PRELIMINARY ENGINEERING REPORT
AND
BUILDING CONDITION SURVEY

FOR THE

TOWN OF BYRON
HIGHWAY DEPARTMENT BUILDING

GENESEE COUNTY, NEW YORK

SEPTEMBER 14, 2016

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Executive Summary

This report has been prepared by Chatfield Engineers, P.C and Wolfe Architecture, at the request of the Town of Byron. The subject property is the Town Highway Dept. and Town Hall located at 7028 NY Route 237 in Byron, New York, as shown in **Figure 1.**

We were charged to perform a building condition survey of the existing highway department barn on the subject property & provide recommendations for any necessary improvements. In this report, we have also included different options to reconfigure the spaces on the property, to make the Highway Barn space more functional and effective, and provide a solution for the link between the Town Hall and the Highway Department functions. The large unconditioned storage barn and the 2 salt barns behind the highway garage are in good functioning order, and so are not the focus of this report.

After an analysis of the existing buildings being used by the Town of Byron Highway Department, our conclusion is that the existing Town Highway Barn needs to be replaced by a structure that satisfies the practical needs of the Town in a manner that is compliant with important life safety, Americans with Disabilities Act (ADA), and building Codes.

A few highlights of the Building Condition Survey:

1) The egress paths around the trucks in the garage are inadequate, presenting life safety issues in the event of an emergency.

2) The ceilings are too short to allow the truck dump bodies to be raised to the full up position. This renders important safety equipment on the trucks useless, as they need to be used when the dump body is fully extended. This represents a very dangerous life safety condition.

3) The building is woefully under insulated and is heated by heat exchangers that are at or near the end of their useful life. This is a situation that is very expensive to rectify, and extremely inefficient to operate.

4) The inadequate heating and insulation systems also promote accelerated rusting of equipment and negatively affect the efficiency of the highway department staff.

5) The toilet rooms are not ADA compliant.

6) In order to pull the trucks in the garage with snow plow equipment, it was necessary to carve a cavity in the concrete masonry wall, since the building depth is inadequate.

Quality and Quantity of Space

Generally, the main highway garage building on the property is not appropriate for use by the Town Highway Department (a discussion of the condition of the existing buildings follows this section). Originally conceived as a Town Highway department venue, the existing building and layout are not sufficient to accommodate today's needs. There is a current need to increase the size of this building by about a third.

The extensive structural and spatial needs, as well as the desire for improved installations such as radiant heat on the floor call for the demolition of the existing Town garage (except for the first garage bay connected to the Town Hall). The remaining bay, while keeping the electrical installations and existing stairs, will be repurposed according to the needs of the town—a new office on the East side and a break room on the West side, the North side being the Town Hall proper.

The Town Hall functions are housed in the adjacent structure next to the garage bay to remain. With the exception of the bathroom and kitchenette accessed from the garage, the Town Hall's offices and meeting rooms fall beyond the scope of this report. The bathroom and kitchenette spaces will receive necessary upgrades to make them ADA compliant.

Building Condition Survey

The structures that we reviewed and are recommended for improvements include the Highway Department Garage (Town Barn), the Kitchenette adjacent to the Garage, the bathroom next to the aforementioned kitchenette, and the storage space behind the South end of the garage. Photographs of existing conditions are included in **Appendix A.**

Town Barn

The Town Highway Garage (Town Barn) is a Concrete Masonry Unit (CMU) and steel frame building, with a concrete slab on grade floor and metal panel roof system. The barn is heated by gas powered heat exchangers mounted above each truck bay.

The barn's dimensions seriously limit the effectiveness of the Highway Department team to perform necessary repairs and maintenance. Currently, there is not enough space inside the garage to work on the snowplows and other trucks owned by the Town during the winter months. Indeed, there is not enough space to house a fully loaded snowplow inside the building, and it is not possible to lift its cargo in order to perform certain maintenance tasks. Moreover, the inadequate height of the roof presents a danger to the mechanics, since safety equipment on the trucks are only effective when they are in the fully raised position.

The existing space is poorly insulated and heated, thus accumulating melted water inside from the snowplows, as evidenced by a pitted concrete floor and equipment with accelerated rust schedules. This is also due to a deficient drainage system.

The Town of Byron has two options to address these issues: To retrofit the existing structure, executing a massive renovation of the barn, and additions to the structure; or remove the existing structure and build a new facility with ample dimensions and efficient equipment

and services. In our opinion, renovating the existing Town Barn as a whole should be dismissed out of hand – it will be a very expensive proposition – moving the structural system, insulating metal wall and roof panels that are near the end of their useful life, replacing a pitted and cracking concrete floor, and replacing aging HVAC equipment. All of this, and it will have a much shorter lifespan than a new building.

After considering ideas put forth by Town Staff and the Building Committee, it is our opinion that retaining the first bay of the existing garage is a sound idea, since it houses an electric service that would be very expensive to relocate. This space can also be repurposed to house a new break room and an office. We recommend infilling 4' of new construction between the new metal building and the existing renovation, to allow for a more seamless installation of the metal building and to provide space that will benefit the layout of the office and breakroom in the renovation area.

Several upgrades to the building envelope of this section are recommended in order to provide proper insulation and weather-proof spaces between the Town Hall and the new Town Highway Garage. The metal stairs on the North wall of this space must remain too, in order to access the "parts room" in the second floor of the building. The area around the stairs will be used for circulation between the Town Hall and the new spaces (office, break room and new garage), and between the front and back sides of the building.

The existing kitchenette and bathroom are in a usable condition, but are not ADA compliant. We recommend performing minimal improvements in these areas to make them compliant.

We also recommend the use of ceiling hung infrared heaters in conjunction with in floor radiant heating to provide an efficient, effective heating strategy that will maximize the useful life of the Town's equipment.

Provided in **Appendix B** are conceptual drawings of the proposed building improvements.

As part of this preliminary analysis, we have completed a Building Data and Code Review Summary which is included in **Table 1**.

