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REPORT

June 2019

TOWN OF
Truro
Massachusetts

**New Public Works Facility
Feasibility Study**

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Town of Truro
New Public Works Facility
Feasibility Study

Section 1
Report Narrative

I. Introduction

Town of Truro retained the services of Weston & Sampson to prepare a feasibility study to identify the current and future needs of the Department of Public Works (DPW). The goal of the study was to develop an objective program of buildings and site features which are needed to cost effectively and efficiently support the services offered by the Department to the community. The study included inspecting existing facilities, identifying deficiencies, interviewing staff, identifying current and future needs, conducting a site selection analysis, developing conceptual alternatives, and preparing budget cost estimates for a new facility.

II. Space Needs Assessment

The Project Team prepared a space needs assessment to identify the current and future needs of the Department of Public Works. The assessment included analyzing current services offered to the community and 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 buildings and site. The staff interviews were supplemented with support by the project team's knowledge of industry practices and familiarity with solutions which have been successfully implemented on recently constructed public works facilities.

Operational Analysis

The operational analysis was based on inspection of the existing facilities which are used to support the Department of Public Works' operations, and a determination of the functional inadequacies and space limitations of the existing buildings and site. The following is a summary of some of the deficiencies and/or inefficiencies associated with the existing facilities:

- The Vehicle Storage facilities are undersized and are unable to safely and efficiently support current operations.



- Inadequate storage facilities result in a large portion of the multi-million dollar fleet being stored outdoors. This impacts DPW response times during cold and inclement weather conditions. It also contributes to the rapid deterioration of high value Town owned equipment and increases vehicle maintenance costs.



- The facilities do not have a vehicle wash facility to properly care for vehicles which are exposed to corrosive chemicals. This decreases vehicle life expectancy and increases vehicle maintenance costs.
- Building lacks a code required fire suppression (sprinkler) system.

- The employee facilities are undersized and lack adequate employee support spaces (locker/shower/toilet facilities and muster/training/storm event room).



- Vehicle maintenance area is undersized to safely and efficiently maintain the Town vehicles. The space does not have adequate height to lift vehicles for maintenance.



- Inadequate working environment, including:
 - Poor ventilation
 - Inadequate lighting
 - Confined workshop areas
 - Inadequate facilities for state mandated training

These deficiencies directly impact operations and the efficiency of service that the DPW is able to provide to the town.

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/division organization identified during the staff interviews is as follows:

DIVISION/DEPARTMENT	Administration Full Time	Workforce Full Time	Part Time or Seasonal	Locker	Parking
DPW Administration	2	-	-	2	Staff-2 Visitor-5
DPW Workforce	-	9	1	10	Staff-10
Transfer Station (off-site)	-	2	2	-	-
Total:	2	11	3	12	17

Refer to **Section 2** for a copy of the staff interview notes and a copy of the vehicle/equipment inventory list.

Space Needs Assessment

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. The spaces were assembled into a space needs matrix identifying each space and providing a recommended program size. The space needs assessment identified an initial requirement of 36,689 square feet. The results of the initial

space needs were then compared to DPW Facility Guidelines which provided a recommended range of 29,317 square feet - 34,491 square feet. Using this data, the Project Team and DPW staff attended a meeting to determine if the spaces could be reduced without negatively impacting operations. Based on input from DPW, 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 32,487 square feet. This reflected an overall reduction in the space needs of 4,202 square feet, or approximately 11.5%. Refer to **Section 3** for the initial space needs matrix, associated programming sketches, and space needs guidelines and **Section 4** for the final modified space needs matrix.

III. Site Selection

Weston & Sampson reviewed potential sites with the Town and developed a list of sites for further evaluation as follows:

- Site 1 - 340/344 Route 6 (Town owned)
- Site 2 & 3 combination - 5 Town Dump Road Transfer Station Site & Lot 104 Route 6 Adjacent State Parcel (Town owned & State owned)
- Site 4 - 24 Town Hall Road Existing DPW Site (Town owned)

An environmental and human receptor map was prepared for each site to identify potential permitting restrictions. Using this data, Weston & Sampson prepared “test-fit” conceptual alternatives to determine if each parcel was capable of supporting the proposed program. Refer to **Section 5** for a copy of the receptor maps and the test-fit conceptual plans.

Based on an evaluation of the receptor maps and test-fit conceptual plans, it was determined that the combined site 3 & 4 was not suitably sized to support the proposed program. In addition, although Site 4 was suitably sized to fit the proposed program, it was determined

that the location was not suitable due to the proximity to an existing drinking water well. Consequently, Site 1 was identified to be the most viable site for a new public works facility.

III. Conceptual Design Alternatives

Utilizing the results of the final space needs assessment and site selection analysis, the Project Team prepared conceptual alternatives for Site 1 - 340/344 Route 6 for a new Public Works Facility. The alternatives were prepared with the following operational considerations in mind:

- Arrange interior space to provide efficient circulation patterns.
- Arrange building spaces to allow for optimal building massing in accordance with the Town's aesthetic preferences.
- Provide visual screening of DPW Yard operations from surrounding abutters.
- 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 facility.
- Maintain safe and functional access to/from the salt/sand operations area and relocated fueling facility.
- Maintain a counterclockwise circulation pattern to promote safe turning movements for large vehicles.

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 / renovated 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 programming spaces identified during the space needs assessment. Four (4) initial concepts were developed utilizing the approved space needs program. In addition, a conceptual floor plan was developed for Alternative No. 1. This floor plan can be revised to reflect the preferred concept as part of the next phase of development for the project. It should be noted that the site has some significant grade changes running north to south. These grading challenges will be addressed once a preferred alternative is selected and more detailed topographical information is obtained. Refer to **Section 6** for a copy of the initial alternatives, conceptual building massing models, and conceptual floor plan.

These initial alternatives will become the basis for developing a final preferred alternative which incorporates input from DPW staff in the next phase of design.

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 conventionally framed building for the administration and employee facility areas with higher-end finishes meeting local aesthetic vernacular.
- Construction of a new pre-engineered metal building with partial masonry wall finish and concrete protection wall for the vehicle storage area, shops areas, and wash bay.
- Factory foam insulated architectural metal panel system for the pre-engineered metal building component.
- Primary industrial support equipment for vehicle maintenance operations.
- Site improvements, including storm water management, utilities, fencing, and paving upgrades.

- Contingency allowance for unanticipated design and construction costs, pending final design.
- Pricing contingencies to account for the early nature of the project.

The estimated costs for new building construction 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 2019 costs. The following is a summary of the anticipated total project costs:

Building Construction Costs:	\$9,211,000
Mezzanines:	\$340,000
Industrial Equipment:	\$589,000
Fuel System Relocation:	\$283,000
Site Development:	\$1,653,000
Salt/Sand Storage Structure:	\$280,000
Market & Location Adjustment Factor:	\$1,100,000
Design Contingencies & Escalation:	\$2,310,000
Construction Contingencies:	\$946,000
Owner's Project Development Costs:	<u>\$2,833,000</u>

TOTAL PROJECT COST: \$19,545,000

Additional escalation factors should be included if the Town does not move forward with funding of the initial design phase of the project in Spring 2020. Escalation factors will vary depending on the construction market. As a guideline, the Town should expect escalation to range from 4% - 6%. A copy of the conceptual cost estimate is included **Section 7** of this report.

Town of Truro
New Public Works Facility
Feasibility Study

Section 2

**Staff Interview Notes, Organization Chart, and Vehicle / Equipment
Inventory**

MEMORANDUM

TO: Truro MA Study File
FROM: Jeff Alberti
DATE: November 21, 2018
SUBJECT: Staff Interview Notes

Attendees: Weston & Sampson: Jeff Alberti, Della Donahue, Dave Steeves, Joe Fitzpatrick
Town of Truro: Jarrod Cabral, Kyle Halvorsen, Mike Locke, Timmy King, Trudi Brazil

Staff Summary:

DIVISION/DEPARTMENT	Administration Full Time	Workforce Full Time	Part Time or Seasonal	Locker	Parking
DPW Administration	2	-	-	-	Staff-2 Visitor-5
DPW Workforce	-	9	1	10	Staff-10
Transfer Station (off-site)	-	2	2	2	-
Total:	2	11	3	12	17

Site Requirements:

- Would like provisions for a Stock Yard for the following materials:
 - Stone
 - Reclaimed Asphalt
 - Patch
 - Loam
 - Compost
 - Mulch
 - Breakout / Waste Cuts
- Salt / Sand Storage Structure
 - 130-ton annual salt usage
 - Sand
- Existing fuel system to be relocated if DPW moves
- Employee and public parking

Building Requirements:**Office / Employee Facilities:**

- DPW Director's Office
- Administrative Assistant (one workstation)
- Entry/Vestibule
- File storage
- Copy/File/Mail (set up tabletop over flat files to provide plan layout area)
- No separate kitchen/kitchenette for office staff
- Supply closet(s)
- Conference room with seating for 6-8 people
- Would like a break/training/muster room setup to support workforce staff with an alcove area for report writing (up to 2 computers).
- Provide a closet off of the muster room for storm event equipment (cots, etc.)
- Provide a locker/shower/toilet area (male & female facilities). Provide two water closets, 2 urinals, and 1 shower (no gang sink required) in male facilities. Would like 2' wide x 18" deep lockers. Although transfer station staff will not report to the new facility, it is recommended that 2 extra lockers be provided.

Shops:

- Need a carpentry shop for the Building Division. Current carpentry shop is 16'x24. Would like 2 to 3 times this size.
 - Carpentry equipment - table saw, miter box, sanding equipment, etc.
 - Dust collection system
 - Small parts paint booth
 - Lumber storage
- Provide a supervisor office with a window which opens up to the Carpentry Shop.
- Need a sign shop for the Building Division. Shop should be set up for sign making (climate controlled) and should have a sign storage system (high density storage).
- Provide a storage area for Building Division supplies and equipment:
 - Floor cleaning equipment
 - +/- 20'x20'
- Would like a garage bay for custodial equipment storage (+/- 20'x40') - floor equipment, scissor lift, supply storage, etc.

Vehicle Maintenance:

- Tire machine and balancer (near small maintenance bay)
- Tire storage for small, medium, and large tires
- Dedicated welding area (within a bay)
- Three (3) maintenance bays
 - Small
 - Large (should be long enough to support tractor trailer arrangement)
 - Long term
- 5-ton bridge crane
- 16' wide doors
- Light duty lift (2-post)
- Heavy duty lift
- Small equipment lift for mowers
- Fluid distribution system with fluid room:
 - 55 gal - Hydraulic Oil
 - Bulk oil - type 1
 - Bulk oil - type 2
 - 55 gal - ANFR

- Bulk waste ANFR
 - Bulk waste oil
- Parts storage room
- Small workshop area
- Mechanics Office
- Provide a compressor in a separate room (on mezzanine if possible)
- Would like radiant floor heating in maintenance bays

Vehicle/Equipment Storage:

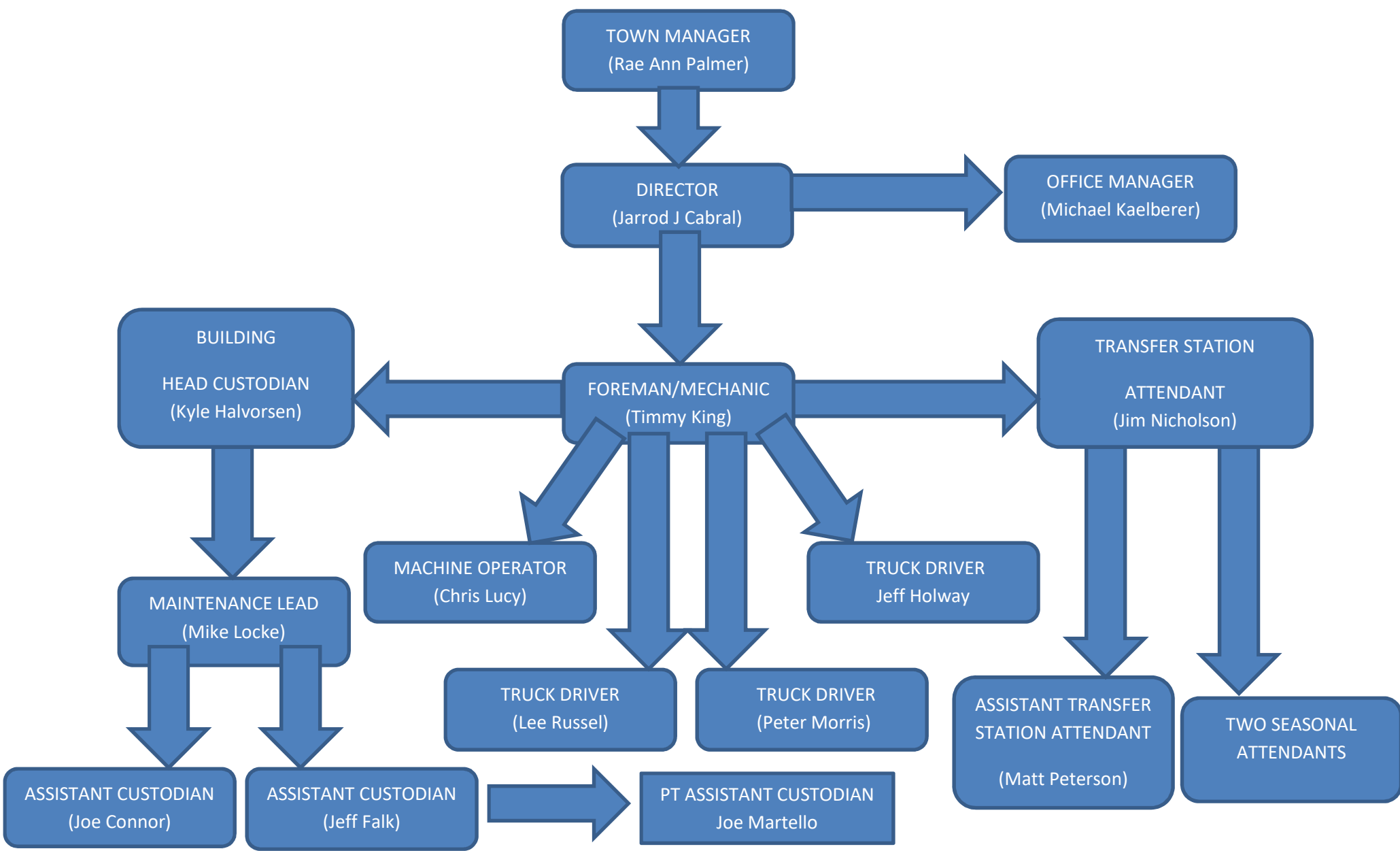
- See vehicle inventory for vehicle/equipment storage requirements
- Make provisions to store Transfer Station equipment
 - 2 forklifts
 - 5 - Tractor trailers (covered only - not enclosed)
 - 2 small roll-offs
 - 3 - Cass tractors
 - 1 - Loader
- Provide room for Harbor Master equipment

Wash Bay:

- Provide wash system with manual pressure washer and automatic undercarriage provisions.

Miscellaneous:

- Town Manager would like to create a Town Records Storage area. Consideration should be given to using the old DPW facility for this storage if the DPW is relocated to a new site.
- Aesthetic considerations of local vernacular vs. industrial look.



