 people with table and chairs seating and classroom equipment.
- 6.4. Community access to training/meeting room
- 6.5. Bathrooms for male and female and male and female shower areas.
- 6.6. Should include one unisex bathroom accessible from apparatus floor.
- 6.7. Small meeting room. Shared space with Police Department
- 6.8. Sprinkler system and overhead fill for apparatus
- 6.9. Dormitory style room for potential “live in” fire department interns.
- 6.10. Fire alarm system
- 6.11. Standby generator
- 6.12. **Fire Department Space Needs Table**

<i>Norwich Fire Department</i>	<i>Approximate Square footage</i>	<i>Remarks Secured area</i>
Apparatus Floor	4800 (64 X 75)	Three bays. Drive through capability for one or two bays are desirable. Direct access from the outside for responding members.
Fire Chief	200	Near apparatus floor
FD Office	200	Near apparatus floor
FD Dorm rooms	300	Near bathrooms and shower
Kitchen and day room	200	May be shared with PD. Dayroom is separate
Bathrooms and Shower	374	Unisex and ADA. Accessible from Training room without entering PD or Apparatus Bay. Shower area restricted to employees
Workshop, Storage Compressor area	500	Adjacent to, or part of apparatus floor. Mezzanine area on apparatus floor is possibility for storage
<i>Public Safety Shared Space</i>		
Training room	750	Direct access to the outside for public use. Access to bathroom(s)
Small conference Room	200	Function as EOC. Accessible to fire and police
Storage Areas	455	Communications, janitor, supplies etc. Can be multiple closets located for ease of access.
Total FD and shared spaces	7,679	

- 6.13. Parking for members immediately adjacent to the apparatus
- 6.14. Training Spaces
 - 6.14.1. Apparatus operation outside the building without affecting public traffic flow.
 - 6.14.2. Storage for training props.
 - 6.14.3. Hose, ladder and search and rescue practice areas that can include stairs and areas with moveable partitions. May “share” building stairs and basement but they would have to be arranged so that they would not be damaged by water or training activities.
- 6.15. Hose drying area. May be wall mounted hose racks, hose dryer, or hose tower (Approximately 30 feet high).

7. List of Inspectors and Dates:

- Landon Wheeler, Division of Fire Safety, State of Vermont (March 23, 2012)
- Hazel Hunter, Project WorkSafe, State of Vermont (May 1, 2012)
- Greg Coates, Architect, New London, New Hampshire (Several Visits over March and April)
- Calvin Hunnewell, Director of the Codes Department, Lebanon, New Hampshire (Several visits over March and April.)
- All inspections were accompanied by Mink Brook Management representative, Leet Ware.

Before any work is done to the Fire Station there should be an asbestos and hazardous materials inspection prior to any work in the existing building. This inspection would identify any and all hazardous materials that could be harmful to any worker during a demolition and retrofit procedure. Estimated cost ... \$600

8. Photos



Photograph No. 1: Exterior side of the building looking toward Police station.



Photograph No. 2: Open storage for Personal Protective Equipment.



Photograph No. 3: More open storage and equipment.



Photograph No. 4: Bathroom with holes through the wall into furnace room.



Photograph No. 5: More bathroom.



Photograph No. 6: Holes in the wall through to the furnace room from outside the bathroom and from the main Fire Station building.



Photograph No. 7: Washing machine with partially hidden pull station.



Photograph No. 8: Training room exterior wall with window.



Photograph No. 9: Training room continued.



Photograph No. 10: Kitchen.



Photograph No. 11: Open floor grate that runs full length of the building.



Photograph No. 12: Exhaust extraction hose system and open storage beyond.



Photograph No. 13: Open storage and electrical, telephone office.



Photograph No. 14: Town water meter without backflow prevention.



Photograph No. 15: Exterior of the building looking toward the police station on the other side.



Photograph No. 16: Front of the building showing OH Doors for equipment and front entrance door.

Landon Wheeler report
Letter from Stantec Structural Engineers

9. Parking

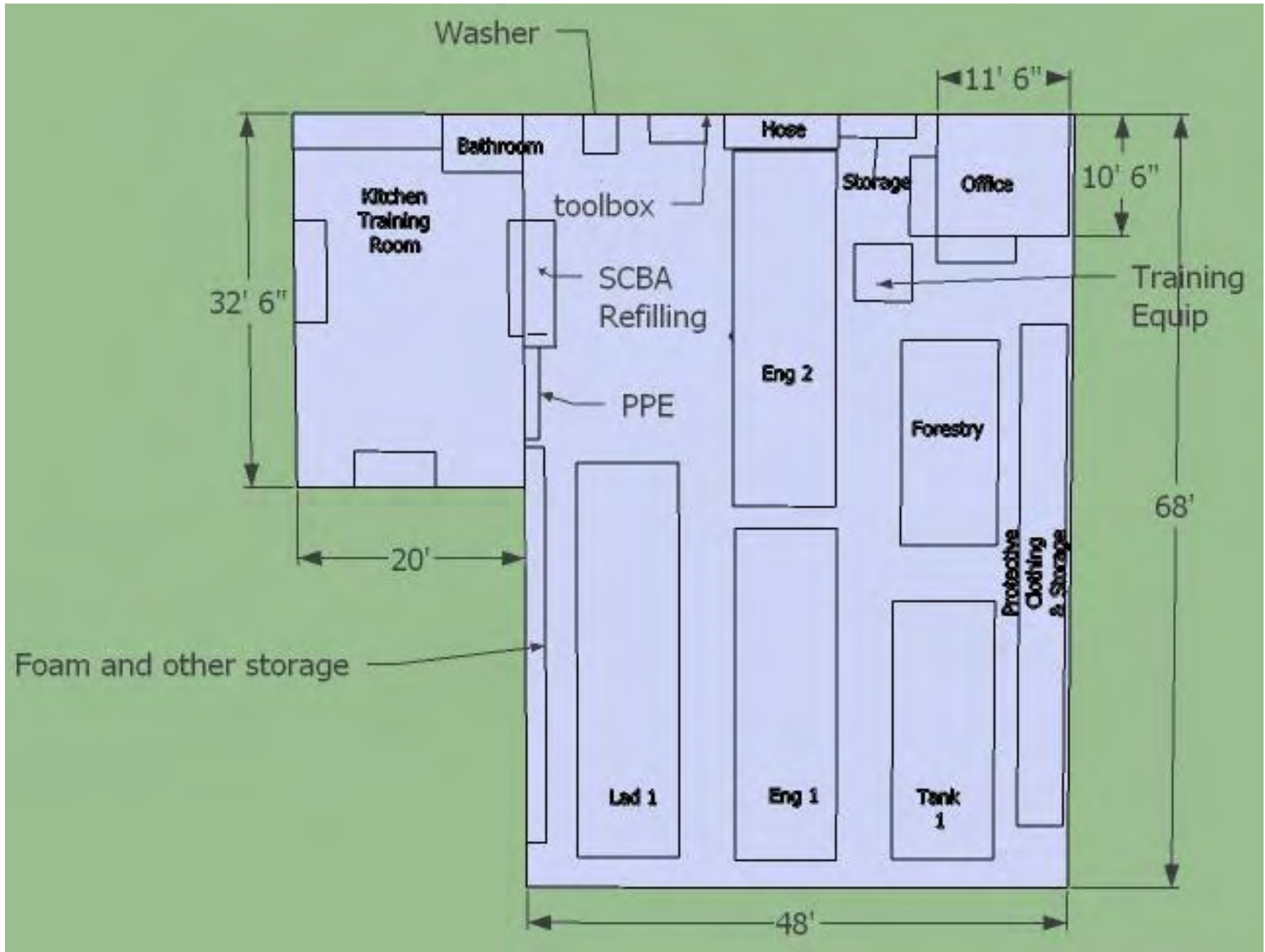
9.1. There is ample room around the Fire Station and Police Station to set up parking for a minimum of 70 cars. This is more than enough parking spots for the need as the workforce count and Fire Station requirements have been explained. The Police Station has five people at the most at one time working on premises and the Fire Station has reported that typically there are 10 to 12 vehicles for a standard call. The largest problem with parking and vehicles is the traffic pattern and room to manipulate coming in from Main Street by the Grange. The single lane going around the right side of the Fire Station does not allow any room for parking close to the entry doors to the Station, and the front yard is not the place to accumulate cars and be able to get the Fire Equipment out of the station and on its way. It is also less than desirable to have vehicles parked on Main Street as vision in both directions is partially blocked when entering the traffic pattern. Even though it is not the most advantageous it appears the best scenario would be to park in the rear of the building and enter the Fire Station from the back through an addition.

10. Evaluation of Firehouse

10.1. The building has value and does what it originally was designed to. There have been some improvements, notably the new roof and the vehicle exhaust extraction system. The most significant problem with the building is that it is too small for the operations of the fire department. The building is overcrowded suffers from a severe lack of storage space, bathroom facilities, and training areas.

- 10.2. Site access is limited by the Grange building and the Marcus Residence. This limits parking options for responding firefighters and makes access to Main St. undesirable.
- 10.3. This building has value and could be used as part of a new public safety building.

11. Appendix A Building Floor Plan Diagram



12. Appendix B Underground Injection Control (UIC) Program

Registration is now required of all 5W20 and 5X28 (industrial, commercial, utility, and automotive) floor drain/injection well systems used for the disposal of fluid waste. Some of the information that the UIC Program will obtain from registration includes ownership and location of floor drain/injection well systems, types, and amounts of wastewaters being disposed to the floor drain/injection well system, and the type of business where floor drain/injection well systems exist. There will be no fee for registration. Registrations will remain valid for the life of the floor drain/injection well system unless there is a change in the information provided to the UIC Program in the original registration form.

Recommended/Prioritized Alternatives to Floor Drain/Injection Well Use

1. Eliminate the floor drain. Some facilities report to the UIC Program that despite the existence of the floor drain/injection well system, there is no appreciable discharge. When this is the case, the DEC recommends that floor drains be closed and sealed. All closures should be reported to the UIC Program.
2. Reroute the floor drain to discharge to a municipal sewer line, where available and where acceptable to the municipality, or discharge to a facility accepting the generated wastewater. When wastewaters are generated, the DEC considers this option to be the best available technology.
3. Collect wastewater in a storage tank and dispose of via a local wastewater treatment plant or a hazardous waste hauler as appropriate. You must first determine if the wastewater is a hazardous waste before collection into storage tank. If the wastewater is determined to be a hazardous waste, you may need a permit from the Hazardous Materials Management Division. Guidance may be sought from the Hazardous Materials Management Division.
4. Reroute the floor drain to daylight. Approval must be obtained from the Permits, Compliance, and Protection Division.

UIC Program Permits for Floor Drain/Injection Well Systems

Individual UIC permits are required for 5W20 and 5X28 floor drain/injection well systems. The schedule under which this permit requirement will be enforced is listed in the “Strategy for Implementation” section of the procedure. Individual UIC Permits require submittal of applications and fees. The discharges to 5W20 and 5X28 floor drain/injection well systems are generally considered to pose a contamination risk to groundwater. The permits issued will have conditions to protect groundwater quality.