Garage South Wing

This structure is an addition to the current Town Garage at the south end of the building, and serves as an unconditioned storage space. The structure as a whole is in poor condition and must be removed with the rest of the Garage to allow enough space for the new building.

Cost Summary

The estimated costs for the improvements are summarized as follows:

Construction Sub-Total	=	$ 1,712,529
Engineering/Architectural Services	=	$ 139,500
Legal/Administration	=	$ 42,971
Total Estimated Capital Costs	**=**	**$1,895,000**

The detailed Preliminary Cost Estimates for the proposed improvements are included in **Table 2.**

We sought to provide conservative pricing for each work activity in the hopes that the actual costs that the Town would incur for the work would be less than we estimated. Toward this end, we used contingencies (money that is not allocated to a specific activity) to provide "cost security" where we thought it was warranted. We have allocated 10% for contractor's overhead and profit. We have also included a 20% construction contingency at this early stage of the Project.

We have evaluated the estimated cost impact to property owners within the Town for the proposed project. Our analysis is based upon the anticipation of the Town financing the project with a municipal bond, estimated at 4.25% for 30 years. The Town may wish to seek low interest loans and grants from USDA Rural Development through their Community Facilities Program, and/or seek financial assistance from their State and Federal Representatives.

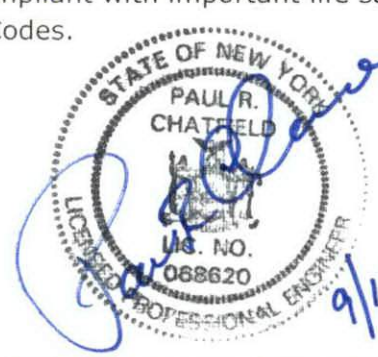
The estimated cost impact to residents is summarized as follows:

Total Estimated Project Costs	=	$1,895,000
Estimated Annual Debt Service Payment (4.25% for 30 Yrs.)	=	$ 112,939
Total Taxable Assessed Valuation of the Town (2016)	=	$110,328,796
Estimated Tax Rate for the Project	=	$ 1.02/$1,000 AV
Estimated Single Family Home AV	=	$ 88,000
Estimated Annual Cost for a "typical single family home"	=	$ 90.08

Conclusions

After performing a number of similar building conditions surveys to Town Highway Barns, we can say with confidence that we have not seen a barn that is more in need of replacement. **The life safety issues, inefficiencies and inadequacies of this structure are too numerous and dangerous to ignore.**

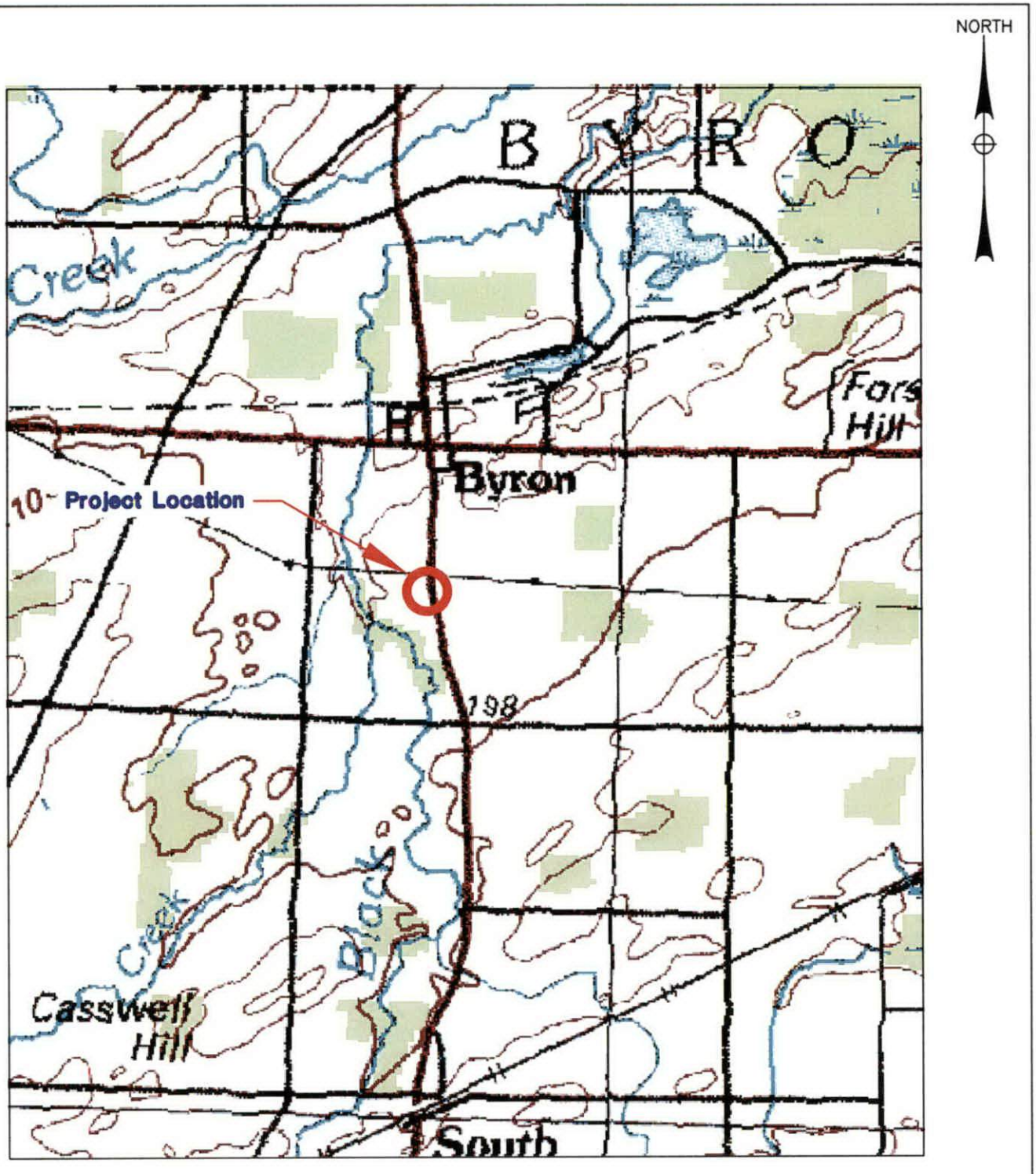
To repeat our earlier summary, after an analysis of the existing buildings being used by the Town of Byron Highway Department, our conclusion is that the existing Town Highway Barn needs to be replaced by a structure that satisfies the practical needs of the Town in a manner that is compliant with important life safety, American with Disabilities Act requirements and building Codes.