Auto Fleet Schedule
Description of Information
Town of Truro
Territory # 13

T-3 FORD F450 (NEW) 21L

M98913

#	Department	Year	Manufacturer & Model	Vin #	Plate #	GVW	Cost New	Type	Class	ACV RC	Med Pay	\$ Comp Deduct	\$ Coll Deduct	Effective Date
1	ANIM CONTROL	2007	FORD - F150 PICKUP	1FTRF14W37KB20139	M76104	6,000	\$20,000	L	01499	ACV Y		\$1,000	\$1,000	07/01/2018
2	BEACH	2016	FORD - F150 <i>S</i>	1FTFX1EF4GFD56757	M97089	7,050	\$33,135	L	01499	RC N	DEC 4C	DEC 4C	07/01/2018	
3	BUILDING	2009	FORD - EXPLORER <i>S</i>	1FMEU73E19UA31625	M65432		\$23,000	L	01499	ACV Y	\$1,000	\$1,000	07/01/2018	
4	COA	2011	FORD - E350 VAN	1FDEE3FL1BDA95184	M88186	11,500	\$52,246	M	05230	ACV Y	\$1,000	\$1,000	07/01/2018	
5	COA	2012	FORD - FLEX STATION WAGON	2FMHK6CC2CBD08226	M52365	6,150	\$30,465	L	05230	ACV Y	\$1,000	\$1,000	07/01/2018	
6	DPW	<i>(1972)</i>	CLIP - TRAILER <i>Goyle T</i>	002043			\$2,500	L	68499	ACV Y	\$1,000	NO COV	07/01/2018	
7	DPW	<i>(1988)</i>	UTILITY - TRAILER <i>Goyle T</i>	10HHTB189J1000008	M50028		\$6,000	L	68499	ACV Y	\$1,000	\$1,000	07/01/2018	
8	DPW	1988	UTILITY TRAILER <i>New trailer T</i>	1E9ZPCTA0J1021285	M22536		\$0	L	69499	N	NO COV	NO COV	07/01/2018	
9	DPW	1988	INTERNATIONAL - TRACTOR <i>E</i>	1HTZPGCR9JH542418	M74402	50,000	\$110,000	EH	79650	RC N	DEC 4C	DEC 4C	07/01/2018	
10	DPW	1988	WHGM ACLACL - TRACTOR <i>E</i>	4V1SDBCH4JU501723	M44895		\$110,000	EH	40499	RC Y	DEC 4C	DEC 4C	07/01/2018	
11	DPW	1990	INTERNATIONAL - TRACTOR <i>E</i>	1HTGGGDR0LH271161	M93210	50,000	\$90,000	EH	79650	ACV N	DEC 4C	DEC 4C	07/01/2018	
12	DPW	1997	BENCE - TRAILER <i>T</i>	1B9A14522VB183146	M66427	80,000	\$50,000	EH	67499	RC Y	DEC 4C	DEC 4C	07/01/2018	
13	DPW <i>T-7</i>	<i>L</i> 2000	STERLING - DUMP TRUCK W/SANDER & PLOW <i>-24'</i>	2FZHAJBB8YAG42265	M57231	35,000	\$69,885	H	31499	RC Y	DEC 4C	DEC 4C	07/01/2018	
14	DPW	2000	HOMEMADE - UTILITY TRAILER <i>T</i>	MA30862	<i>NO plate</i>	4,000	\$500	L	68499	Y	NO COV	NO COV	07/01/2018	
15	DPW	<i>L</i> 2001	JOHN DEERE - 544H 4WD LOADER	DW5Y4HX581029	M66548	26,600	\$110,000	H	79650	RC Y	DEC 4C	DEC 4C	07/01/2018	
16	DPW	2002	BANDIT - WOOD CHIPPER <i>T - 7'w x 15'L</i>	017769	M67913	6,800	\$24,997	L	79650	ACV Y	\$1,000	NO COV	07/01/2018	
17	DPW <i>T-15</i>	2006	FORD - E250 VAN (2 PSNGR) <i>S - 18'</i>	1FTNE24L56HA48949	M64548	8,600	\$15,886	L	01499	ACV Y	\$1,000	\$1,000	07/01/2018	
18	DPW	2006	PETERBILT - CONVEN TRACTOR <i>E</i>	1XPADB0X46N650347	M72853	17,000	\$110,000	M	79650	RC Y	DEC 4C	DEC 4C	07/01/2018	
19	DPW	2006	JOHN DEERE - TRACTOR <i>E - 10'w x 15'L</i>	LV5525R257304	M52230	20,000	\$100,000	H	79650	RC N	DEC 4C	DEC 4C	07/01/2018	
20	DPW	2007	CAM - UTILITY TRAILER <i>T</i>	5JPBU21227P017124	M80220	8,000	\$4,900	L	68499	ACV Y	\$1,000	\$1,000	07/01/2018	
21	DPW <i>S-1</i>	<i>(2008)</i>	FORD - F250 PICKUP <i>Goyle S - 18'</i>	1FTNF21518EA07886	M78863	10,000	\$35,000	L	01499	ACV Y	\$1,000	\$1,000	07/01/2018	
22	DPW <i>T-16</i>	<i>L</i> 2009	INTERNATIONAL - 7400 TRUCK <i>-24'</i>	1HTWDAARX9J085618	M77461	40,000	\$122,000	H	31499	RC Y	DEC 4C	DEC 4C	07/01/2018	
23	DPW	2009	SPECTOR - TRAILER <i>T</i>	1S9ES38209S188333	M82786	80,000	\$46,000	EH	67499	RC N	DEC 4C	DEC 4C	07/01/2018	
24	DPW	2011	FORD - F450 DUMP TRUCK <i>S</i>	1FDUF4HT4BEA75291	M82288	16,500	\$64,850	M	21499	RC N	DEC 4C	DEC 4C	07/01/2018	
25	DPW	2011	FORD - E150 VAN <i>S</i>	1FTNE1EW7BDB29102	M69359	8,500	\$19,545	L	01499	ACV N	\$1,000	\$1,000	07/01/2018	
26	DPW	<i>L</i> 2012	JOHN DEERE - LOADER <i>-24'</i>	1DW544KHECE647379	M88710	29,009	\$161,520	H	79650	RC Y	DEC 4C	DEC 4C	07/01/2018	
27	DPW <i>T-8</i>	2012	FORD - F350 DUMP TRUCK <i>S - 18'</i>	1FTRF3B61CEC39671	M87297	12,000	\$41,470	M	21499	RC Y	DEC 4C	DEC 4C	07/01/2018	
28	DPW	<i>L</i> 2014	WARREN - SEMI TRAILER	1W9AAXA25EP347125	M90980	80,000	\$59,749	EH	67499	ACV N	DEC 4C	DEC 4C	07/01/2018	

Auto Fleet Schedule
Description of Information
Town of Truro
Territory # 13

#	Department	Year	Manufacturer & Model	Vin #	Plate #	GVW	Cost New	Type	Class	ACV RC	Med Pay	\$ Comp Deduct	\$ Coll Deduct	Effective Date
29	DPW	L 2014	ELGIN - SWEEPER	3ALACXD7EDFK0193	M90805	32,000	\$245,885	H	79650	RC	Y	DEC 4C	DEC 4C	07/01/2018
30	DPW	L 2015	SPECTOR - SEMI TRAILER	1S9ES3829FS188626	M92817	80,000	\$56,811	EH	67499	ACV	N	DEC 4C	DEC 4C	07/01/2018
31	DPW T-4	2016	FORD - F350 S - 18'	1FTRF3B61GEB55503	M95282V	10,400	\$39,312	M	21499	RC	N	DEC 4C	DEC 4C	07/01/2018
32	DPW T-2	2016	FORD - F350 S - 18'	1FTRF3B63GEB55504	M95283V	10,400	\$39,312	M	21499	RC	N	DEC 4C	DEC 4C	07/01/2018
33	DPW T-7	L 2016	INTERNATIONAL - 7400 - 27'	3HAWDSTR7GL450872	M94835	42,000	\$228,756	H	31499	RC	Y	DEC 4C	DEC 4C	07/01/2018
34	DPW	2017	SPECTOR - TRAILER T	1S9ES3827HS188207	M98912	80,000	\$57,000	EH	67499	RC	N	DEC 4C	DEC 4C	07/01/2018
35	DPW	2018	FORD - F-350 S	1FTRF3B64JEB76027	M78863	11,300	\$39,974	M	21499	RC	N	DEC 4C	DEC 4C	07/01/2018
36	DPW T-6	2018	FORD - F-350 S - 18'	1FTRF3B64JEB76028	M72330	11,300	\$39,974	M	21499	RC	N	DEC 4C	DEC 4C	07/01/2018
37	FIRE	1988	GMC - TANK TRUCK	1GDP7D1Y8JV501935	MF6157		\$250,000	H	79090	RC	Y	DEC 4C	DEC 4C	07/01/2018
38	FIRE	1997	FREIGHTLINER - E ONE FIRE TRUCK	1FV6JLCB4VH787862	M7696		\$450,000	H	79090	RC	Y	DEC 4C	DEC 4C	07/01/2018
39	FIRE	1999	CONTINENTAL - BOAT TRAILER	1ZJBE1416XM064841		1,350	\$450	L	69499	ACV	N	\$1,000	\$1,000	07/01/2018
40	FIRE	2001	FORD - F350 PICKUP TRUCK	3FTSF31F11MA68852	MF2757	11,000	\$45,000	M	79090	RC	Y	DEC 4C	DEC 4C	07/01/2018
41	FIRE	2003	FORD - F450 AMBULANCE	1FDXE45F23HA62344	M51735	14,050	\$112,980	M	79130	ACV	Y	\$1,000	\$1,000	07/01/2018
42	FIRE	2006	HME - FIRE TRUCK	44KFT42816WZ20862	MF2758		\$353,338	H	79090	RC	Y	DEC 4C	DEC 4C	07/01/2018
43	FIRE	2009	CHEVROLET - AMBULANCE	1GBE4V1959F402311	MF385A	18,000	\$161,990	M	79130	ACV	Y	\$1,000	\$1,000	07/01/2018
44	FIRE	2013	INTERNATIONAL - FIRE TRUCK	1HTWMAZR2DJ331851	MFB218		\$334,904	H	79090	RC	Y	DEC 4C	DEC 4C	07/01/2018
45	FIRE	2014	FORD - EXPLORER	1FM5K8D86EGA91980	MFA947	6,120	\$41,675	L	79120	ACV	Y	\$1,000	\$1,000	07/01/2018
46	GOLF M-17	2006	FORD - F350 DRWSUP - 18'	1FDWF37Y66EA49202	M74413	11,000	\$35,000	M	21499	RC	Y	DEC 4C	DEC 4C	07/01/2018
47	HIGHWAY T-5	L 2007	INTERNATIONAL - 700 DUMP TRUCK - 24'	1HTWDAAR57J464328	M72788	40,000	\$110,000	H	31499	RC	Y	DEC 4C	DEC 4C	07/01/2018
48	POLICE	2004	FORD - CROWN VICTORIA	2FAFP71W24X186364	25404		\$26,000	L	79110	ACV	Y	\$1,000	\$1,000	07/01/2018
49	POLICE	2009	FORD - CROWN VICTORIA	2FAHP71V29X115804	MP331H		\$27,340	L	79110	RC	Y	\$1,000	\$1,000	07/01/2018
50	POLICE	2014	DODGE - DURANGO	1C4SDJFT6EC443814	MP160H	5,116	\$30,436	L	79120	RC	Y	\$1,000	\$1,000	07/01/2018
51	POLICE	2014	DODGE - DURANGO	1C4SDJFT8EC443815		5,116	\$29,817	L	79120	RC	Y	\$1,000	\$1,000	07/01/2018
52	POLICE	2014	TOYOTA - CAMRY	4T4BF1FK3ER363206			\$24,032	L	79110	RC	Y	\$1,000	\$1,000	07/01/2018
53	POLICE	2015	HARLEY DAVIDSON - MOTORCYCLE	1HD1FMM36FB637100	MMC7066	791	\$15,040	L	79420	ACV	Y	\$1,000	\$1,000	07/01/2018
54	POLICE	2015	DODGE - CHARGER	2C3CDXKT7FH875408	MP738J	4,432	\$25,785	L	79110	RC	Y	\$1,000	\$1,000	07/01/2018
55	POLICE	2015	DODGE - CHARGER	2C3CDXKT9FH875409	MP419J	4,432	\$22,790	L	79110	RC	Y	\$1,000	\$1,000	07/01/2018
56	POLICE	2016	DODGE - CHARGER	2C3DXKT1GH268051			\$25,621	L	79120	RC	Y	\$1,000	\$1,000	07/01/2018

Auto Fleet Schedule
Description of Information
Town of Truro
Territory # 13




#	Department	Year	Manufacturer & Model	Vin #	Plate #	GVW	Cost New	Type	Class	ACV RC	Med Pay	\$ Comp Deduct	\$ Coll Deduct	Effective Date
57	POLICE	2017	DODGE - DURANGO	1C4SDJFT9HC623194			\$39,175	L	79110	RC	Y	\$1,000	\$1,000	07/01/2018
58	RECREATION	2010	FORD - FOCUS	1FAHP3EN3AW112543	M54574		\$13,800	L	73980	ACV	N	\$1,000	\$1,000	07/01/2018
59	TOWN HALL	2010	FORD - FUSION	3FAHP0GA2AR180201	M76100		\$15,900	L	73980	ACV	N	\$1,000	\$1,000	07/01/2018

① 1994 JOHN DEER EXCAVATOR
 2017 JOHN DEER SKIP STEER ② 12L x 6W
 25' LONG TRAILER ③ M72601? 30' LONG w/ JLG LIFT

L : 10
 S : 11
 T : 10
 E : 6

Truro, MA

Vehicle / Equipment Inventory

Type	#	Make & Model	Year	Plate	Department	Length	Width	Comment	Pic
Sm	2	Ford - F150	2016	M97089	Beach	19'	7'		
Sm	3	Ford - Explorer	2009	M65432	Building	19'	7'		
T	6	Clip - Trailer	1972	No Plate	DPW			Gone	
T	7	Utility Trailer	1988	M50028	DPW			Gone	
T	8	New Trailer	1988	M22536	DPW			License plate # seen at transfer station - the Conventional Steel Dump Trailer? Or T #23 'Spector-Trialer'?	
Lg	9	International - Tractor	1988	M74402	DPW				
Lg	10	WHGM ACLACL - Tractor	1988	M44895	DPW				
Lg	11	International - Tractor	1990	M93210	DPW			Lincense Plate # seen on truck T-24 (see pic). Is this the 'International - Tractor'?	
T	12	Bence - Trailer	1997	No Plate	DPW				
Lg	T-7 / 13	Sterling - Dump truck	2000	M57231	DPW	24'	9'	w/ sander & plow	
T	14	Homemade - Utility Trailer	2000	No Plate	DPW				
Lg	15	John Deere - 544H Loader	2001	M66548	DPW			Seen at transfer station?	
Sm Equip	16	Bandit - Woodchipper	2002	M67913	DPW	15'	7'	Towable equipment	
Sm	T-15 / 17	Ford - E250 Van	2006	M64548	DPW	18'	7'		
Lg	18	Peterbilt - Conven Tractor	2006	M72853	DPW				
Sm Equip	19	John Deere - Tractor	2006	M52230	DPW	15'	10'		
T	20	Cam - Utility Trailer	2007	M80220	DPW				
Sm	T-1 / 21	Ford - F250 PickUp	2008	M78863	DPW	18'	7'	Truro's list says 'Gone' - why?	


Lg	T-16 / 22	International - 7400 Truck	2009	M77461	DPW	24'	9'		
T	23	Spector - Trailer	2009	M82786	DPW				
Sm	T-22/24	Ford - F450 Dump Truck	2011	M82288	DPW	18'	7'		
Sm	25	Ford - E150 Van	2011	M69359	DPW	18'	7'		
Lg	26	John Deere - Loader	2012	M88710	DPW	24'	9'		
Sm	T-8 / 27	Ford - F350 Dump Truck	2012	M87297	DPW	18'	7'		
T	28	Warren - Semi Trailer	2014	M90980	DPW				
Lg	29	Elgin - Sweeper	2014	M90805	DPW	24'	9'		
T	30	Spector - Semi Trailer	2015	M92817	DPW			The 'Conventional Steel Dump Trailer?	
Sm V	T-4 / 31	Ford - F350	2016	M95282	DPW	18'	7'		
Sm V	T-2 / 32	Ford - F350	2016	M95283	DPW	18'	7'		
Sm V	T-3	Ford - F450 (new)		M98913		21'	8'		
Lg	T-7 / 33	International - 7400	2016	M94835	DPW	27'			
T	34	Spector - Trailer	2017	M98912	DPW				
Sm	35	Ford - F350	2018	M78863	DPW				
Sm	T-6 / 36	Ford - F350	2018	M72330	DPW	18'	7'		
Sm	M-17 / 46	Ford - F350	2006	M74413	DPW	18'	7'		

Lg	T-5 / 47	International - 700 Dump Truck	2007	M72788	HIGHWAY	24'	9'		
Lg	60	John Deere - Excavator			DPW				
Sm Equip	61	John Deere - Skid Steer			DPW	12'	6'		
T	62	Tag Along Trailer				25'	9'	30' L w/ JLG Lift	

At Transfer Station:

Lg	63	GMC - Brigadier Tractor			DPW			Remains at Transfer Station	
T	64	Closed Top Ejector Trailer			TRANSFER STATIO	38'-6"	8'		
T	65	Closed Top Ejector Trailer			TRANSFER STATIO	38'-6"	8'		
T	66	Closed Top Ejector Trailer			TRANSFER STATIO	38'-6"	8'		
T	67	Closed Top Ejector Trailer			TRANSFER STATIO	38'-6"	8'		
T	68	Conventional Steel Dump Trailer			TRANSFER STATIO	32'	8'-6"		

Miscellaneous

								No official license plate	
--	--	--	--	--	--	--	--	---------------------------	---

Large Vehicles: 12

Small Vehicles: 13

Equipment: 3

Trailers:

Town of Truro
New Public Works Facility
Feasibility Study

Section 3

**Initial Space Needs Matrix, Programming Sketches, and Space
Needs Guidelines**

Town of Truro
 Department of Public Works
Space Needs Summary
 1/12/2019

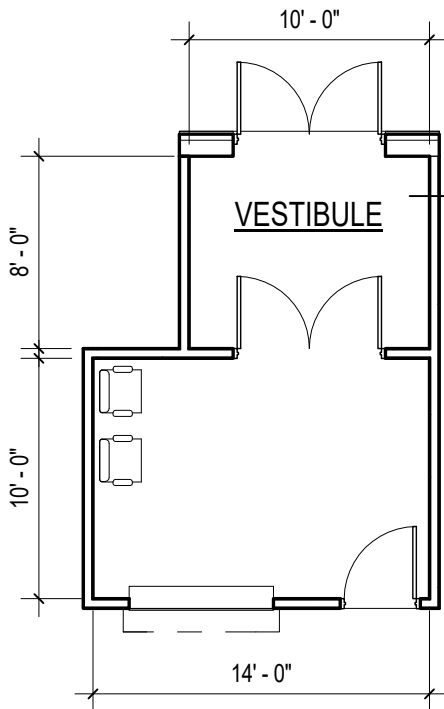
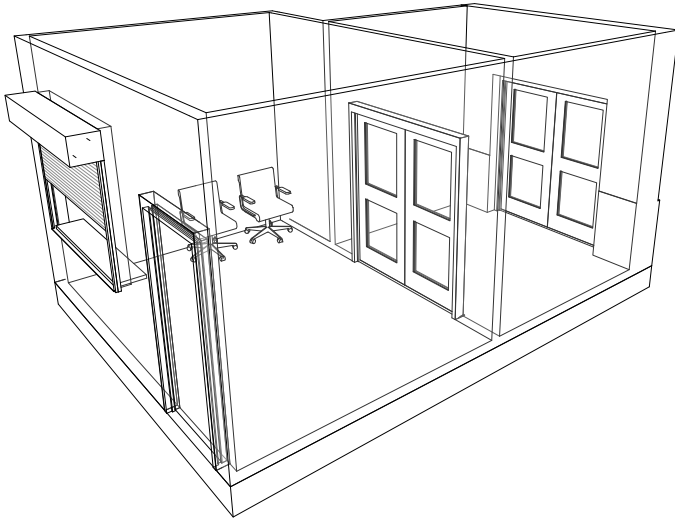
Building Requirements