Some floor drain/injection well systems create too high a risk to qualify for Individual UIC permits. These may include 5X28 floor drain/injections wells that receive waste from floor drains in areas where vehicle maintenance is performed or where hazardous materials and/or hazardous waste is stored or used. Other floor drain/injection well systems may be considered too high a risk if the UIC Program has evidence to suspect a violation of primary drinking water or groundwater quality standards caused by the waste injection. Such floor drain/injection well systems will not qualify for Individual UIC permits and must be closed.

13. Appendix C Roof Requirements



Stantec

Stantec Consulting Services Inc.
54 Route 106 PO Box 29
North Springfield VT 05150-0029
Tel: (802) 886-2261
Fax: (802) 886-2260

August 30, 2010
Norwich Fire Department
PO Box 376
Norwich, Vermont 05055

Attention: **Stephen Leinoff, Fire Chief**

Dear Chief Leinoff:

Reference: **Roof Evaluation**

At your request, we visited the Norwich Fire Station for the purpose of evaluating the roof framing of the existing fire station building for the purpose of adding a new roof directly on top of the existing roof.

The Fire Station building is a one story building with preengineered frames spaced at approximately 16' centers and a concrete slab floor. The main building is approximately 70' x 50' with a 20' x 35' addition on one side. The building is approximately 22' high at the peak. The existing roof is a metal roof with a pitch of approximately 4:12. We are unsure of the exact age of the building but the building was dedicated in 1980.

The existing roof system consists of metal roofing with thermal insulation fastened to 8" purlins at about 4' centers. The new roof system will consist of 2 -1 1/2" layers of rigid insulation under a 60 mil layer membrane roofing. It is anticipated that the new roof will be laid directly on top of the existing roof system.

The ground snow in the Norwich, VT area is 50 pounds per square foot (psf). This snow load is reduced for roofs, and then the load is increased because your building is an essential facility (fire station); which brings the design roof snow load to 42 psf. The existing roofing, insulation and associated equipment is estimated to be 6 psf and the anticipated new roof is estimated to weigh 5 psf.

Our calculations showed that the roof framing will marginally support the load of the existing and new roof with the design snow load of 42 psf; with the building frame being the weakest part of the system. However, simply stated; the new roof system will carry approximately 5 psf less snow load than before the new roof was added. We encourage you to monitor the roof during periods of heavy snow and to remove the snow if the weight becomes excessive.

Should you have any questions on any of the above, do not hesitate to contact us.

Sincerely,

STANTEC CONSULTING SERVICES INC.

A handwritten signature in black ink, appearing to read "Gerry Vezina".

Gerry Vezina PE
Structural Engineer
Tel: (802) 886-2261
Fax: (802) 886-2260
gvezina@stantec.com

Stephen Leinoff

From: Vezina, Gerald [gerry.vezina@stantec.com]
Sent: Monday, October 04, 2010 11:17 AM
To: sleinoff@norwich.vt.us
Subject: RE: firehouse roof

Steve,
That's great. It does indeed increase the snow load capacity by 4 pounds.
Gerry

From: Stephen Leinoff [mailto:sleinoff@norwich.vt.us]
Sent: Monday, October 04, 2010 10:48 AM
To: Vezina, Gerald
Subject: firehouse roof

Thanks for your report. I have received the quotes from the roofing companies. The actual weight of the proposed systems is just over 1 pound per square foot. Is it a correct assumption that will increase our snow load capacity by about 4 pounds? I believe you used 5 psf in your calculations.

Steve Leinoff, Chief
Norwich Fire Department
PO Box 376
Norwich VT 05055
(802) 649-1133

"People Serving People Since 1920"

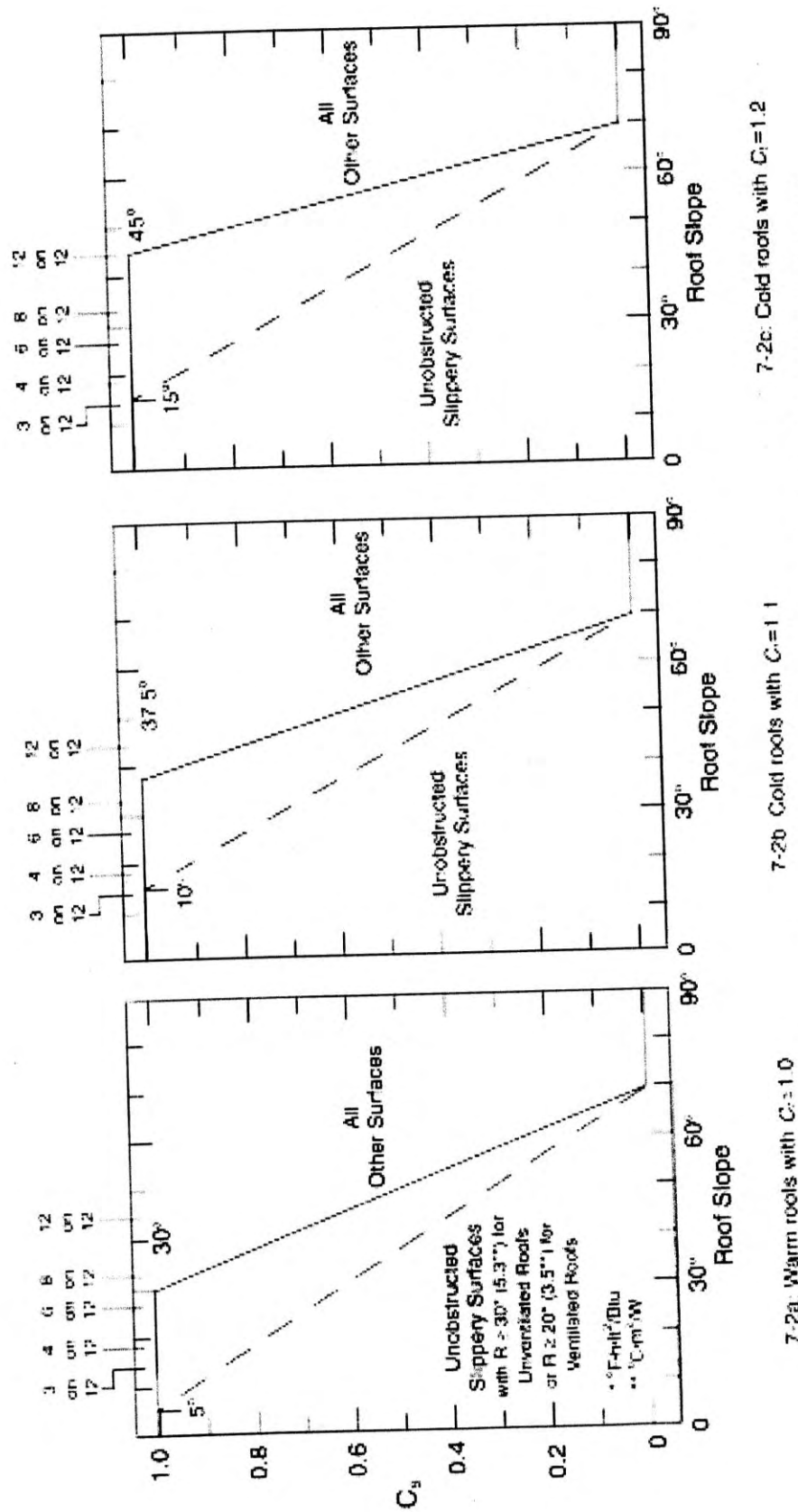


FIGURE 7-2 GRAPHS FOR DETERMINING ROOF SLOPE FACTOR C_s FOR WARM AND COLD ROOFS (SEE TABLE 7-3 FOR C_i DEFINITIONS)



The Vermont Secretary of State, Office of Professional Regulation considers the information contained on this website to be a secure, primary source for license verification. The Office certifies this information is current as of the date and time noted below.

For conduct decisions concluded after the year 2000, a scanned copy of the disciplinary action may be viewed online by clicking [here](#). If you require further information, please contact the [docket clerk](#). **If no discipline is listed below, we have no disciplinary records on file.**

Lookup Detail View**Name and Address**

Name	City/Town	State	Zip Code	Country
Mr. Gerald R Vezina	Windsor	VT	05089	United States

Licensee Information

License	License Type	Original Issue Date	Current Effective Date	Expiration Date	Status	Endorsements
018.0003385	Professional Engineer	02/23/1976	08/01/2010	07/31/2012	ACTIVE	Civil Structural I

Generated on: 10/21/2010 11:07:54 AM

May 18, 2012

Building Owner: (Applicant)

Town of Norwich
Attn: Stephen Leinoff
PO Box 376
Norwich, VT 05055
802-649-1133

CONSTRUCTION PERMIT

Building: Norwich Fire Department – 11 Firehouse Lane – Norwich
--

Site #: 21510 Project #: 309724 Authorization #: 1342623

Project Description: Roof Replacement
--

Occupancy Classification: Business – Storage (vehicle) Construction Type: 5B
--

Square Footage: 4096 Number of Floors: 1
--

The plans for the above-mentioned location were reviewed and approved on December 3, 2010. This approval applies only to the information listed on your drawings and specifications that have been submitted for review and does not apply to any violations that our field inspectors may find on the premises in the course of his inspection. The project may proceed provided the work is done in compliance with the 2006 Vermont Fire and Building Safety Code, the plans and specifications submitted to this office, and the following conditions.

1. Enclosed with this construction permit approval letter is a "Final Construction Valuation Form". This form must be completed and submitted to the Division of Fire Safety regional office prior to the approval for occupancy of your building or project. The final construction valuation must include all change orders.
2. The building must meet or exceed the accessibility standards for new construction and the alterations incorporated in 28 CFR Part 35 and 36, the Americans with Disabilities Act Accessibility Guidelines (ADAAG), as amended in 21 VSA chapter 4 and the Access Board Rules.
3. Snow load calculations provided by engineer are accepted as is. Building shall be monitored during heavy snow conditions as stated in the engineers report.
4. All foamed plastics such as spray applied insulation or ridged foam insulation shall be protected by thermal and ignition barriers in accordance with the International Building Code Section 2603
5. The 2006 International Building Code will apply to this project
6. No more than 2 layers of roofing shall be installed on any roof (IBC)
7. Any wet or damaged material shall be removed or replaced prior to installation of new roof membrane (IBC)

8. An energy efficiency certification, approved by the Department of Public Service, indicating compliance with Guidelines for Energy Efficient Commercial Construction shall be affixed in a visible location inside the building, in the vicinity of the heating or cooling equipment or the electrical service panel, as a condition for a final occupancy permit. 21 VSA 268. [*For additional information contact the Vermont Department of Public Service at 1-888-373-2255.*]

The enclosed Construction Permit must be posted at the job site in a location that is visible from the street. This permit does not include plumbing or electrical work notices, which are required to be submitted by the respective trades. It is your responsibility to see that your subcontractors have their respective work notices for your project.

Prior to occupancy, final inspections must be performed by the Assistant State Fire Marshal. It is the owner's responsibility to coordinate these inspections with the respective trades. Appointments with the inspectors, who are listed below, must be made within fifteen (15) days prior to the completion of the project. At the time of the final inspection and prior to the issuance of a certificate of occupancy, the field inspector will verify that the proper permits and work notices have been obtained.