Building condition survey and estimate prepared for the Town of Byron by:

Chatfield Engineers, P.C and Wolfe Architecture

Figure 1
Location Map



SCALE: N.T.S.	
DRAFTED BY: CAH	
CHECKED BY: PRC	
DATE: 9-7-16	
PROJ. NO.: 16-1186	

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PROJECT:
TOWN OF BYRON
HIGHWAY DEPARTMENT
BUILDING EVALUATION

TITLE:
FIGURE 1
GENERAL LOCATION MAP

Table 1
Code Review Summary

Code Review Summary

Below is a code review for the proposed highway garage. Please note that the primary requirement will be to have a 2 hour separation between the office and truck bay areas.

BUILDING DATA & CODE SUMMARY
Town of Byron 9/2/2016

Code Information:
Building Code Vintage: NYS Building Code 2010
Code Approach
Building Code of NYS

Building Data:		**Offices**	**Highway Garage**
Construction Type		2b	2b
Last Permitted Occupancy:		Highway Barn	New Building
Total Perimeter	lf	See Highway Garage	422
Perimeter >20' drive	lf	See Highway Garage	363
Min. Width of Drive	ft	See Highway Garage	30
Height (Stories)	stories	See Highway Garage	1
Height (Feet)	ft	See Highway Garage	30
Area: Floor 1	sf	751	9,898
			0
Required Fire Separations		2 Hours	2 Hours
Total floor Area	sf	751	9,898

Building Limitations:		Office	Warehouse
Construction Type		2b	2b
Floor(s)		2	1
Occupancy Type		B	S-2
Space Function		Offices	Storage
Function Classification		Business	Warehouse
Occ. Density	SF / Person	100	500
Gross or Net?		Gross	Gross
	Height (Stories)	4	4
Tabular Code	Height (feet)	55	55
Limitations	Area per floor	23,000	26,000
	Stories	na	na
Sprinkler Increase	Height	na	na
	Area	na	na
Frontage Increase	SF	na	15,865
Allowable Height	Stories	4	4
Allowable Height	Ft	55	55
Allowable Area (/story)	SF/Story	na	41,865
Actual Height	Stories	See Highway Garage	1
Actual Height	Ft	See Highway Garage	30
Actual Area (/story)	SF/Story		9,898
Meets code?		**Y**	**Y**

Requirements based # of Occupants:			
Total Occupants	27	8	20

Table 2
Preliminary Cost Estimate

Table 2
Preliminary Cost Estimate
September 14, 2016

New Metal Building Data:

Length (ft):	152
Width (ft):	59
Area (sf):	8,968
Eave Height (ft) :	20
Perimeter (ft):	422
Construction:	Pre-Engineered Metal Building
Heating:	Overhead Infrared & In floor radiant heating

Building	Item	Scope	Quantity	(Units)	Unit Cost	Cost Multiplier	Subtotal	Building Totals
1		**New Town Barn Building - 152' x 59'**						$1,508,816
		DEMOLITION						
	a	Dismantle Old Town Barn & Shed	1	ls	$35,000	1.30	$45,500	
	b	Relocate utlilty lines (gas and water)	140	lf	$50	1.30	$9,100	
	c	Remove septic tank	1	ls	$3,000	1.30	$3,900	
	d	Remove oil separator	1	ls	$4,000	1.30	$5,200	
		NEW CONSTRUCTION						
	a	Building Structure, Shell & 7" Concrete Slab, HVAC, Electric, Minor Plumbing.	8,968	sf	$96	1.30	$1,119,206	
	b	Main Floor Drain Improvements (to be EPA compliant)	1	ls	$25,000	1.30	$32,500	
	c	Exterior LED wall packs	12	ea	$800	1.30	$12,480	
	d	Excavation and Site Work	1	ls	$50,000	1.30	$65,000	
	e	New pavement around new building	1	ls	$60,000	1.30	$78,000	
	f	Replace concrete apron (5' X 7")	1	ls	$10,000	1.30	$13,000	
	g	New Oil Separator	1	ls	$30,000	1.30	$39,000	
	h	New Septic Tank	1	ls	$7,100	1.30	$9,230	
	i	Workbenches	By Owner					
	j	Signage	1	ls	$3,000	1.30	$3,900	
	K	Overhead Hoist and structure to support hoist	1	ls	$56,000	1.30	$72,800	
2		**Existing Bay to Remain Renovations + 4' new construction**						$149,308
	a	Renovate Existing Bay - Concrete Slab to remain in place	751	sf	$60	1.30	$58,578	
	b	Add 4 ft of construction (37' deep)	148	sf	$110	1.30	$21,164	
	c	Insulate ceiling	751	sf	$12	1.30	$11,716	
	d	New doors	10	ea	$1,500	1.30	$19,500	
	e	Renovate Toilet Rooms & Kitchenette	1	ls	$22,000	1.30	$28,600	
	f	Infill Overhead door void	1	ls	$7,500	1.30	$9,750	
3		**Storage Building to Rear of Highway Garage - 31' x 30'**						$54,405
	a	Building Structure, Shell & 5" Concrete Slab , Electric	930	sf	$45	1.30	$54,405	
4		**Not Included in this estimate:**						$0
	a	Asbestos and Lead testing						

