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report

# Montague Department of Public Works Facility

## Master Plan - Feasibility Study

April 6, 2016

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## I. Introduction

The Town of Montague retained the services of Weston & Sampson to prepare a feasibility study for a new facility to house the Department of Public Works (DPW). The object of the study was to develop a DPW building program and site features which are capable of cost effectively and efficiently supporting the services offered by the DPW to the community. The study included inspecting the existing facilities, identifying deficiencies, interviewing staff, identifying current and future needs, developing conceptual alternatives, evaluating the preferred conceptual alternative with DPW Committee (Committee), and preparing budget cost estimates for the preferred alternative.

## II. Space Needs Assessment

The Project Team prepared a space needs assessment to identify the current and future needs of the Department of Public Work. The assessment included analyzing current deficiencies in the facility which need to be corrected with the construction of a new facility. The assessment also included interviewing key staff to learn first-hand the operational issues with the existing facility. The staff interviews were supplemented with support by the project team's knowledge of industry practices and familiarity with solutions which have been implemented on recently constructed public works facilities. A copy of our staff interview notes is included in Appendix A.

### Operational Analysis

The operational analysis was based on inspection of the existing facilities which are used to support the Department of Public Works, and a determination of the functional inadequacies and space limitations of the existing building and site.

The DPW is composed of six divisions, including; Administration, Highway, Grounds, Building Maintenance, Sewer and Drainage, and Vehicle Maintenance. These divisions are responsible for maintenance, repair and construction of the town's infrastructure, public building and property including its parks, playgrounds, streetscapes, sewers drainage systems, street lighting and 108 miles of road ways.

The existing operations are supported out of two facilities around town. The main DPW yard is located at 500 Avenue A, and includes a building, a salt shed, and a number of storage structures and sheds scattered across the site. The building was built in 1948 and is approximately 12,000 square feet, and includes the director's office, administration staff offices and workstations, the public counter area, vehicle storage, and vehicle maintenance. A portion of the operations is located at the Town Hall parcel located at 1 Avenue A. This area includes vehicle and equipment storage and shops.

### Staff Interviews

The staff interviews conducted by the project team focused on identifying all DPW functions, identifying current deficiencies, and identifying current and future space requirements. The information obtained during these interviews included detailed accounts of space deficiencies in the existing facilities which affect day-to-day operations. A summary of the departmental organization and equipment inventory is as follows:

### DPW Staffing Summary

Position	Staff
Office/Administration	3
Mechanics	2
Workforce	12
Seasonal	2
Future Needs	6 to 7
<b>Total Staff</b>	<b>26</b>

### DPW Vehicle and Equipment Summary

Type	Large	Small	Equipment	Trailers
<b>Total</b>	<b>15</b>	<b>17</b>	<b>30</b>	<b>6</b>

This listing does not include small support equipment such as pumps, hand tools, etc. However, provisions for storage of these types of items have been included in the final program. Refer to Appendix A for a copy of the staff interview notes.

#### Space Needs / Room Part Plans

The data obtained from the operations analysis and interviews were compiled and analyzed by Weston & Sampson. The analysis consisted of individually identifying the space needs for the operations of each function by developing sketches of individual rooms. Sketches were prepared for each major space including office and office support areas, employee facilities, shop spaces, vehicle maintenance, wash area, and vehicle/equipment storage areas. These space requirements were then assembled into a comprehensive space allocation matrix. The space needs assessment identified an initial

requirement of approximately 32,600 square feet. The results of the initial space needs were then reviewed in detail by the Project Team, DPW staff and the Committee to determine if the spaces could be reduced without negatively impacting operations. Based on valuable input from the DPW and the Committee, the team was able to reduce, and in some cases combine, spaces in an effort to control the size and cost of the building program. These reductions resulted in a modified space needs projection of 27,974 square feet. This reflected an overall reduction in the space needs of 4,601 square feet, or approximately 14%. Refer to Appendix A for space needs matrix and room data sheets.

### **III. Conceptual Design Alternatives**

Based on the results of the final space needs assessment, the Project Team prepared conceptual alternatives for the development of the DPW Yard site at the Town owned parcel located off of Sandy Lane. The alternatives were prepared with the following operational considerations in mind:

- Arrange interior space to provide efficient circulation patterns
- Attempt to segregate small/public vehicle traffic from heavy truck traffic
- Providing adequate parking for public and employees
- Provide full access and safe vehicle movement around the perimeter of the facility
- Provide bulk material storage area with adequate yard area for large vehicle maneuvering
- Maintain safe and functional access to/from the future salt/sand operations area

The conceptual alternatives were prepared by developing “Block Building Plans”. These Block Building Plans were developed for each of the major space categories for the new facility as follows:

- Administration & Employee Facilities
- Shops
- Vehicle Maintenance
- Vehicle / Equipment Storage
- Wash Bay

The configuration and size of the planning “block” for each building was developed by assembling the individual room sketches identified during the space needs assessment. In all, five conceptual alternatives were generated. The Project Team reviewed each alternative and eliminated the concepts which did not effectively meet the operational criteria established by the Committee and the advantages and disadvantages were reviewed. A copy of these alternatives is included in Appendix C. After completing a comprehensive assessment of the alternatives with the DPW Committee, a final preferred alternative was identified as the most desirable, cost effective and efficient concepts, based on input received from the DPW Committee. A copy of the preferred alternative is included in Appendix D of this report.

#### **IV. Conceptual Cost Estimate**

A conceptual cost estimate was prepared for the preferred alternative, using square foot costs based on historical data for similar DPW facilities. In general, the cost estimate assumes cost effective building systems, finishes, and equipment as identified in the estimate spreadsheet and as described as follows:

- Construction of a new pre-engineered metal building with partial masonry wall finish and concrete protection wall for the vehicle storage area, maintenance area, wash bay, and shop areas
- Factory foam insulated architectural metal panel with improved exterior finish system.
- Primary industrial support equipment for vehicle maintenance operations
- Site improvements, including storm water management and paving upgrades
- Contingency allowance for unanticipated design and construction costs, pending final design.

Our estimated costs for new building construction, building renovations and site improvements are based on costs of similar construction for which bid prices are available, supplemented by cost data obtained from published sources. It is assumed that the project will be publicly bid under Chapter 149 requirements, and prices are based on 2016 costs. Our cost projection does account for one (1) year of cost escalation. Additional escalation factors should be included once the project time line has been established by the Town. A summary of the results of this cost estimate is included below:

New Building Cost:.....	\$6,351,915
Industrial Equipment: .....	\$236,060
Mezzanine Systems:.....	\$113,786
Open Canopy Storage .....	387,797
Site Development and Support Structure Costs:.....	\$1,171,015
Design Contingency (5%): .....	\$413,029
Escalation (3%):.....	\$260,208
<b>Subtotal Construction Cost:.....</b>	<b>\$8,933,810</b>
Owner Costs: .....	\$1,544,409
• A&E Fees	
• Furnishings	
• Communication/low voltage system	
• Printing/advertisement	
• Testing & Inspections	
Construction contingency (8%):.....	\$714,705
<b><u>Subtotal Administrative and Contingency:.....</u></b>	<b><u>\$2,259,114</u></b>
<b>Total Project Cost DPW Facility: .....</b>	<b>\$11,192,924</b>

*This estimate is based on the average bid prices for similar projects completed in the last four years with escalation included to account for anticipated cost increases through the mid-2017.*

Due to the preliminary nature of the development of the design for this project, many budget items are based on general building costs per square foot, with site development



costs per acre. Estimates include a design contingency to allow for scope adjustments identified during design development. In addition, the estimate includes a construction contingency to account for potential unforeseen conditions which may be discovered during construction. A copy of our conceptual cost estimate is included in Appendix E.

**Appendix A**  
**Space Needs**

## M E M O R A N D U M

**TO:** Montague DPW Study File  
**FROM:** Joseph M. Fitzpatrick, PE  
**DATE:** 01 January 2016  
**SUBJECT:** Staff Interviews at Montague DPW – 500 Avenue A

**Consultant Team:** Jeffrey Alberti, WSE  
Mike Richard, WSE  
Joseph M. Fitzpatrick, WSE

**Client Representatives:** Walter Ramsey – Town Planner  
Tom Bergeron – Superintendent  
Matt Cadran – Office Administrator  
Dick Clough – Working Foreman  
David Finn – Maintenance

### Divisions

- Highway, Grounds, Building Maintenance, Sewer & Drainage, Vehicle Maintenance

### Staffing/ Fleet

- 17 current staff; plan for 25-26 total staff including future workforce. There is one female in the workforce
  - 3 office/admin (Superintendent, Office Administrator, Working Foreman)
  - 2 mechanics
  - 12 workforce (2 Grounds)
  - 6 future workforce
  - 2 summer
- 32 vehicles or equipment (15 large, 17 small). Approx. 30 pieces of small equipment

### General

- Existing building constructed in 1946
- Current building undersized, design new facility with space for future expansion.
- 109 miles of road in Town.
- Town sewer ends somewhere near Turnpike Road. Sewer provisions should be included in this project.

### Office/Administration

- Provide 3 offices. The office for the administrator (Matt) should be adjacent to the public reception area with a counter in between with visual access. Provide a buffer area between the public window and the administrator's workspace. Working foreman's office should be adjacent to the administrator's office with a clear path to the public counter for situations when Matt is out of the office. His office should also be adjacent to the muster room.
- Public reception area should have a unisex public toilet separate from the facilities used by the staff. Public comes in for things like permitting and picking up recycling bins. Provide a workstation in the waiting area.

- Superintendent's office should have a small conference table for private meetings. Office should be carpeted.
- Provide a closet for office supplies and a separate secured storage area for items to be distributed by the admin. Provide storage for both archive and active files. The archive file room should have ample hanging file storage and file cabinets as well.
- Provide a copy/file/mail area.
- Administration will share a break room and toilet facilities with the workforce. A conference room is also unnecessary as the break room will be used for meetings. The police station is used for training, presentations, or any other large events.

### Employee Facilities

- Muster/break room shared by admin and workforce. No need for projectors or any presentation equipment. Provide 2 microwaves.
- Provide basic locker room with 2' wide lockers (match current locker size) as well and shower and toilet facilities. Provide a supply closet near this area.
- The uniforms are sent out for cleaning, there is no real need for a laundry area. They currently have a small area set up with a rack for hanging clean uniforms and a bin for soiled linens.
- Provide a work station in the employee facilities area with a desk, phone, etc. This will be used by the tree warden or by the workforce if they receive phone calls.
- Provide a janitor closet with a mop sink.
- Consider Terrazzo flooring or epoxy flooring in the high traffic areas. Consider raised rubber flooring or epoxy in the locker room.
- They do not have a need for bunk rooms.

### Shops

- Sign shop – provide an area for sign making, assembly, and storage. They are planning on making their own signs in the future. Provide bake machine.
- General/Building Maintenance/Grounds shop – provide a shared shop with separate secured storage for the building maintenance department. This area should have overhead door access and clearance to pull in and store a full size truck (truck 43). Provide an area adjacent to the bay to be used as a laydown or working area.
- The Grounds Department needs approximately 2.5 bays to store all of their equipment (mowers, shop equipment, hand tools, backpack blowers, weed whackers, chain saws, etc.). They have 4 walk-behind snow blowers.

### Vehicle Maintenance

- 2 mechanics. They service all DPW vehicles and provide oil changes for the police department.
- Provide 3 bays, one of which should be double long at approximately 100'. They should be tall enough to raise a dump body (approximately 26', max lift height for the 10-wheelers is 22'). Provide a bridge crane. Provide a recessed, drive-on, platform lift in one of the single depth bays. They do not have a need for the portable 4-post style lifts. Provide jacks and jack-stands. Provide a dedicated laydown area for misc. equipment and workspace.
- Provide a mezzanine area (with bridge crane access) and a fork lift.
- They do not do any major tire work in-house. Provide only a storage area, no need for a tire shop. Provide a hydraulic hose workshop. Provide a small mechanics workshop for fabrication,

welding, etc. They don't currently do much painting but could expand painting operations in the future. Provide a shop sink and clean-up area.

- Provide the following fluid storage:
  - 55 gallon drums – hydraulic fluid, 15-40 motor oil, 5-30 motor oil, antifreeze type-1, antifreeze type-2, windshield wiper fluid, and DEF
  - Waste oil collection system
  - (2) Flammable cabinets
- Provide a parts storage area. Provide a separate secured tool storage area.
- Provide a mechanics office with 2 desks. Provide a separate mechanic's reference room.
- Provide a separate compressor room.

#### Wash Bay

- Provide a manual wash bay with catwalks and a piece of equipment/attachment to wash the undercarriage of the vehicles.
- Provide a knock-down pad with compressed air and high volume, low pressure hose bibs.
- There is sewer in Town.

#### Vehicle Storage

- See list: 11 large trucks (10-wheelers, dumps, etc.), 4 large pieces of equipment (loaders, backhoes, graders, etc.), 17 small trucks/ pieces of medium sized equipment (1-tons, pick-ups, smaller loaders, etc.), 5 trailers, 17 listed pieces of small equipment (mowers, trackless, etc.), approximately 10 pieces of misc. small equipment (walk-behind blowers/paint strippers, leaf vacuum, etc.)
- Provide ample space for small equipment in the storage garage. Provide a drive-thru style garage with minimal heating.
- Provide an adjacent canopy for cold storage of spreaders, misc. stock, barricades, cones, etc. The Town plans to keep the existing building which will be used for additional cold/seasonal storage. There are certain items that should be kept in cold storage at the new facility and items that are used infrequently or only seasonal which should be storage at the existing facility. Provide an area under this canopy for slide-in spreader bodies. The Town has (1) extra-large, (4) large, and (4) small spreader bodies.
- The Parks Department should have a separate area for chippers, etc.
- They currently have several diesel trucks stored outside with engine block heaters. Provide in-door storage.
- The Grounds Department needs approximately 2.5 bays to store all of their equipment (mowers, shop equipment, hand tools, backpack blowers, weed whackers, chain saws, etc.). They have 4 walk-behind snow blowers. They also have several walk-behind paint strippers.

#### Bulk Material Storage / Yard Needs

- The Town has local businesses nearby that can meet their bulk material needs on-demand so the DPW does not need excessive space in the yard for bulk materials. They just need space for small amounts of processed gravel, loam, sand, and stone.
- Provide an area for piping and other sewer stock.