To schedule an inspection, please contact:

Landon Wheeler, Assistant State Fire Marshal 802-885-8942

This permit does not satisfy the requirements of local municipalities. You must contact local authorities to determine those requirements. Any change in these plans must be submitted to this department for approval. This permit expires after twelve (12) months unless commencement of the project has begun and remained continuous.

If you have any questions or if I can be of further assistance, please contact me at 802-885-8966

Sincerely,

Paul Spicer
Assistant State Fire Marshal

14. Appendix D Insulation Proposal



Residential • Commercial Contractor

INSULATION PROPOSAL

Norwich Fire Dept
P.O. Box 376
Norwich, VT 05055

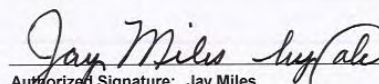
Phone: 802.649-4466
Job: Norwich Fire Dept
Norwich, VT

8/18/2011
WO#
7361

We propose hereby to furnish material and labor - complete in accordance with specifications below, for the sum of: \$4,679.00

Payment to be made as follows: **IN FULL UPON COMPLETION**

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from specifications below involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delay beyond our control. Owner to carry fire, tornado, and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance.


Authorized Signature: Jay Miles
Note: This proposal may be withdrawn by us if not accepted within 30 days

Foamed Areas

Exterior Walls - Metal Building: Install 3" 2 lb. closed cell spray foam insulation NOTE: All fiberglass is to be removed by others.

Exterior Walls - Wood Framed: Install 3" 2 lb. closed cell spray foam insulation

Foundation Walls at Garage: Install 2" 2 lb. closed cell spray foam insulation

Foundation Walls at Crew Room: Install 1.5" 2 lb. closed cell spray foam insulation

Thermal Barrier: Install 2 coats of intumescent paint over exposed foam at exterior walls of metal building and foundation walls of garage

Dayco will remove all debris, generated by our operations from the job site

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Please sign and return one copy of this proposal.

Signature: _____
By

Date: _____

15. Appendix E Vermont Division of Fire Safety Inspection Report



Vermont Department of Public Safety DIVISION OF FIRE SAFETY

Office of the State Fire Marshal, State Fire Academy and State Haz-Mat Team

firesafety.vermont.gov



☐ Barre Regional Office
1311 U.S. Route 302 - Berlin, Suite 500
Barre, VT 05641
[phone] 802-479-4434
[fax] 802-479-4446

☐ Rutland Regional Office
56 Howe Street, Building A, Suite 200
Rutland, VT 05701-3449
[phone] 802-786-5867
[fax] 802-786-5872

☐ Williston Regional Office
372 Hurricane Lane, Suite 102
Williston, VT 05495-2080
[phone] 802-879-2300
[fax] 802-879-2312

☒ Springfield Regional Office
100 Mineral Street, Suite 307
Springfield, VT 05156-3168
[phone] 802-885-8883
[fax] 802-885-8885

FIRE INSPECTION RESULTS

Site Id: 21510

Structure Information

Name: NORWICH FIRE STATION
Structure Id: 21510

Address: 11 FIRE HOUSE LANE
NORWICH, VT 05055

Owner Information

Owner: TOWN OF NORWICH (N 7265)
Phone: 802-649-1419

Address: MAIN STREET
PO BOX 376
NORWICH, VT 05055

Building Description

Risk Index: M3	Smoke Det:	Occupants:	Units:
Const Type: 5B	CO Detect:	Stand Pipe:	Floors:
Occ Type: MX	Fire Alarm:	Sprinkler:	Sq Feet:
Heating: Oil Hot Air			

Project Description

Name: Fire Prevention Inspection
Type: Building Project Received: 03/23/2012 Workitem Id: 336885
Comment: Requested

Inspection Detail

Insp Date: 03/23/2012 Insp Type: Follow-up Violations:
Comply By: 07/25/2012 Occ Granted: Hazard Index: Level 2
Inspector: LANDON WHEELER (S 79831)

Violations and Notes

inspection requested at the fire house met with contractor
emergency lighting
exit signs
gfc
combustion and make up air.
exit doors not working
pull station obstructed
penetration between bathroom wall and heating plant non permitted as this is a confined space



POLICE STATION – 10 HAZEN STREET

INTRODUCTION

The following report was prepared for the Town of Norwich Vermont by a team of professionals assembled by Mink Brook Management, LLC with the intent to identify the code and functional deficiencies within the three Town buildings housing the Department of Public Works, the Town Police Department, and the Town Fire Department. We have included in this report budget figures showing estimated costs to bring these buildings up to code and meet the functional standards typical for each department if these buildings were new today. The standards were identified by the team of professionals who have designed and constructed complexes in each of the categories discussed. We understand that each of these buildings is in need of maintenance work at this time and there are line items in the budget showing some of the maintenance repairs identified during our inspections. It is not the intent of this report to try to sway the Town of Norwich to perform the remedial work as described as it may not be in the best interest of the Town to do so. It is the intent of the report to inform the Town of Norwich of the costs associated with the work described if in fact remedial work was to be done to each of the existing buildings. The results from previous studies were reviewed and considered while going through the inspection process in each of the buildings mentioned.

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1. Summary

- 1.1. The current Police Department office was built as a private residence in 1957. When the police department moved before the Tracy Hall renovations the move was envisioned as a relatively short term of 5 to 10 years. The plywood sheathed ranch style house on a slab was never designed to house the complex requirements of a modern Police department and with minimal maintenance over the past 25 years, the building has structural, insect, and rodent problems not considering the code deficiencies found during inspections. The building has many maintenance problems that have been deferred over the years and has accessibility limitations. You will see upon review of the floor plan shown below that spatial problems are an issue with this building and there are no accommodations within the small spaces for the requirements of staff, security for personnel, materials, or the public.
- 1.2. Discussion with the Police Chief has uncovered continual leaking roof areas, lack of insulation in the walls and above the ceiling, outdated materials used for the construction that do not meet standards today for ceiling tile, flame spreads, and fireproof characteristics. The exterior of the building needs a lots of attention. The building is in dire need of paint, and renovation repairs. Our last visit to the site found beetles along the sill under the sheathing and a chipmunk sticking his head out from the wall cavity. The existing garage area and furnace room have many code problems and the existing rooms used for offices and storage are inadequate spaces without room for expansion. The kitchen and bathroom / locker room facilities are not ADA compliant and as stated in the report for the Fire Station we feel that all public buildings should be ADA compliant.

2. Functional Deficiencies:

- 2.1. Inadequate public lobby;
- 2.2. Lack of toilet rooms for public or detainees;
- 2.3. No secure sally port;
- 2.4. No secure or private interview room;
- 2.5. No weapons locker;
- 2.6. Inadequate secure evidence storage and record storage;
- 2.7. Inadequate locker room and toilet facilities for officers and staff. Inadequate Male/Female separation;
- 2.8. Lack of assault prevention techniques;
- 2.9. Inadequate training room;
- 2.10. Inadequate space for maintaining equipment;
- 2.11. Inadequate conference space;
- 2.12. Inadequate storage;
- 2.13. Inadequate lighting;
- 2.14. Pest issues;
- 2.15. Inadequate personal maneuvering space (i.e. width of corridors, size of rooms, etc.);
- 2.16. Lack of exterior security surveillance; and
- 2.17. Lack of protection around the building and glass (bollards etc.)

Please review the following report to understand the extent of the major functional and code deficiencies in this building.

3. Code Deficiencies:

The following code changes would certainly have to be implemented if this building was constructed today. The prices shown are estimates showing the cost to alter the existing building to meet these conditions.

- 3.1. Code requires that the building be provided with an accessible route from the parking lot into the building. The accessible parking space including the 60" wide access aisle adjacent to the parking space is required to be relatively level. Grade is not permitted to slope more than 1:50 in all directions. Code also requires a van-accessible parking space with a minimum width of 8 feet and a length of 20 feet. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4, 4.6.6 and 4.12-5-a)
 - 3.1.1. The Fire Station and Police Station parking areas are relatively flat and conform to the ADA requirement for accessible parking on a slope less than 1:50. There is ample room to install parking spaces to accommodate the two buildings and the public. Signage will need to be installed to indicate the area required to allow van accessible handicap parking and line painting could be installed on paved areas of the parking lot if the handicapped spaces were designed on previously paved driveway. Estimated Cost ... \$550
- 3.2. Code requires that accessible entrances be provided with level landings on each side of the door with adequate maneuvering clearances. The existing main entrance has a ramp to the door without a landing. The level landing for this location is required to be a minimum of 60" deep with a minimum of 18" clear to the pull side of the door. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.8.4-4, 4.13.6 and figure 25)
 - 3.2.1. Renovations to the existing ramp will need to be completed for the ramp to be ADA compliant and acceptable for a handicapped entrance. There is no flat area on the existing ramp and there needs to be a level area 5'-0" square and a minimum of 18" clear to the pull side of the door. Construction to renovate this ramp could be put on the list of carpentry items that need to be done to this building. Estimated Cost ... \$4,000
- 3.3. The existing receptionist counter is in excess of 3 feet in height. Code requires a portion of the counter to be accessible. The top of the accessible counter is required to be a maximum of 36" from the floor (ADA 28CFR Ch. 1, 7/1/94 edition, section 7.2)
 - 3.3.1. There would need to be a section of the existing counter renovated to comply with the above code violation. We would suggest an area approximately three feet in width that would be no more than three feet off the finished floor to allow anyone with a handicap and confined to a wheelchair the opportunity to place items on or in a tray for the receptionist to review. The work would be another carpentry item and would be required to be ADA compliant. Estimated Cost ... \$1,500
- 3.4. Accessible kitchens are required to have a sink with a maximum height of 34" and an accessible counter with a maximum height of 34". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.24 and 4.32.4)
 - 3.4.1. The kitchen base cabinets would have to be removed and the sink plumbing lowered to accommodate the code requirement height of 34" off finish floor to meet the ADA code requirements. Estimated Cost ... \$4,000
- 3.5. Code requires that all doors on an accessible route within the building shall have a minimum clear width of not less than 32" and a minimum height of 80". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.5)
 - 3.5.1. Code requires that all doors on an accessible route within the building shall have a minimum maneuvering clearance on the pull side of the door of 18". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.6 and figure 25)