Area	Description	Size (SF)	Ref #	Room / Area Dimensions		
				length	width	size
Office & Office Support Areas	Vestibule/Waiting/Reception	220	A1	--	--	--
	Admin Open Office (1 Admin Staff)	120	A2	10	12	120
	DPW Director	224	A3	14	16	224
	Copy/File/Mail Area	225	A4	15	15	225
	File Storage	225	A5	15	15	225
	Conference Room	320	A6	16	20	320
	Small Supply Closet	24	A7	4	6	24
	Large Supply Closet	168	A8	12	14	168
	Telephone / Data Room	120	A9	10	12	120
	Janitor Closet	36	A10	6	6	36
	Subtotal:	1,682				
	Area Grossing Factor (10%):	168				
	Circulation (10%):	185				
TOTAL:	2,035					
Employee Facilities	Male Locker/Shower/Toilet	540	B1	20	27	540
	Female Locker/Shower/Toilet	180	B2	10	18	180
	Muster Room	480	B3	20	24	480
	Break/Training/Muster Room Storage Closet	120	B3	10	12	120
	Report Writing Room	120	B3	10	12	120
	Main Electric Room	140	B4	10	14	140
	Plumbing/Fire Protection Room	192	B5	12	16	192
	Subtotal:	1,772				
	Area Grossing Factor (10%):	177				
	Circulation (10%):	195				
TOTAL:	2,144					
Work Shops & Material Storage	Sign Shop	500	C1	20	25	500
	Carpentry Shop	1,400	C2	35	40	1,400
	Shop Support Office	144	C3	12	12	144
	Material / Supply Storage (Custodial)	400	C4	20	20	400
	Material / Supply Storage (Carpentry Maint.)	1,120	C5	28	40	1,120
	Subtotal:	3,564				
	Area Grossing Factor (5%):	178				
	Circulation (5%):	187				
TOTAL:	3,929					

Town of Truro
 Department of Public Works
Space Needs Summary
 1/12/2019

Building Requirements

Area	Description	Size (SF)	Ref #	Room / Area Dimensions		
				length	width	size
Vehicle Maintenance	Welding Area	600	D1	20	30	600
	Maintenance Equipment/Material Storage	500	D1	20	25	500
	Maintenance Bay	1,100	D1	20	55	1,100
	Maintenance Bay	1,100	D1	20	55	1,100
	Maintenance Bay	1,600	D1	20	80	1,600
	Fluid Storage Room	256	D2	16	16	256
	Maintenance Office / Reference Room	120	D3	10	12	120
	Maintenance Workshop	180	D4	10	18	180
	Maintenance Tire Storage & Shop	396	D5	18	22	396
	Parts Storage Room	750	D6	25	30	750
		Subtotal:	6,602			
		Area Grossing Factor (5%):	330			
		Circulation (5%):	347			
		TOTAL:	7,279			
Wash Area	Wash Bay	1,650	E1	30	55	1,650
	Wash Equipment Room	100	E1	10	10	100
		Subtotal:	1,750			
		Circulation:	n/a			
		TOTAL:	1,750			
Vehicle and Equipment Storage	Vehicle / Equipment Storage	18,620	F1	95	196	18,620
		Subtotal:	18,620			
		Area Grossing Factor (5%):	931			
		Circulation:	n/a			
		TOTAL:	19,551			
	TOTAL:		36,689			



① Vestibule/Waiting 220sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: CERAMIC

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

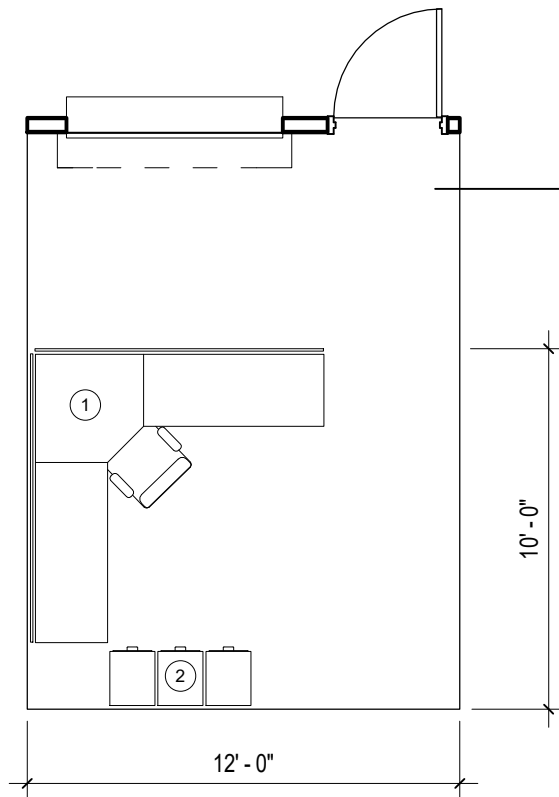
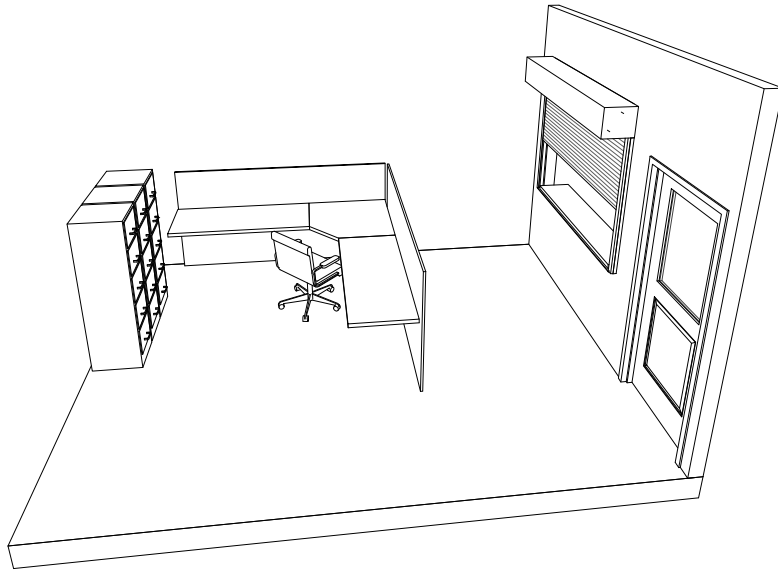
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

1. (2) WAITING CHAIRS
2. ROLL-UP SECURITY GRILL

DRAFT



① Admin Open Office 120sf
3/16" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

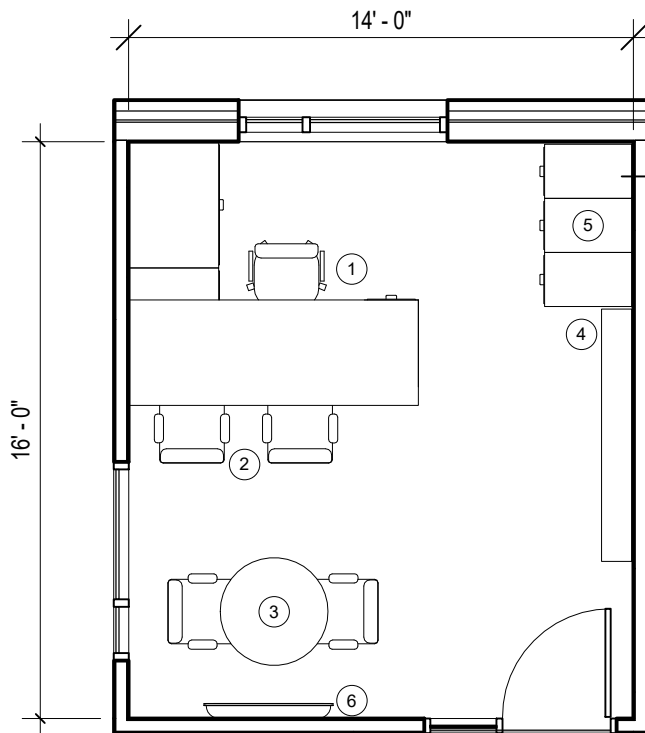
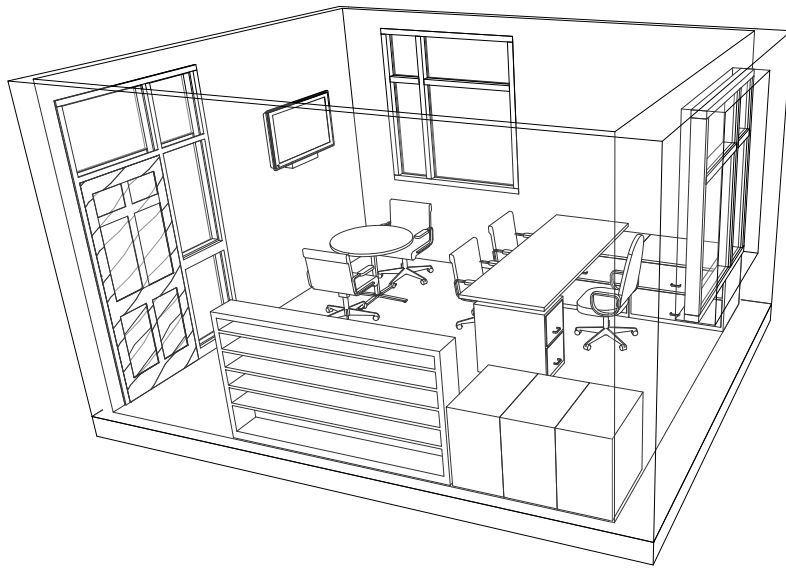
COOLING

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

- 1. CHAIR & DESK
- 2. FILE CABINETS

DRAFT



① DPW Director Office - 224sf
 $3/16" = 1'-0"$

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

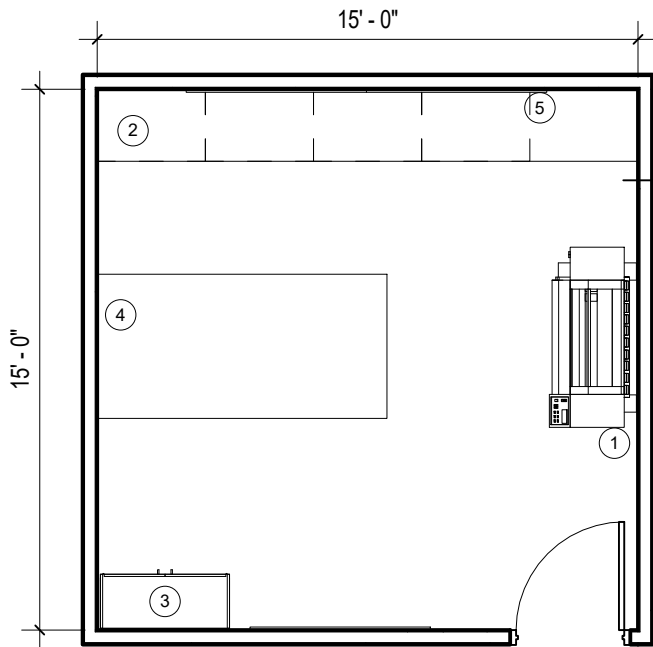
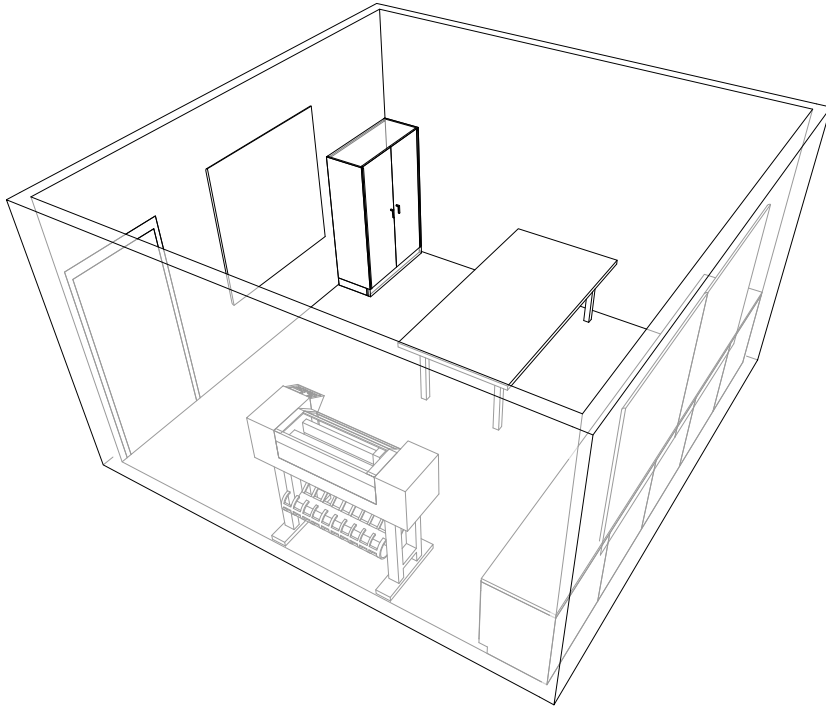
DATA OUTLET JACKS

COAX/HDMI CABLING

COMPONENTS:

- 1. EXECUTIVE CHAIR & DESK
- 2. GUEST CHAIRS
- 3. CONFERENCE TABLE & CHAIRS
- 4. BOOKCASE
- 5. FILE CABINETS
- 6. FLAT SCREEN TV

DRAFT



① Copy/File Room - 225sf
3/16" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

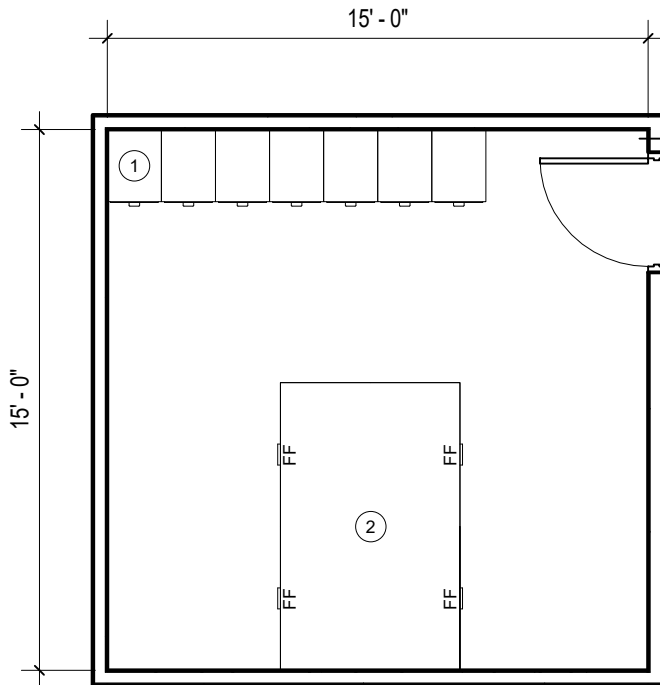
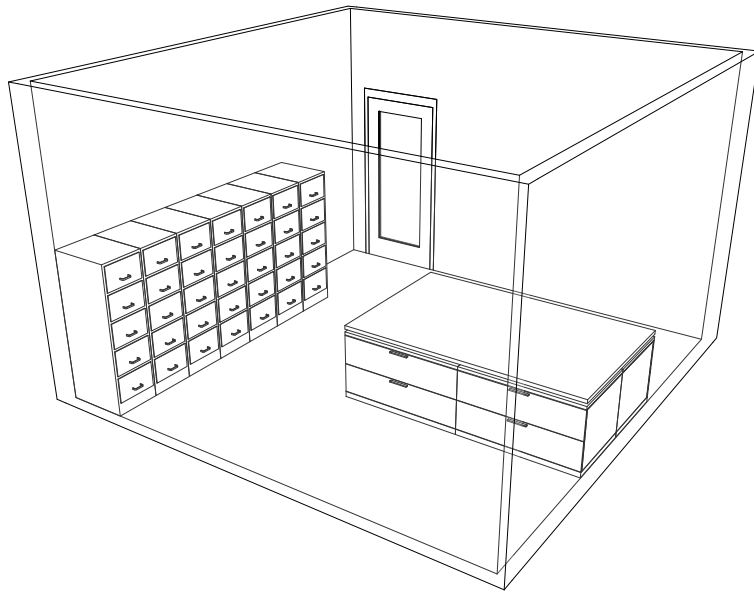
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