Montague Department of Public Works  
 Vehicle and Equipment Inventory List  
 Feasibility Study - January 2016

ID#	Year	Make	Model	License#	Length (ft)	Width (ft)	Classification				
							L	S	EQ	TR	
							<b>Total</b>	<b>15</b>	<b>17</b>	<b>17</b>	<b>6</b>
1	2013	Ford	F350 4WD PU	M 86102	21	8		1			
2	2015	Komatsu	WA-270-7 Loader	M 90927	24	9	1				
3	2003	International	7400 10-Wheel Dump	M 68104	27	8	1				
4	2014	Ford	F450 2-Ton Dump	M 89619	20	8		1			
6	2008	Ford	F350 1-Ton Dump	M 82317	21	8		1			
7	2005	International	7400 Vactor	M 72443	30	8	1				
8	2010	International	7400 Dump	M 82664	22	8	1				
9	2000	Sterling	L-7501 Dump	M 93006	22	8	1				
10	2010	International	7400 Dump	M 83248	23	8	1				
11	2016	International	7400 Dump	M 93007	23	8	1				
12	2008	International	7400 Dump	M 94215	24	8	1				
13	2002	International	4900 Dump	M 67113	21	8	1				
14	2011	Elgin	Eagle Sweeper	M 87867	24	8		1			
15	1997	Ford	L-8000 Dump	M 56177	22	8	1				
16	1980	Ford	L-8000 Dump	M 34483	22	8	1				
17	2001	Dodge	3500 1-Ton Dump	M 88646	20	8		1			
18	1981	John Deere	A-670 Road Grader	M 53719	30	8	1				
19	2008	Komatsu	W-156 Backhoe	M 76500	19	8		1			
20	2011	Komatsu	WA-250-6 Loader	M 87865	24	9	1				
21	1988	Bowmag	BW-154 8-Ton Roller	M 109	18	8		1			
22	1997	Elgin	Eagle Sweeper	M 79982	24	9		1			
23	1998	New Holland	Alamo Flail	M 58658	21	8			1		
24	1989	Sreco	Sewer Rodder	M 42385	14	5			1		
25	2006	Dodge	Dokata 4WD PU	M 84072	18	8		1			
26	1984	Leroi	Compressor	M 30086	12	6			1		
27	1987	PB	Power Paver	NA	10	6			1		
29	1971	Sicard	Snow Blower	NA	9	8			1		
30	2009	Komatsu	WA-250-6 Loader	M 78669	24	9	1				
32	2006	Ford	F350 4WD PU	M 75294	19	8		1			
33	2005	Ford	F450 2-Ton Dump	M 72431	20	8		1			
34*	1979	Stone	Cement Mixer	M 35840	6	3			1		
35	2004	Chevrolet	2500 HD PU	M 78663	19	8		1			
36	2002	Graco	Line Lazer 5900	NA	9	2			1		
37	2013	Morbark	Chipper	M 86426	17	6			1		
38	2009	Graco	3400 Line Painter	NA	9	2			1		
40	2010	Ford	F350 4WD PU	M 75296	19	8		1			
41	2013	Wacker Neuson	RD 12-A Roller	NA	7	4			1		
42	2015	Ford	F350 4WD PU	M 92779	20	8		1			
43	2015	Ford	F250 PU	M 91590	19	8		1			
44	2014	Ford	F450 PU	M 89620	21	8		1			

46	2015	John Deere	Sulky Mower	NA	5	5			1		
47	2008	John Deere	0-Turn Mower	NA	6	6			1		
48	2014	John Deere	2032R Tractor	M 46016	12	5			1		
49	2001	John Deere	4600 Tractor	NA	16	7			1		
50	1995	York	Road Rake	NA	7	4			1		
51	2016	Vermeer	Stump Grinder	NA	10	3			1		
53	2013	International	7400 Dump	M 86101	25	8	1				
54	1969	Allis Chalmers	Forklift	NA	10	3			1		
55	2010	Ford	Focus	M 86194	16	7		1			
57	1987	Wright	10-Ton Trailer	M 62426	30	8				1	
58	1998	Hudson	3-Ton Trailer	M 58426	22	8				1	
59	2013	Cross	Trailer	M 86184	13	8				1	
60	1997	Homemade	Utility Trailer	M 54050	21	8				1	
61	2016	Felling	Trailer	M 93024	14	8				1	
62	1984	Knowles	Trailer	M 33179	17	8				1	
							Type	L	S	EQ	TR
							<b>Total</b>	<b>15</b>	<b>17</b>	<b>17</b>	<b>6</b>

Town of Montague  
 Department of Public Works  
**Space Needs Summary**  
 Date: February 2016

**Building Requirements**

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Rev 2 Size (SF)	Rev 3 Size (SF)	Ref #	Room / Area Dimensions		
							length	width	size
Office & Office Support Areas	Reception/Vestibule/Waiting Area	200	164	164	164	1	--	--	164
	Office Administrator Workstation	196	224	224	224	1	14	16	224
	Superintendent's Office	224	210	180	224	2	14	16	224
	Working Foreman's Office (with admin)	144	-	-	-		0	0	-
	Copy/File/Mail Area	112	-	-	-		0	0	-
	Active File Storage	144	120	-	-	2	0	0	-
	Archive File Storage / Map Room	234	-	-	-		0	0	-
	Office Supply Closet (with secured storage)	36	-	-	-		0	0	-
	Secured Storage	48	60	60	60	2	6	10	60
	Telephone / Data Room	80	-	-	-		0	0	-
	General Closet	72	18	-	-	2	0	0	-
	Janitor Closet	36	36	36	36	2	6	6	36
	Public Toilet Facilities	54	54	-	-	2	0	0	-
	Subtotal:	1,580	886	664	708				
	Area Grossing Factor (15%):	237	133	100	106				
	Circulation (20%):	363	204	153	163				
<b>TOTAL:</b>	<b>2,180</b>	<b>1,223</b>	<b>916</b>	<b>977</b>					
<b>DIFF</b>		<b>958</b>	<b>1,264</b>	<b>1,203</b>					



Town of Montague  
 Department of Public Works  
**Space Needs Summary**  
 Date: February 2016

**Building Requirements**

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Rev 2 Size (SF)	Rev 3 Size (SF)	Ref #	Room / Area Dimensions		
							length	width	size
Employee Facilities	Male Locker/Shower/Toilet	690	546	546	546	3	21	26	546
	Supply Closet	36	36	36	36	3	6	6	36
	Female Locker/Shower/Toilet	180	160	160	160	3	10	16	160
	Staff/Meeting Room	525	525	441	441	4	21	21	441
	Guest Workstation	64	64	-	-	4	0	0	-
	Electric/IT Room	80	80	80	80	4	8	10	80
	Plumbing/Fire Protection Room	140	140	140	140	4	10	14	140
	Subtotal:	1,715	1,551	1,403	1,403				
	Area Grossing Factor (15%):	257	233	210	210				
	Circulation (20%):	394	357	323	323				
	<b>TOTAL:</b>	<b>2,367</b>	<b>2,140</b>	<b>1,936</b>	<b>1,936</b>				
		<b>DIFF</b>	<b>226</b>	<b>431</b>	<b>431</b>				

Town of Montague  
Department of Public Works  
**Space Needs Summary**  
Date: February 2016

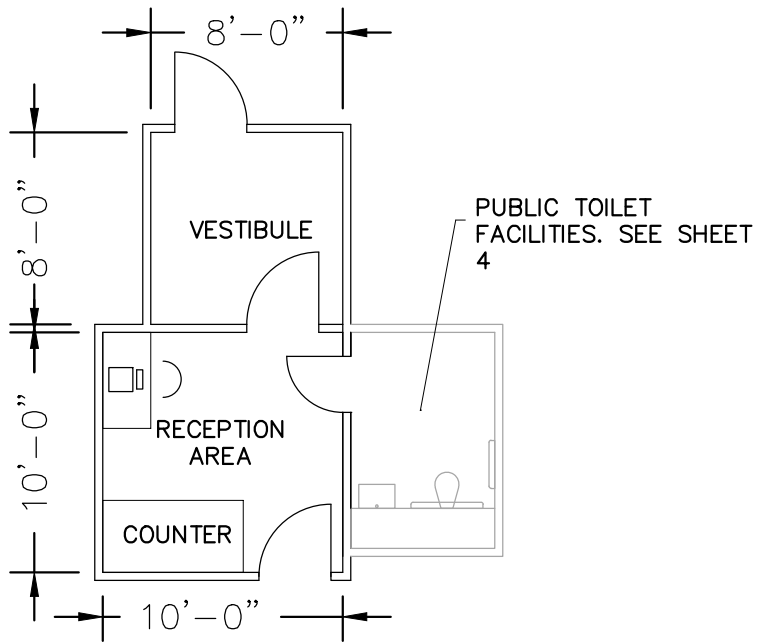
**Building Requirements**

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Rev 2 Size (SF)	Rev 3 Size (SF)	Ref #	Room / Area Dimensions		
							length	width	size
Work Shops & Material Storage	Sign Shop	500	400	400	400	5	20	20	400
	Shared General Workshop	1,120	780	780	780	6	26	30	780
	Grounds Storage and Maintenance Shop	1,120	1,120	-	1,120	7	28	40	1,120
	Building Maintenance Secured Storage	-	-	-	-	-	--	--	--
	Subtotal:	2,740	2,300	1,180	2,300				
	Area Grossing Factor (10%):	274	230	118	230				
	Circulation (10%):	301	253	130	253				
	<b>TOTAL:</b>	<b>3,315</b>	<b>2,783</b>	<b>1,428</b>	<b>2,783</b>				
		<b>DIFF</b>	<b>532</b>	<b>1,888</b>	<b>532</b>				
	Vehicle Maintenance	Fluid Storage Room	196	168	168	168	8	12	14
Maintenance Dedicated Floor Storage		300	240	240	240	8	12	20	240
Heavy Duty Drive-Thru Double Bay		2,112	1,100	1,100	1,100	9	20	55	1,100
Heavy Equipment Bay		1,100	1,100	1,100	1,100	9	20	55	1,100
Heavy Equipment Bay		1,100	1,100	-	1,100	9	20	55	1,100
Hydraulic Hose Workshop		120	100	100	100	10	10	10	100
Mechanics' Office		144	144	144	144	10	12	12	144
Maintenance Reference Room		100	-	-	-	-	0	0	-
Maintenance Workshop		160	160	160	160	10	8	20	160
Secured Tool Storage		120	-	-	-	-	0	0	-
Maintenance Tire Storage		270	150	150	-	-	0	0	-
Parts Storage Room		528	336	336	336	11	14	24	336
Compressor Room		80	-	-	-	11	0	0	-
Subtotal:		6,330	4,598	3,498	4,448				
Area Grossing Factor (10%):		633	460	350	445				
Circulation (10%):		696	506	385	489				
<b>TOTAL:</b>	<b>7,659</b>	<b>5,564</b>	<b>4,233</b>	<b>5,382</b>					
	<b>DIFF</b>	<b>2,096</b>	<b>3,427</b>	<b>2,277</b>					

Town of Montague  
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**Space Needs Summary**  
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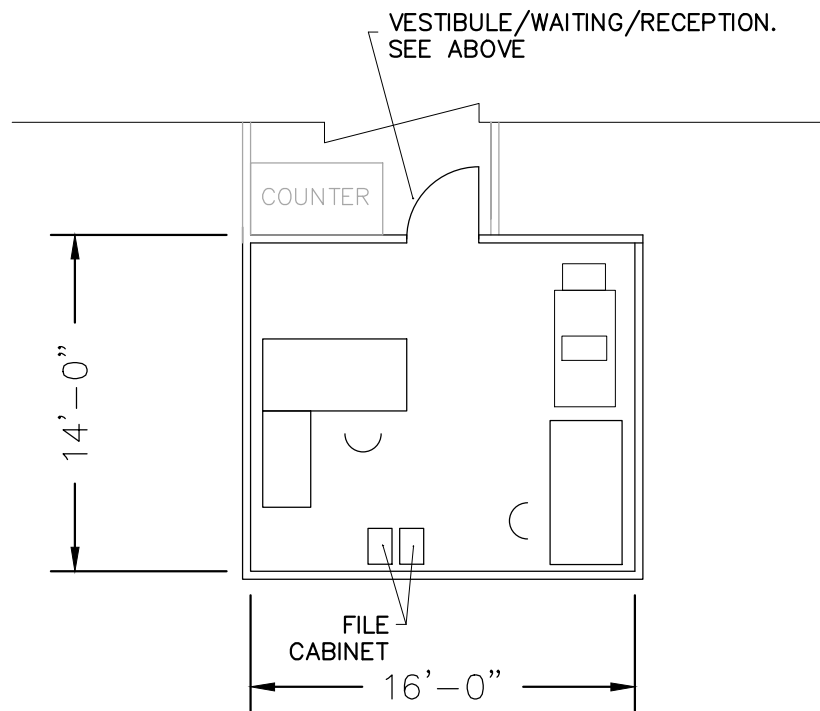
**Building Requirements**

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Rev 2 Size (SF)	Rev 3 Size (SF)	Ref #	Room / Area Dimensions		
							length	width	size
Wash Area	Wash Bay	1,375	1,375	1,265	1,265	12	23	55	1,265
	Wash Equipment Room	140	100	100	100	12	10	10	100
	Subtotal:	1,515	1,475	1,365	1,365				
	Area Grossing Factor (5%):	76	74	68	68				
	Circulation:	n/a	n/a	n/a	n/a				
	<b>TOTAL:</b>	<b>1,591</b>	<b>1,549</b>	<b>1,433</b>	<b>1,433</b>				
	<b>DIFF</b>		<b>42</b>	<b>158</b>	<b>158</b>				
Vehicle and Equipment Storage	Large Vehicle Storage	14,725	13,300	10,640	14,725	13	95	155	14,725
	Subtotal:	14,725	13,300	10,640	14,725				
	Area Grossing Factor (5%):	736	665	532	736				
	Circulation:	n/a	n/a	n/a	n/a				
	<b>TOTAL:</b>	<b>15,461</b>	<b>13,965</b>	<b>11,172</b>	<b>15,461</b>				
	<b>DIFF</b>		<b>1,496</b>	<b>4,289</b>	<b>-</b>				
	<b>TOTAL:</b>	<b>32,575</b>	<b>27,224</b>	<b>21,119</b>	<b>27,974</b>				
<b>Total Reduction in Space Needs:</b>			<b>5,350</b>	<b>11,456</b>	<b>4,601</b>				



RECEPTION/VESTIBULE/WAITING AREA

8' x 8' = 64 SF  
 10' x 10' = 100 SF



OFFICE ADMINISTRATOR/WORKING FOREPERSON'S WORKSTATION

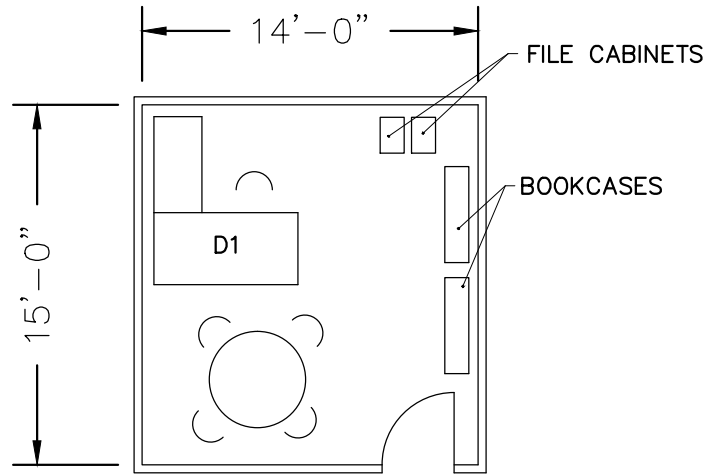
14' x 16' = 224 SF

SPACE NEEDS ASSESSMENT

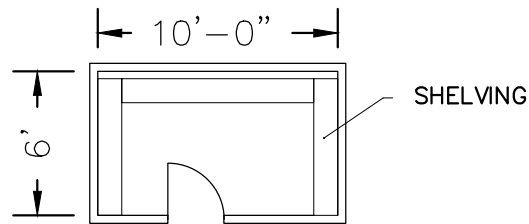
FEBRUARY 2016  
 MONTAGUE, MASSACHUSETTS

Scale: 1/8"=1'-0"