- 3.5.2. Maximum allowable height of a door threshold is ½", with 1:2 bevel. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.8)
- 3.6. Code requires that door handles, pulls and latches be no higher than 48" above finished floor and that the handle shall not require tight grasping, pinching or twisting. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.9)
- 3.6.1. Thirteen doors within this building are in non-compliance and will need to be removed and replaced or somewhat relocated in order to have the clearances as called out in the codes above. The installation of pre-fabricated doors and frames and the installation of the proper hardware including closers, and / or panic devices for exit doors is a fairly expensive operation. Other care must be taken to not have the new doors swing into a space where there is a normal flow of traffic, and yet if the door is relocated in the wall area as to allow the proper clearances from the handle side of the door it may then promote an area of the existing room unusable for storage, or furniture that may be in use as it exists now. Estimated Cost ... \$39,000
- 3.7. Interior ceiling finish tiles are required to have a flame spread rating not greater than 200 and a smoke developed rating not greater than 450. (IBC 2006, section 803)
- 3.7.1. The existing ceiling tiles do not meet the characteristics discussed in the above code and are within violation for this IBC requirement. The ceiling grid should be torn out and replaced by a ceiling product that does meet the flame and smoke spread rating. For purposes of this report we carried the cost of the demolition of the existing tile, and the installation of a standard 2 x 4 grid of suspended, insulated ceiling tile. Estimated Cost ... \$6,200
- 3.8. Accessible storage areas are required to have shelves and hooks within the accessible reach ranges, between 9" and 48" above the floor. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.25)
- 3.8.1. The existing storage areas could be renovated in order to meet the ADA requirement specified above. To adjust the storage areas being used in this building with the exception of the Evidence Locker could be an avenue that was pursued. The result being there would be storage areas that did meet the criteria for the ADA code. Estimated Cost ... \$2,000
- 3.9. The exposed paper faced insulation in the garage is a code violation. Exposed material must meet flame spread and smoke developed requirements, or be covered (and in contact with) an approved finish material, such as gypsum drywall. (IBC 2006, sections 719.2.1, 719.3 and 803)
- 3.9.1. At a minimum the walls will be required to be covered with gypsum wall board and have a least one coat of tape and compound to be considered a "fire taped" condition and meet the code requirements. Estimated Cost ... \$2,700
- 3.10. A chimney vent through the roof is required to be not less than 3' above any other portion of the building within 10'. (IBC, NFPA) Estimated Cost ... \$250
- 3.11. Toilet facilities are required for men and women and shall be accessible. There are numerous code violations (IBC, ADA) with the toilet rooms. It appears to be virtually impossible to correct these deficiencies without providing additional space through renovation (and/or building addition). The existing facility does not seem to have adequate space to accommodate such a renovation without losing other necessary functional space.
- 3.11.1. Men's and Ladies rooms will be constructed as an addition to the building in order to meet the ADA and IBC requirements. Bathroom facilities were figured to be 15'-0" x 22'-0" with ADA lavatories and toilets, toilet partitions, and handicapped grab bars. Estimated Cost ... \$50,000

- 3.12. Certain specific storage rooms, electrical rooms, mechanical rooms and any other accessory use, incidental use, or required separation of uses must be properly classified in terms of fire-resistant construction. (2006 IBC – Chapters 3, 4, 5, 6 and 7; 2006 NFPA 101 – Chapters 6, 8, 9, 40, 42 and 43)
 - 3.12.1. There is a certain amount of work that will need to be done in the room where the furnace is located. Storage shelves will need to be protected from the furnace and all combustible fluids, etc. Box in the existing furnace with louvered doors for air circulation. Estimated Cost ... \$2,000
- 3.13. Lack of ventilation. Natural ventilation (in lieu of mechanical ventilation) of an occupied space is allowed, provided that the room has doors and/or windows such that the opening to the outdoors is at least 4% of the floor area. (2006 IBC – 1203.4)
 - 3.13.1. In most cases the ventilation requirements are able to be met by opening existing windows, and doors. If additional air intake is needed anywhere it would be a minor amount of work, but it is not anticipated. Estimated Cost ... \$0.
- 3.14. This facility is an Occupancy Category IV facility as defined in Table 1604.5 of IBC. The “Importance Factor” (or “I”) is used in calculating snow, wind and seismic forces (NOT dead loads or other live loads). IBC does not include formulas to determining these forces but refers the designer to ASCE 7 “Minimum Design Loads for Buildings and Other Structures” to determine the magnitude of environmental forces. In ASCE 7, there are a number of formulas for calculating these forces and these formulas include the variable “I” along with numerous other variables (i.e. for exposure, site topography, building thermal characteristics, building size/height, soil characteristics, etc.) depending on what environmental force is being calculated. This increases the required design load significantly compared to an occupancy in a lower category. This implies, but does not conclude without further verification, that the existing facility may have a serious code deficiency in terms of the structural requirements of an essential facility.
 - 3.14.1. The Police Station would require a structural analysis to see if it meets the criteria of Occupancy Category IV. This analysis will fail the building in our opinion without question. Estimated Cost ... \$7,500
- 3.15. Building does not have a fire suppression system.
 - 3.15.1. If the Town of Norwich decided to install a fire suppression system in the existing Police Station the cost would be as follows: Estimated Cost ... \$9,200
- 3.16. The Police Station will require an Asbestos and Hazardous Materials Inspection before demolition procedures may start. Estimated Cost ... \$600
- 3.17. There are electrical issues that need to be revised by code. GFI receptacles will need to be installed around all sinks and sources of water where regular receptacles are now in place. The old electrical mast from a previous electrical entrance is required to be taken down by code. Estimated Cost ... \$2,500
- 3.18. The existing roof is in need of replacement. We have asked for an estimate from the same company that retrofit the Fire Station roof. This estimate includes the membrane roof system you have on the Fire Station and added foam insulation under the canopy for more energy efficient heating. Estimated Cost ... (Roof) \$25,000 (Added Insulation) \$15,000 R40

4. Functional and Operational Needs

4.1. Police Department Space Needs Table

SPACE/ACTIVITY	DESCRIPTION / REQUIREMENTS / REMARKS
----------------	---

Lobby	Shared space that is serviceable, professional and appealing to the customer/citizen and visitors. Limited comfort should be afforded to the "customer". Controlled access to other points in facility. Audio/visual should be in place. 20' x 15'Receptionist greets visitors - 4 people max at a time	
Public Toilets (2)	1 HC unit and 1 non HC unit - unisex/56 sf each	
Mechanical Room		
Conference/Training/Squad Room	Seating for 40 at 2'-0" wide folding tables. Blackboard or Whiteboard and screen. Computer network; EOC function Accessible from lobby & locked off from rest of building	
Conference/Training Storage	Storage of folding tables and chairs	
Receptionist & Communications	Works as confidential secretary to Police Chief. Requires significant office space to place office furnishings and functional area	
Chief of Police	Plans, organizes, staffs, trains, budgets, equips, coordinates, acts as public information person, reports and directs Police Department. Requires significant office space (+/- 208 sq. ft.) For office equipment/ furniture, files, etc.	
Small Conference room attached to Police Chief's office	Meetings with town officials, public and event planning	attached to Police Chiefs Office

Executive Officer/ Sergeant's Office	Functions as second in command, patrol operations supervisor (Job description available.) Requires office space of +/- 200 sq. ft. for office furniture, equipment, space to seat at least two per-sons, room for some storage- personal locker or closet.	Chief of Police and access to main conference/interview room
Detective Office	Functions as major crime investigator, supervised by Chief of Police. (Job description available - needs revision.) Requires office space with ample room for necessary office furniture and files. Space needs somewhat less than Executive Officer/Sergeant. 12' x 12'	
Report Writing	Requires workspace for three officers - office furniture, computers, equipment & 2-drawer file cabinets. (3) 8' x 8' spaces	
Break Room	Functional kitchen, fully applianced with ample room for employees to meet and eat.	Centralized - To Locker Room
M/F Locker rooms with toilets and showers in each	Women's - 3 lockers w/ toilet, sink and shower (120sf) Men's - 8 lockers w/ toilet, sink and shower (180sf) Use large sized lockers - 2' wide x 2' deep w/ sloped top Existing space includes boiler room and uniform storage	Squad Room
Interview	Windows optional in this room. Requires standard office furniture - table, chair, phone - possible one-way glass wall.	Adjacent or close to building entrance/exit
General Storage	Functional, adjustable shelves and various racks for equipment. 15' x 15'	Janitor
Janitor	Space enough to hold all necessary supplies and cleaning equipment with	

sink.

Process	Requires functional space, limited furniture - photo area, DUI testing equipment, fingerprint area - wall-mounted "secure" handcuff rings. 12' x 12'	Sallyport
Sallyport	Functional for one full-size SUV-style vehicle. Overhead auto garage doors. Audio/video. Completely washable walls, floors with center drain - possible dual purpose use to wash vehicles Est. 24' x 20'	Keeps duty vehicle under cover during inclement weather, avoids have to leave vehicle running
Evidence	Requires shelving (adjustable), gun racks, various size bins, secure room, fireproof construction - vault-type room, vented 10'x 10'	

5. Photos:



Photograph No. 1: Exit hallway to garage entrance.



Photograph No. 2: Partial locker room.



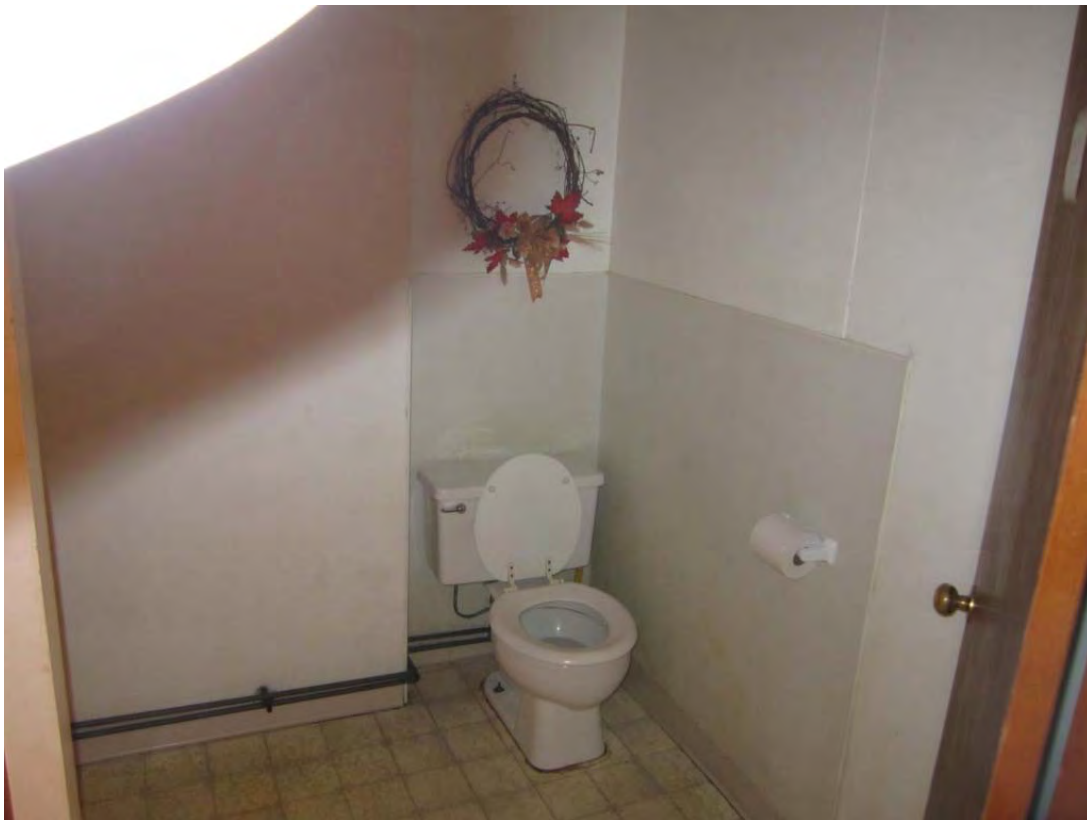
Photograph No. 3: Partial locker room.