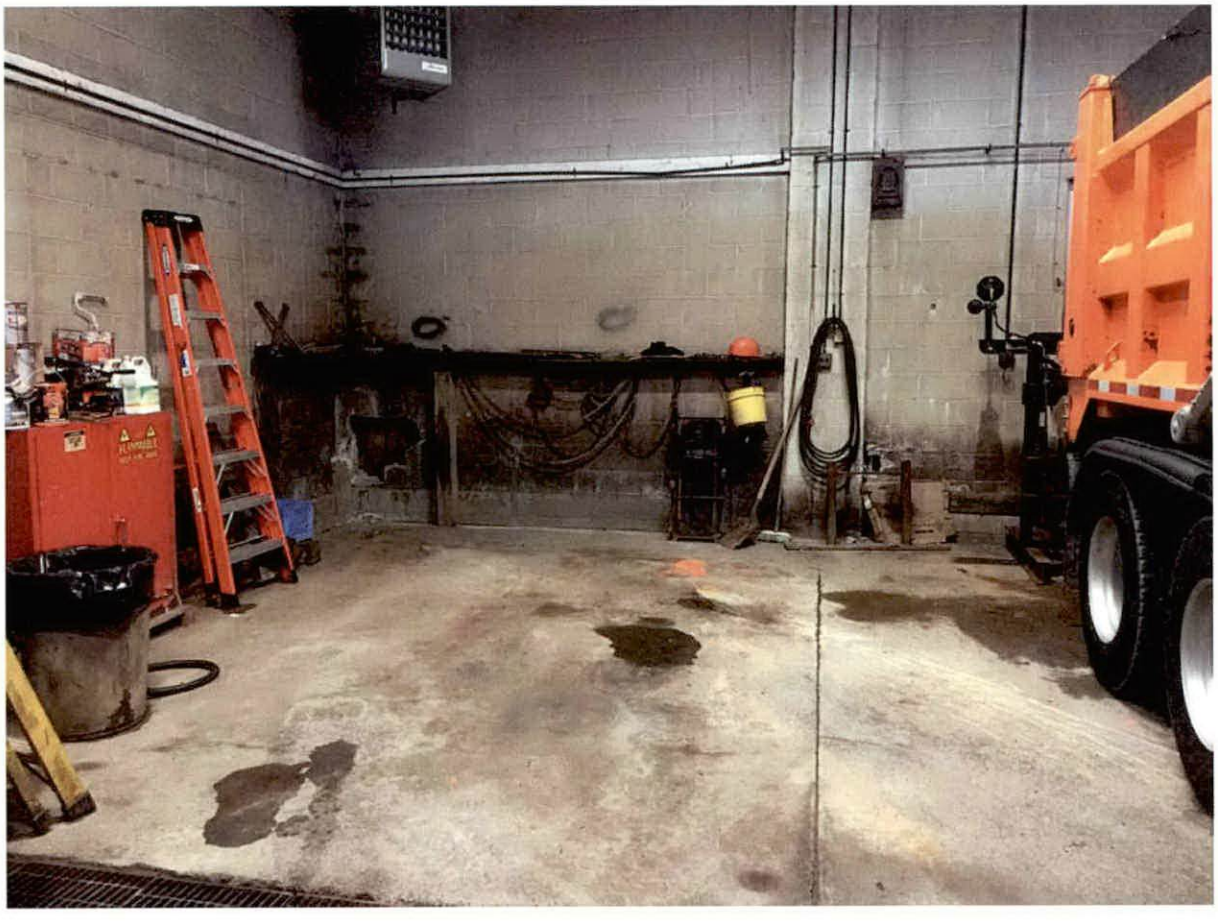
Total Estimated Construction Cost =	**$1,712,529**
Plus Engineering/Architectural Services & Clerk-of-the-Works =	$139,500
Plus Legal and Administration Costs =	$42,971
Total Estimated Capital Cost =	**$1,895,000**
Annual Debt Service Amount (4.25% for 30 years) =	$112,939
Total Town Taxable Assessed Valuation (AV) =	$110,328,796
Estimated Tax Rate/$1,000 AV =	$1.02
Estimated "Typical" Single Family Home AV =	$88,000
Estimated Annual Cost to the Typical Single Family Home =	**$90.08**

Notes:	1	All costs include 10% General Conditions, 20% Design & Construction Contingencies. These costs are reflected in the cost multiplier of 1.3.