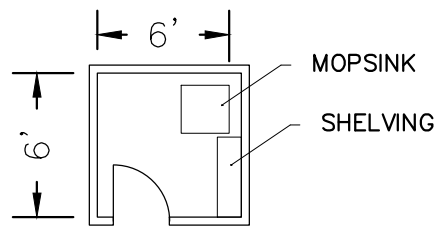
Sheet 1



SUPERINTENDENT'S OFFICE  
 14' x 15' = 210 SF



OFFICE SUPPLY/SECURED STORAGE  
 6' x 10' = 60 SF



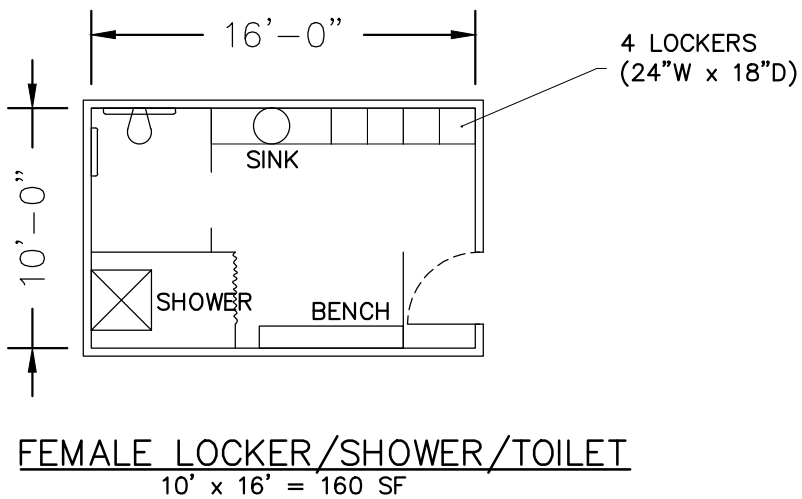
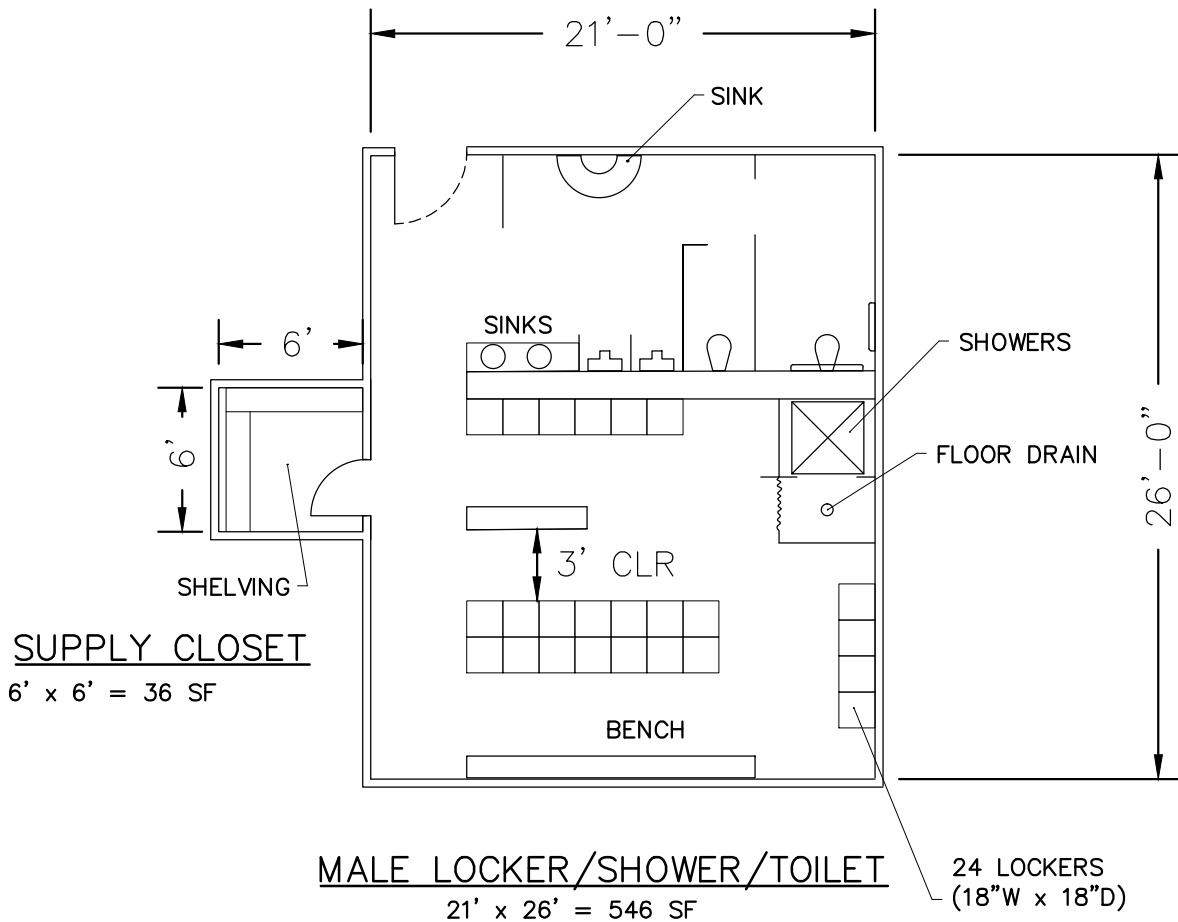
JANITOR CLOSET  
 6' x 6' = 36 SF

SPACE NEEDS ASSESSMENT

FEBRUARY 2016  
 MONTAGUE, MASSACHUSETTS

Scale: 1/8"=1'-0"

Sheet 2



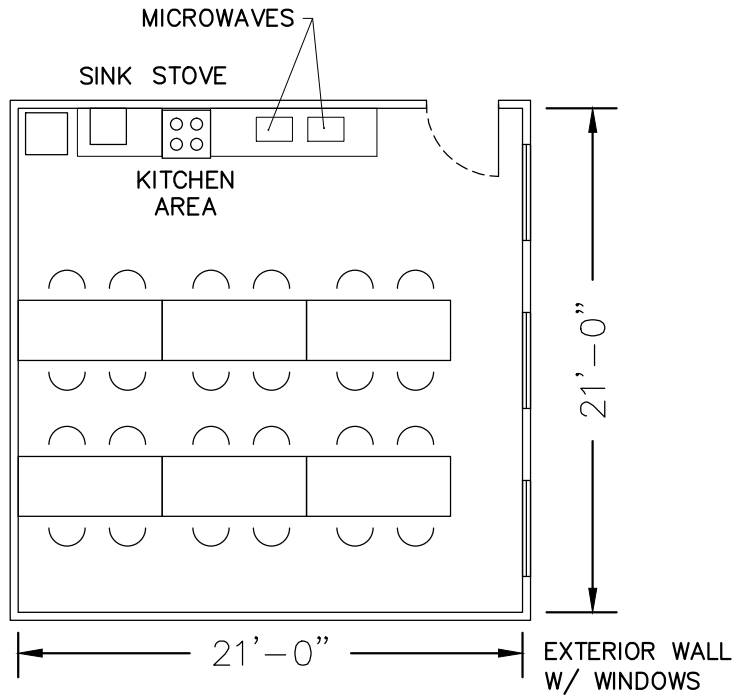
SPACE NEEDS ASSESSMENT

FEBRUARY 2016

MONTAGUE, MASSACHUSETTS

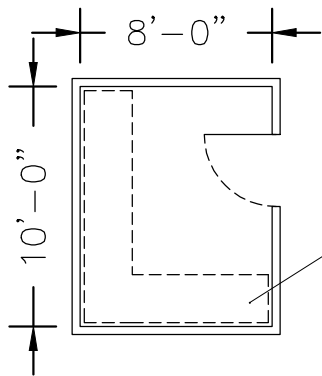
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Sheet 3



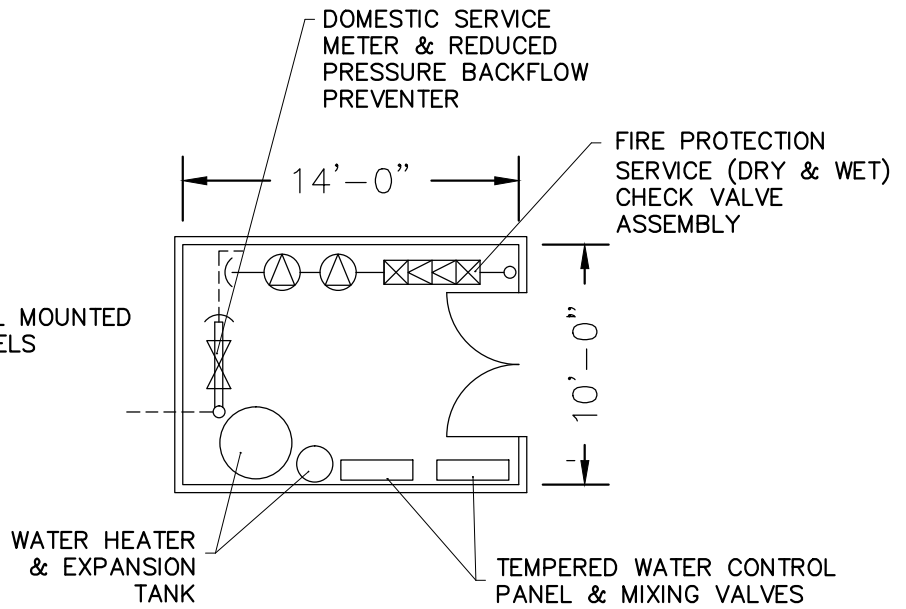
**STAFF/MEETING ROOM**

21' x 21' = 441 SF



**ELECTRIC/IT ROOM**

8' x 10' = 80 SF



**PLUMBING/FIRE PROTECTION ROOM**

10' x 14' = 140 SF

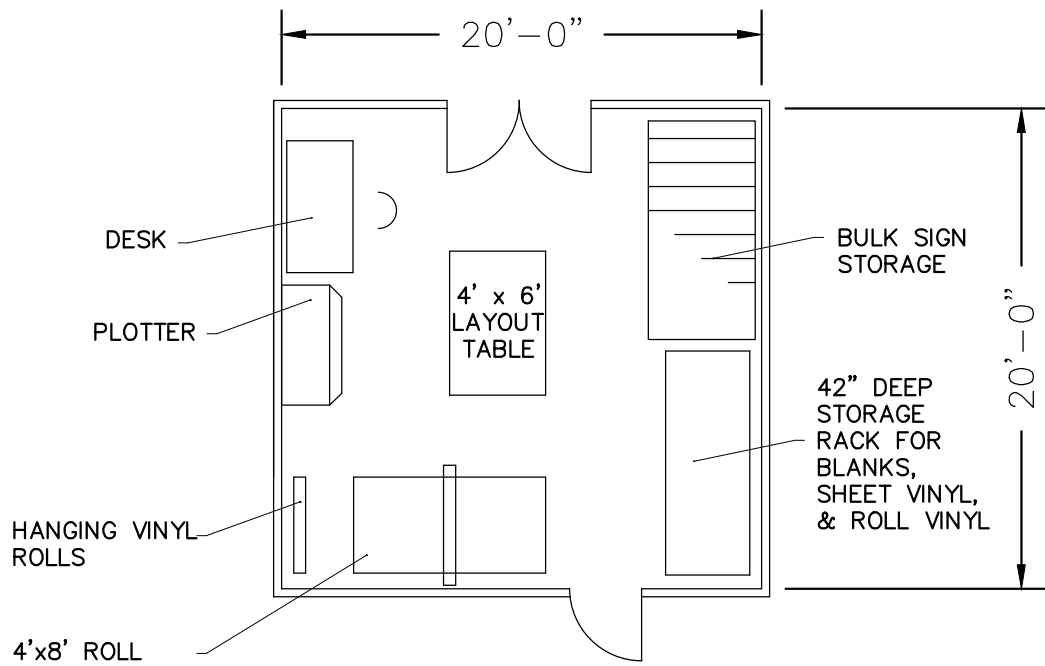
**SPACE NEEDS ASSESSMENT**

FEBRUARY 2016

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Scale: 1/8"=1'-0"

Sheet 4



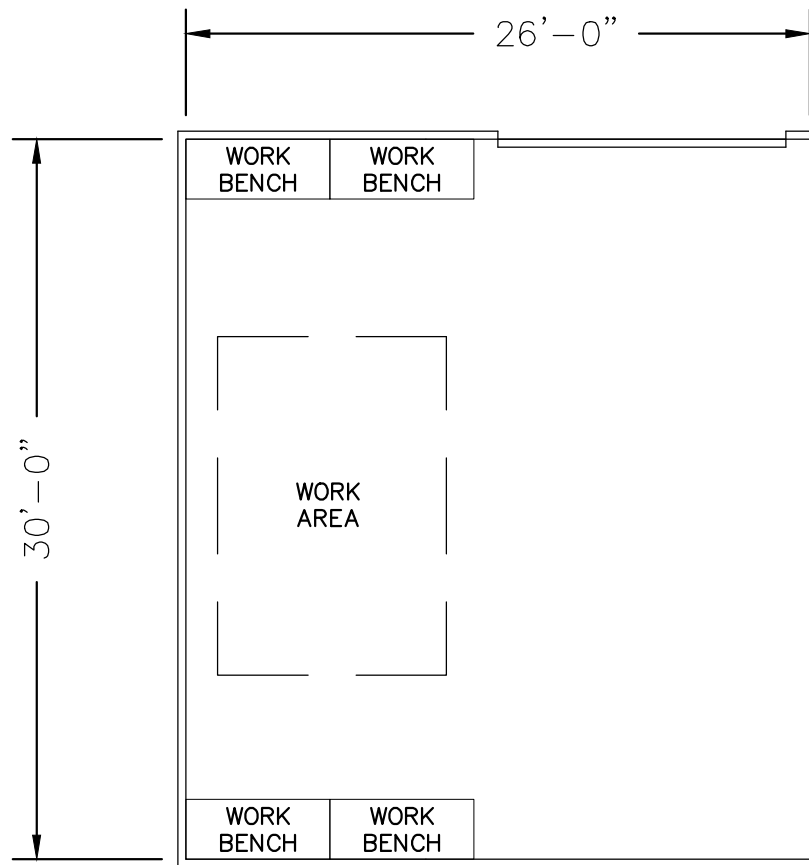
SIGN SHOP  
 20' x 20' = 400 SF

SPACE NEEDS ASSESSMENT  
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Scale: 1/8"=1'-0"

Sheet 5





SHARED GENERAL WORKSHOP

26' x 30' = 780 SF

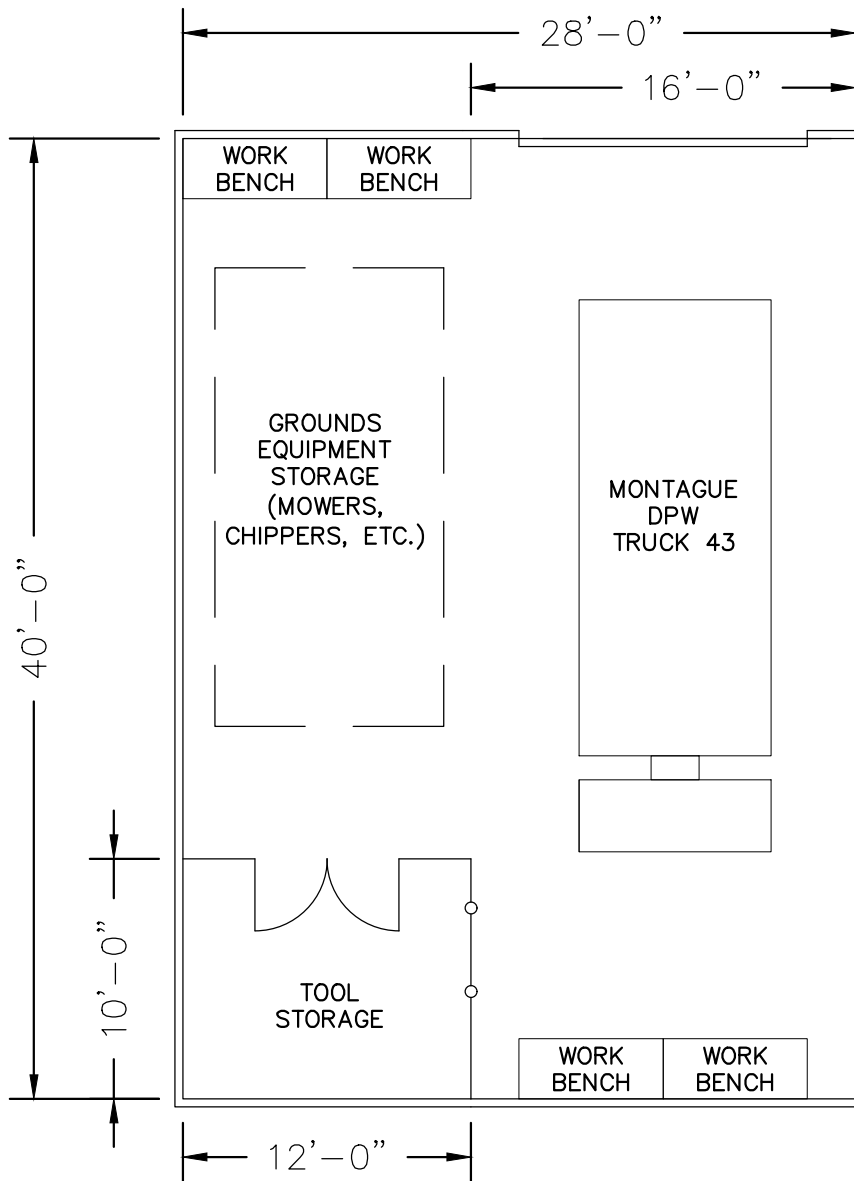
SPACE NEEDS ASSESSMENT

FEBRUARY 2016

MONTAGUE, MASSACHUSETTS

Scale: 1/8"=1'-0"