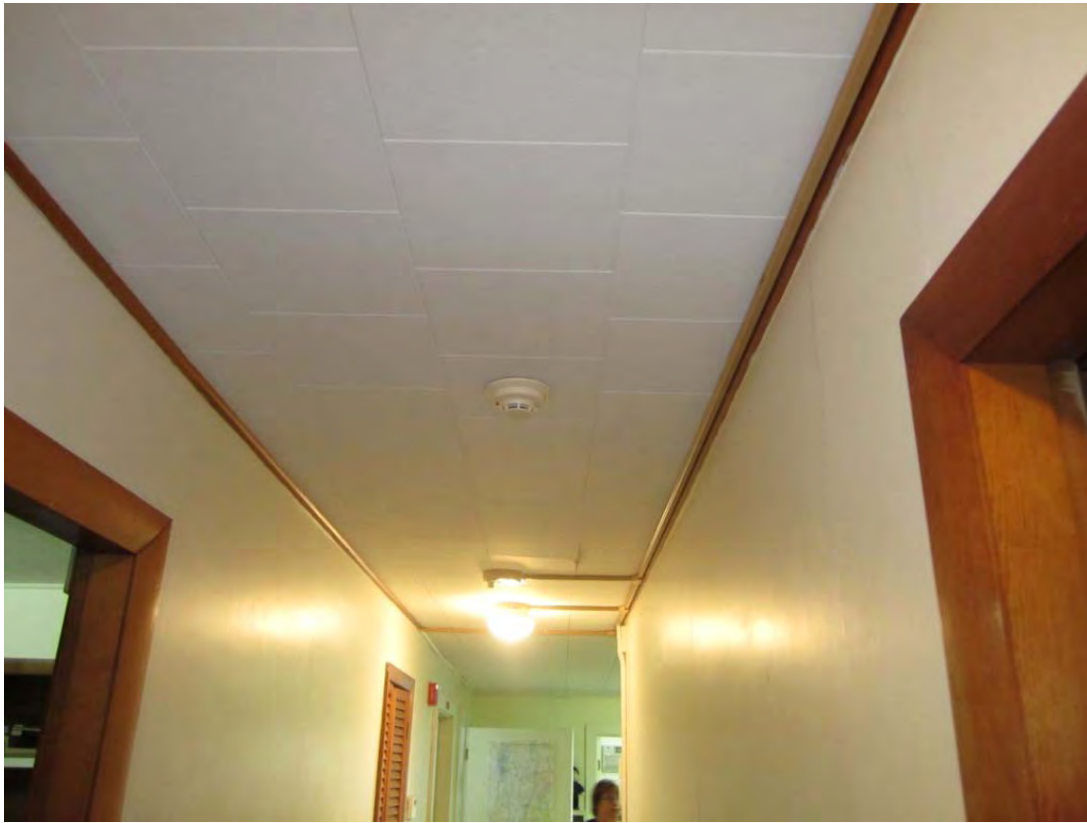
Photograph No. 4: Bathroom and shower off locker room.



Photograph No. 5: Narrow corridor from Fire Chief office looking toward conference room and front entrance.



Photograph No. 6: Toilet room off corridor.



Photograph No. 7: Flammable ceiling tile typical throughout the building.



Photograph No. 8: Police Chief office.



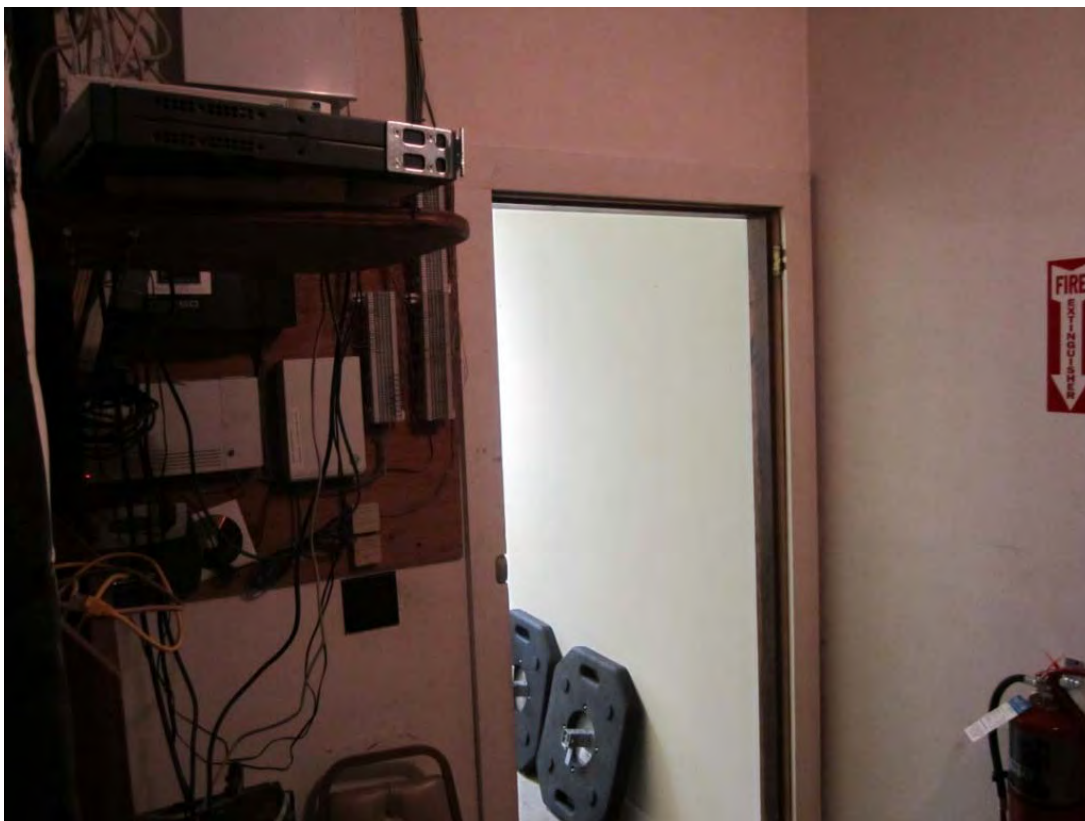
Photograph No. 9: Existing kitchen.



Photograph No. 10: Existing kitchen.



Photograph No. 11: Furnace room with open storage.



Photograph No. 12: Open telephone punch board.

6. Parking

Ample parking is available for the Police Station. (See report on Fire Station).

7. List of Inspectors and Dates:

Landon Wheeler, Division of Fire Safety, State of Vermont (March 23, 2012)

Hazel Hunter, Project WorkSafe, State of Vermont (May 1, 2012)

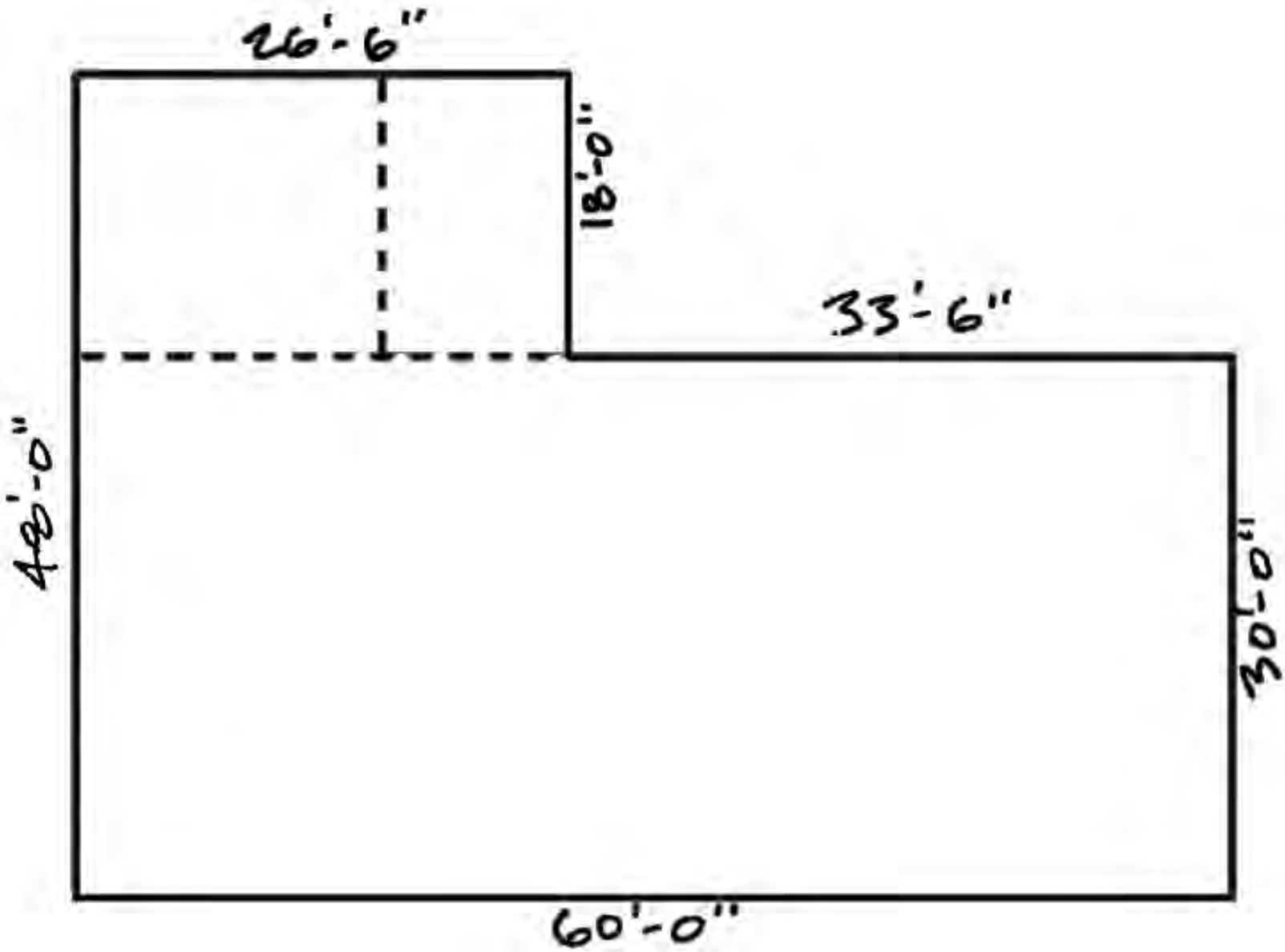
Greg Coates, Architect, New London, New Hampshire (Several Visits over March and April)

Calvin Hunnewell, Director of the Codes Department, Lebanon, New Hampshire (Several visits over March and April.)

All inspections were accompanied by Mink Brook Management representative Leet Ware.