Appendix A
Photographs of Existing Conditions

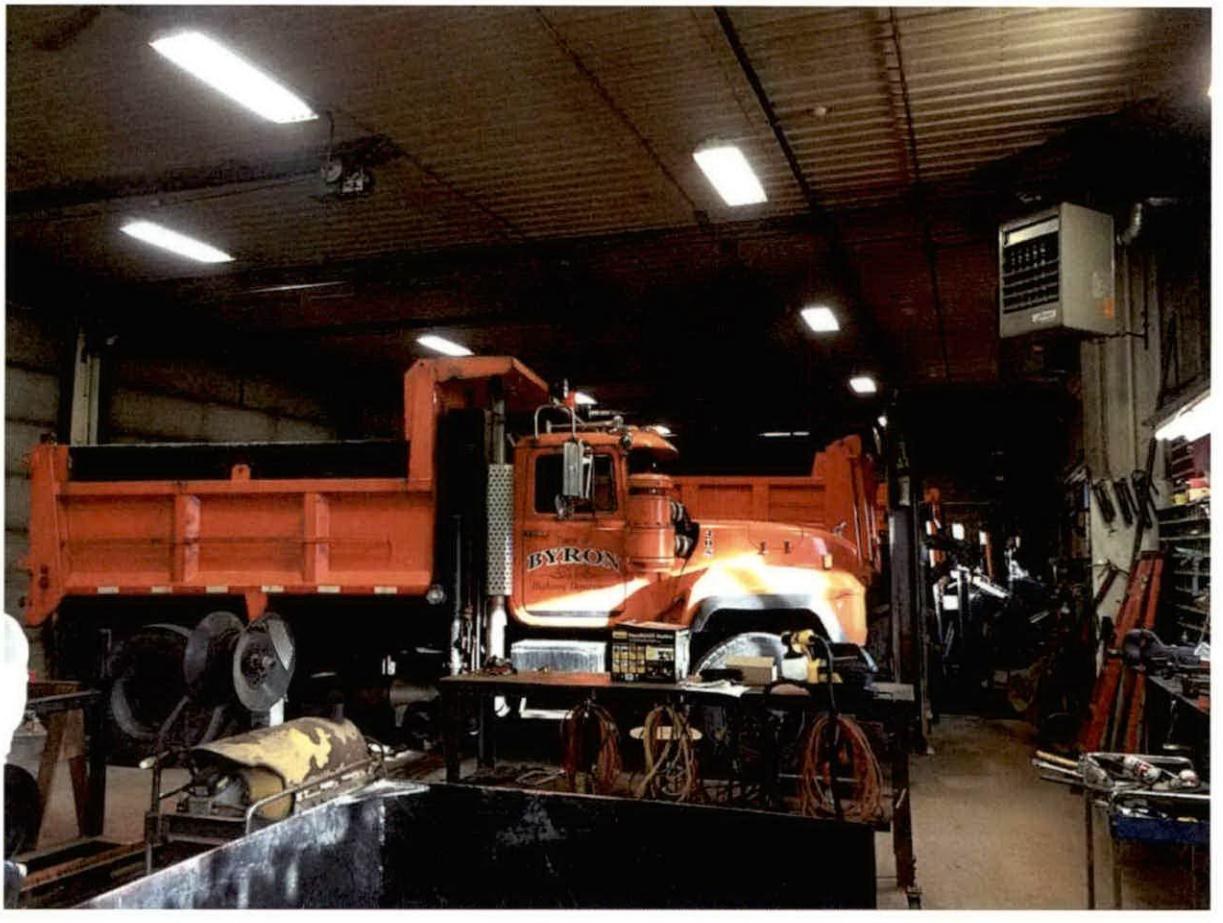
Photo Documentation

Town of Byron Buildings, 2016. From the left: Highway Barn, connected to Town Hall. Unconditioned Storage barn. 2 Salt barns.



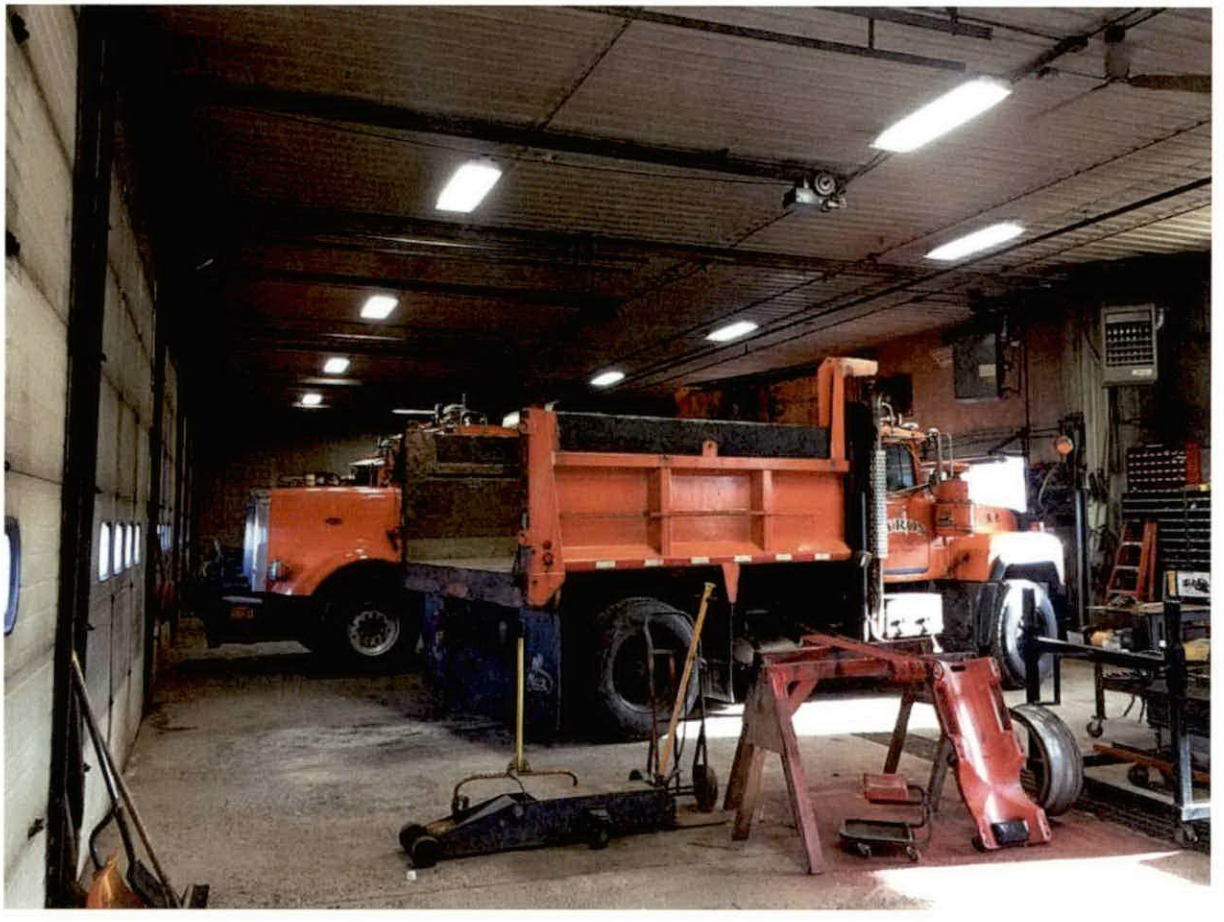
Southwest Corner of highway garage

Close up of southwest corner, showing area removed from concrete block wall to allow plow to fit in barn.