Sheet 6



GROUND'S STORAGE AND MAINTENANCE SHOP  
 28' x 40' = 1,120 SF

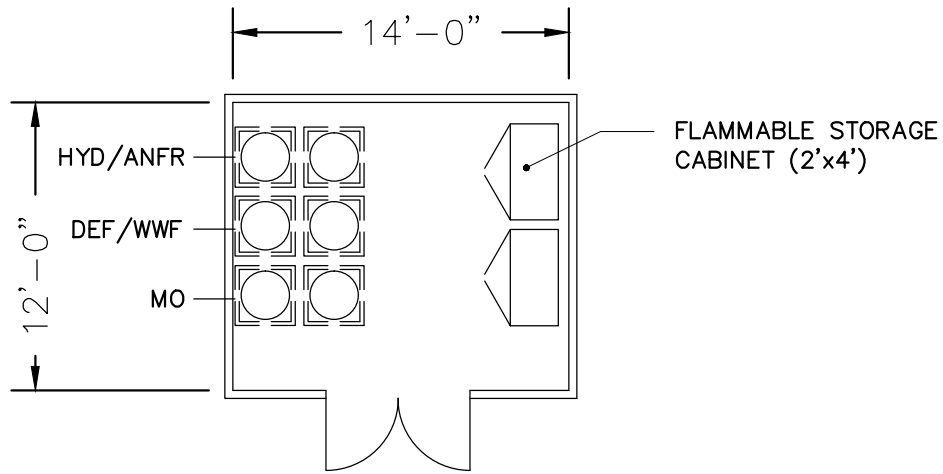
SPACE NEEDS ASSESSMENT

FEBRUARY 2016

MONTAGUE, MASSACHUSETTS

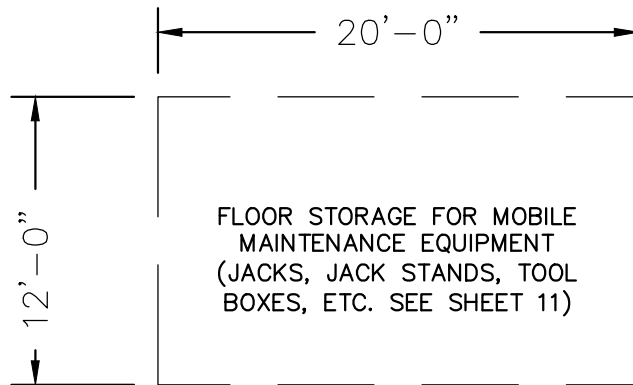
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Sheet 7



FLUID STORAGE ROOM

12' x 14' = 168 SF



MAINTENANCE DESIGNATED FLOOR STORAGE

12' x 20' = 240 SF

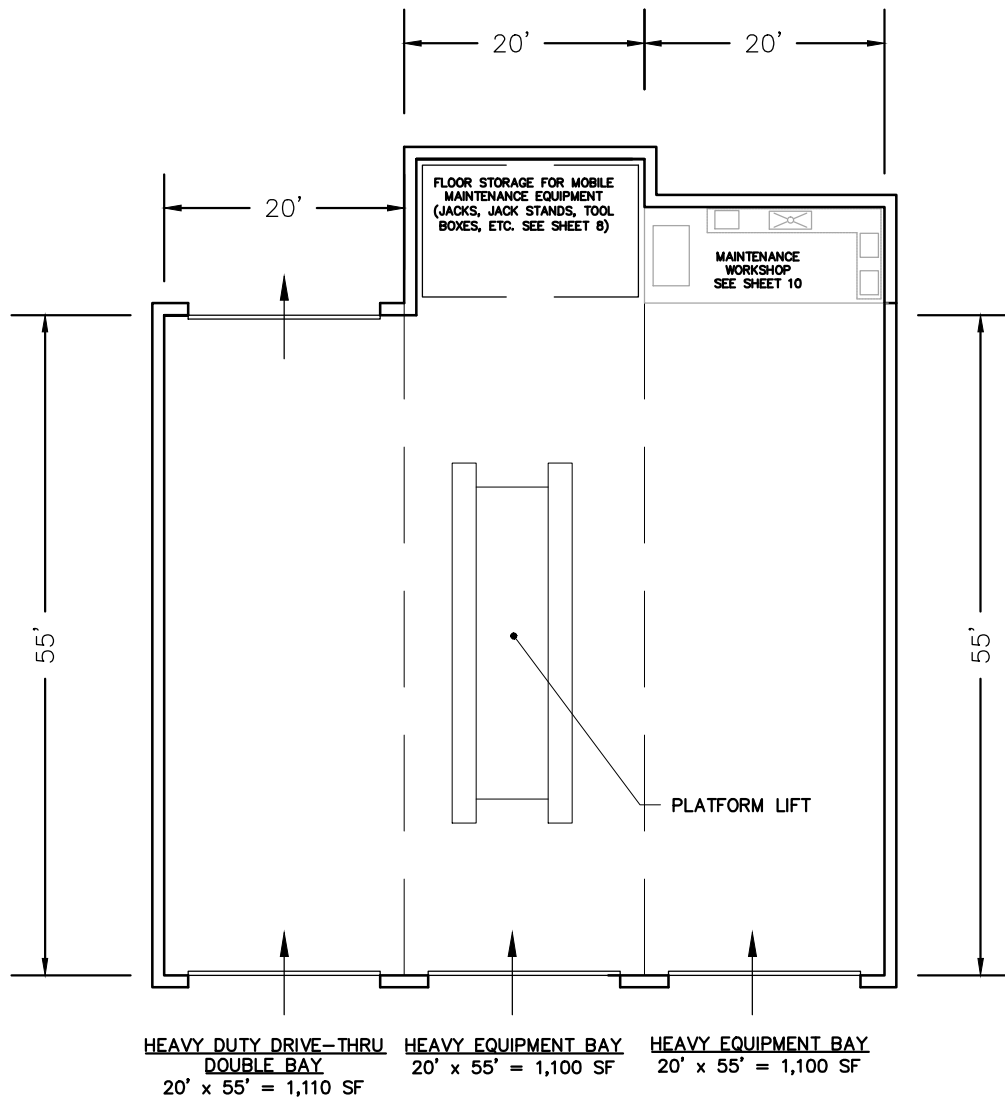
SPACE NEEDS ASSESSMENT

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MONTAGUE, MASSACHUSETTS

Scale: 1/8"=1'-0"

Sheet 8



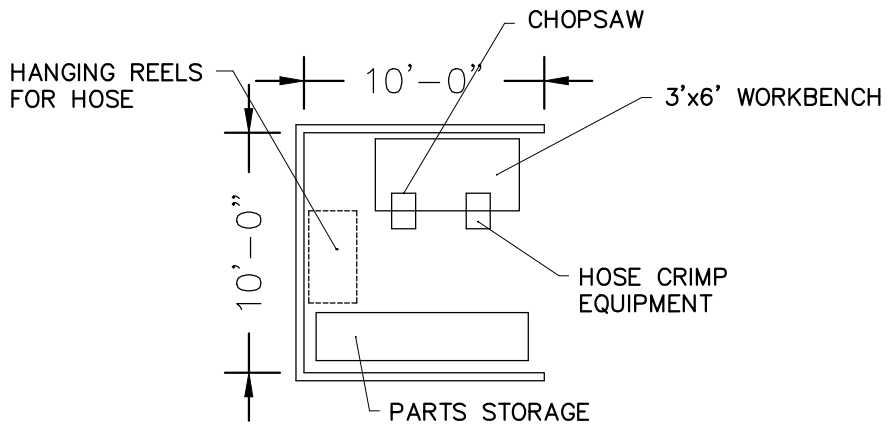
VEHICLE/EQUIPMENT MAINTENANCE BAYS  
BAY DIMENSIONS AND AREAS VARY

SPACE NEEDS ASSESSMENT

FEBRUARY 2016  
MONTAGUE, MASSACHUSETTS

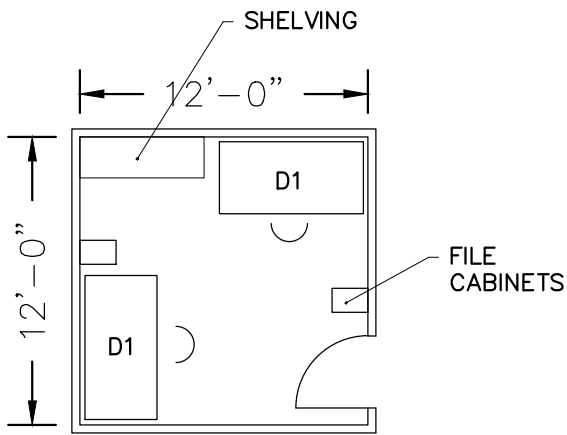
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Sheet 9



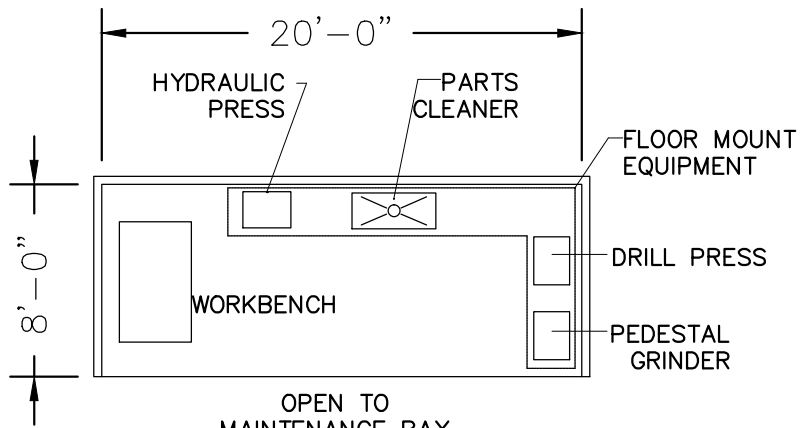
HYDRAULIC HOSE WORKSHOP

10' x 10' = 100 SF



MECHANICS' OFFICE

12' x 12' = 144 SF



MAINTENANCE WORKSHOP

8' x 20' = 160 S.F.

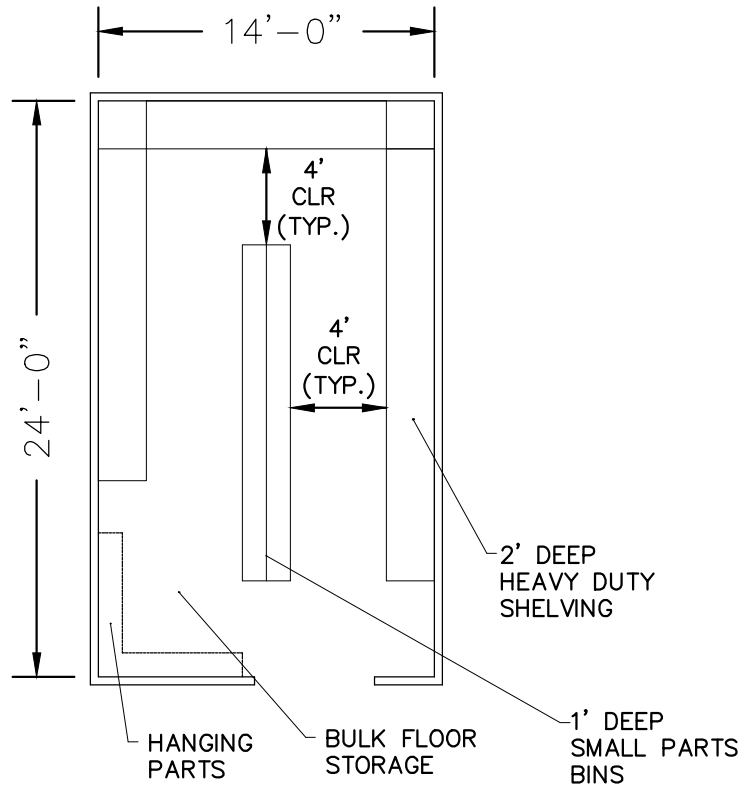
SPACE NEEDS ASSESSMENT

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MONTAGUE, MASSACHUSETTS

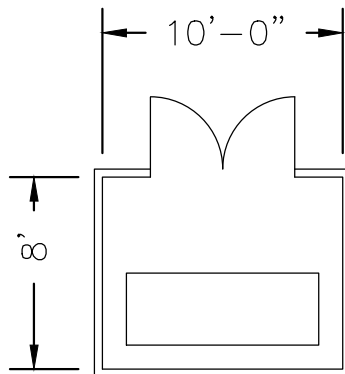
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Sheet 10



PARTS STORAGE ROOM

14' x 24' = 336 SF



COMPRESSOR ROOM

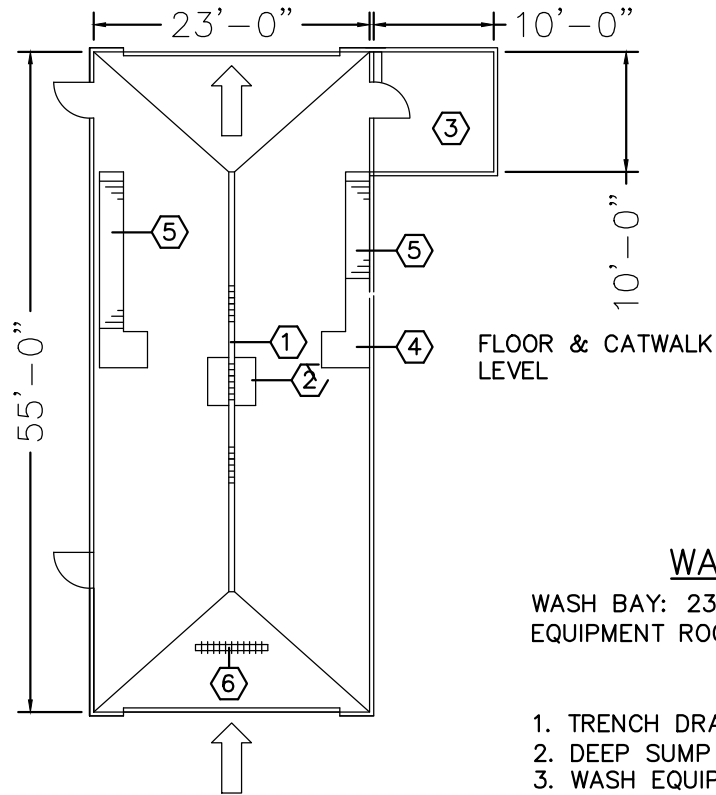
8' x 10' = 80 S.F.  
(ON MEZZANINE)

SPACE NEEDS ASSESSMENT

FEBRUARY 2016  
MONTAGUE, MASSACHUSETTS

Scale: 1/8"=1'-0"

Sheet 11



### WASH BAY

WASH BAY: 23' x 55' = 1,265 SF

EQUIPMENT ROOM: 10' x 10' = 100 SF

1. TRENCH DRAIN
2. DEEP SUMP (MIN. 4' OVERBURDEN)
3. WASH EQUIPMENT & RECLAIM EQUIPMENT
4. HIGH FLOW WATER CONNECTION
5. GALVANIZED STEEL CATWALK
6. UNDERCARRIAGE WASH SYSTEM