- 1. PLOTTER
- 2. WORK COUNTER & BASE CABINETS (BELOW)
- 3. SUPPLY CABINET
- 4. LAYOUT TABLE
- 4. BULLETIN BOARD

DRAFT



① File Storage Area 225sf
 $3/16" = 1'-0"$

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: ACT TILES

MEP/DATA REQUIREMENTS

HEATING

COOLING

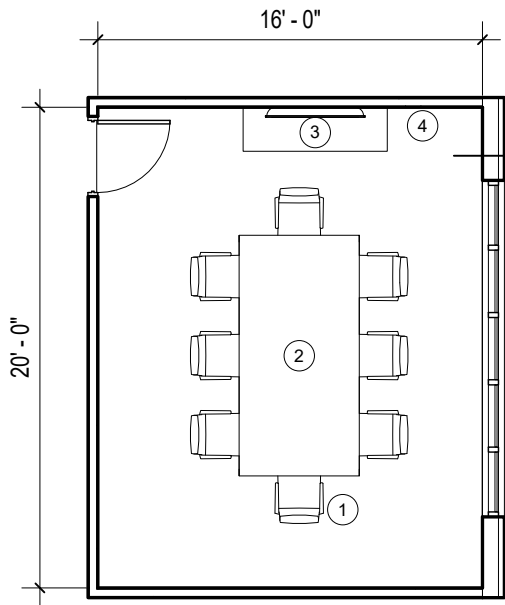
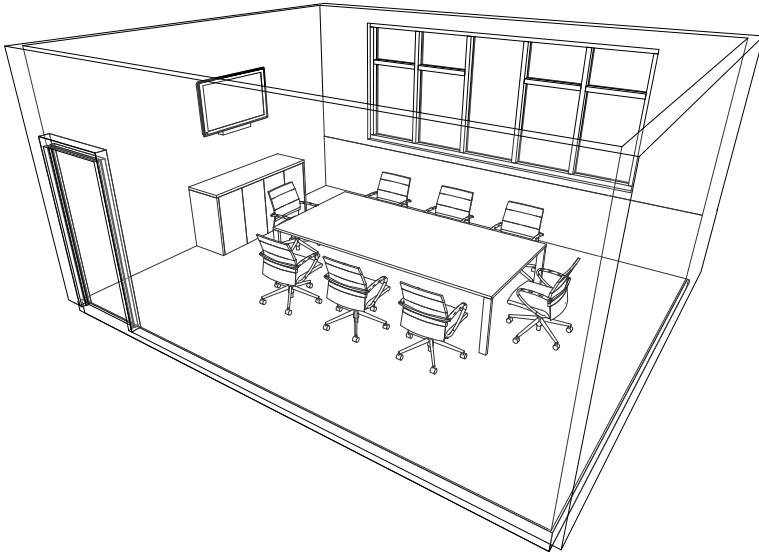
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

1. FILE CABINETS
2. (4) FLAT FILES (BELOW)
WITH TABLE TOP (ABOVE)

DRAFT



1 Conference Room - 320sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' x 2' AC T Tiles

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

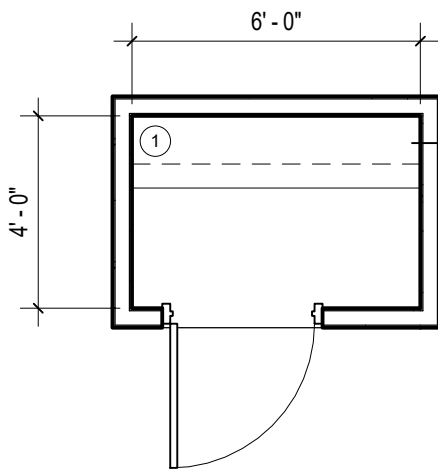
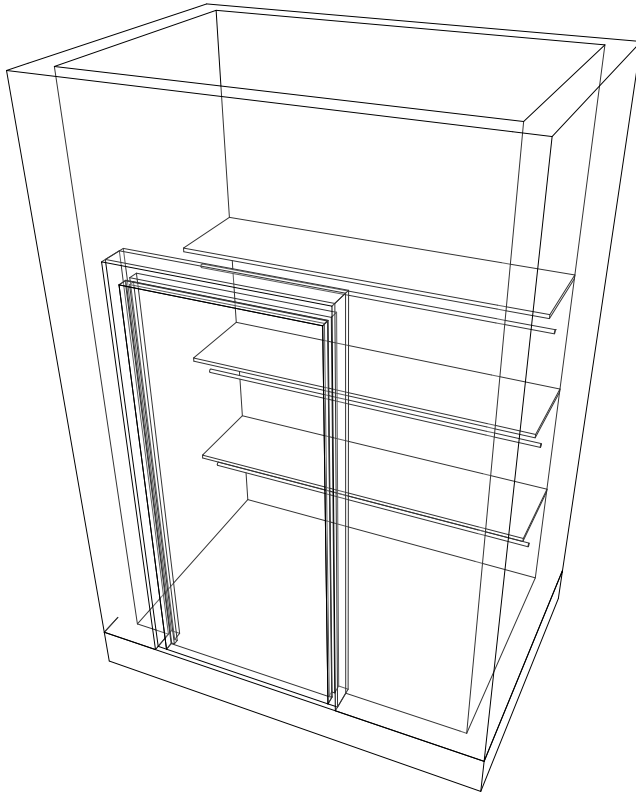
DATA OUTLET JACKS

COAX/HDMI CABLING

COMPONENTS:

1. (8) EXECUTIVE CHAIR
2. 5' x 10' CONFERENCE TABLE
3. (1) CREDENZA
4. FLAT SCREEN TV

DRAFT



① Small Supply Closet - 24sf
 1/4" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

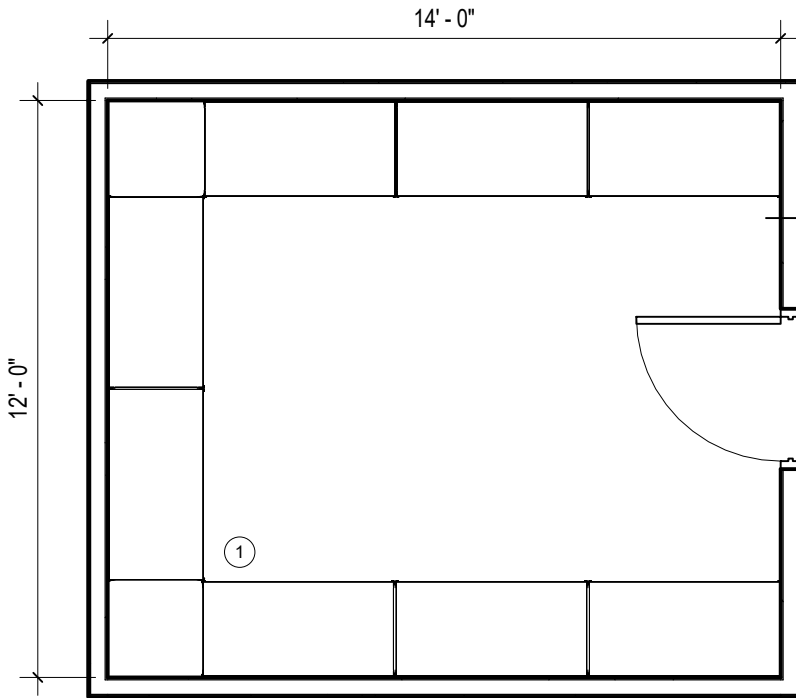
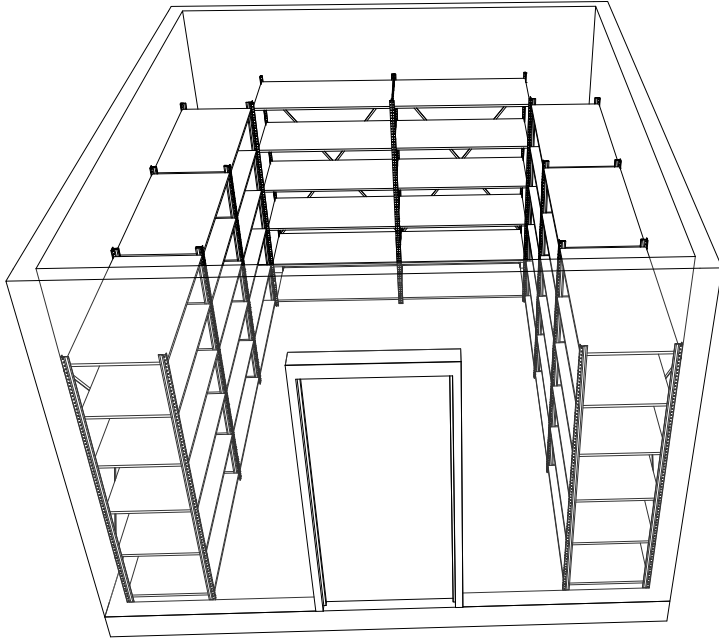
COOLING

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

1. WALL MOUNTED SHELVING

DRAFT



① Large Supply Closet 168sf
1/4" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

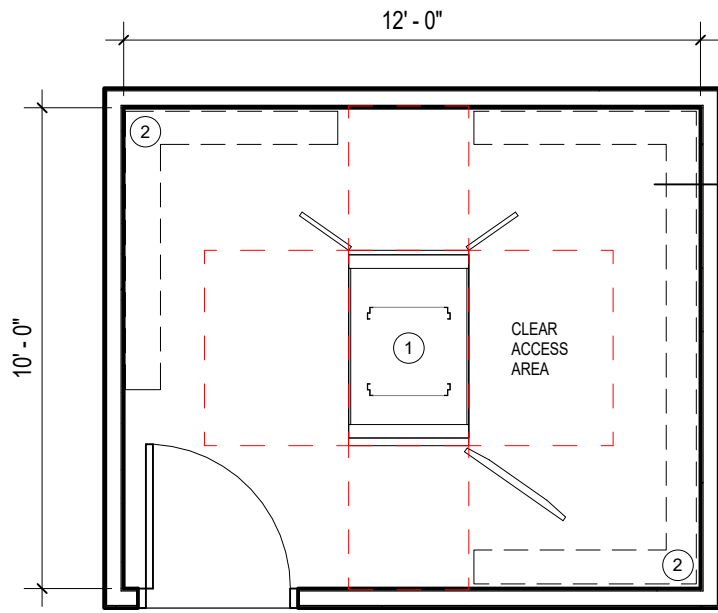
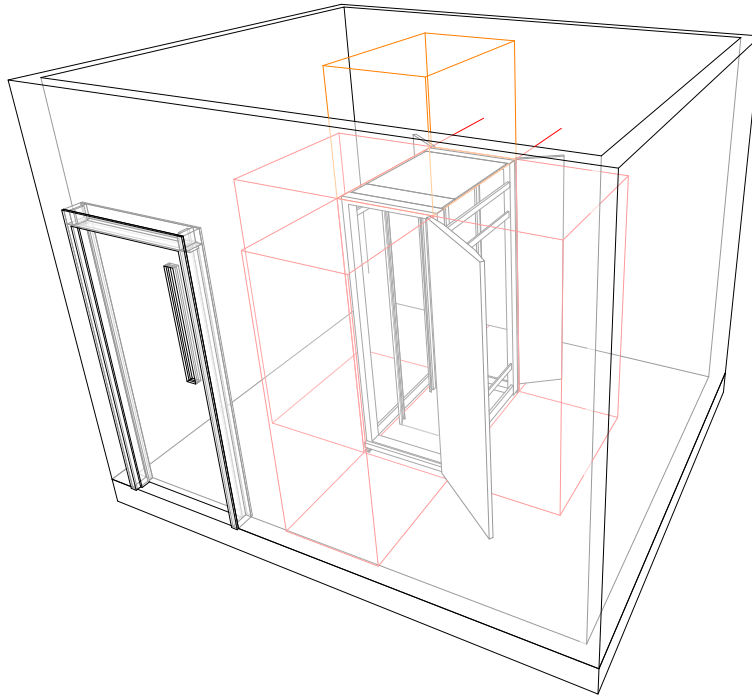
DATA OUTLET JACKS

COMPONENTS:

- 1. UTILITY SHELVING

NOTE:
SIZED TO BE CONVERTED INTO
A FUTURE OFFICE IF NEEDED

DRAFT



① Telephone/Data Room - 120 sf
 1/4" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: OPEN TO ABOVE

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

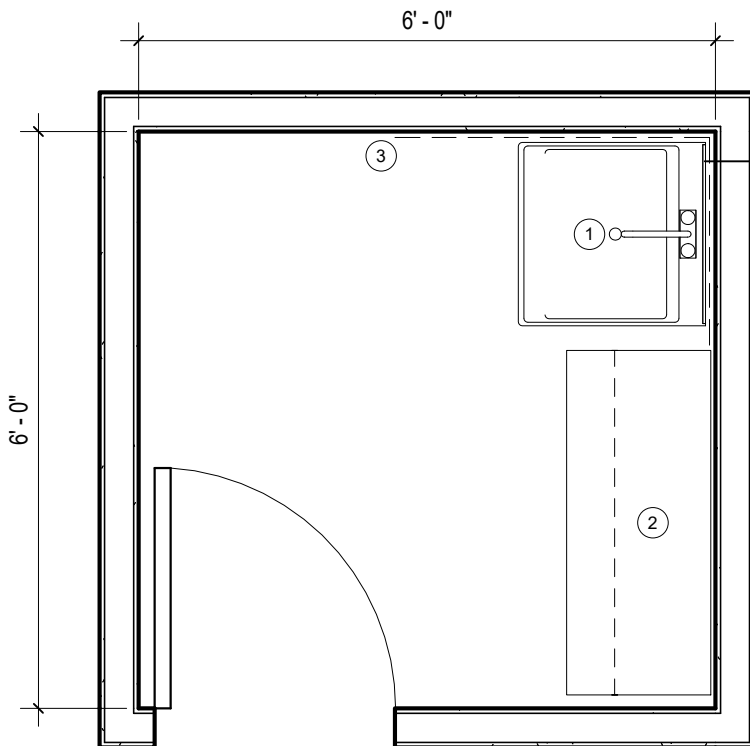
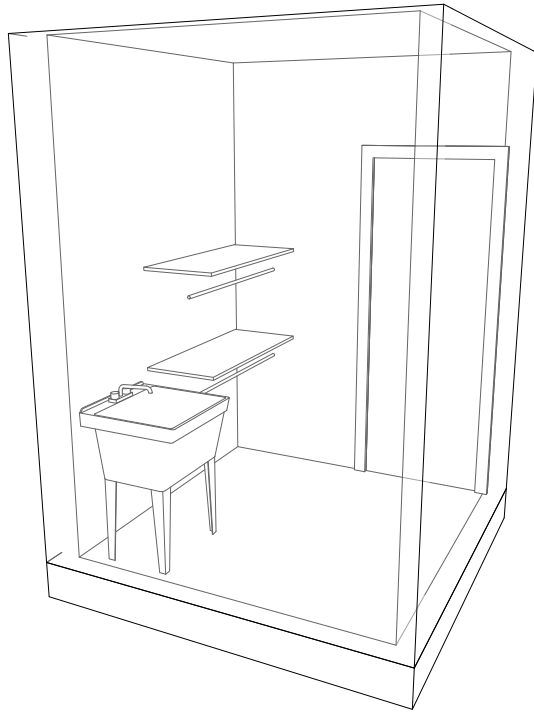
DATA OUTLET JACKS

RACKMOUNTED POWER

COMPONENTS:

1. DATA RACK
2. PLYWOOD BACKER BOARD FOR BUILDING SYSTEM COMPONENTS (SECURITY, CABLE, ETC.)

DRAFT



1 Janitor Closet - 36sf
 1/2" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

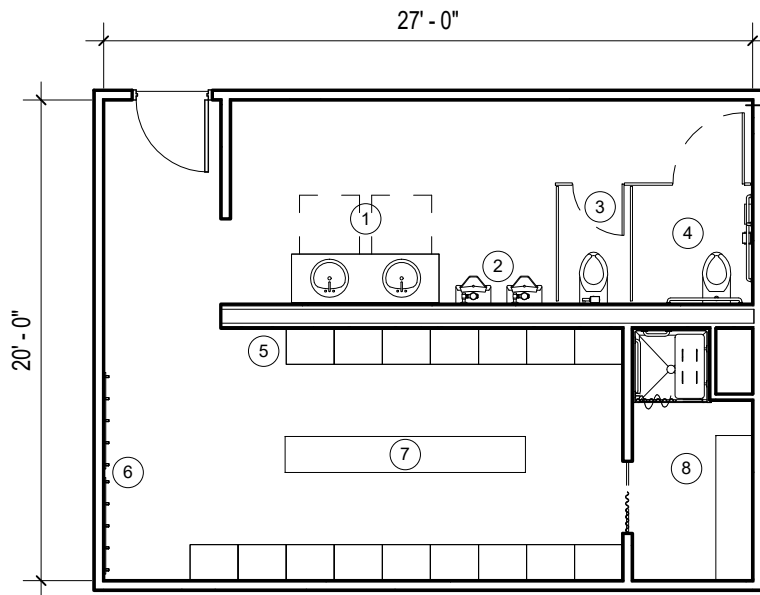
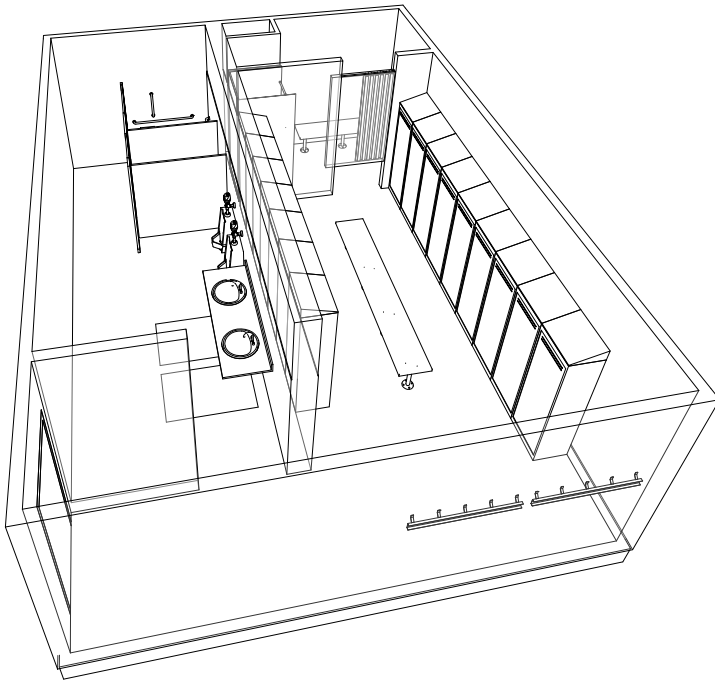
MEP/DATA REQUIREMENTS