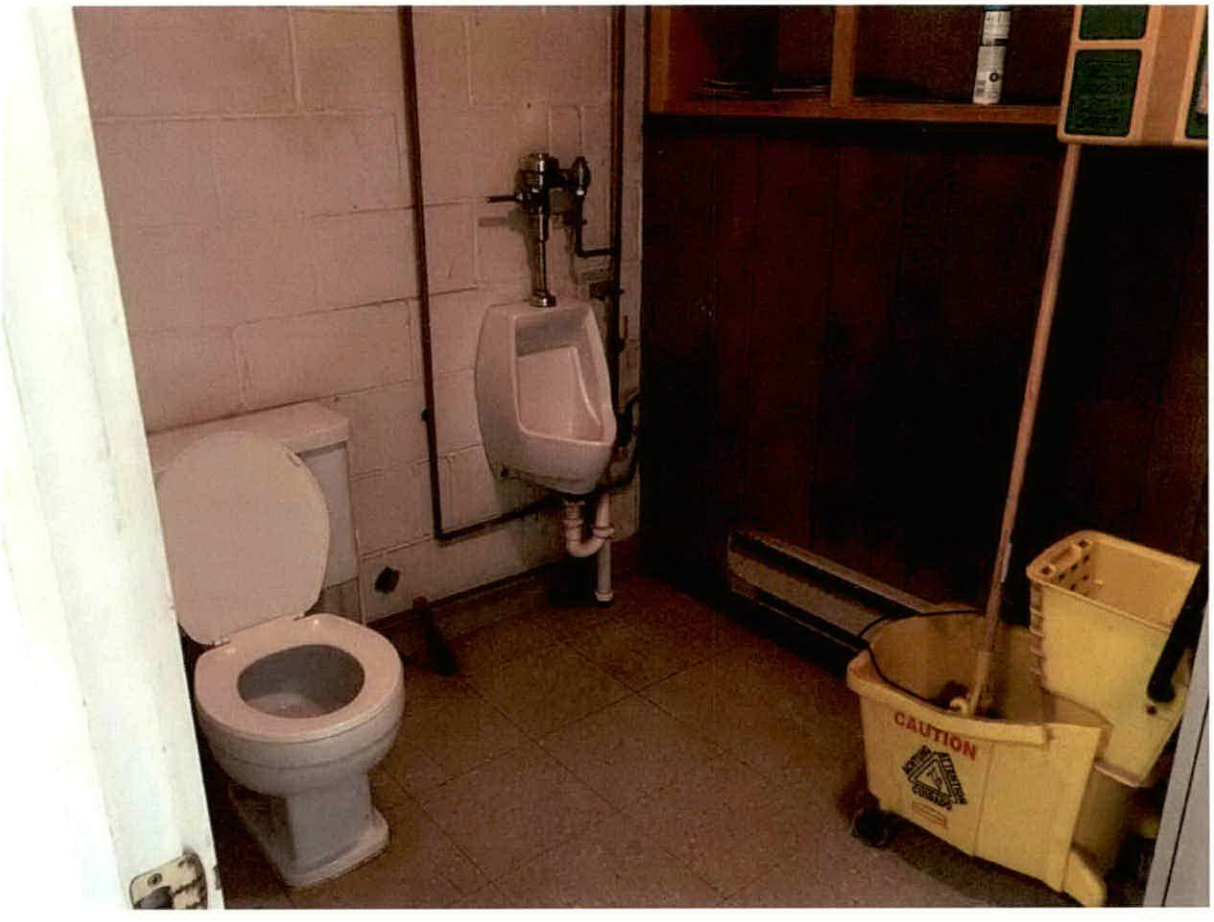
View of interior of Highway barn showing inadequate egress width and low ceiling height.

Measuring necessary height for the dump body when in raised position.



Interior view, showing inadequate egress width.

Overhead door jamb, showing effects of inadequate width for trucks.



Toilet facilities not ADA compliant.

Appendix B
Preliminary Drawings

SHED

SALT BARN#1

SALT BARN#2

COLD STORAGE

T K

SEPTIC TANK
(SIZE/LOCATION?)

HIGHWAY GARAGE

BRYON-HOLLEY RD
NY-237

GAS/WATER LINE

OIL SEPARATOR
(SIZE, LOCATION?)

KEY:

▷ = ENTRY OR ACCESS POINT
K = KITCHEN
B = BREAK ROOM
T = TOILET
O = OFFICE
✕ = DEMOLITION
= STORAGE
= HIGHWAY DEPARTMENT
= TOWN HALL
= PARTS ROOM

1 EX-1 EXISTING CONDITIONS SITE PLAN
SCALE: 1/16 = 1'-0"

N

REVISIONS:

MARK	DESCRIPTION	DATE

Wolfe Architecture
3 N. Main St. Suite #2
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OWNER:
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BYRON, NY 14422
(585) 548-7123