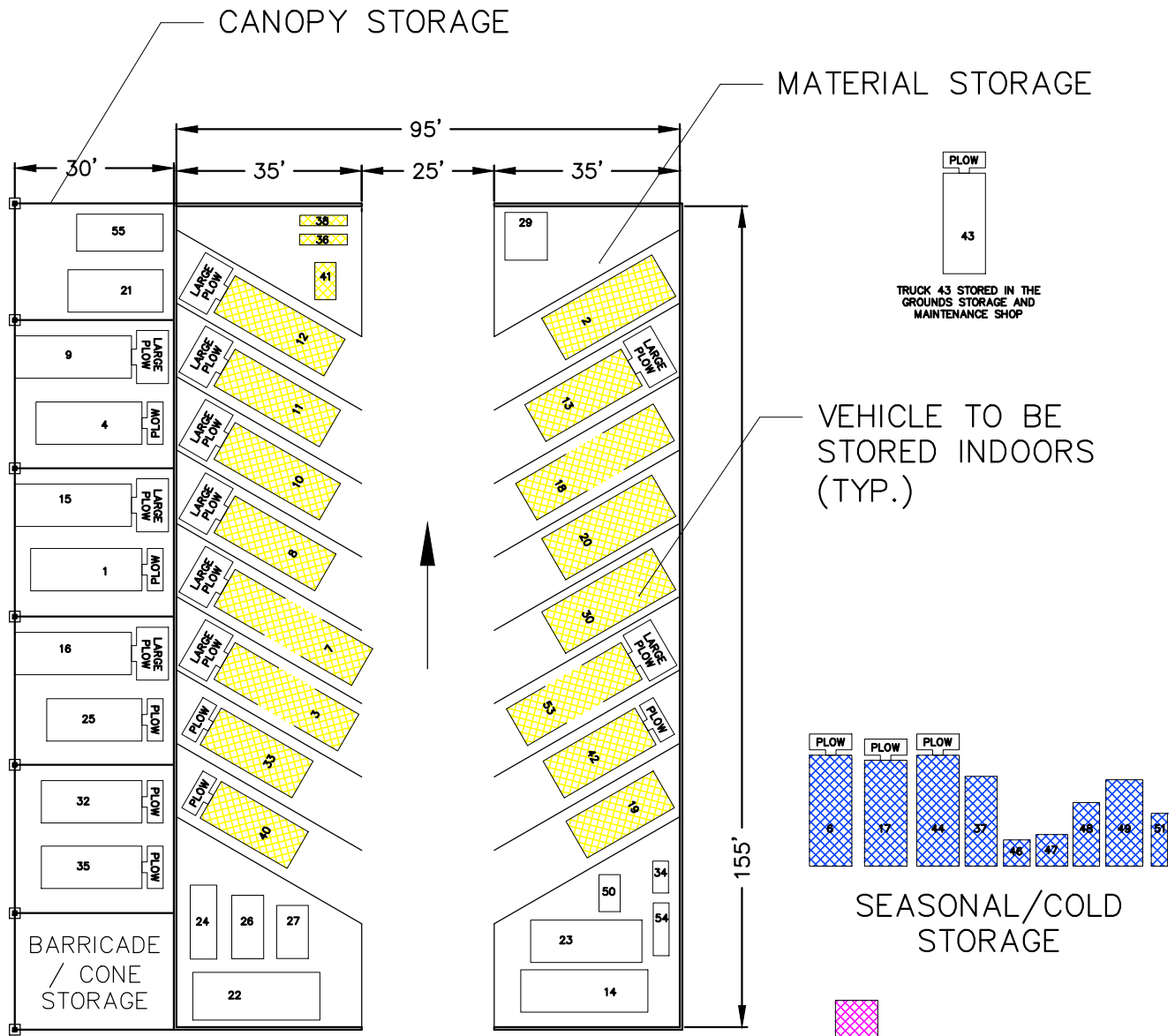
## SPACE NEEDS ASSESSMENT

JANUARY 2016

MONTAGUE, MASSACHUSETTS

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

Sheet 12



**VEHICLE & EQUIPMENT STORAGE**

$95' \times 155' = 14,725 \text{ SF}$

**SPACE NEEDS ASSESSMENT**

JANUARY 2016  
MONTAGUE, MASSACHUSETTS

Scale: 1/32"=1'-0"

Sheet 13



## **Appendix B**

### **Sensitive Receptors and Site Information**



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

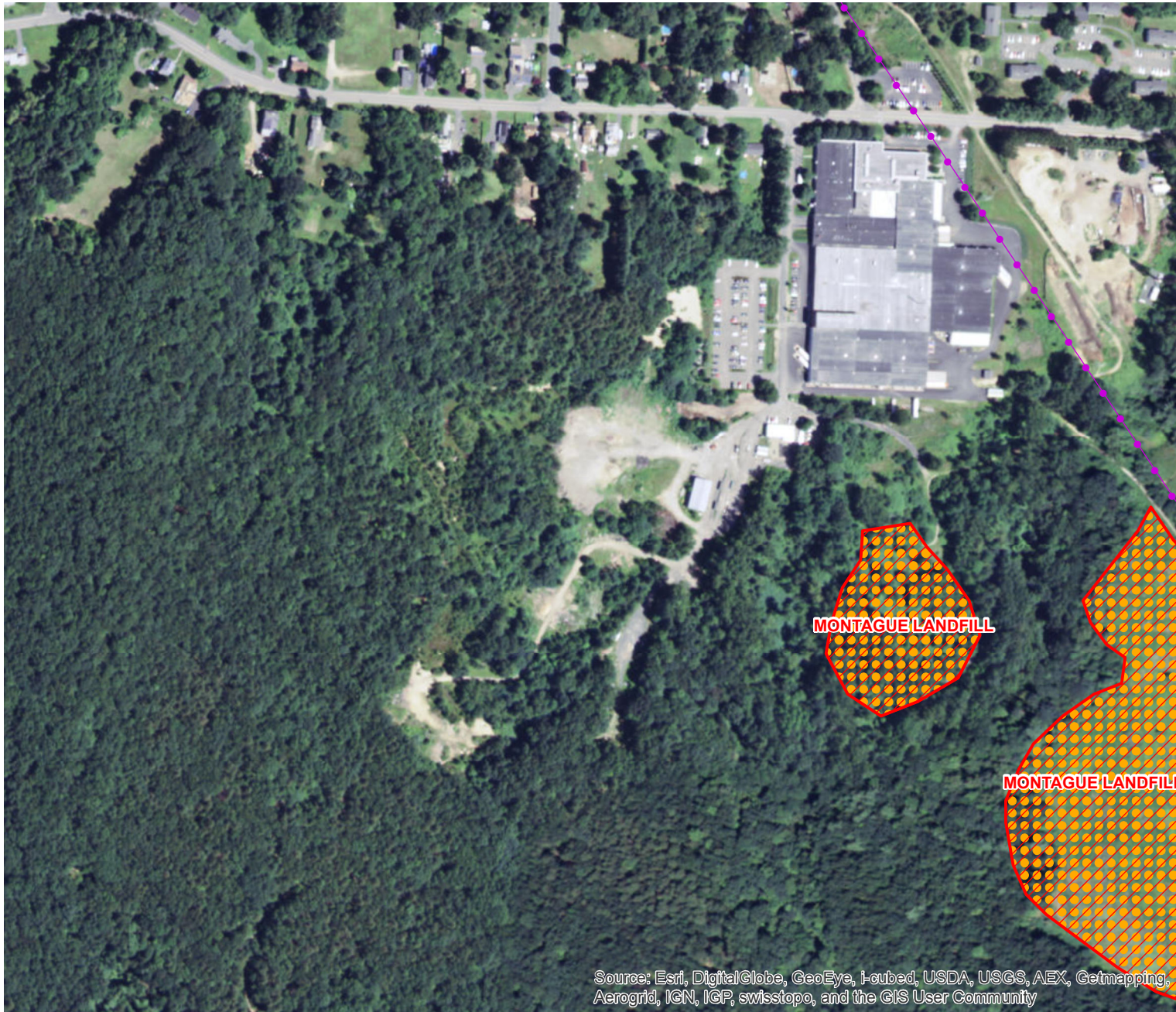


Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

- Legend**
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
  - NHESP Priority Habitats of Rare Species
  - NHESP Certified Vernal Pools
- DEP Wetlands**
- Marsh/Bog
  - Wooded marsh
  - Cranberry Bog
  - Salt Marsh
  - Open Water
  - Reservoir (with PWSID)
  - Tidal Flats
  - Beach/Dune
  - Perennial Stream
  - Intermittent Stream
  - Channel in Water
- FEMA National Flood Hazard Layer**
- Flood Zone Designations**
- A: 1% Annual Chance of Flooding, no BFE
  - AE: 1% Annual Chance of Flooding, with BFE
  - AE: Regulatory Floodway
  - AH: 1% Annual Chance of 1-3ft Ponding, with BFE
  - AO: 1% Annual Chance of 1-3ft Sheet Flow Flooding, with Depth
  - VE: High Risk Coastal Area
  - D: Possible But Undetermined Hazard
  - X: 0.2% Annual Chance of Flooding
  - X: Reduced Flood Risk due to Levee
  - Area Not Included
  - Area with no DFIRM - Paper FIRMs in Effect

**FIGURE 1**  
Area Receptors Map  
Montague, MA





Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



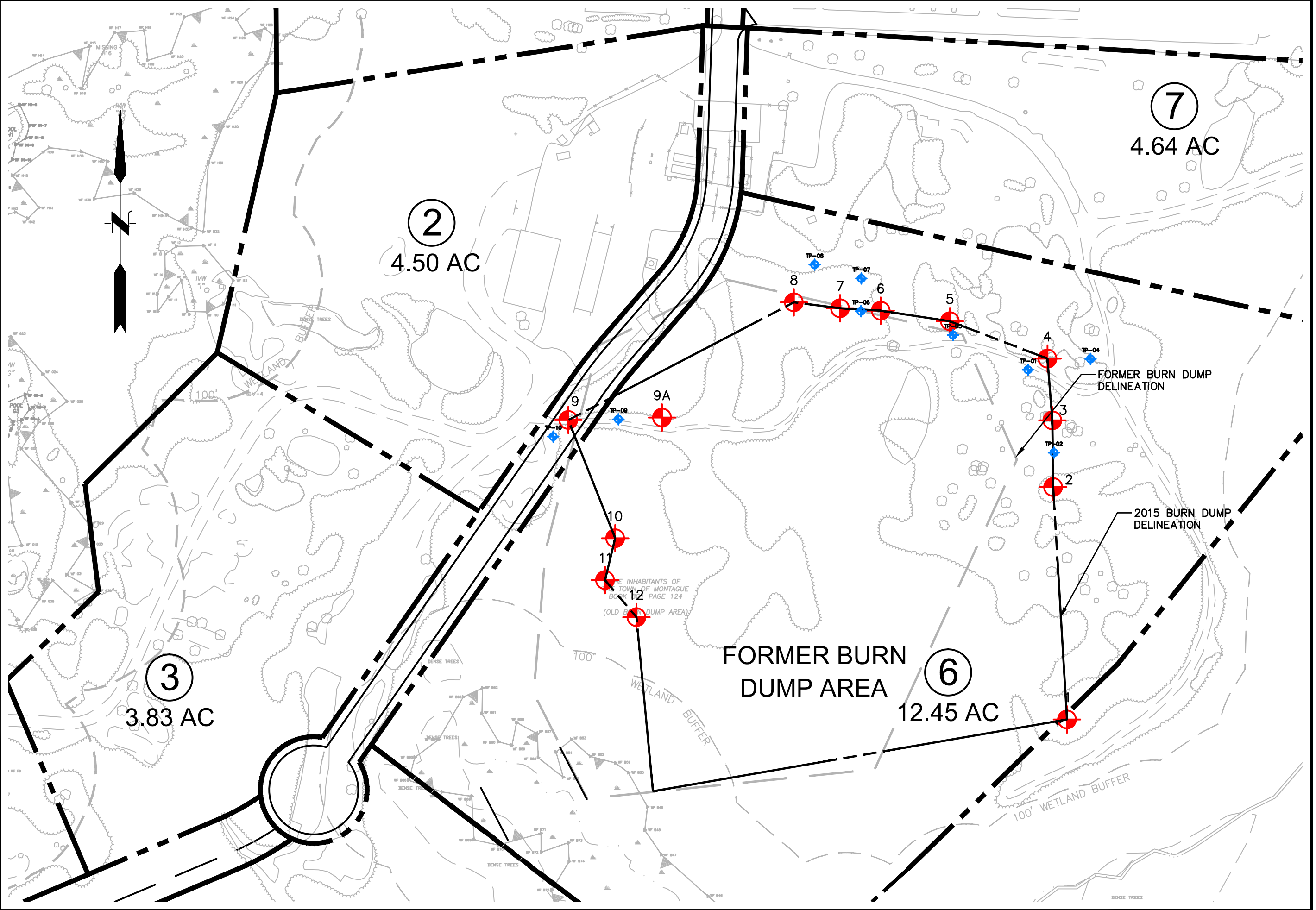
Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

- Legend**
- Transmission Lines by Type**
- Pipeline
  - Pipeline Arbitrary Extension
  - Powerline
  - Powerline Arbitrary Extension
  - Ski Lift/Tramway
  - Substation
  - Landing Strip/Airport
- BWP Land Disposal Sites**
- Landfills
  - Dumping Grounds
- DEP BWP Major Facilities**
- EPA/RCRA-regulated Hazard. Waste
  - MA-regulated Hazard. Waste
  - MA and EPA/RCRA-regulated Hazard. Waste
- AUL Sites**
- AUL Sites
- Tier Classified Sites**
- Tier 1A
  - Tier 1B
  - Tier 1C
  - Tier 1D
  - Tier II
- Solid Waste Facilities - A**
- Solid Waste Facilities - A
- Zone A**
- Zone A
- PUBLIC WATER SUPPLIES**
- Ground Water
  - Surface Water
  - Non-Community
  - IWPAs
  - DEP Approved Zone IIs
- OpenSpace: Lands**
- Federal
  - DCR-State Parks & Recreation
  - DCRS/DFG
  - Department of Fish & Game
  - DCR-Urban Parks & Recreation
  - DCR-Water Supply Protection
  - Department of Agricultural Resources
  - Commonwealth of Massachusetts
  - County
  - Municipal
  - Public Non-Profit
  - Land Trust
  - Conservation Organization
  - Non-Profit
  - Private
  - Other
  - Unknown

**FIGURE 2**  
Human Resource Map  
Montague, MA



File Path: J:\DWG\2007\1650\A41\ChipPlan\20071650A41\_STP01.dwg Layout: FIG. 2 Plotted: Tue, September 29, 2015 - 4:55 PM User: mparalia  
MS VIEW: LAYER STATE: CTB File: FO.STB



SCALE:	HORZ.: 1" = 100'
	VERT.: 1" = 100'
DATUM:	
	HORZ.: 1" = 100'
	VERT.: 1" = 100'
	GRAPHIC SCALE

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TOWN OF MANTAGUE  
**2015 NEW BURN DUMP DELINEATION**  
MANTAGUE TURNPIKE ROAD INDUSTRIAL PARK  
MASSACHUSETTS

PROJ. No.: 20071650.A43  
DATE: 9/28/15

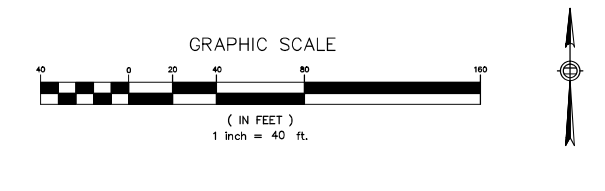
**FIG. 2**



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THE INHABITANTS OF  
THE TOWN OF MONTAGUE  
BOOK 301 PAGE 124  
(OLD BURN DUMP AREA)



**C-O**

FILE NO. **APRIL 2016**

TOWN OF MONTAGUE, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS

DPW FEASIBILITY STUDY

**EXISTING CONDITIONS SITE PLAN**

CADD NO. \_\_\_\_\_ CONTRACT: \_\_\_\_\_ JOB NO. \_\_\_\_\_

SCALE: **AS SHOWN**

DR. BY: \_\_\_\_\_ JMF

DESIGNED BY: \_\_\_\_\_ MR

CHECKED BY: \_\_\_\_\_ JJA

APPROVED BY: \_\_\_\_\_

No.	Date	Dr. By	Ck. By	App. By	Description
		A	P	P	R O V E D

REGISTERED PROFESSIONAL ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

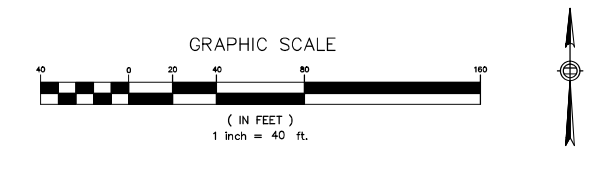
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					E
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TOWN OF MONTEGUE, MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS

DPW FEASIBILITY STUDY  
**EXISTING CONDITIONS SITE PLAN**

SCALE: AS SHOWN  
 CONTRACT: -  
 JOB NO: -  
 DR:BY: JMF  
 DESIGNED BY: JMF  
 CHECKED BY: MR  
 APPLIED BY: JJA

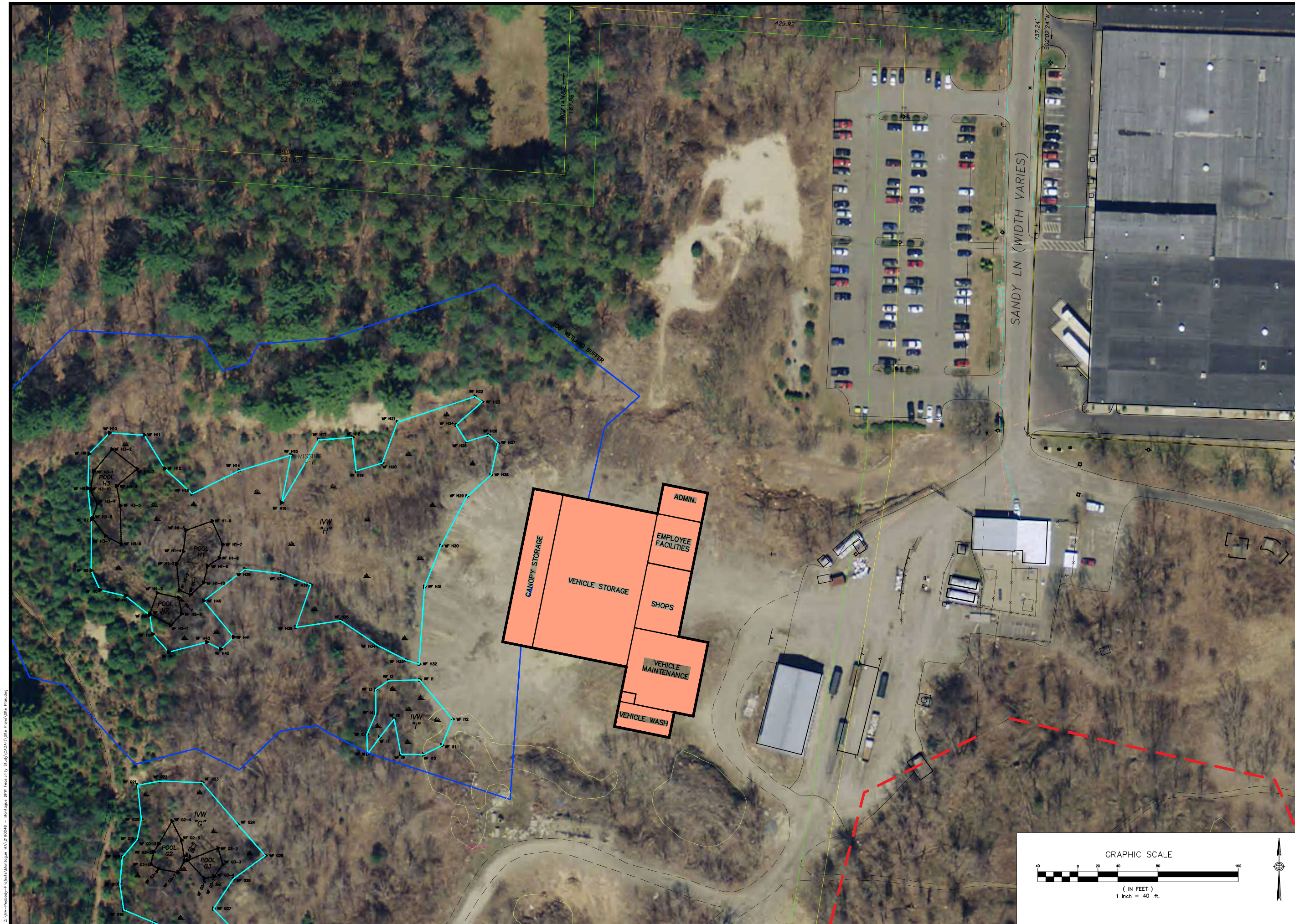
**C-O**  
 FILE NO: APRIL 2016  
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## **Appendix C**

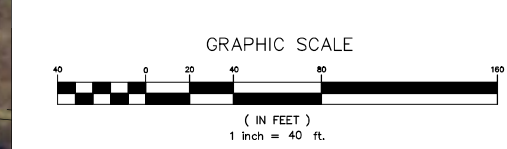
### **Alternative Concept Plans**





13-0-076  
 GREGORY M. STEWART  
 BOOK 5800 PAGE 49  
 TRACT 2

CANOPY STORAGE  
 VEHICLE STORAGE  
 ADMIN.  
 EMPLOYEE FACILITIES  
 SHOPS  
 VEHICLE MAINTENANCE  
 VEHICLE WASH



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		A	P	P	R O V E D

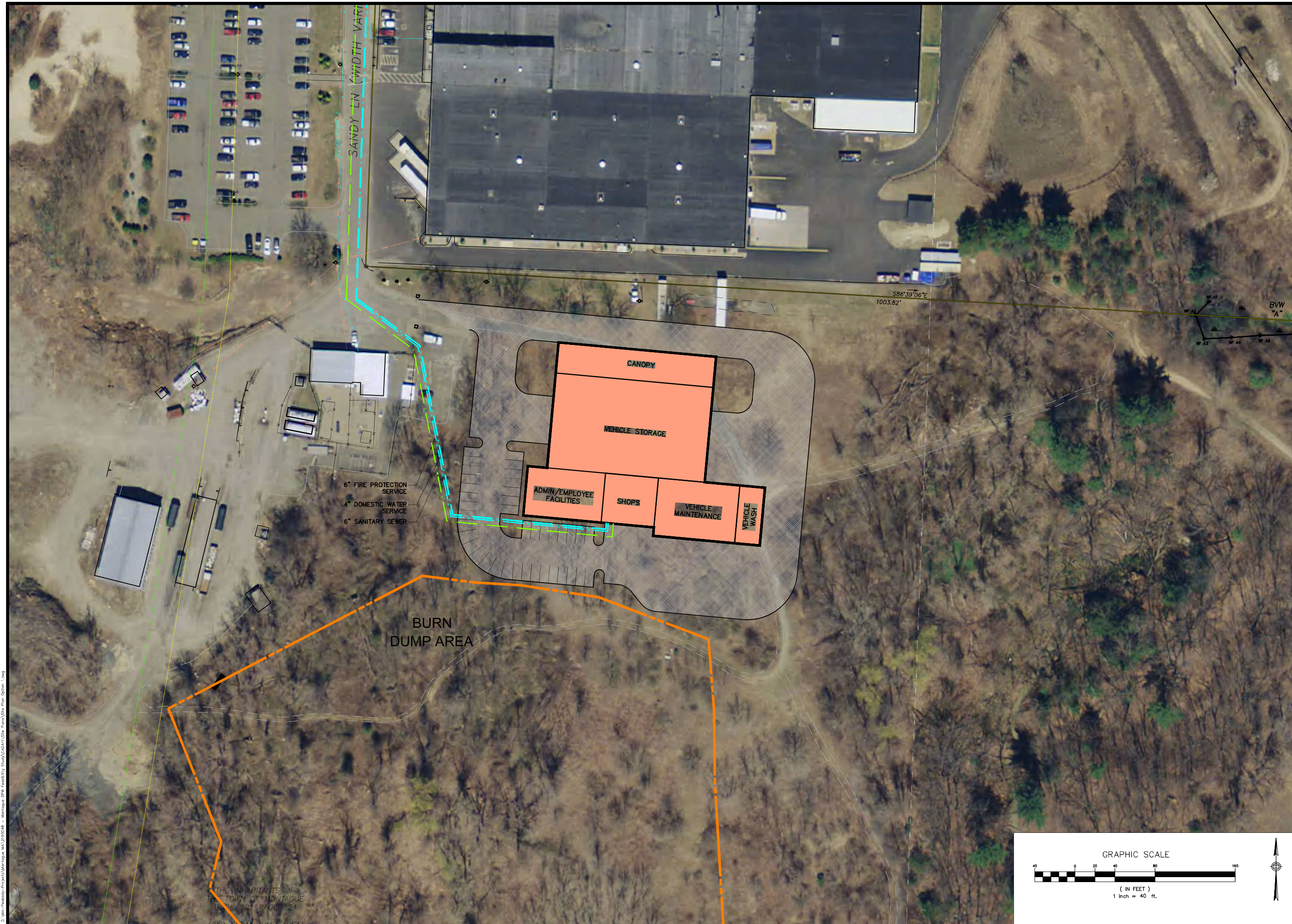
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TOWN OF MONTEGUE, MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS  
 DPW FEASIBILITY STUDY  
**CONCEPTUAL SITE PLAN**

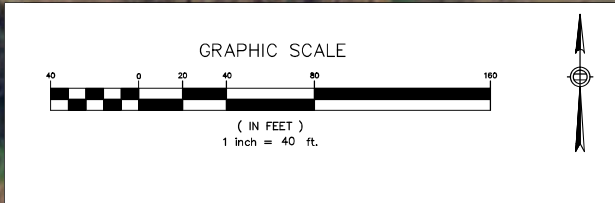
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CONTRACT:	—
JOB NO.:	—
DR:BY	JMF
CHK:BY	MR
APP:BY	JJA

**C-1**  
 FILE NO. February 2016  
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THE INHABITANTS OF  
THE TOWN OF MONTAGUE  
BOOK 307 PAGE 124



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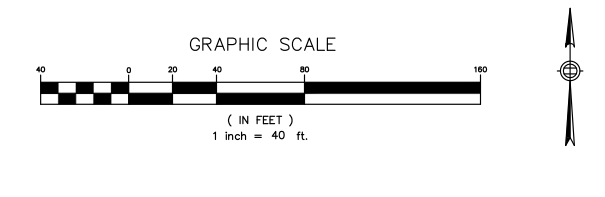
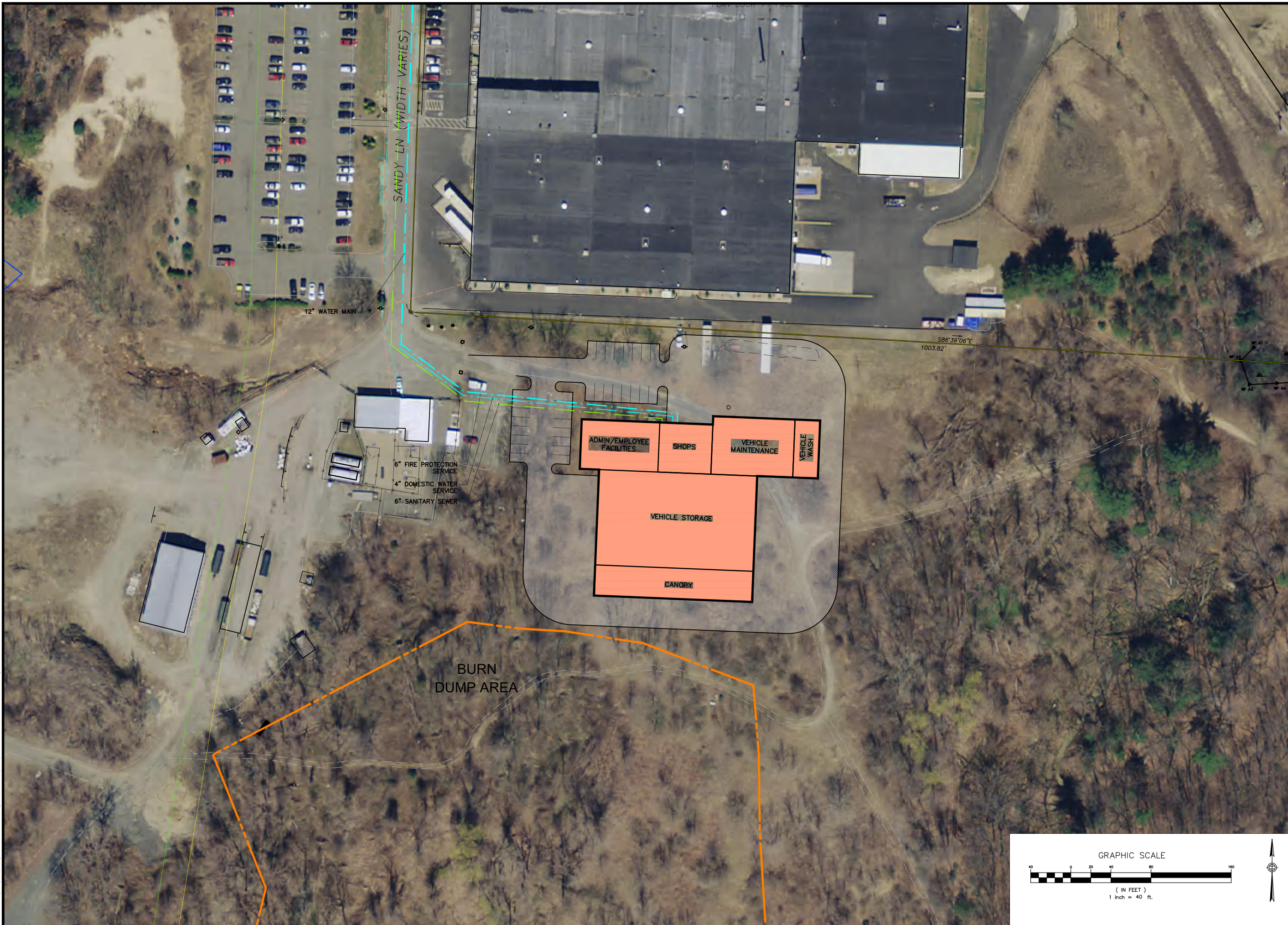
DPW FEASIBILITY STUDY  
**CONCEPTUAL SITE PLAN OPTION 1**

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CADD NO. \_\_\_\_\_  
JOB NO. \_\_\_\_\_  
CONTRACT: \_\_\_\_\_  
DR:BY: JMF  
DES:BY: MR  
CHK:BY: JJA  
APP:BY: -