GFI DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

- 1. UTILITY SINK
- 2. SHELF WITH POLE
- 3. FRP PANELING AT SINK

DRAFT



① Male Locker/Shower/Toilet 540sf
 1/8" = 1'-0"

ROOM FINISHES

FLOORS: RESINOUS FLOORING

WALLS: CERAMIC TILE /
 GWB PAINTED

CEILING: ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

SEPARATE TOILET ROOM EXHAUST

GFI DUPLEX ELECTRICAL OUTLETS

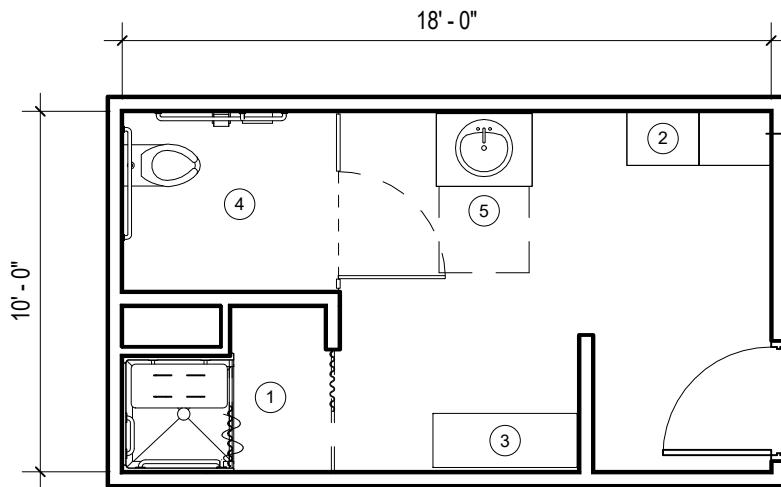
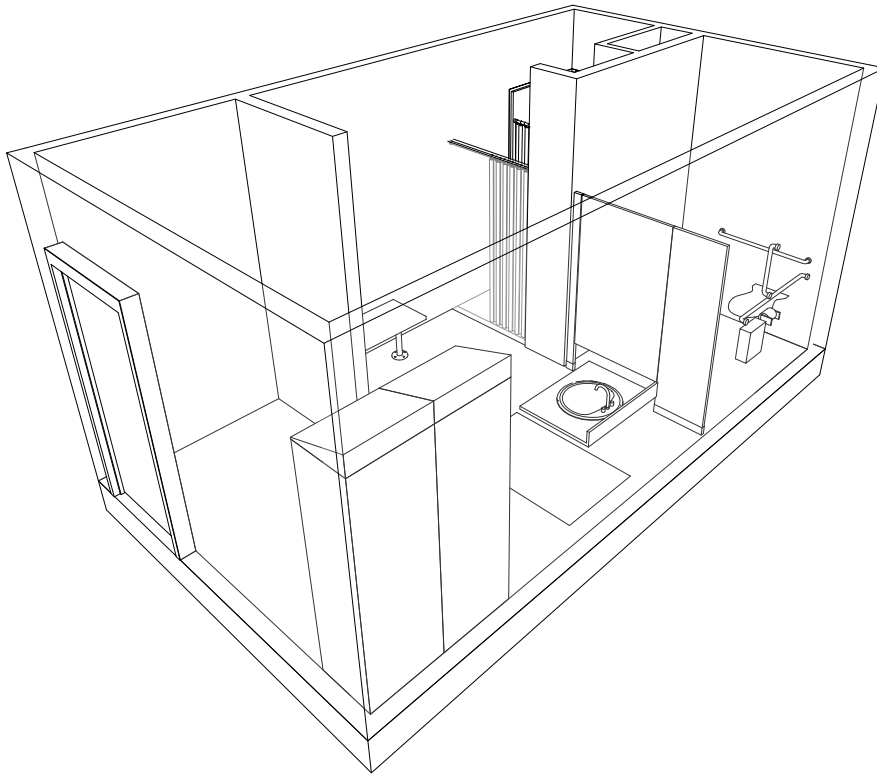
TRAP PRIMERS

FLOOR DRAINS

COMPONENTS:

1. COUNTER & SINKS
2. URINAL (2)
3. STANDARD TOILET
4. ADA TOILET
5. (16) 18" X 24" LOCKERS
6. WET GEAR AREA
7. BENCH
8. ADA SHOWER

DRAFT



① Female Locker/Shower/Toilet 180sf
 $3/16" = 1'-0"$

ROOM FINISHES

FLOORS: RESINOUS EPOXY FLOOR

WALLS: CERAMIC TILES & GWB PAINTED

CEILING: MOISTURE RESISTANT ACT TILES

MEP/DATA REQUIREMENTS

HEATING

COOLING

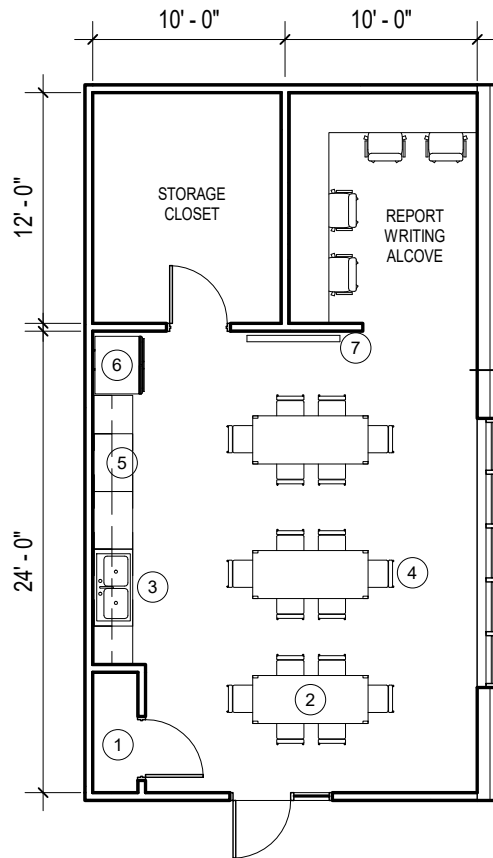
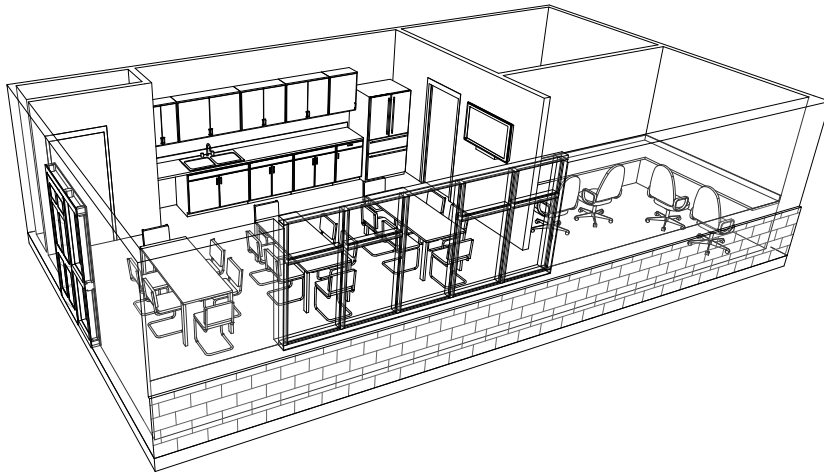
SEPARATE TOILET ROOM EXHAUST

GFI ELECTRICAL OUTLETS

COMPONENTS:

1. ADA SHOWER STALL
2. (2) 18" X 24" LOCKERS
3. BENCH
4. ADA TOILET
5. COUNTER & SINK

DRAFT



1 Muster Room/Storage/Report Writing - 720sf
1" = 10'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

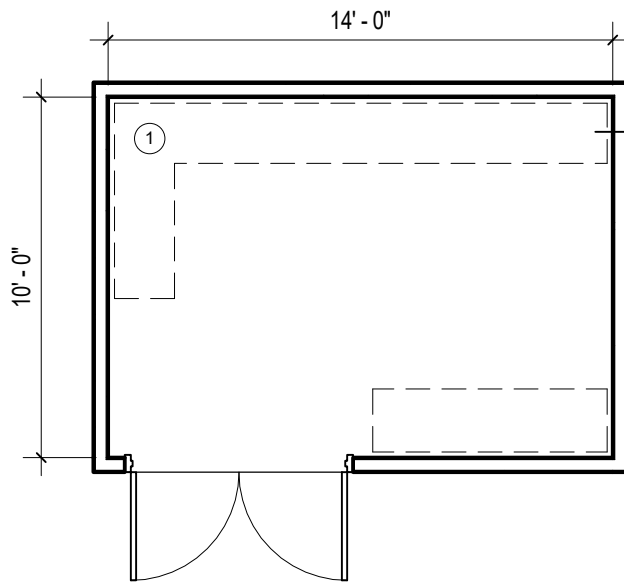
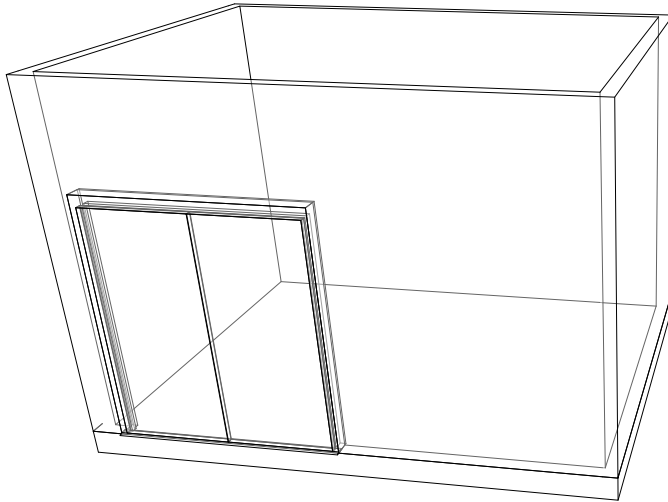
DATA OUTLET JACKS

COAX/HDMI CABLING

COMPONENTS:

1. PANTRY
2. (3) 6' LONG TABLES
3. DOUBLE SINK
4. (18) CHAIRS
5. COUNTER & CABINETS
6. REFRIGERATOR
7. FLAT SCREEN TV

DRAFT



① Main Electric Room - 140sf
 3/16" = 1'-0"

ROOM FINISHES

FLOORS: CONCRETE

WALLS: GWB PAINTED

CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

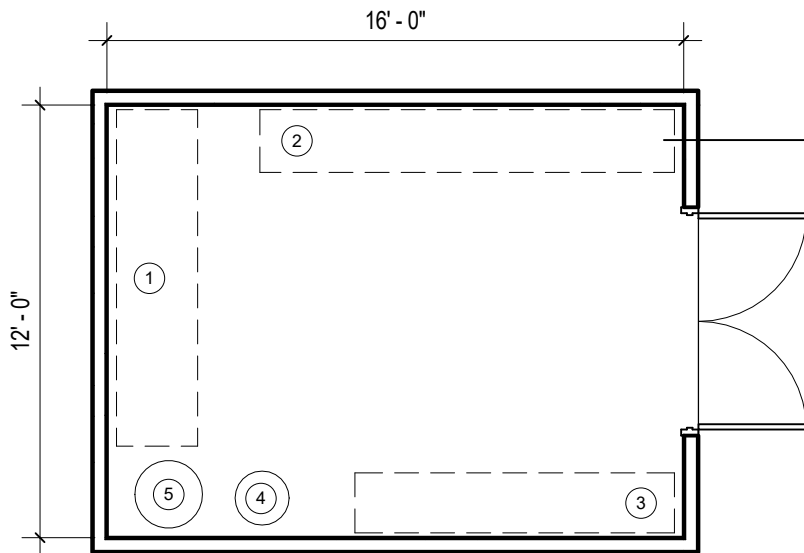
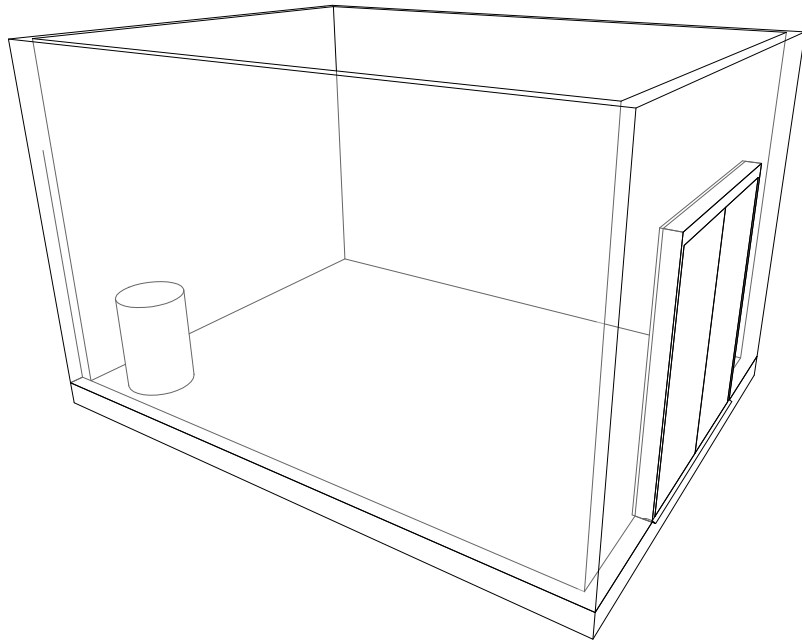
DATA OUTLET JACKS

SEPARATE EXHAUST

COMPONENTS:

1. WALL MOUNTED PANELS

DRAFT



① Plumbing/Fire Protection Room - 192sf
 $3/16" = 1'-0"$

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OVEN TO STRUCTURE

MEP/DATA REQUIREMENTS

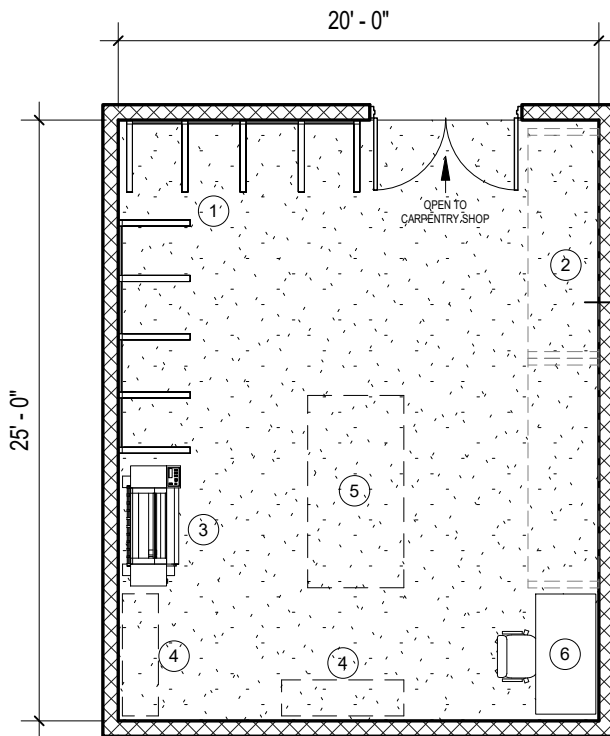
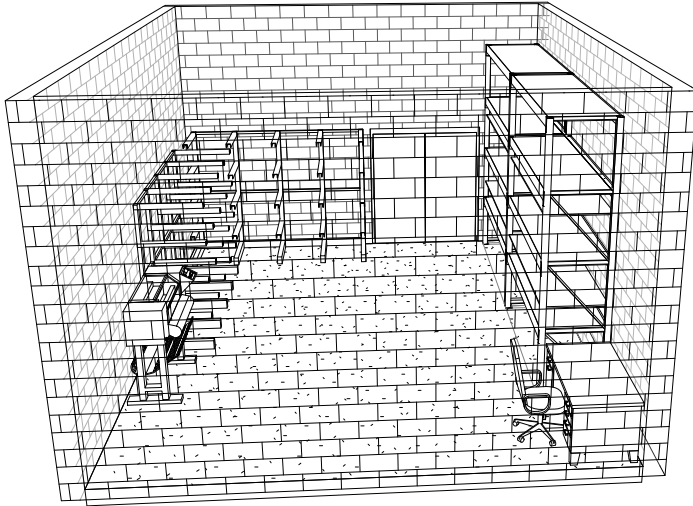
DUPLEX ELECTRICAL OUTLETS

FLOOR DRAIN

COMPONENTS:

1. FIRE PROTECTION SERVICE (DRY & WET) CHECK VALVE ASSEMBLY
2. DOMESTIC SERVICE METER & REDUCED PRESSURE BACKFLOW PREVENTER
3. TEMPERED WATER CONTROL PANEL & MIXING VALVES
4. EXPANSION TANK
5. WATER HEATER

DRAFT



① Sign Shop - 500sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: CMU PAINTED