In our estimation, the only way that these deficiencies could be satisfied for the Police Station would be to construct an addition to the Fire Station and tear down the existing Police Facility. The existing Police Station has no room to expand within the parameters of the exterior walls and in our estimation it would be much more costly to try to improve the existing building and bring it up to today's standards. The cost associated in the budget shown is for trying to solve the Functional and Standards Deficiencies for the Police and Fire Stations on the same site with one addition. Again, this budget is for the Town's use to understand the cost implications to improve the conditions for the persons who make up these Departments, it is not intended to imply that this is the action the Town of Norwich should take.

6. Appendix A Building Diagram



7. Appendix B VT Division of Fire Safety Report



Vermont Department of Public Safety
DIVISION OF FIRE SAFETY

Office of the State Fire Marshal, State Fire Academy and State Haz-Mat Team
firesafety.vermont.gov



☐ Barre Regional Office
1311 U.S. Route 302 - Berlin, Suite 500
Barre, VT 05641
[phone] 802-479-4434
[fax] 802-479-4446

☐ Rutland Regional Office
56 Howe Street, Building A, Suite 200
Rutland, VT 05701-3449
[phone] 802-786-5867
[fax] 802-786-5872

☐ Williston Regional Office
372 Hurricane Lane, Suite 102
Williston, VT 05495-2080
[phone] 802-879-2300
[fax] 802-879-2312

☒ Springfield Regional Office
100 Mineral Street, Suite 307
Springfield, VT 05156-3168
[phone] 802-885-8883
[fax] 802-885-8885

FIRE INSPECTION RESULTS

Site Id: 53736

Structure Information

Name: NORWICH POLICE STATION
Structure Id: 53736

Address: 10 HAZEN STREET
NORWICH, VT 05055

Owner Information

Owner: TOWN OF NORWICH (N 7265)
Phone: 802-649-1419

Address: MAIN STREET
PO BOX 376
NORWICH, VT 05055

Building Description

Risk Index:	Smoke Det:	Occupants:	Units:
Const Type:	CO Detect:	Stand Pipe:	Floors:
Occ Type:	Fire Alarm:	Sprinkler:	Sq Feet:

Project Description

Name: Police Station
Type: Building Project Received: 03/23/2012 Workitem Id: 337979

Inspection Detail

Insp Date:	03/23/2012	Insp Type:	Follow-up	Violations:	
Comply By:	04/23/2012	Occ Granted:		Hazard Index:	Level 2
Inspector:	LONDON WHEELER (S 79831)				

Violations and Notes

Interior finish- ceiling tiles non compliant, paper backed insulation non compliant NFPA 101 Chapter 10.2

Exits through storage, spare boiler room is non complaint, can not pass through boiler room as an exit. NFPA 101 Chapter 7

old service on end of building shall be removed or comply with NFPA 70 and NFPA 73. Marked, removed, labeled.

Open electrical shall be covered, old fixtures on ceilings shall be removed, covered or new fixtures added or installed. NFPA 70 and NFPA 73

SECTION 1

DEPARTMENT OF PUBLIC

WORKS FACILITIES – 24 NEW BOSTON ROAD

INTRODUCTION

The following report was prepared for the Town of Norwich Vermont by a team of professionals assembled by Mink Brook Management, LLC with the intent to identify the code and functional deficiencies within the three Town buildings housing the Department of Public Works, the Town Police Department, and the Town Fire Department. We have included in this report budget figures showing estimated costs to bring these buildings up to code and meet the functional standards typical for each department if these buildings were new today. The standards were identified by the team of professionals who have designed and constructed complexes in each of the categories discussed. We understand that each of these buildings is in need of maintenance work at this time and there are line items in the budget showing some of the maintenance repairs identified during our inspections. It is not the intent of this report to try to sway the Town of Norwich to perform the remedial work as described as it may not be in the best interest of the Town to do so. It is the intent of the report to inform the Town of Norwich of the costs associated with the work described if in fact remedial work was to be done to each of the existing buildings. The results from previous studies were reviewed and considered while going through the inspection process in each of the buildings mentioned.

The existing Department of Public Works Garage was built in 1976, the steel framed building is 80 ft. by 50 ft., 4,000square feet, Type IIB, unprotected non-combustible construction. The building has a fire alarm system but no sprinkler system, adequate bathroom and locker facilities, or any clean place for the employees to sit down for lunch or a meeting. The existing facility has a floor drain that will have to be brought up to meet UIC and Vermont standards just like the Fire Station floor drain mentioned earlier in this report. Additional room must be made to house Flammable Liquid and Materials away from the everyday workshop of the DPW and certainly away from all welding, torch, or other activities that could create a spark. This facility has a generator for back up electric power but it is questionable whether or not this facility has the correct sized service for the needs of 2012, and it will certainly have to be upgraded if additional space is acquired. Additionally there is no room for an office and computer, currently the director makes use of his own computer. and is in dire need of a roof replacement.

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1. Summary

- 1.1. The building is too small to store, and maintain the current vehicles and equipment. The building was originally constructed as a garage for several vehicles and equipment. It is inadequate by size and design to provide the necessary space for the administration, maintenance, and storage needs of the Public Works Department.
- 1.2. Bathroom facilities are inadequate and there is no place for employees to change clothes and shower.
- 1.3. There is no office space. The public works director has a desk on the shop floor.
- 1.4. There is no space, other than a table on the shop floor, for employee meals.
- 1.5. Repair work interferes with the administration of the Department. Noise and dusty conditions make it impossible to have a computer in the garage.

2. Functional Deficiencies

- 2.1. Storage Areas
 - 2.1.1. The building was originally constructed to house three trucks and a loader. There is no room to store any of the added equipment purchased by the Town since that time. A backhoe, loader, eight trucks, two graders and two roadside mowing tractors have no place to be stored undercover, say nothing of the smaller miscellaneous equipment and attachments.
- 2.2. Office Space
 - 2.2.1.1. There is no office space for the Public Works Director. A desk on the shop floor serves as an office. The dusty and noisy environment is not acceptable for performing administrative functions. The Public Works Director cannot have a computer in the shop due to the environment. He must answer all e-mail and perform other administrative functions involving a computer after work hours at his residence. The Department of Public Works Review Committee Final Report recommended that there be administrative support for the Public Works Director.¹
- 2.3. Lack of proper separation of functions in garage bays. Certain specific storage rooms, electrical rooms, mechanical rooms and any other accessory use, incidental use, or required separation of uses must be properly classified in terms of fire-resistant construction. (2006 IBC – Chapters 3, 4, 5, 6 and 7; 2006 NFPA 101 – Chapters 6, 8, 9, 40, 42 and 43)
 - 2.3.1. Storage, operations and management of hazardous materials or processes shall conform to the 2006 edition of NFPA 1, including but not limited to:
 - 2.3.1.1. Chapter 41 – Hot Work Operations Welding and any other “hot work” functions need to conform to 2006 NFPA 1, Chapter 41.
 - 2.3.1.2. Chapter 43 – Spraying, Dipping and Coating Using Flammable or Combustible Materials
 - 2.3.1.3. Chapter 60 – Hazardous Materials
 - 2.3.1.4. Chapter 63 – Compressed Gases and Cryogenic Fluids
 - 2.3.1.5. Chapter 66 – Flammable and Combustible Liquids
 - 2.3.1.6. Additional layer of Fire Code sheetrock installed between the electrical room and the base garage. Estimated Cost ... \$550

¹ Town of Norwich Website <http://72.0.157.4/~norwich/wp-content/uploads/2012/06/DPWFinalReport.pdf>

- 2.3.2. Noise issues
- 2.3.3. Administrative work.

3. Building Components and Systems

3.1. Structural components

3.1.1. This facility is an Occupancy Category IV facility as defined in Table 1604.5 of IBC. The “Importance Factor” (or “I”) is used in calculating snow, wind and seismic forces (NOT dead loads or other live loads). IBC does not include formulas to determining these forces but refers the designer to ASCE 7 “Minimum Design Loads for Buildings and Other Structures” to determine the magnitude of environmental forces. In ASCE 7, there are a number of formulas for calculating these forces and these formulas include the variable “I” along with numerous other variables (i.e. for exposure, site topography, building thermal characteristics, building size/height, soil characteristics, etc.) depending on what environmental force is being calculated. This increases the required design load significantly compared to an occupancy in a lower category. This implies, but does not conclude without further verification, that the existing facility may have a serious code deficiency in terms of the structural requirements of an essential facility. In order to determine whether or not this building would meet the Category IV requirements there would have to be a structural inspection and study performed. This study would have to identify any deficiencies in the building structural frame and supports and identify what procedures would have to be done in order to have the building comply with the regulation. It is our opinion that none of the buildings that we are looking at for the Town of Norwich would comply with this regulation. The buildings are too old and the requirement was not in place when the buildings were first utilized. The building has stood for over 40 years and is structurally as sound as it was when it was built except for the metal roof deck. A new roof actually will serve to lower the amount of snowing loading by eliminating ice damming. The use of Category IV requirements for this building is setting a higher standard than is required by the VT Fire Prevention and Building Code (VTFPBC). The estimated cost for a structural report is \$7,500 per building but the costs could run anywhere between \$5,000 and \$15,000. The mean price of \$7,500 was used in this report.

3.1.2. Roof. The roof system consists of a steel roof deck (approximately 3 feet wide ribbed steel decking) attached to steel purlins. The underside is insulated to the R-3 level. This creates significant ice damming and causes leaks. The decking is fastened using screws with rubber washers. The washers have deteriorated and the decking is split near some of them. As a result the roof leaks year round. A new roof system consisted of rigid insulation and membrane will eliminate the ice problem, reduce the structural load on the roof and stop the leaking. The roof support system will have to be evaluated by a structural engineer to determine the roof’s load carrying capability.

3.2. Energy Efficiency

3.2.1. The roof has an R factor of 3. The excessive heat loss is costly and creates ice dams along the eaves.

3.2.2. The existing exterior walls are poorly insulated and remain at an R factor of 3. The standard R factor for a 2' x 6' wooden frame in anyone’s home would be R-19. It would be a very good idea to improve the insulation characteristics of the building by foaming the walls.