**C-1**  
FILE NO. February 2016  
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TOWN OF MONTEGUE, MASSACHUSETTS  
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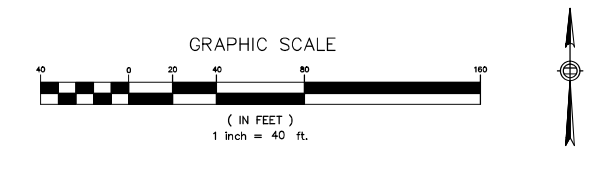
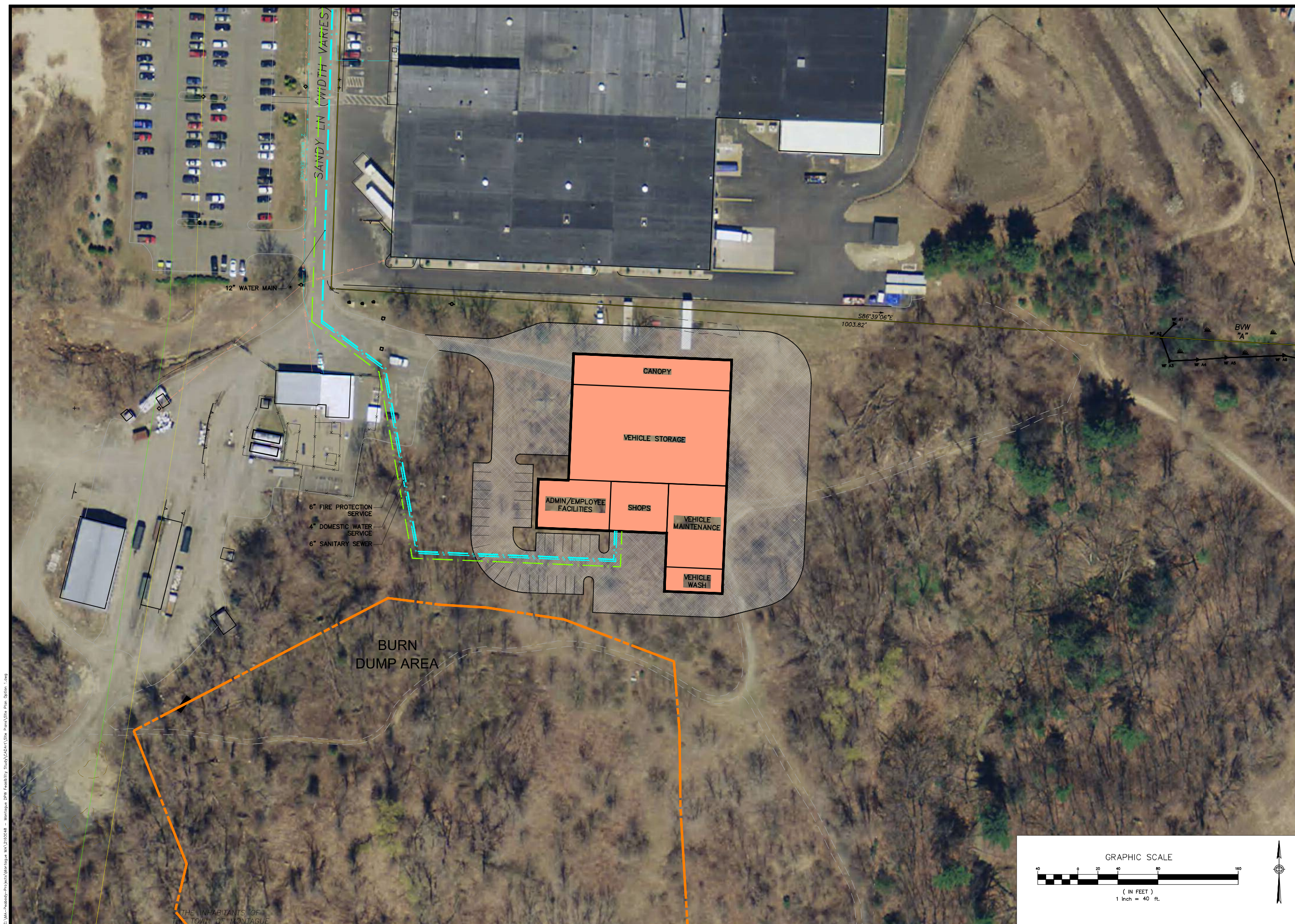
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**CONCEPTUAL SITE PLAN OPTION 1A**

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 JOB NO.: \_\_\_\_\_  
 DR. BY: JMF  
 DESIGNED BY: MR  
 CHECKED BY: JJA  
 APP. BY: \_\_\_\_\_

**C-1A**  
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DEPARTMENT OF PUBLIC WORKS

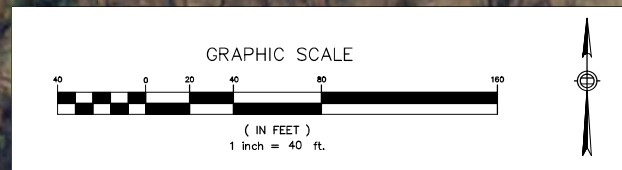
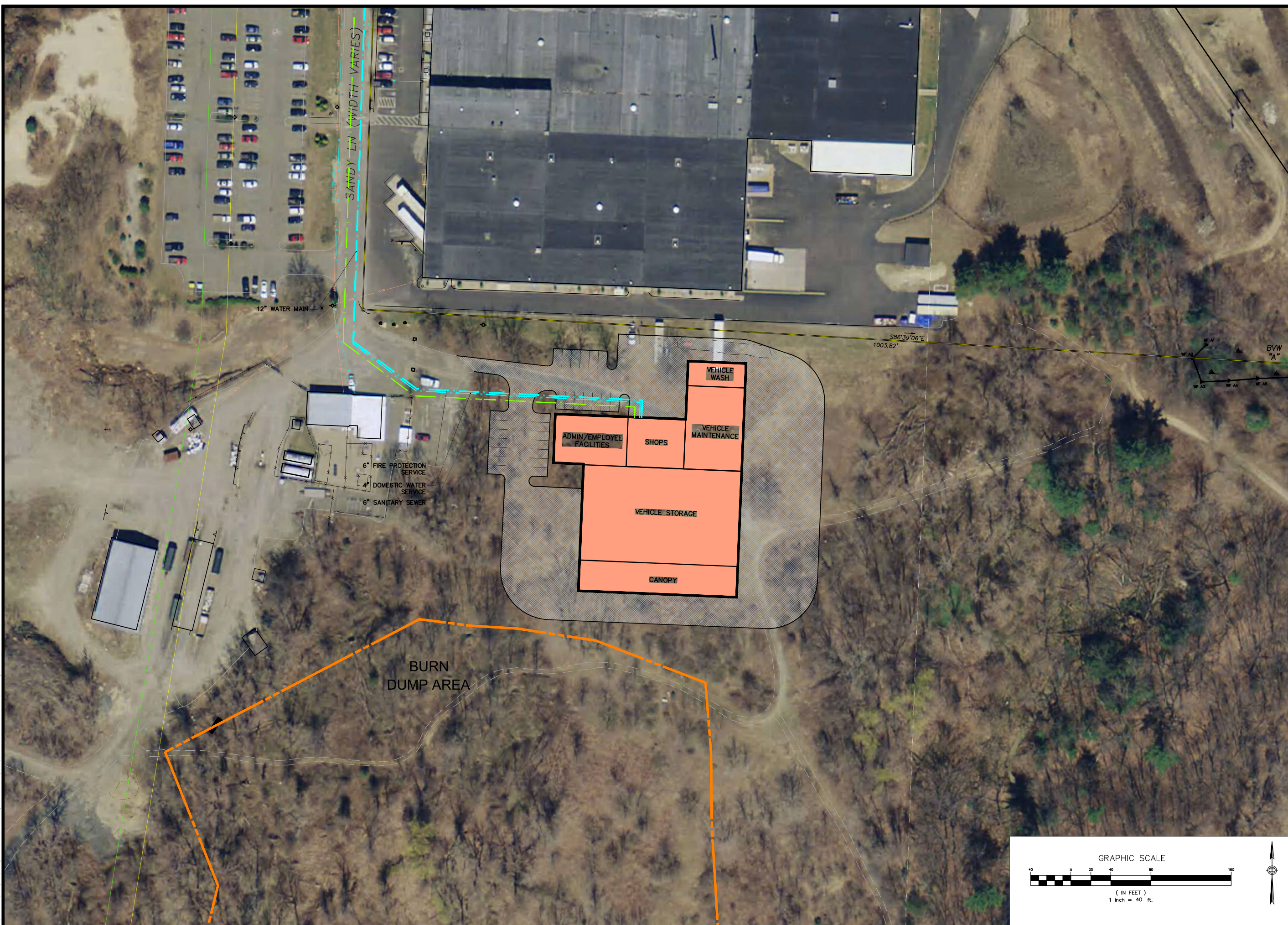
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**CONCEPTUAL SITE PLAN OPTION 2**

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CONTRACT: \_\_\_\_\_  
JOB NO. \_\_\_\_\_  
DR:BY: JMF  
CHK:BY: MR  
APP:BY: JJA

**C-2**  
FILE NO. February 2016  
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CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR:BY	CHK:BY
	AS SHOWN			JMF	MR
					JJA
<b>C-2A</b>	FILE NO. February 2016	SHEET — OF —			

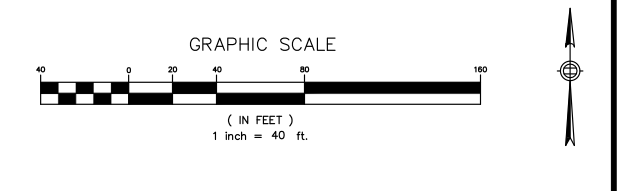
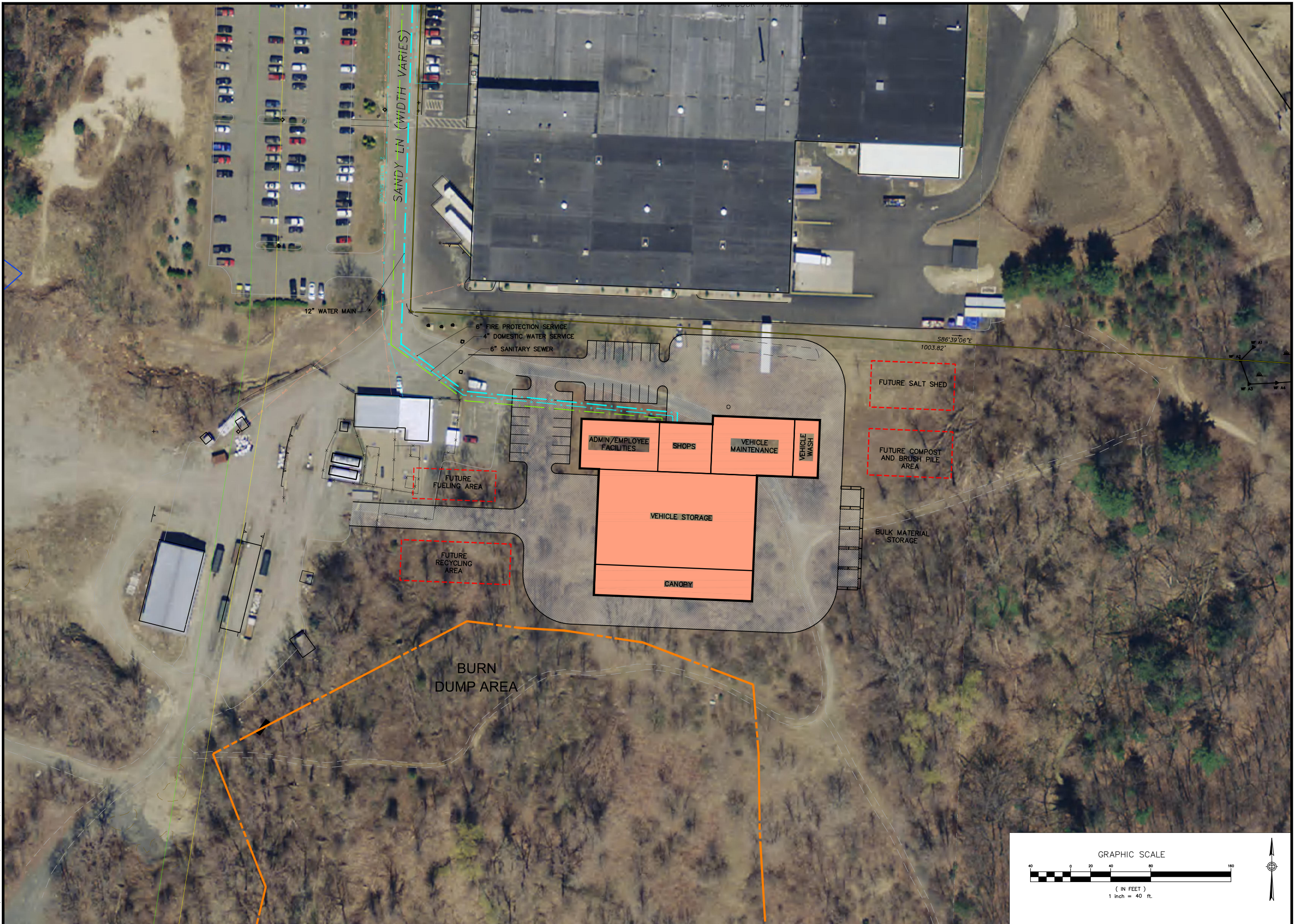


## **Appendix D**

### **Preferred Conceptual Alternative**



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		A	P	R	O	V	E	D

REGISTERED PROFESSIONAL ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

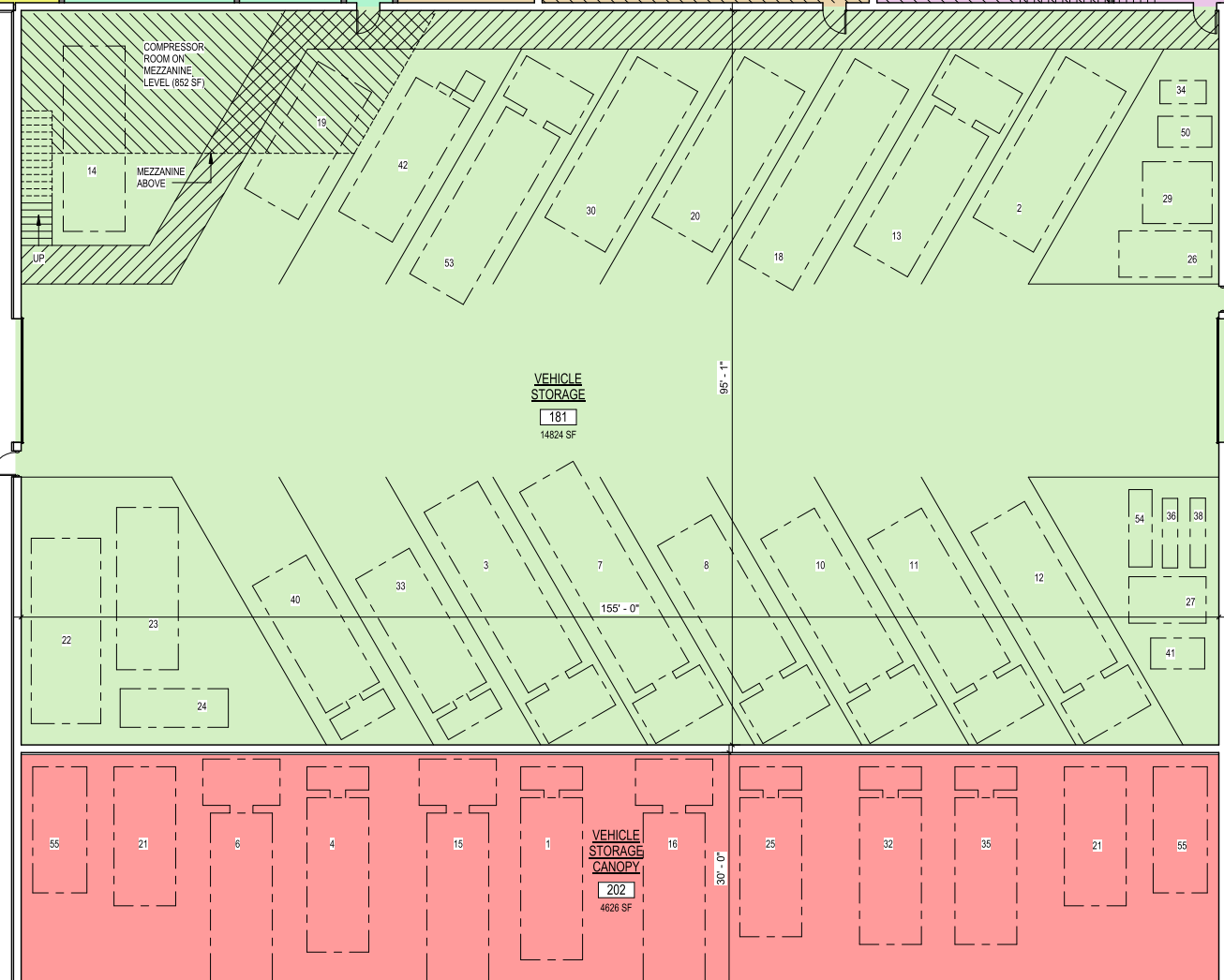
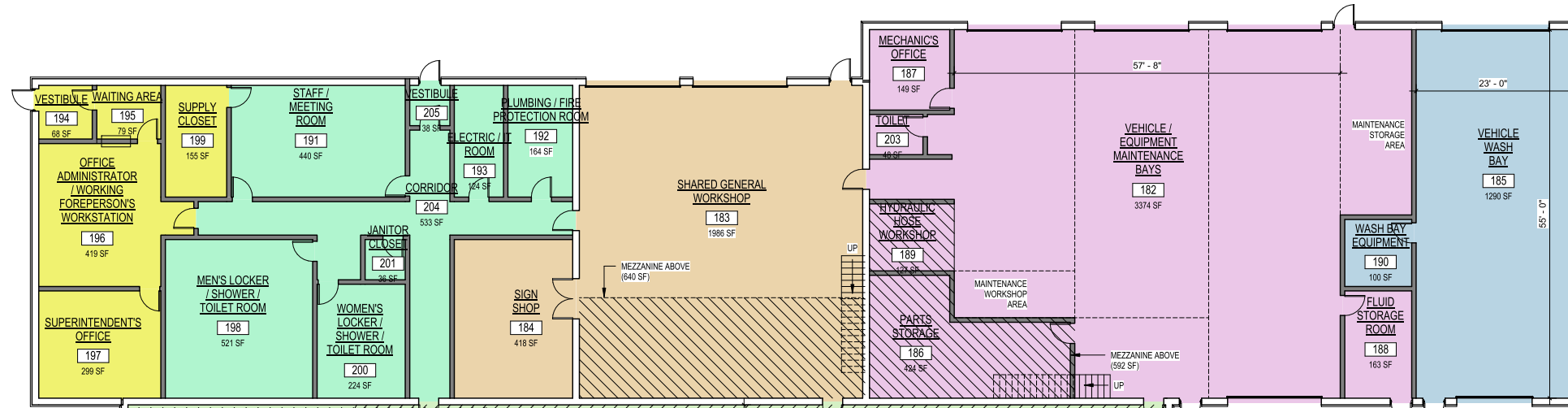
TOWN OF MONTEGUE, MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS

DPW FEASIBILITY STUDY  
**CONCEPTUAL SITE PLAN PREFERRED ALTERNATIVE**

CADD NO. \_\_\_\_\_ SCALE: **AS SHOWN** CONTRACT: \_\_\_\_\_ JOB NO. \_\_\_\_\_ DR. BY: **JMF** DS. BY: **MR** CHK. BY: **JJA** APP. BY: \_\_\_\_\_

**C-1A**  
 FILE NO. **February 2016**  
 SHEET - OF -





**Department Legend**

- Administration
- Employee Facilities
- Shops
- Vehicle Canopy
- Vehicle Maintenance
- Vehicle Storage
- Vehicle Wash Bay

**ROOM SCHEDULE**

#	ROOM NAME	Department	Area
<b>Administration</b>			
194	VESTIBULE	Administration	68 SF
195	WAITING AREA	Administration	79 SF
196	OFFICE ADMINISTRATOR / WORKING FOREPERSON'S WORKSTATION	Administration	419 SF
197	SUPERINTENDENT'S OFFICE	Administration	299 SF
199	SUPPLY CLOSET	Administration	155 SF
<b>Administration: 5</b>			
<b>Employee Facilities</b>			
191	STAFF / MEETING ROOM	Employee Facilities	440 SF
192	PLUMBING / FIRE PROTECTION ROOM	Employee Facilities	164 SF
193	ELECTRIC / IT ROOM	Employee Facilities	124 SF
198	MEN'S LOCKER / SHOWER / TOILET ROOM	Employee Facilities	521 SF
200	WOMEN'S LOCKER / SHOWER / TOILET ROOM	Employee Facilities	224 SF
201	JANITOR CLOSET	Employee Facilities	38 SF
204	CORRIDOR	Employee Facilities	533 SF
205	VESTIBULE	Employee Facilities	38 SF
<b>Employee Facilities: 8</b>			
<b>Shops</b>			
183	SHARED GENERAL WORKSHOP	Shops	1986 SF
184	SIGN SHOP	Shops	418 SF
<b>Shops: 2</b>			
<b>Vehicle Maintenance</b>			
182	VEHICLE / EQUIPMENT MAINTENANCE BAYS	Vehicle Maintenance	3374 SF
186	PARTS STORAGE	Vehicle Maintenance	424 SF
187	MECHANIC'S OFFICE	Vehicle Maintenance	149 SF
188	FLUID STORAGE ROOM	Vehicle Maintenance	163 SF
189	HYDRAULIC HOSE WORKSHOP	Vehicle Maintenance	127 SF
203	TOILET	Vehicle Maintenance	48 SF
<b>Vehicle Maintenance: 6</b>			
<b>Vehicle Storage</b>			
181	VEHICLE STORAGE	Vehicle Storage	14824 SF
<b>Vehicle Storage: 1</b>			
<b>Vehicle Wash Bay</b>			
185	VEHICLE WASH BAY	Vehicle Wash Bay	1290 SF
190	WASH BAY EQUIPMENT	Vehicle Wash Bay	100 SF
<b>Vehicle Wash Bay: 2</b>			
<b>Subtotal</b>			<b>26002 SF</b>

<b>Vehicle Canopy</b>			
202	VEHICLE STORAGE CANOPY	Vehicle Canopy	4626 SF
<b>Vehicle Canopy: 1</b>			
<b>Subtotal</b>			<b>4626 SF</b>

Project:  
MONTAGUE DEPARTMENT  
OF PUBLIC WORKS

DPW FACILITY  
MONTAGUE, MA

**Weston & Sampson**  
100 Foxboro Blvd. Foxboro, MA 02035  
(508) 698-3034 (800) SAMPSON  
www.westonandsampson.com

Consultants:

Seal:

Revisions:

Rev	Date	Description

Issued For:

Date: MARCH 28, 2016

Scale: AS NOTED

Drawn By: Author

Reviewed By: Checker

Approved By: Approver

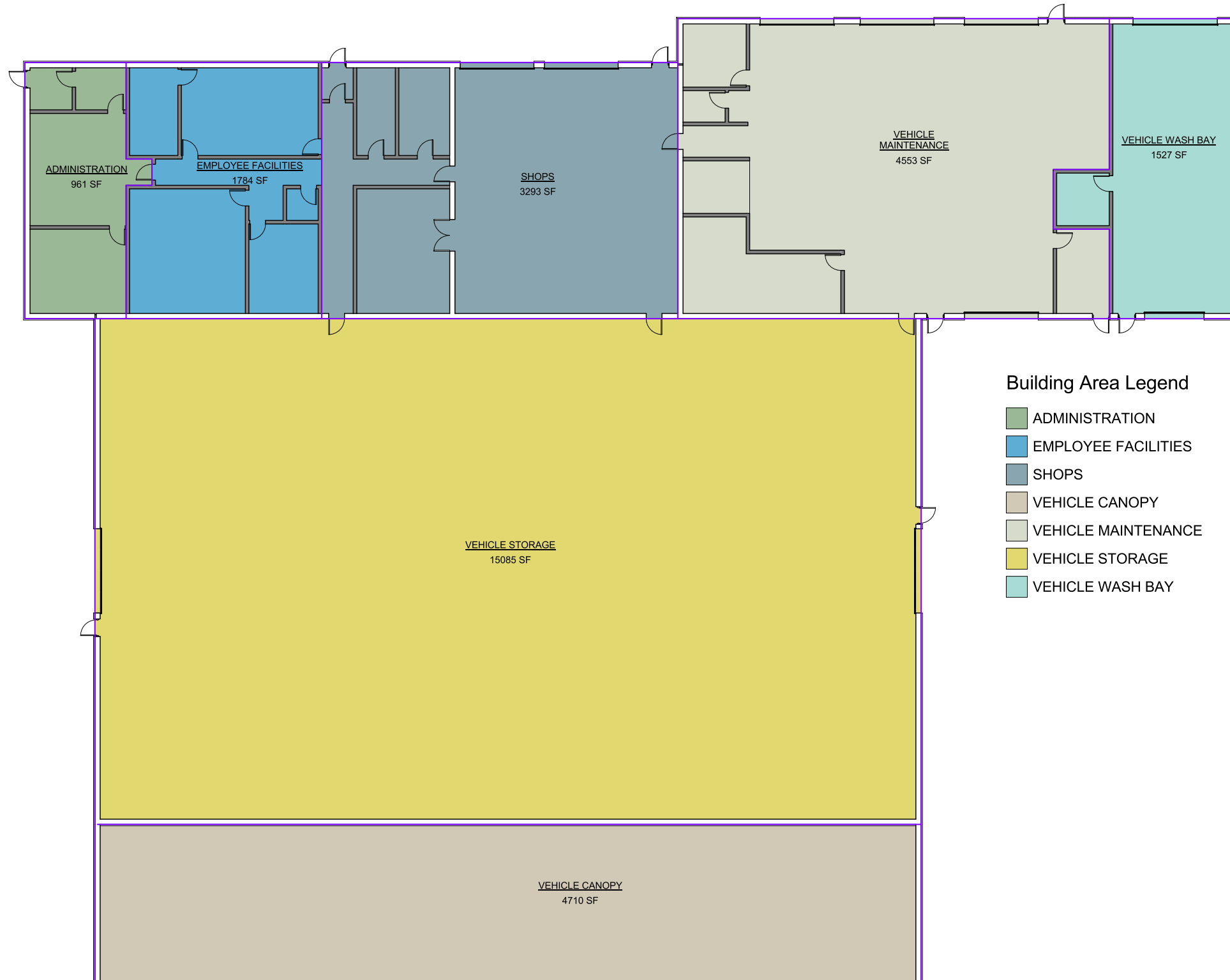
W&S Project No: Project Number

Drawing Title:

FLOOR PLAN

Sheet Number:

**A1.00**



**Building Area Legend**

- ADMINISTRATION
- EMPLOYEE FACILITIES
- SHOPS
- VEHICLE CANOPY
- VEHICLE MAINTENANCE
- VEHICLE STORAGE
- VEHICLE WASH BAY

GROSS AREA	
DEPARTMENT	GROSS AREA
ADMINISTRATION	961 SF
EMPLOYEE FACILITIES	1784 SF
SHOPS	3293 SF
VEHICLE CANOPY	4710 SF
VEHICLE MAINTENANCE	4553 SF
VEHICLE STORAGE	15085 SF
VEHICLE WASH BAY	1527 SF
Grand total	31914 SF

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W&S Project No: Project Number

Drawing Title:

**GROSS BUILDING AREA**

Sheet Number:

**A1.01**



**Appendix E**  
**Cost Summary**

**Town of Montague  
New Public Works Facility  
Budget Total Project Cost**

4/6/2016

<b><u>New Construction</u></b>	<b>Area</b>	<b>Size (SF)</b>	<b>2016 Cost/SF (w/ markups)</b>	<b>Cost</b>
	Administration / Employee Facilities	2,813	\$ 305	\$ 857,669
	Shops	3,366	\$ 214	\$ 721,167
	Vehicle Maintenance (not including equipment)	4,602	\$ 214	\$ 985,980
	Wash	1,572	\$ 405	\$ 636,901
	Vehicle/Equipment Storage	15,099	\$ 169	\$ 2,550,647
	Added Cost for Specialty Foundations (based on 1st floor area)	27,452	\$ 22	\$ 599,552
	<b>New Construction Subtotal:</b>	<b>27,452</b>		<b>\$ 6,351,915</b>
	Building Cost per SF:	231		
			Place a "x" here if included	
	Industrial Equipment			
	- Wash Equipment	\$ 60,060	x	\$ 60,060
	- Heavy Duty Vehicle Lift (75K Capacity Scissor Lift)	\$ 83,000	x	\$ 83,000
	<del>- Light Duty Vehicle Lift (16,000 lb capacity minimum)</del>	<del>\$ 27,300</del>		
	- Bridge Crane	\$ 50,000	x	\$ 50,000
	<del>- Overhead Lubrication System</del>	<del>\$ 89,000</del>		
	- Miscellaneous Shop and Support Equipment	\$ 15,000	x	\$ 15,000
	- Storage Shelving / Benches / Racks	\$ 20,000	x	\$ 20,000
	- Exhaust Removal System (1 Reel)	\$ 8,000	x	\$ 8,000
	<b>Industrial Equipment Subtotal:</b>			<b>\$ 236,060</b>
	<b>Building &amp; Equipment Total:</b>			<b>\$ 6,587,975</b>
	Mezzanines	2,084	\$ 55	\$ 113,786
	Open Canopy Storage	4,735	\$ 82	\$ 387,797
	Site Development (acres) - assumes level site with no contamination, existing structures/utilities, etc.	2.2	\$ 382,200	\$ 840,840
	Specialty Site Work			
	- Sewer Extension (LF)	1,245	90	\$112,050
	- 12" Water Main Extension (LF)	785	225	\$176,625
	- 2 and 6" Fire Service Extension (LF)	415	100	\$41,500
			Subtotal Bldg, Equip, & Site:	\$ 8,260,573
			Design Contingency (5%):	\$ 413,029
			Escalation - 1 Year (3% per year):	\$ 260,208
			<b>Total Construction:</b>	<b>\$ 8,933,810</b>
			<b>Total Construction Cost/SF:</b>	<b>325</b>

**Town of Montague  
New Public Works Facility  
Budget Total Project Cost**

4/6/2016

<b>Department of Public Works Budget Total Project Cost</b>		
<b><u>Owner's Soft Costs</u></b>		
<b>A&amp;E Fees (design, bid, const.)</b>	<b>\$ 893,381</b>	(Assume 10% of Const. Value)
<b>A&amp;E Special Services</b>	<b>\$ 178,676</b>	(Assume 2% of Const. Value)
<b>Owner's Project Manager Fees</b>	<b>\$ 357,352</b>	(Avg 4% of Const. Value)
<b>Furnishings (FFE)</b>	<b>\$ 25,000</b>	allowance
<b>Communic. / Low Voltage System</b>	<b>\$ 20,000</b>	allowance
<b>Printing Cost - Advertisement</b>	<b>\$ 5,000</b>	allowance
<b>Commissioning</b>	<b>\$ 20,000</b>	allowance
<b>Utility Company Backcharges</b>	<b>\$ 30,000</b>	allowance
<b>Owner Miscellaneous Costs (moving, etc.)</b>	<b>\$ 15,000</b>	allowance
<b>Construction Contingency (8%)</b>	<b>\$ 714,705</b>	allowance
	<b>Total Soft Costs:</b>	<b>\$ 2,259,114</b>
	<b>(current dollars)</b>	
<b>TOTAL PROJECT COST (Average Bid Price)</b>	<b>\$ 11,192,924</b>	

**Department of Public Works Facilities  
SUMMARY - Recent Cost Data**

2/22/2016

Description	Size (SF)	Bid Date	2014 Avg Cost per SF	2015 Avg Cost per SF	2016 Avg Cost per SF	2017 Avg Cost per SF	2018 Avg Cost per SF	2019 Avg Cost per SF	2020 Avg Cost per SF	2021 Avg Cost per SF
Medford Public Works Facility	45,000	2014	\$274	\$286	\$298	\$307	\$316	\$326	\$335	\$345
Bourne Public Works Facility	39,040	2014	\$283	\$295	\$308	\$317	\$327	\$337	\$347	\$357
Norwood Public Works Facility	53,870	2014	\$287	\$299	\$312	\$321	\$331	\$341	\$351	\$362
Boylston Highway Facility	13,926	2015	--	\$283	\$295	\$304	\$313	\$323	\$332	\$342
<b>Average Cost per SF:</b>			<b>\$281</b>	<b>\$291</b>	<b>\$303</b>	<b>\$312</b>	<b>\$322</b>	<b>\$331</b>	<b>\$341</b>	<b>\$352</b>

Notes:

1. 2014 costs per SF have been escalated by 8.7% to reflect 2016 costs based on published construction escalation rates
2. An assumed average escalation rate of 3% per year has been assumed for subsequent years