CEILING: OPEN

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

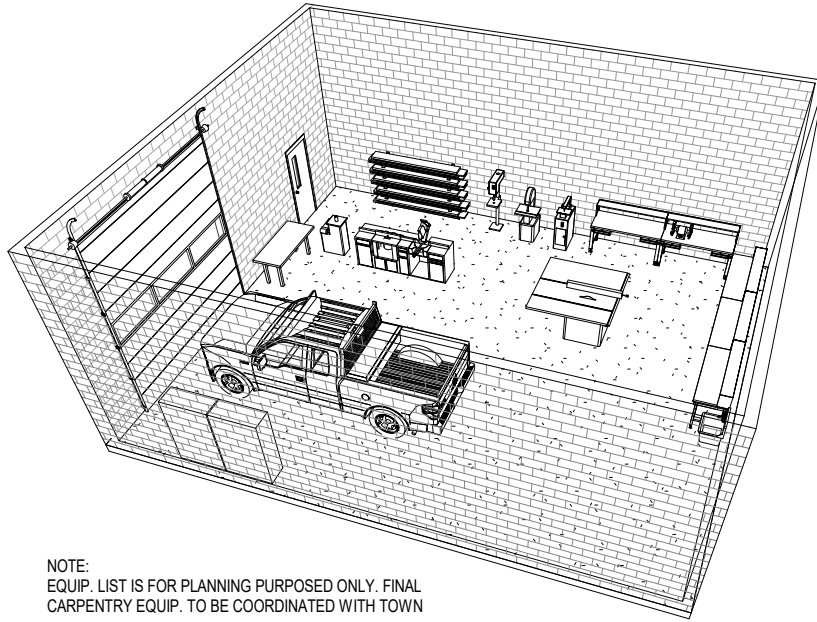
DATA OUTLET JACKS

COMPRESSED AIR PROVISIONS

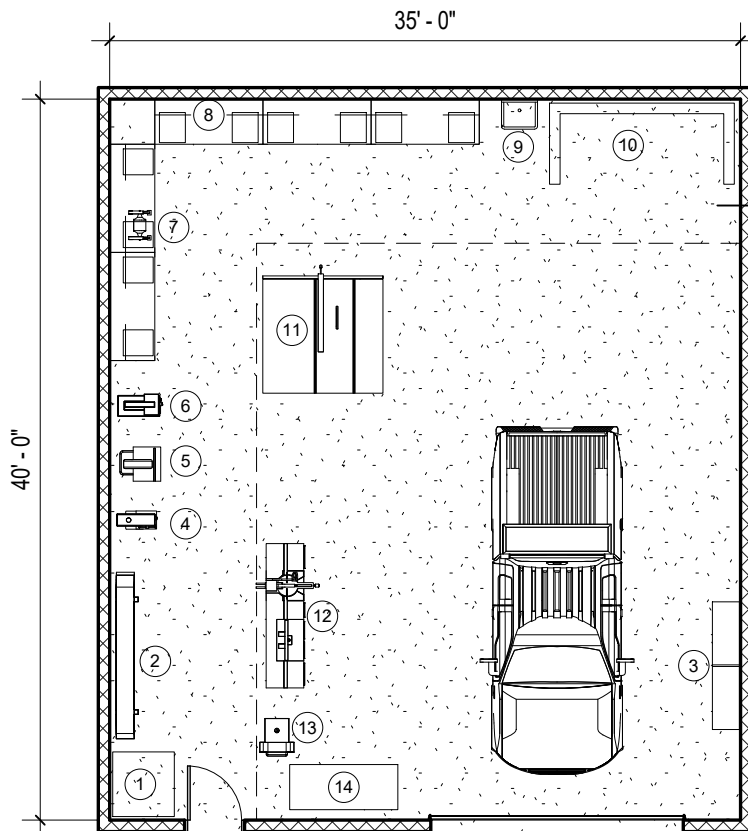
COMPONENTS:

1. 42" DEEP STORAGE RACK FOR BLANKS, SHEET VINYL & ROLL VINYL
2. HEAVY DUTY SHELVING
3. PLOTTER
4. HANGING VINYL ROLLS
5. 4' X 8' ROLL PRESS
6. DESK & CHAIR

DRAFT



NOTE:
EQUIP. LIST IS FOR PLANNING PURPOSES ONLY. FINAL
CARPENTRY EQUIP. TO BE COORDINATED WITH TOWN



1 Carpentry Shop - 1400sf
3/32" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN

MEP/DATA REQUIREMENTS

HEATING

VENTILATION

DUPLEX ELECTRICAL OUTLETS

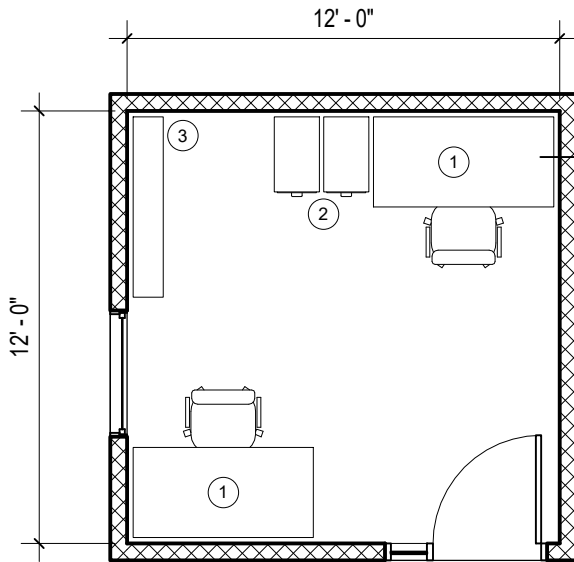
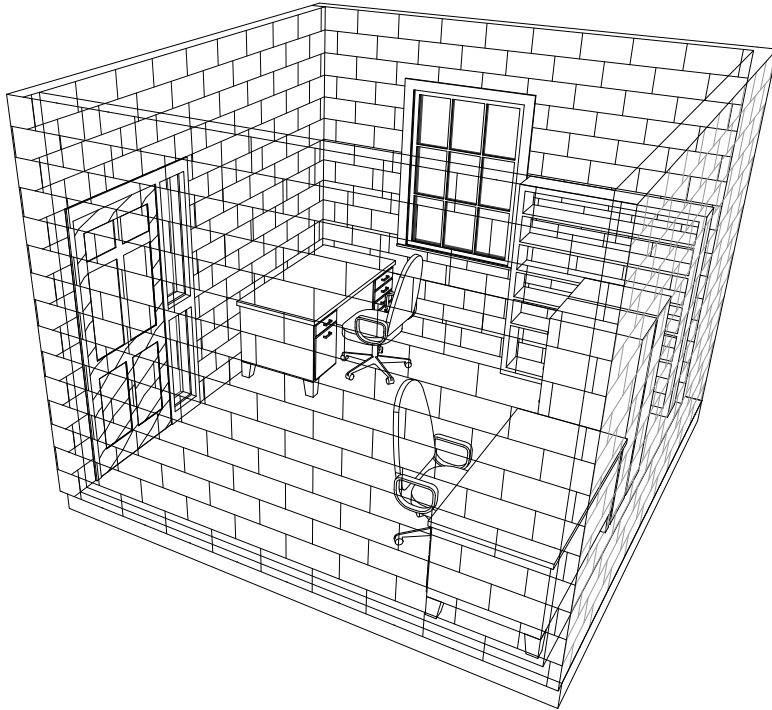
DATA OUTLET JACKS

DUST COLLECTION SYSTEM

COMPONENTS:

1. DUST COLLECTION SYSTEM
2. LUMBER STORAGE
3. FLAMMABLE CABINETS
4. DRILL PRESS
5. BAND SAW
6. JIG SAW
7. BENCH MOUNTED GRINDER
8. WORK BENCH
9. SHOP SINK
10. SMALL PARTS PAINT BOOTH
11. TABLE SAW
12. MITER SAW
13. DRUM SANDER
14. ASSEMBLY TABLE

DRAFT



① Shop Support Office - 144sf
 $3/16'' = 1'-0''$

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: CMU PAINTED

CEILING: 2' x 2' ACT TILES

MEP/DATA REQUIREMENTS

HEATING

COOLING (MINI-SPLIT)

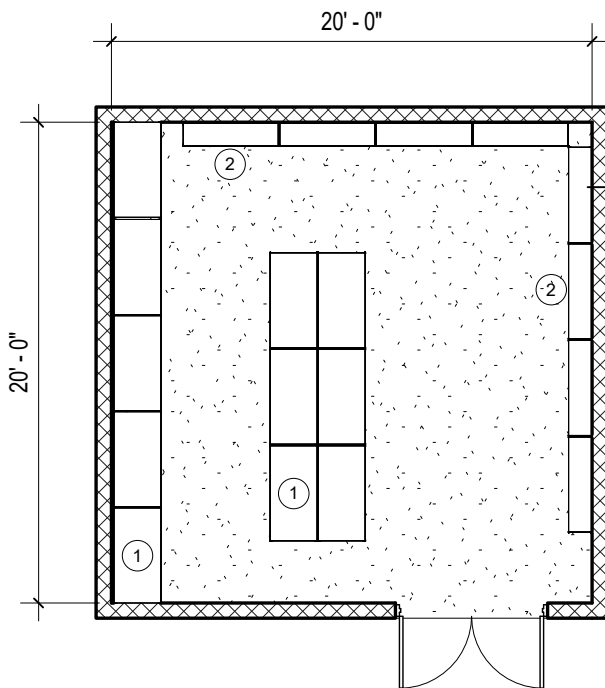
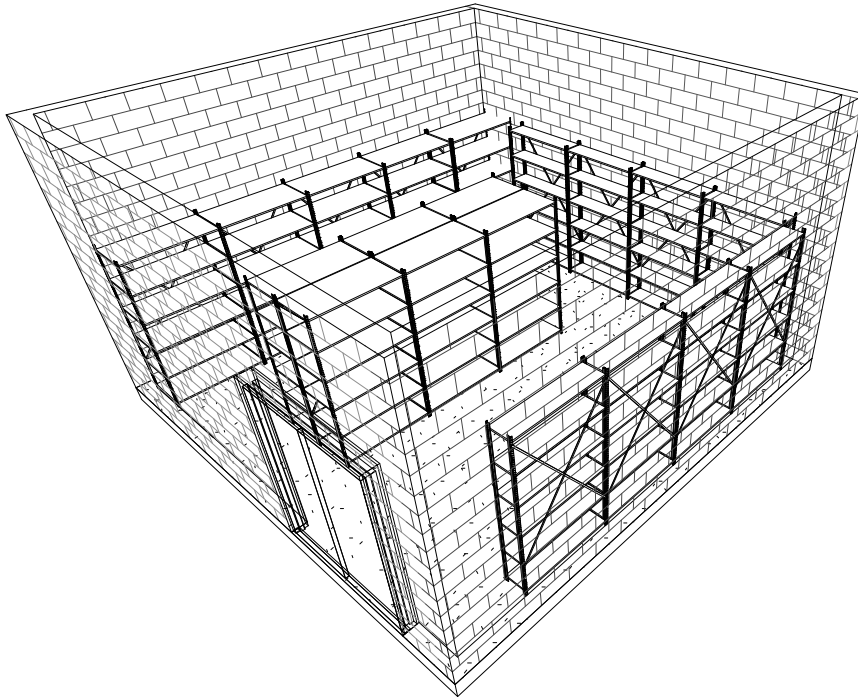
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

- 1. DESK & CHAIR
- 2. FILE CABINETS
- 3. BOOKCASE

DRAFT



① Material/Supply Storage (Custodial) - 400sf
 1/8" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

HEATING

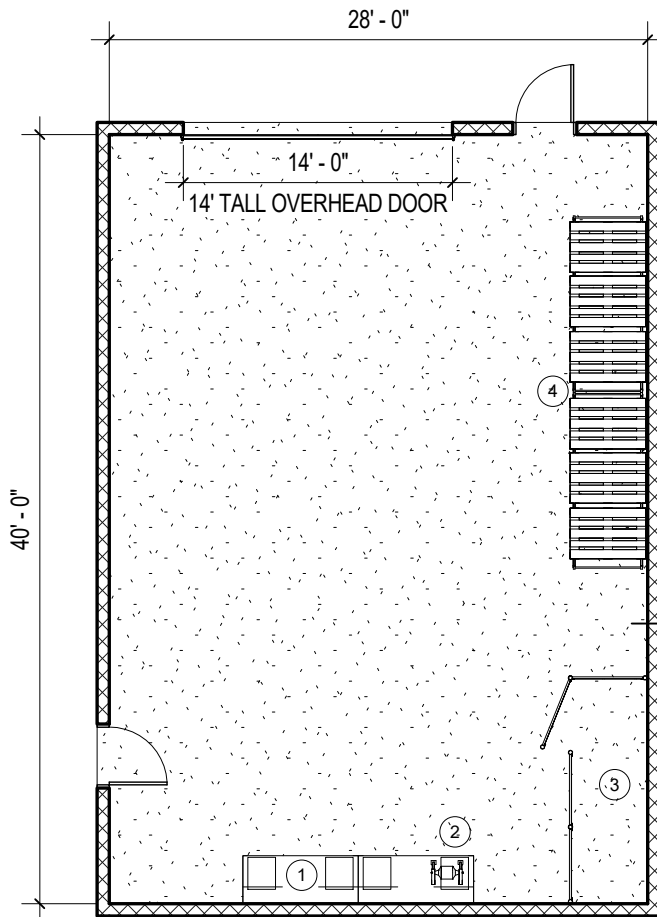
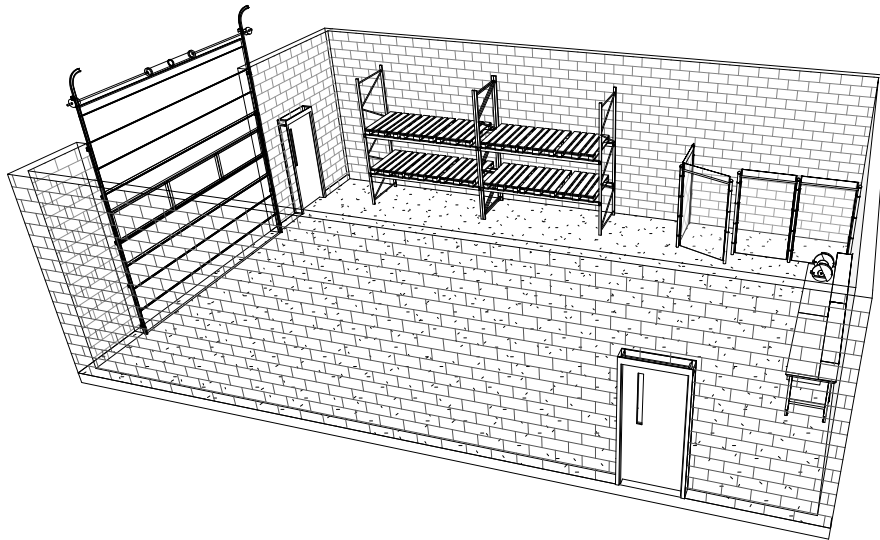
VENTILATION

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

- 1. 24" DEEP UTILITY SHELVING
- 2. 12" DEEP UTILITY SHELVING

DRAFT



1 Material/Supply Storage (Carpentry Maint.) - 1120sf
1" = 10'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO STRUCTURE

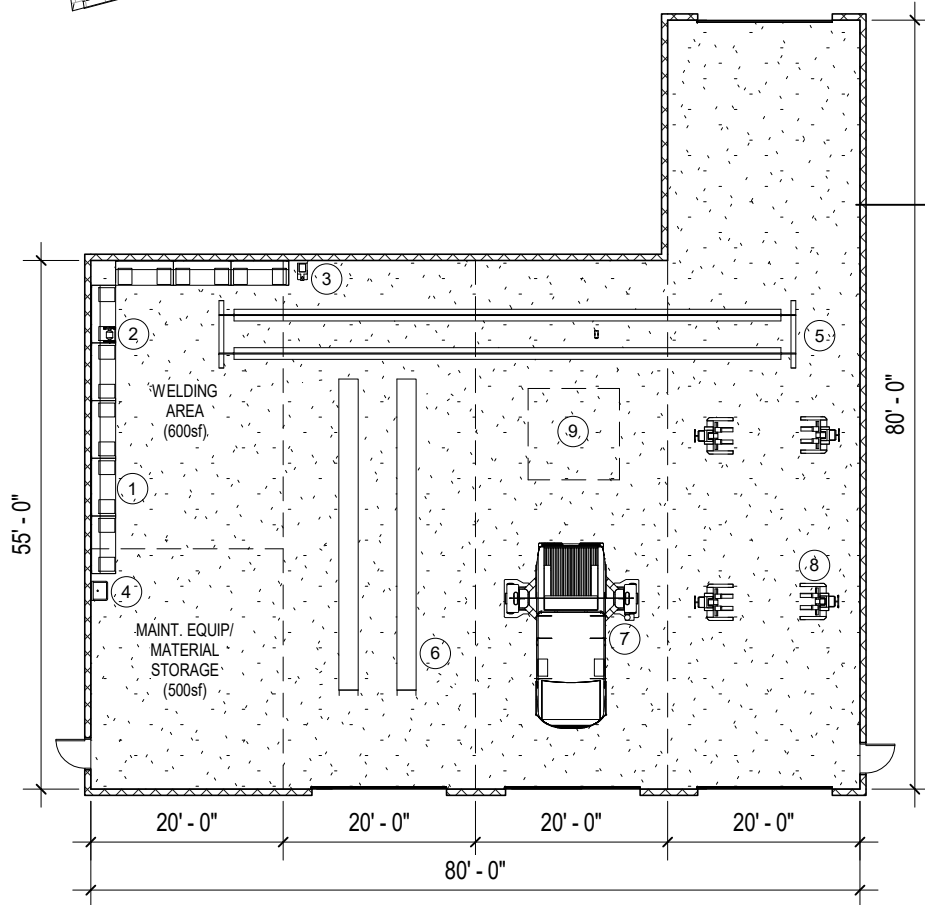
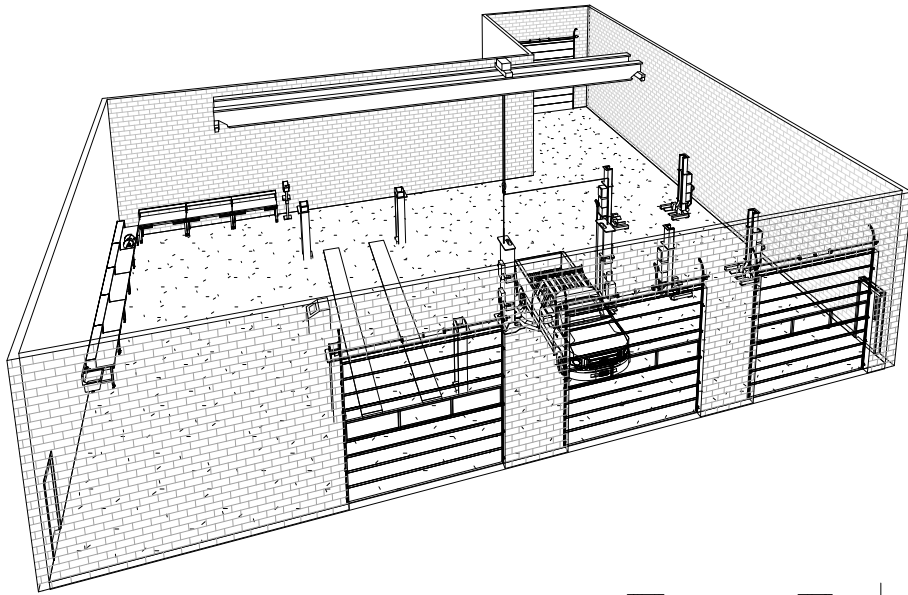
MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