3.3. Shop floor-

3.4. Mechanical Systems

3.4.1. Heating System.

- 3.4.2. Ventilation. In addition to special requirements of other codes (including NFPA 1), proper ventilation is required. Natural ventilation (in lieu of mechanical ventilation) of an occupied space is allowed, provided that the room has doors and/or windows such that the opening to the outdoors is at least 4% of the floor area. (2006 IBC – Section 1203.4)
 - 3.4.2.1. This could be the case if the overhead doors were not available to be opened and left open. This is a problem however in the upper level where the water storage is located. Installation of a louvered vent that will add fresh air intake if opened would be the most reasonable way to remedy the problem. Estimated Cost ... \$950
 - 3.4.2.2. Exhaust Extraction System. There is a fan for the entire building. This is inefficient in terms of cost and ability to remove exhaust fumes.
 - 3.4.2.3. There is an estimate for an exhaust system. This includes an exhaust hose reel and fittings to attach the exhaust hose to trucks when it is required to have a truck running for service.
- 3.4.3. Electrical. Electrical wiring and equipment in spray spaces and vapor areas are required to be of an explosion-proof type approved for use in such hazardous location in accordance with the NEC. (2000 IFC 1503) Electrical upgrades to meet the code will need to be done. Estimated Cost ... \$1,600
- 3.5. Fire Protection Systems.
 - 3.5.1. There is a fire alarm system monitored by the Hanover Dispatch Center. The system is inspected annually and there are no violations.
 - 3.5.2. Building does not have a fire sprinkler system. A system is not required but extremely desirable. The consequences of a fire that extensively damaged public works equipment would be devastating on the community. If the Town of Norwich chose to install a complete fire suppression system for this building the cost would be as follows: Estimated Cost ... \$33,000

4. Americans with Disabilities Act (ADA).

- 4.1. It is our firm belief that all public buildings should comply with American with Disabilities Act (ADA) requirements for handicap access where practical. Existing buildings are not required by the VTFPBC to be upgraded to meet all ADA standards. The VTFPBC does require that any new addition or construction meet ADA standards. The following codes and associated costs represent the items that would need to be completed in order to have the Public Works building comply with ADA requirements for new construction.
- 4.2. Doors. The existing door can remain in use even though they do not meet ADA standards for new construction. The ADA standards for doors in new construction require;
 - 4.2.1. All doors on an accessible route within the building shall have a minimum clear width of not less than 32" and a minimum height of 80". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.5)
 - 4.2.2. All doors on an accessible route within the building shall have a minimum maneuvering clearance on the pull side of the door of 18". (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.6 and figure 25)
 - 4.2.3. Maximum allowable height of a door threshold is ½", with 1:2 bevel. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.8)
 - 4.2.4. Door handles, pulls and latches be no higher than 48" above finished floor and that the handle shall not require tight grasping, pinching or twisting. (ADA 28CFR Ch. 1, 7/1/94 edition, section 4.13.9)
 - 4.2.5. There are four locations this is a problem. Remove the existing doors and install new prefabricated doors, frames, and hardware to meet the code. Estimated Cost ... \$15,000

5. Compliance with Applicable Codes and Standards

- 5.1. VT Fire Prevention and Building Code.
 - 5.1.1. The Division of Fire Safety found 3 minor violations.
 - 5.1.1.1.Storage shall be in accordance with NFPA 1 chapter 60 (oil, POL products)
 - 5.1.1.2.Guard non-compliant on stairs NFPA 101 Chapter 7
 - 5.1.1.3.Move rag bucket away from combustible material NFPA 1.
 - 5.1.2. The building is in compliance with the VTFPBC. The VTFPBC includes NFPA 101 Life Safety Code and the 2006 International Building Code.
- 5.2. Vermont Occupational Health and Safety Administration (VOSHA)
 - 5.2.1.1. The project WorkSafe inspection identified several VOSHA violations. All of these have been corrected.

6. Functional and Operational Needs Program

6.1. Space needs

- 6.1.1. Public Works Director Office 200 sq. ft.
- 6.1.2. Administrative Assistant Office 200 sq. ft.
- 6.1.3. Locker Room with showers and bathroom 400 sq. ft.
- 6.1.4. Lunch room with cabinets and appliances 300 sq. ft.
- 6.1.5. Public bathroom ADA unisex. 60 sq. ft.
- 6.1.6. Hazardous Chemical and miscellaneous storage 340 sq. ft. Estimated Cost ... \$270,000
- 6.1.7. Outside equipment Storage.
 - 6.1.7.1.Equipment stored outside at the Public Works site includes a backhoe, loader, two graders, chloride truck, three pickup trucks, and two dump trucks
 - 6.1.7.2.This equipment is subject to deterioration from weather conditions and operational readiness when covered in snow, ice etc. the value of this equipment is over 2 million dollars.
 - 6.1.7.3. An estimated space need is 7000 square feet of covered but not necessarily enclosed space.
- 6.1.8. Rented equipment Storage. Public works rents space off-site for the storage of two mowing tractors, and building and grounds trailers and mowers.
- 6.1.9. Buildings and Grounds Department Space and functional needs. The buildings and grounds department needs space for the storage of mowing equipment, fertilizers and other supplies, tools and equipment, a workshop and vehicle and trailer parking. Estimated space needs are 1500 square feet of heated space with an overhead door.
- 6.2. A single story building is desirable since the Public Works director often functions as a “working” supervisor.
- 6.3. The building has value and does what it originally was designed for. The most significant problem with the building is that it is too small for the operations of the public works department. The roof leaks dues to deteriorated fasteners and ice damming. The building is overcrowded suffers from a severe lack of storage space, bathroom facilities, dining and office areas.
- 6.4. The cost to bring the existing building up to the Occupancy Category IV requirement may be cost prohibitive although there is no requirement to meet Category IV requirements for the existing portion of the building. The building appears to be as structurally sound now as it was when it was built.

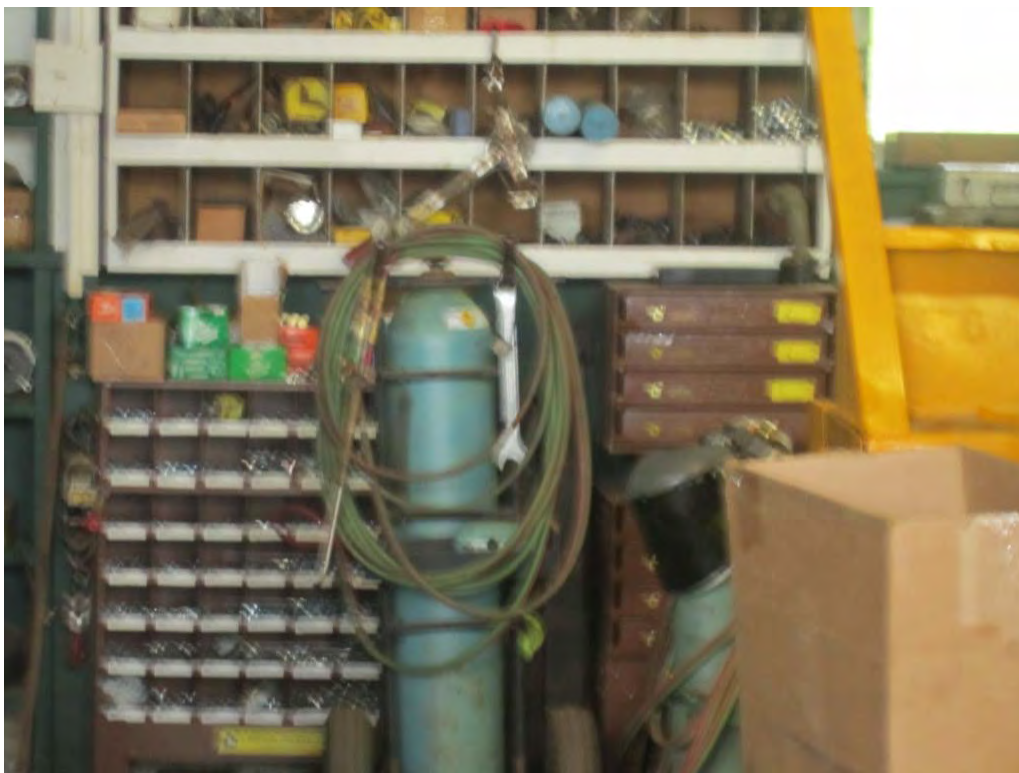
7. List of Inspectors and Dates:

- 7.1. Landon Wheeler, Division of Fire Safety, State of Vermont (March 23, 2012)
- 7.2. Hazel Hunter, Project WorkSafe, State of Vermont (May 1, 2012)
- 7.3. Greg Coates, Architect, New London, New Hampshire (Several Visits over March and April)
- 7.4. Calvin Hunnewell, Director of the Codes Department, Lebanon, New Hampshire (Several visits over March and April.)
- 7.5. All inspections were accompanied by Mink Brook Management representative, Leet Ware.

8. Photos



Photograph No. 1: Stairway going to 2nd level of DPW that needs mid-rail at the least.



Photograph No. 2: Highly flammable acetylene tank storage.



Photograph No. 3: More flammable fuel oil storage in bulk in the main DPW maintenance shop.



Photograph No. 4: Flammable storage with equipment.



Photograph No. 5: More of the stairway to the 2nd level that needs mid-rail.



Photograph No. 6: Flammable cabinets, several throughout the shop.



Photograph No. 7: Continuous floor grate for floor drain.



Photograph No. 8: Flammable liquid containers stored in maintenance garage.



Photograph No. 9: More Flammable cabinets and oversized step up into generator room.



Photograph No. 10: Heat piping for convection style heat system.



Photograph No. 11: Standard metal building insulation soaked by leaking roof.



Photograph No. 12: Generator



Photograph No. 13: Small open storage room.



Photograph No. 14: Existing bathroom and eyewash station.



Photograph No. 15: Oily rag container.



Photograph No. 16: Exterior of the existing building with solar panels.



Photograph No. 17: Exterior of the existing building with solar panels.



Photograph No. 18: Exterior of the existing building with solar panels.



Photograph No. 19: Exterior of the existing building with solar panels.



Photograph No. 20: Continuous floor drain grate to nowhere.

9. Site

- 9.1. There is sufficient space on the site to accommodate an addition to the building and other storage and function buildings.

10. Appendix B Underground Injection Control (UIC) Program

Registration is now required of all 5W20 and 5X28 (industrial, commercial, utility, and automotive) floor drain/injection well systems used for the disposal of fluid waste. Some of the information that the UIC Program will obtain from registration includes ownership and location of floor drain/injection well systems, types, and amounts of wastewaters being disposed to the floor drain/injection well system, and the type of business where floor drain/injection well systems exist. There will be no fee for registration. Registrations will remain valid for the life of the floor drain/injection well system unless there is a change in the information provided to the UIC Program in the original registration form.

Recommended/Prioritized Alternatives to Floor Drain/Injection Well Use

1. Eliminate the floor drain. Some facilities report to the UIC Program that despite the existence of the floor drain/injection well system, there is no appreciable discharge. When this is the case, the DEC recommends that floor drains be closed and sealed. All closures should be reported to the UIC Program.
2. Reroute the floor drain to discharge to a municipal sewer line, where available and where acceptable to the municipality, or discharge to a facility accepting the generated wastewater. When wastewaters are generated, the DEC considers this option to be the best available technology.
3. Collect wastewater in a storage tank and dispose of via a local wastewater treatment plant or a hazardous waste hauler as appropriate. You must first determine if the wastewater is a hazardous waste before collection into storage tank. If the wastewater is determined to be a hazardous waste, you may need a permit from the Hazardous Materials Management Division. Guidance may be sought from the Hazardous Materials Management Division.
4. Reroute the floor drain to daylight. Approval must be obtained from the Permits, Compliance, and Protection Division.

UIC Program Permits for Floor Drain/Injection Well Systems

Individual UIC permits are required for 5W20 and 5X28 floor drain/injection well systems. The schedule under which this permit requirement will be enforced is listed in the “Strategy for Implementation” section of the procedure. Individual UIC Permits require submittal of applications and fees. The discharges to 5W20 and 5X28 floor drain/injection well systems are generally considered to pose a contamination risk to groundwater. The permits issued will have conditions to protect groundwater quality.