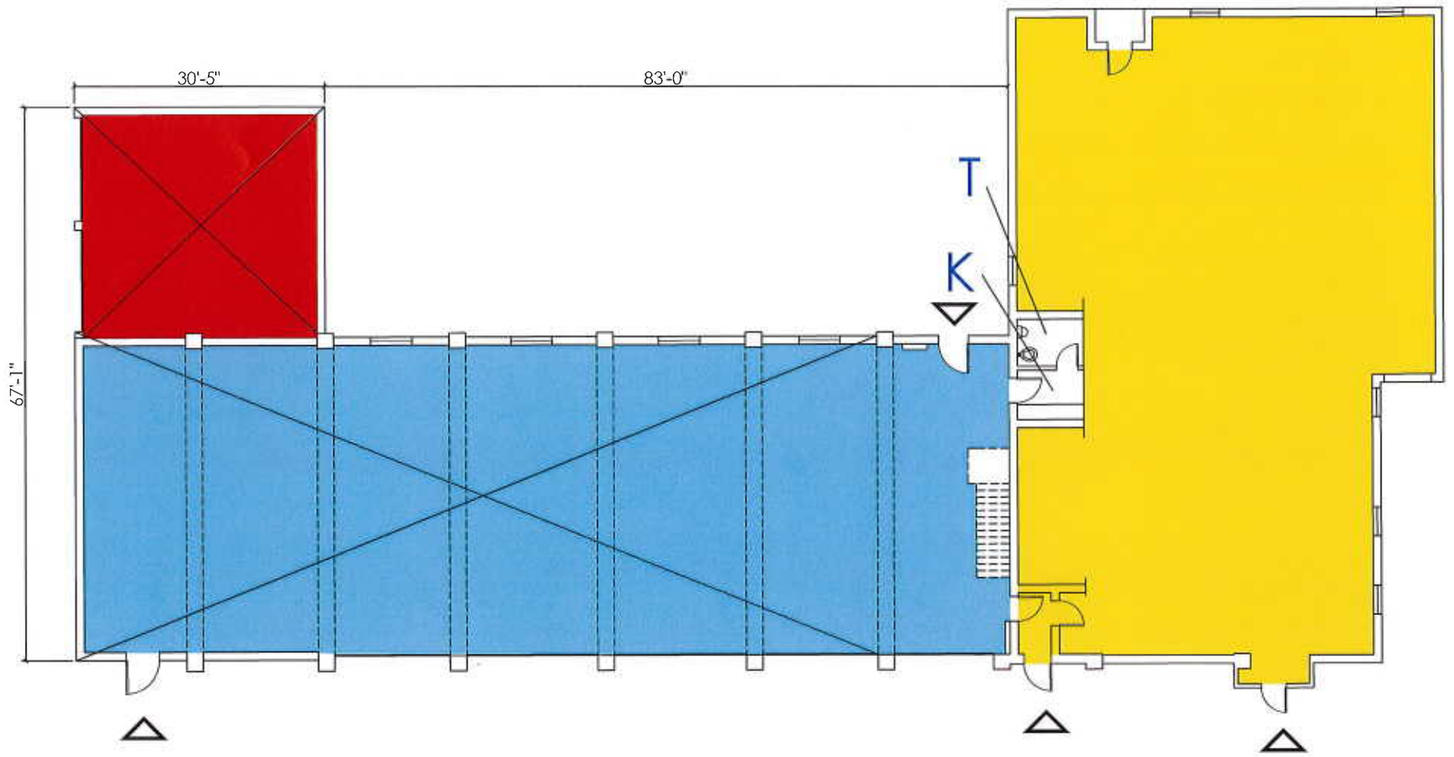
PROJECT:
TOWN OF BYRON
HIGHWAY DEPT
BUILDING EVALUATION

LOCATION:
BYRON TOWN HALL
7028 BYRON HOLLEY RD
BYRON, NY 14422

DATE:	8.19.16
ARCHITECT:	RHW
DRAWING BY:	PPR
JOB NUMBER:	16-113
FILE NAME:	16-113 TB Town of Byron.dwg

DRAWING:
EXISTING SITE CONDITIONS

SHEET NUMBER:
EX-1



1 EX-2 EXISTING CONDITIONS PLAN
SCALE: 1/8" = 1'-0"

N

KEY:

▷	=	ENTRY OR ACCESS POINT
K	=	KITCHEN
B	=	BREAK ROOM
T	=	TOILET
O	=	OFFICE
✕	=	DEMOLITION
	=	STORAGE
	=	HIGHWAY DEPARTMENT
	=	TOWN HALL

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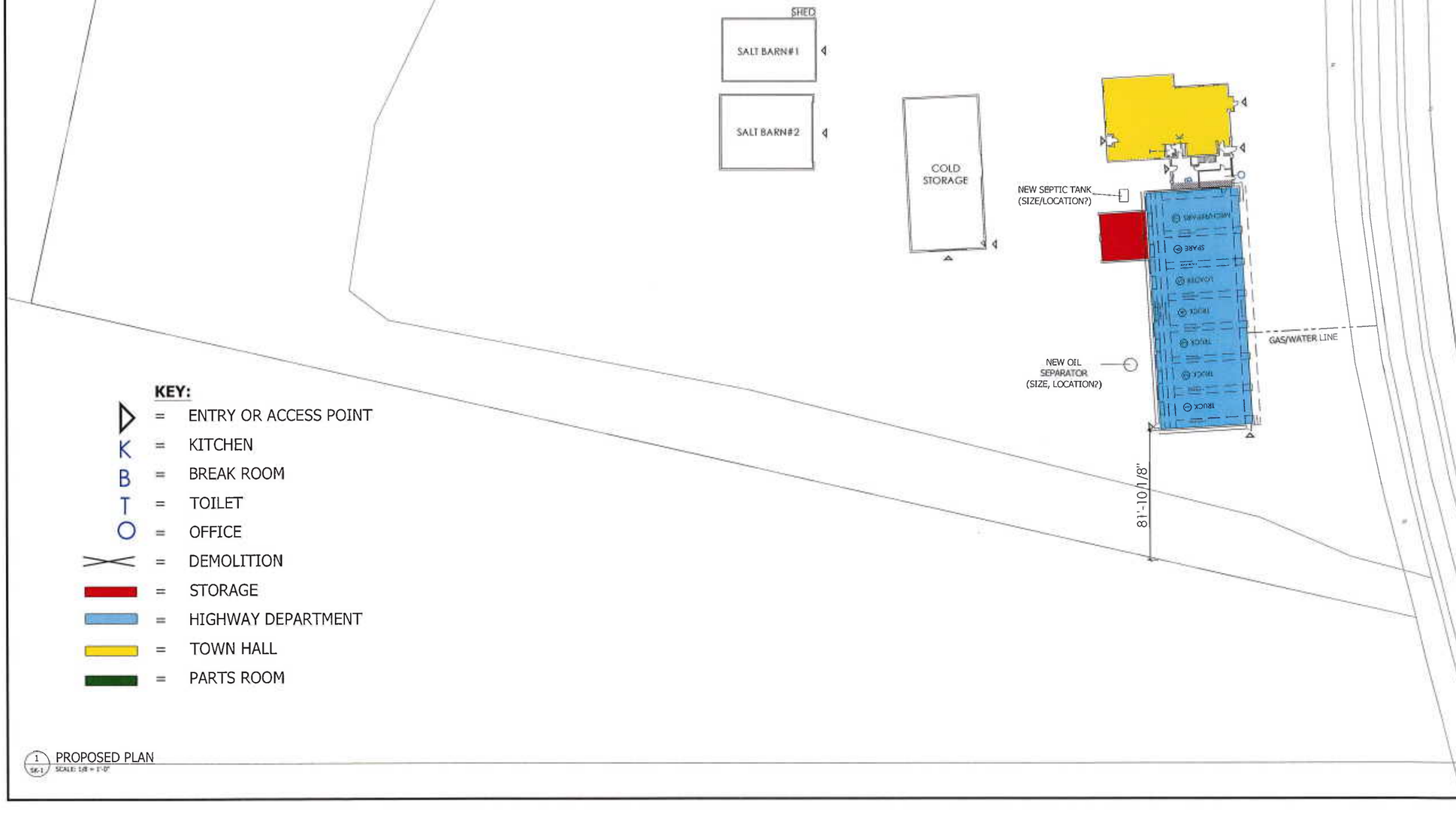
DRAWING:

EXISTING PLAN CONDITIONS

SHEET NUMBER:

EX-2



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- ✕ = DEMOLITION
- = STORAGE
- = HIGHWAY DEPARTMENT
- = TOWN HALL
- = PARTS ROOM

1 SK-1 PROPOSED PLAN
SCALE: 1/8" = 1'-0"

DRAWING ALTERATION

THE FOLLOWING IS AN EXCERPT FROM THE NEW YORK EDUCATION LAW, ARTICLE 145, SECTION 7209, SPECIAL PROVISIONS, AND APPLIES TO THIS DRAWING. "IT IS A VIOLATION OF THIS LAW FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ARCHITECT IS ALTERED THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION".

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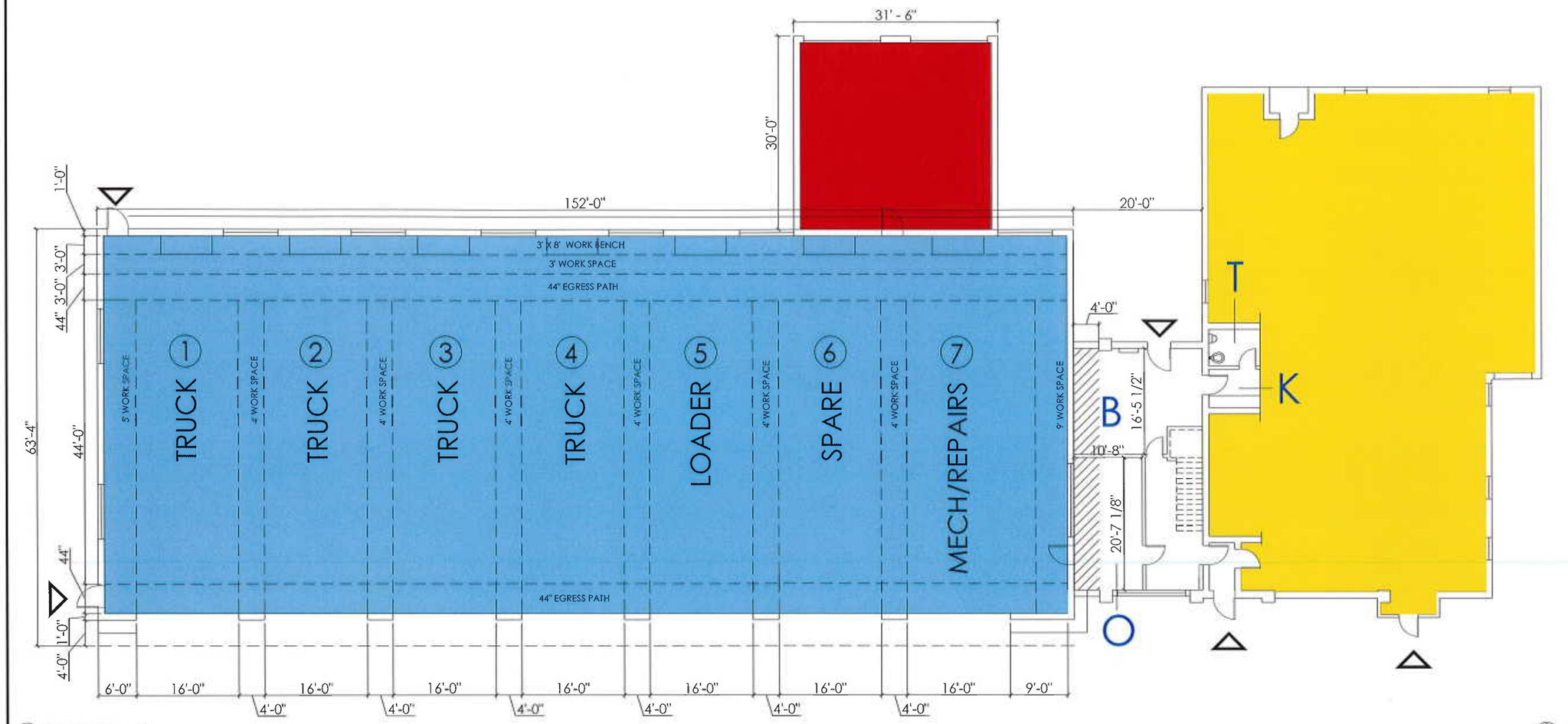
DRAWING:

PROPOSED SITE PLAN

SHEET NUMBER:

SK-1



1 SK-1 PROPOSED PLAN
SCALE: 1/8" = 1'-0"

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- = HIGHWAY DEPARTMENT
- = TOWN HALL
- = NEW EXTENSION

REVISIONS:

MARK	DESCRIPTION	DATE
△		
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SK-2