1. WORK BENCH
2. TABLE GRINDER
3. SECURED STORAGE CAGE
4. PALLET RACKS (2)

DRAFT



Vehicle/Equipment Maintenance Bays -

4900sf

1" = 20'-0"

①

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CONCRETE BLOCK (PAINTED)

CEILING: OPEN

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

SPECIALTY EQUIP ELEC. OUTLETS

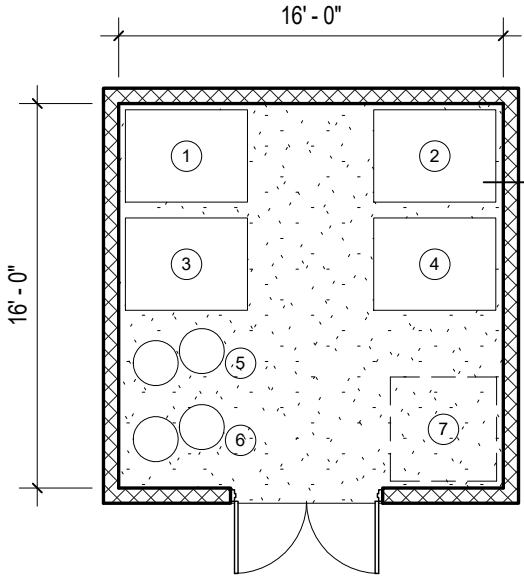
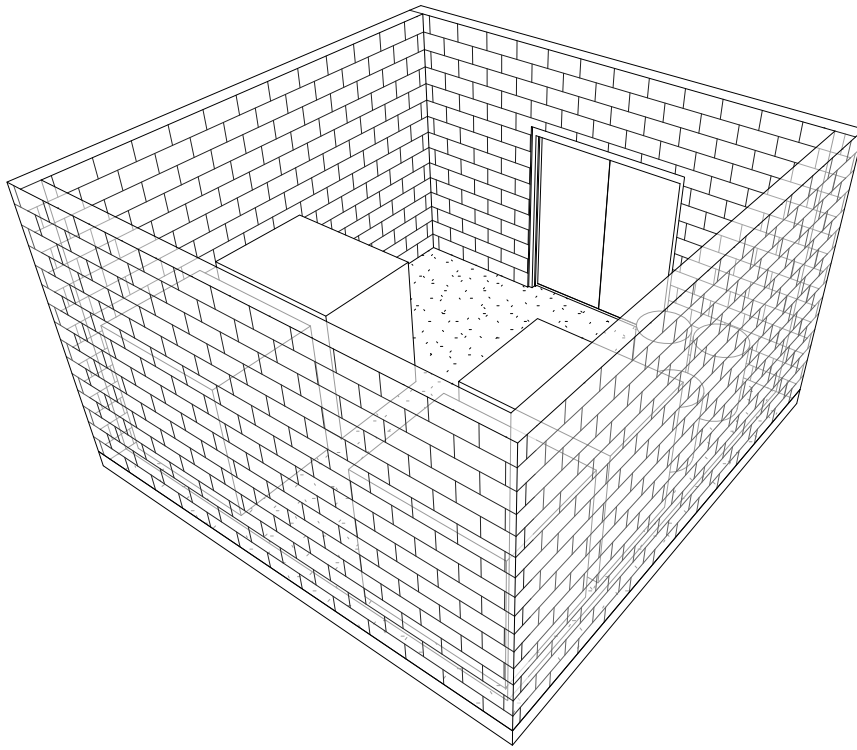
HEATING (RADIANT FLOOR HEATING)

VENTILATION

COMPONENTS:

1. WORK BENCH
2. GRINDER
3. DRILL PRESS
4. SERVICE SINK
5. INDUSTRIAL BRIDGE CRANE
6. RECESSED PLATFORM LIFT
7. 2-POST LIGHT DUTY LIFT
8. PORTABLE POST LIFT
9. SMALL EQUIPMENT PLATFORM LIFT

DRAFT



① Fluids Room - 256sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: GWB PAINTED

MEP/DATA REQUIREMENTS

HEATING

DEDICATED EXHAUST SYSTEM

GFI ELECTRICAL OUTLETS

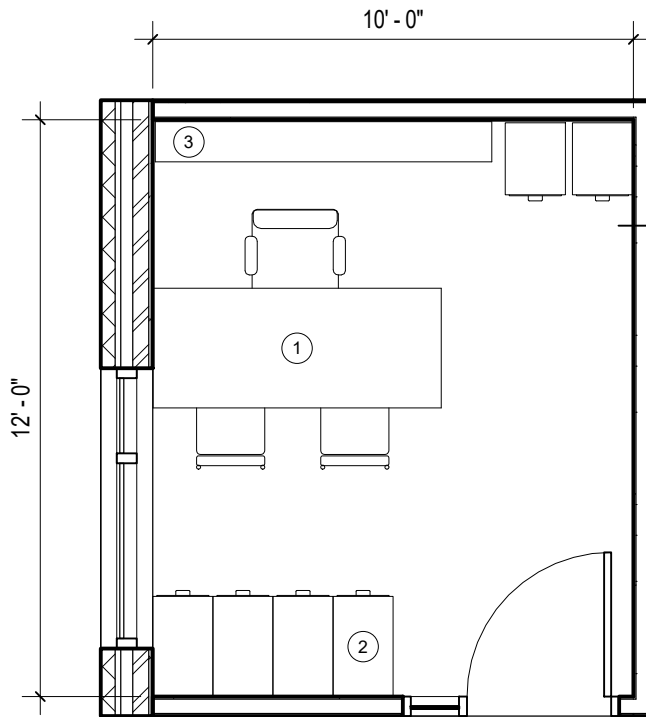
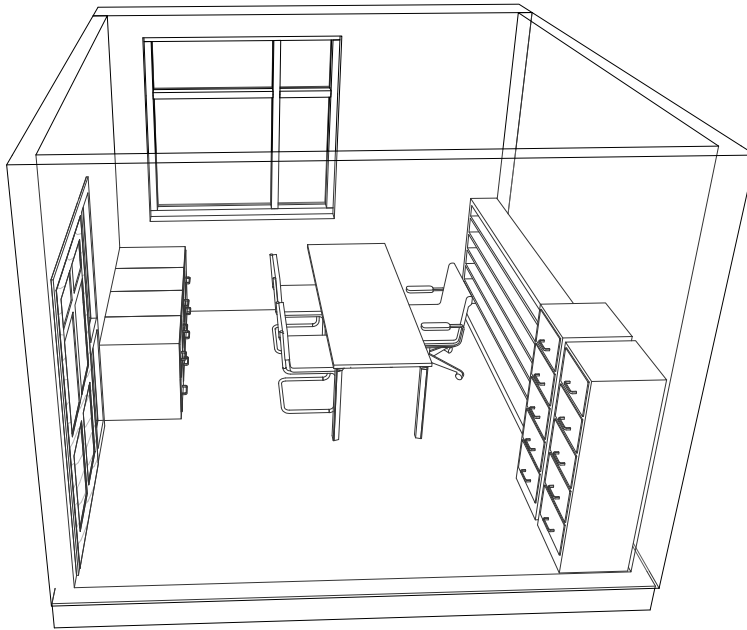
COMPRESSED AIR FOR PNEUMATIC PUMPS

CONTAINMENT SUMP

COMPONENTS:

1. WASTE OIL (BULK)
2. WASTE ANFR (BULK)
3. MOTOR OIL (BULK)
4. MOTOR OIL (BULK)
5. HYDRAULIC OIL (55 GAL)
6. ANFR (55 GAL)
7. SPARE STORAGE

DRAFT



Maintenance Office/Reference Room -

120sf

① 1/4" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: 2x2 act tile

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

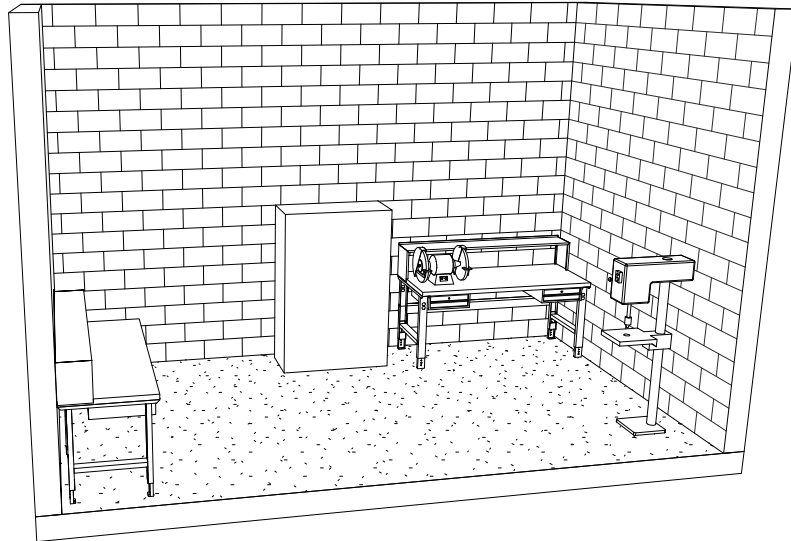
HEATING

COOLING (MINI-SPLIT)

COMPONENTS:

- 1. DESK & TASK CHAIRS
- 2. FILE CABINETS
- 3. BOOKCASE

DRAFT



ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO ABOVE

MEP/DATA REQUIREMENTS

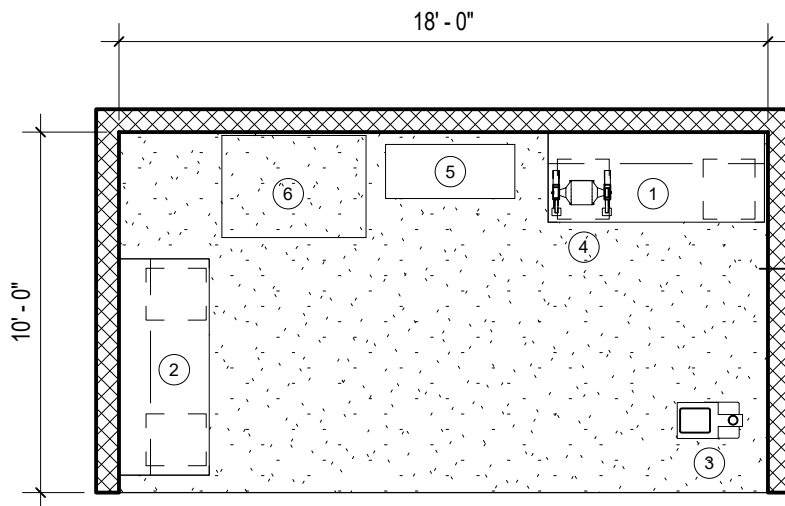
HEATING

VENTILATION

SPECIALTY EQUIP. ELEC. OUTLETS

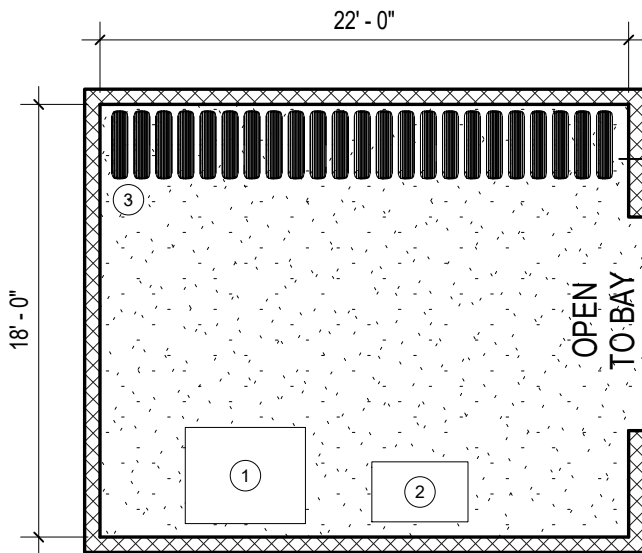
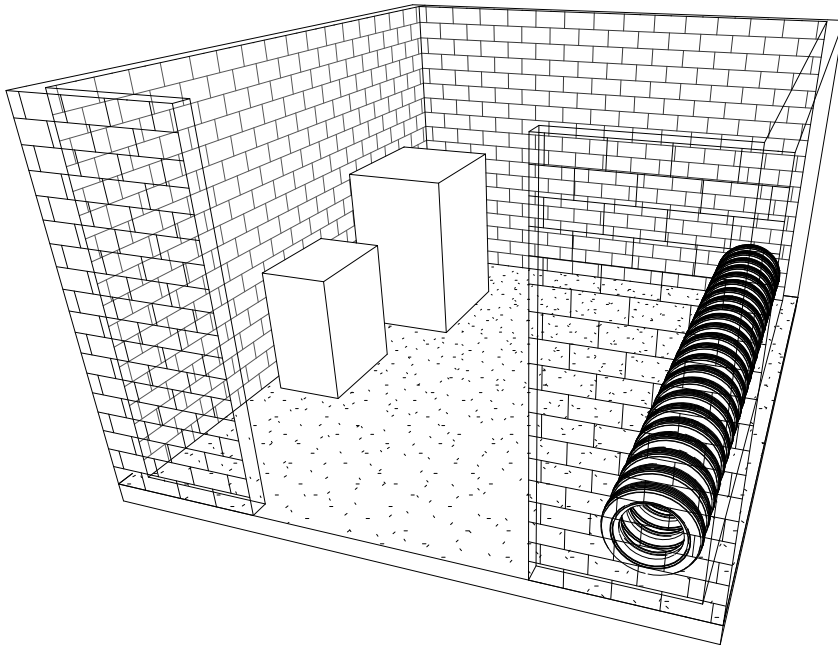
COMPONENTS:

1. WORK BENCH
2. CHOP SAW WORK BENCH
3. DRILL PRESS
4. TABLE GRINDER
5. PARTS CLEANER
6. HYDRAULIC PRESS



① Maintenance Workshop - 180sf
3/16" = 1'-0"

DRAFT



① Maintenance Tire Storage & Shop - 396sf
 1/8" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

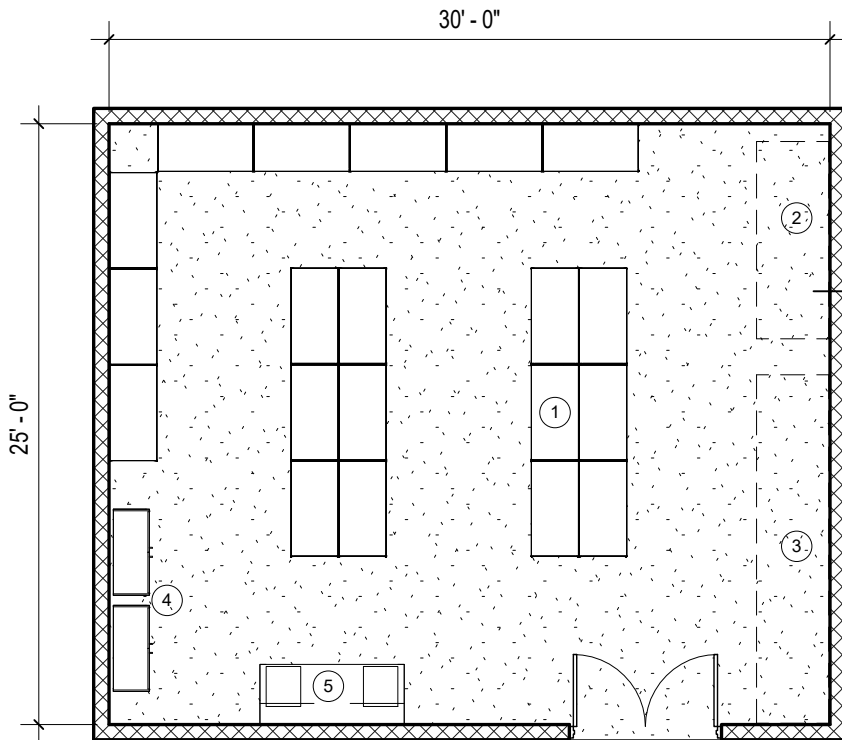
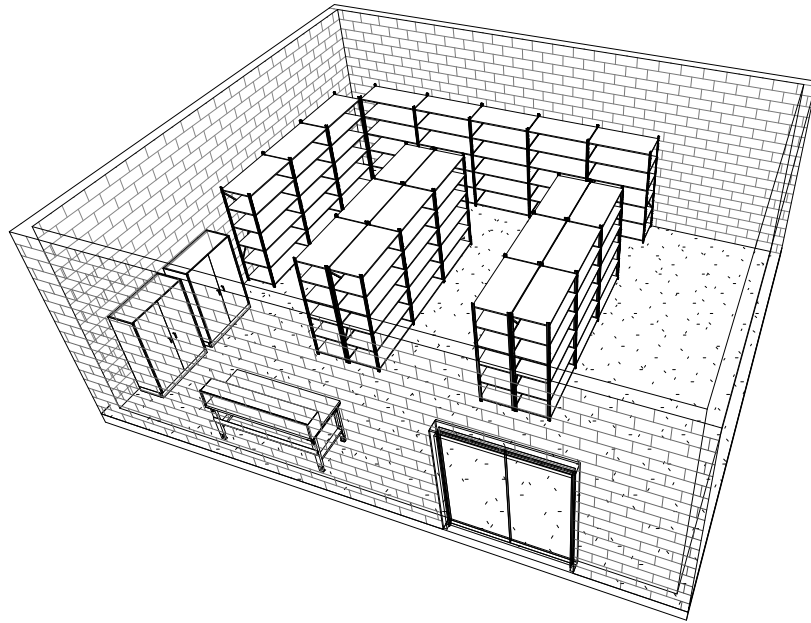
CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