Some floor drain/injection well systems create too high a risk to qualify for Individual UIC permits. These may include 5X28 floor drain/injections wells that receive waste from floor drains in areas where vehicle maintenance is performed or where hazardous materials and/or hazardous waste is stored or used. Other floor drain/injection well systems may be considered too high a risk if the UIC Program has evidence to suspect a violation of primary drinking water

or groundwater quality standards caused by the was injection. Such floor drain/injection well systems will not qualify for Individual UIC permits and must be closed.

11. .. Appendix C Roof Proposal

Public Works Building-

New membrane roof with flute filler and 2 inch Iso over entire area \$38,000.00-\$42,000.00.

Please let me know if you have any questions. Thank you.

Sincerely,

Dana Geno



P.O. Box 128/101 Commerce Park

Sharon, VT 05065

802-295-5604 p

Other roof expenses will include assessment by structural engineer...\$1,000.00

Remediation based on engineer's report is unknown.

12. Appendix D: Exhaust System Quote

J & G Industrial Installation, Inc.
54 Old Dock Road, Suite C
Yaphank, NY 11980
Phone (631) 924-6161 Fax (631) 924-8247

Town of Norwich
300 Main Street
PO Box 376
Norwich, VT 05055

November 13, 2008

Attn. Town Manager

Re: Revised Proposal for Nederman Vehicle Exhaust System @ Public Works Building

Gentleman,

We are pleased to submit at this time the following quotation for the above referenced project. The equipment we are proposing to install is the 865 Model 50 Wide Body Hose Reel System as manufactured by Nederman, Inc. of Westland Michigan.

All work to be performed as briefly described below.

DPW Area

Furnish and install all labor, material and equipment necessary to install one (1) 865 Model 50 Wide Body Hose Reel System to cover the maintenance area in the above referenced facility.

Major Equipment to be Furnished

One	(1)	865 Model 50 Wide Body Hose Reel	Part# 20807465
One	(1)	NS Silicone Hose, 6" x 24' Hose	Part # 006624
One	(1)	Round Rubber Nozzle, 6"	Part # 20803361
One	(1)	5 HP/3 PH DD Blower 3200 CFM @ 4" S.P.	Part# NIF 403-3
One	(1)	Motor Control Station	Part# ASCS-5-1
One	(1)	Exhaust Cane for Top Exhaust	Part # 20801961

Installation Requirements

Furnish and install all materials necessary to install and properly support one (1) Exhaust Hose Reel System in its entirety. System shall be hung approximately 14'0" above the finished floor.

Furnish and install all labor and material necessary to install one (1) 5 HP/3 PH Direct Drive Blower onto the exterior wall of the facility. Fan is to be sized for the possibility of future expansion.

Furnish and install all duct work as required for a complete and functional system. All connections shall be screwed and silicone sealed for an airtight seal.

Furnish and install a high velocity no-loss stack head to the output of the blower unit. The exhaust stack shall terminate approximately 3' above the roofline. The stack head we propose is in accordance with the American Conference of Governmental Industrial Hygienists.

Furnish and install all electrical work as required for a complete and functional system. Installation is to include a three-phase motor that is driven by a frequency drive control panel. This panel will accept the single-phase input from the building and generate the three-phase output required by the motor. This panel will also have the ability to lower the fan motor speed to accommodate the one (1) hose reel. If future expansion is desired, the control panel can increase the fan motor speed to provide the required suction at no additional cost.

We propose to install galvanized enclosure over the blower unit to keep inclement weather directly off the unit, in addition to further reducing noise levels, which are already below E.P.A. standards..

Total for DPW Area.....\$9,985.00

We hope to be of service to you and your organization in the near future. If you have any questions or require any additional information, please do not hesitate to contact us.

Respectfully,

Jim Wischhusen
President, J & G Industrial Installation, Inc.

13. Appendix E Division of Fire Safety Inspection Report



Vermont Department of Public Safety
DIVISION OF FIRE SAFETY
 Office of the State Fire Marshal, State Fire Academy and State Haz-Mat Team
firesafety.vermont.gov



☐ Barre Regional Office
 1311 U.S. Route 302 - Berlin, Suite 500
 Barre, VT 05641
 [phone] 802-479-4434
 [fax] 802-479-4446

☐ Rutland Regional Office
 56 Howe Street, Building A, Suite 200
 Rutland, VT 05701-3449
 [phone] 802-786-5867
 [fax] 802-786-5872

☐ Williston Regional Office
 372 Hurricane Lane, Suite 102
 Williston, VT 05495-2080
 [phone] 802-879-2300
 [fax] 802-879-2312

☒ Springfield Regional Office
 100 Mineral Street, Suite 307
 Springfield, VT 05156-3168
 [phone] 802-885-8883
 [fax] 802-885-8885

FIRE INSPECTION RESULTS

Site Id: 35366

Structure Information

Name: NORWICH TOWN GARAGE
 Structure Id: 35366

Address: NEW BOSTON ROAD
 NORWICH, VT 05055

Owner Information

Owner: TOWN OF NORWICH (N 7265)
 Phone: 802-649-1419

Address: MAIN STREET
 PO BOX 376
 NORWICH, VT 05055

Building Description

Risk Index: L3
 Const Type: 5B
 Occ Type: S1
 Heating: Gas Hot Water

Smoke Det:
 CO Detect: No
 Fire Alarm:

Occupants:
 Stand Pipe:
 Sprinkler:

Units:
 Floors: 1
 Sq Feet: 6072

Project Description

Name: Prevention inspection
 Type: Building Project

Received: 03/23/2012

Workitem Id: 337977

Inspection Detail

Insp Date: 03/23/2012
 Insp Type: Follow-up
 Comply By: 04/23/2012
 Insp Type: Follow-up
 Occ Granted:
 Inspector: LANDON WHEELER (S 79831)

Violations: 3
 Hazard Index: Level 2

Violations and Notes

A site visit was requested to assess the current condition of the existing building in regards to Life Safety Issues.

Storage shall be in accordance with NFPA 1 chapter 60 (oil, POL products)
 Guard non compliant on stairs NFPA 101 Chapter 7
 Move rag bucket away from combustible material NFPA 1

February 20, 2015

To the Selectboard:

The proposed bond to finance new facilities for the Police, Fire, and Public Works departments provides our town with a crucial and timely opportunity to vastly improve its energy footprint and reduce its carbon emissions.

From fall 2013, the Energy Committee has been aware of severe deficiencies in the three facilities' energy efficiency and, in fact, wrote to the Selectboard to highlight these issues (12-11-13 Minutes).

We strongly urge the Selectboard to commit to building designs that are as energy efficient as possible. A design process with energy efficiency modeling will allow the Town to quantify the potential savings and understand the benefits of having the new facilities achieve a variety of energy conservation standards such as LEED and Net Zero Energy. Efficiency Vermont offers incentives and specialized technical support for this process.

The bottom line is that even with additional construction costs (for items such as the building envelope, lighting, and mechanical systems), the accumulated year-by-year energy savings mean that efficient facilities will cost far less to taxpayers than “average” facilities.

The towns of Hartford, Middlebury, Moretown, and Waitsfield have recently undertaken net-zero building projects. (Not only are these projects “energy efficient,” but they are the most energy efficient possible and additionally will generate enough electricity to offset their usage.)

Having net-zero Town facilities simply makes sense. It would 1) save taxpayers' money, 2) accurately reflect the values of our community, and 3) align the Town with the Selectboard's strategic plan, our Town Plan, the State of Vermont's Comprehensive Energy Plan, and the state's goal for all new construction to be net-zero by 2030.

Norwich Energy Committee
Linda Gray, Chair

Dear Selectboard Members,

The Energy Committee has examined the reviews of the Norwich Police, Fire, and Public Works facilities completed by Mink Brook Management in 2012 and available on the town website.

We would like to underline the attached list of comments by the consultant on energy efficiency deficiencies in the existing facilities. These deficiencies are severe, and they are undoubtedly costing the Town (and taxpayers) money in spending on wasted energy. We strongly urge that, whether the facilities are modified or replaced, energy efficiency be one of the central considerations in developing and arriving at final designs.

Please feel free to get in touch with us if you have any questions about this matter.

Sincerely,

Alan Berolzheimer, Chair
Norwich Energy Committee

cc: Capital Facilities Planning and Budgeting Committee

Energy Efficiency Issues with Town Facilities

September 23, 2013

As identified in August 2012 building reviews by Mink Brook Management under contract to the Town of Norwich

Police

“Discussion with the Police Chief has uncovered **continual leaking roof areas, lack of insulation in the walls and above the ceiling**, outdated materials used for the construction that do not meet standards today for ceiling tile, flame spreads, and fireproof characteristics. The exterior of the building needs a lot of attention. The building is in dire need of paint, and renovation repairs. Our last visit to the site found beetles along the sill under the sheathing and a **chipmunk sticking his head out from the wall cavity.**” – <http://norwich.vt.us/wp-content/uploads/2012/06/Police-Station-Report-Final.pdf> - p. 2

Fire

“2.2. Energy Efficiency

2.2.1. The new roof has an R factor of 30 which meets current energy efficiency standards.

2.2.2. The existing Fire Station exterior walls are poorly insulated and remain at an R factor of 3. The standard R factor for a 2' x 6' wooden frame in anyone's home would be R-19. It would be a very good idea to improve the insulation characteristics of the Fire Station by implementing the foam procedure proposed by Dayco, Inc. (See Attached Proposal) Estimated cost ... \$5,000

2.2.3. The three overhead doors are not insulated. Estimated cost ... \$5,000

2.2.4. The windows are single pane glass and need replacing. Estimated cost ... \$4,000

2.2.5. The fluorescent light fixtures on the apparatus floor are not energy efficient. Efficiency Vermont offers rebates for the purchase of qualifying lights; it does not include installation cost. Estimated cost \$1,200” - <http://norwich.vt.us/wp-content/uploads/2012/06/Fire-Station-Report-Final-09-28-12.pdf> - p. 4

Public Works

“2.1.2. Roof. The roof system consists of a steel roof deck (approximately 3 feet wide ribbed steel decking) attached to steel purlins. The underside is insulated to the R-3 level. This creates significant ice damming and causes leaks. The

decking is fastened using screws with rubber washers. The washers have deteriorated and the decking is split near some of them. As a result **the roof leaks year round**. A new roof system consisted of rigid insulation and membrane will eliminate the ice problem, reduce the structural load on the roof and stop the leaking. The roof support system will have to be evaluated by a structural engineer to determine the roof's load carrying capability.

2.2. Energy Efficiency

2.2.1. The roof has an R factor of 3. The excessive heat loss is costly and creates ice dams along the eaves.

2.2.2. The existing exterior walls are poorly insulated and remain at an R factor of 3. The standard R factor for a 2' x 6' wooden frame in anyone's home would be R-19. It would be a very good idea to improve the insulation characteristics of the building by foaming the walls." -

<http://norwich.vt.us/wp-content/uploads/2012/06/DPW-ReportFinal.pdf> - p. 3