COMPONENTS:

- 1. TIRE MACHINE
- 2. TIRE BALANCER
- 3. TIRE STORAGE RACK

DRAFT



1 Parts Storage Room - 750sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

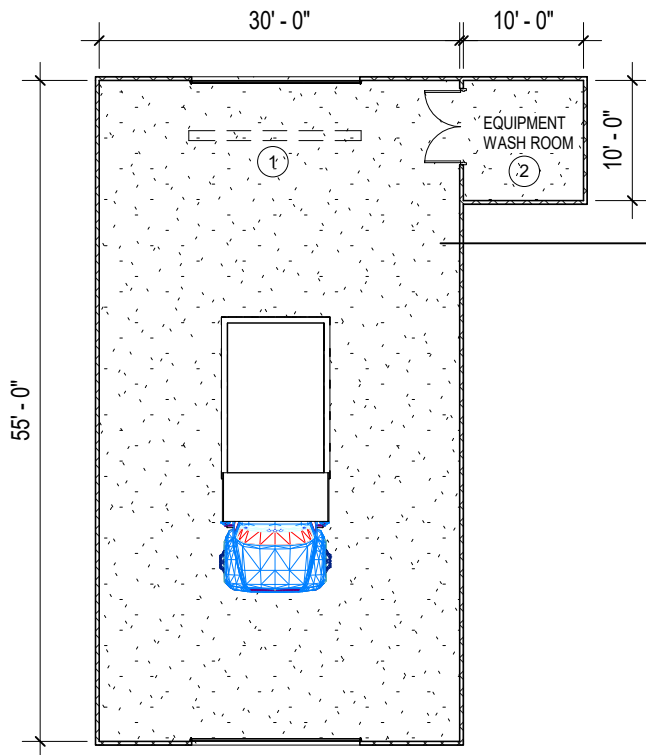
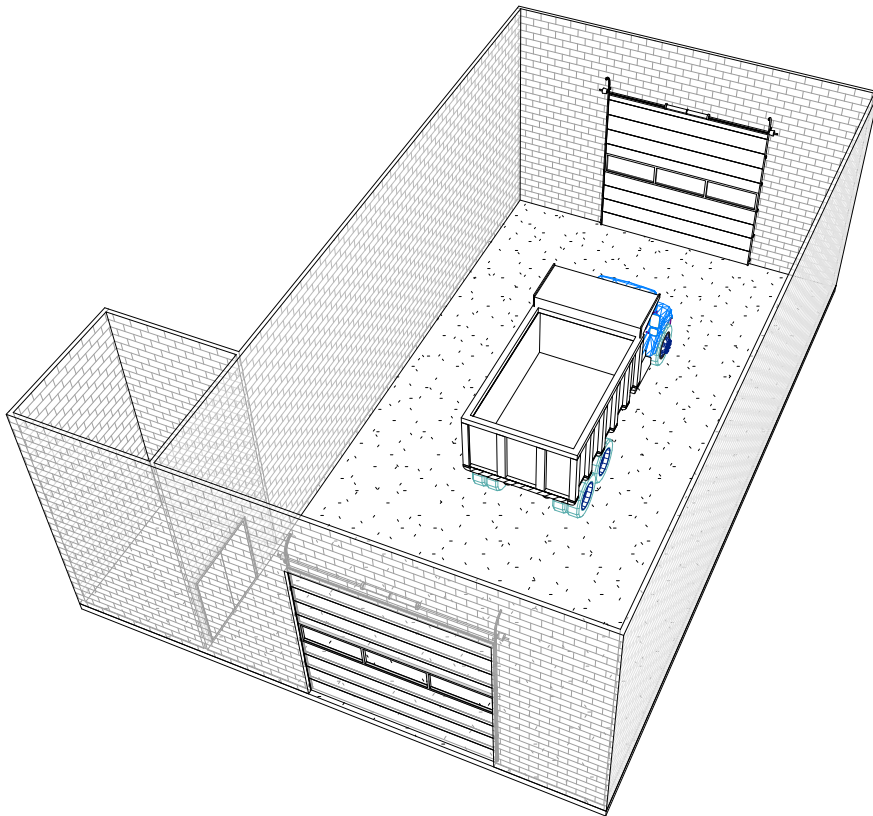
HEATING

VENTILATION

COMPONENTS:

1. HEAVY DUTY SHELVING (48" W X 24" D X 84" H)
2. SMALL PARTS BIN
3. WALL STORAGE
4. FLAMMABLE CABINET
5. WORK BENCH

DRAFT



① Vehicle & Equipment Wash Bay - 1750sf
1/16" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: PVC PANELS

CEILING: PVC PANELS

MEP/DATA REQUIREMENTS

2" WATER SUPPLY

HEATING

VENTILATION

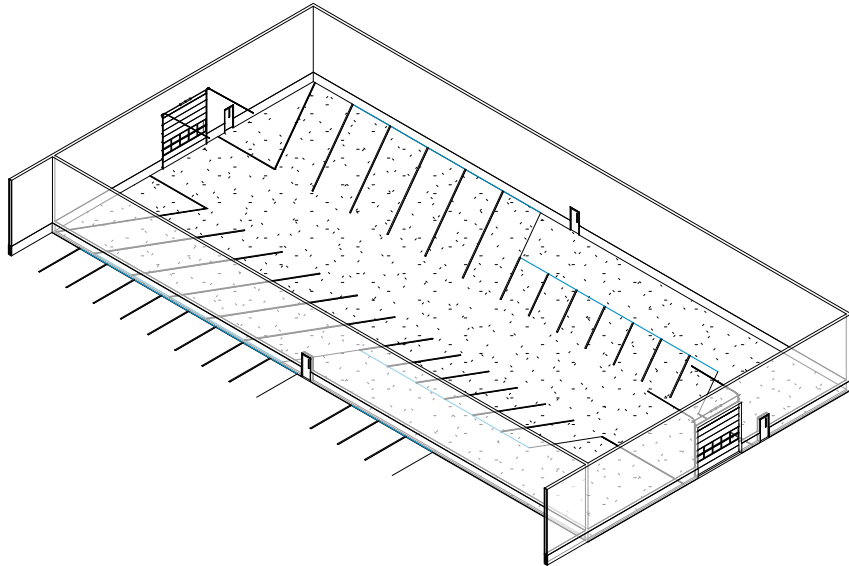
WATERPROOF DEVICES

GFI ELECTRICAL OUTLETS

COMPONENTS:

1. UNDERCARRIAGE WASH
2. MANUAL WASH EQUIP. PACKAGE

DRAFT



ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU TO 3'-4", METAL PANEL (ABOVE)

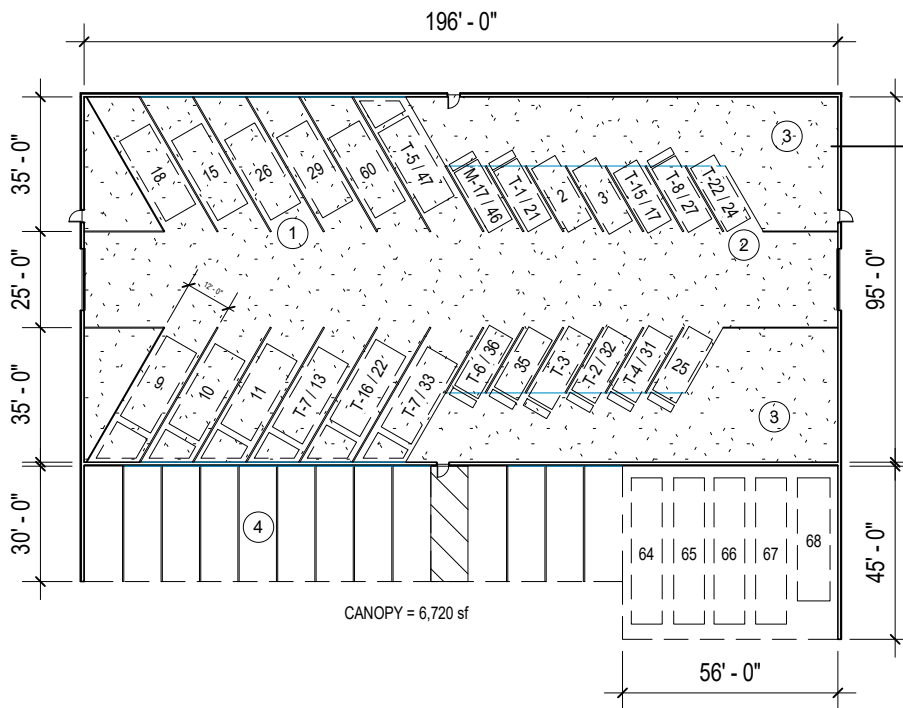
CEILING: OPEN

MEP/DATA REQUIREMENTS

COMPONENTS:

1. LARGE VEHICLE/EQUIP. STORAGE (12)
2. SMALL VEHICLE/EQUIP. STORAGE (13)
3. DEDICATED SMALL/TOWED EQUIPMENT & ATTACHMENT STORAGE
4. EQUIPMENT & TRAILERS
5. (5) SEMI-TRAILER STORAGE

DRAFT



① Vehicle/Equipment Storage - 18,620SF
1" = 50'-0"

**Department of Public Works
Space Needs Guidelines
WORK SHEET**

These guidelines have been prepared by Weston & Sampson based upon our experience with more than 100 public works facility projects in the last 15 years.

Guidelines (as developed from similar completed DPW projects):

		Ideal	Minimum
Administration	Average SF per Admin Person	670	570
Employee Facilities	Average SF per Work Force Person	130	111
Shops (including Maintenance)	Average SF per Division	3,554	3,021
Vehicle / Equipment Storage (for centre drive-thru)	Average SF per Rolling Stock	817	694
Vehicle / Equipment Storage (for stacked parking)	Average SF per Rolling Stock	695	591
Wash /Other	Average SF	2,955	2,512

Note: Average SF guidelines include all common spaces including circulation, toilets, common reception, etc.

1/12/2019

TARGET SPACE NEEDS (upper)				Qty	SF	Upper Target SF
Administration	Number of Administration Personnel	2	x	670 =	1,340	
Employee Facilities	Number of Work Force Employees	12	x	130 =	1,560	
Shops	Number of Divisions (List of divisions)	3	x	3,554 =	10,662	
	- Highway	x				
	- Vehicle Maintenance	x				
	- Facilities	x				
Vehicle / Equipment Storage	Number of Vehicles (see note 1)	22	x	817 =	17,974	
Wash / Other Miscellaneous Support Space (canopies)	Fixed Based on Similar Projects	1	x	2,955 =	2,955	
TOTAL SF:					34,491	

TARGET SPACE NEEDS (lower)				Qty	SF	Lower Target SF
Administration	Number of Administration Personnel	2	x	570 =	1,139	
Employee Facilities	Number of Work Force Employees	12	x	111 =	1,326	
Shops	Number of Divisions (List of divisions)	3	x	3,021 =	9,063	
	- Highway	x				
	- Vehicle Maintenance	x				
	- Facilities	x				
Vehicle / Equipment Storage	Number of Vehicles (see note 1)	22	x	694 =	15,278	
Wash / Other Miscellaneous Support Space	Fixed Based on Similar Projects	1	x	2,512 =	2,512	
TOTAL SF:					29,317	

Notes:

- When determining number of vehicles, include all pickups, sedans, medium & large trucks, large tractors, and construction equipment. Do not include small equipment such as trailers, sidewalk plows, mowers, etc. This smaller equipment is built into the guidelines.

Town of Truro
New Public Works Facility
Feasibility Study

Section 4

Final Modified Space Needs Matrix

Town of Truro
 Department of Public Works
Space Needs Summary
 2/13/2019

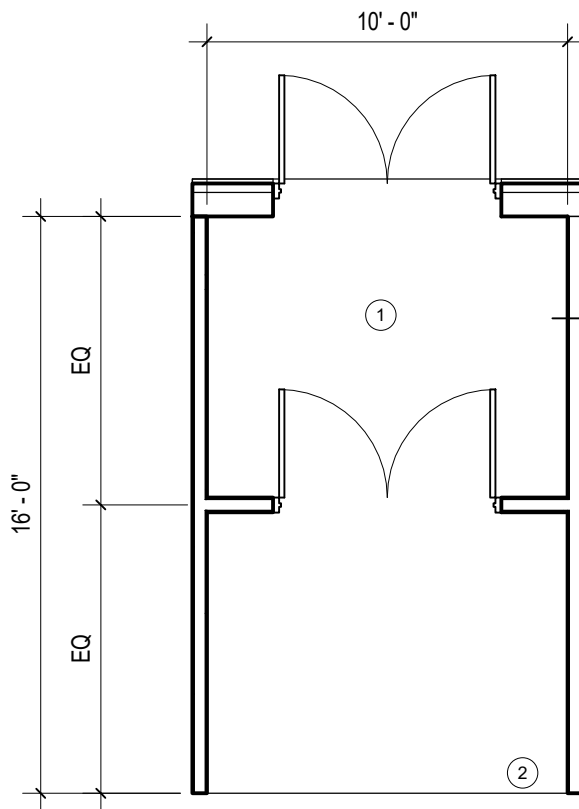
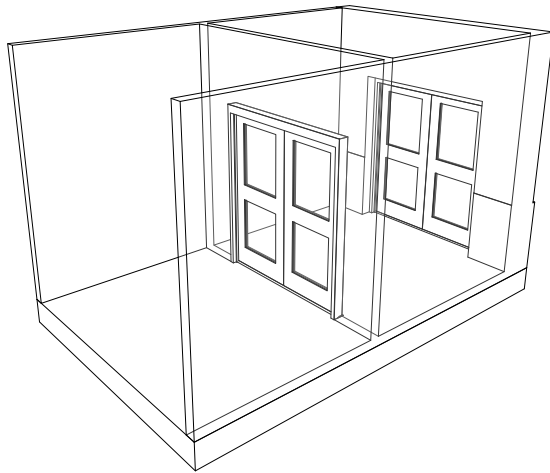
Building Requirements

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Sheet Ref #	Room / Area Dimensions			
					length	width	size	
Office & Office Support Areas	Vestibule/Waiting/Reception	220	160	A1	10	16	160	
	Admin Open Office (1 Admin Staff)	120	100	A2	10	10	100	
	DPW Director	224	196	A3	14	14	196	
	Copy/File/Mail Area	225	120	A4	8	15	120	
	File Storage	225	180	A5	12	15	180	
	Conference Room	320	224	A6	14	16	224	
	Small Supply Closet	24	24	A7	4	6	24	
	Large Supply Closet	168	120	A8	10	12	120	
	Telephone / Data Room	120	100	A9	10	10	100	
	Janitor Closet	36	36	A10	6	6	36	
		Subtotal:	1,682	1,260				
		Area Grossing Factor (10%):	168	126				
		Circulation (10%):	185	139				
	TOTAL:	2,035	1,525					
Employee Facilities	Male Locker/Shower/Toilet	540	540	B1	20	27	540	
	Female Locker/Shower/Toilet	180	180	B2	10	18	180	
	Muster Room	480	440	B3	20	22	440	
	Break/Training/Muster Room Storage Closet	120	100	B3	10	10	100	
	Report Writing Room	120	100	B3	10	10	100	
	Main Electric Room	140	120	B4	10	12	120	
	Plumbing/Fire Protection Room	192	120	B5	10	12	120	
		Subtotal:	1,772	1,600				
		Area Grossing Factor (10%):	177	160				
		Circulation (10%):	195	176				
	TOTAL:	2,144	1,936					
Work Shops & Material Storage	Sign Shop	500	320	C1	16	20	320	
	Carpentry Shop	1,400	1,155	C2	33	35	1,155	
	Shop Support Office	144	120	C3	10	12	120	
	Material / Supply Storage (Custodial)	400	320	C4	16	20	320	
	Equipment Storage Bay (Custodial)	1,120	980	C5	28	35	980	
		Subtotal:	3,564	2,895				
		Area Grossing Factor (5%):	178	145				
		Circulation (5%):	187	152				
	TOTAL:	3,929	3,192					

Town of Truro
 Department of Public Works
Space Needs Summary
 2/13/2019

Building Requirements

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Sheet Ref #	Room / Area Dimensions			
					length	width	size	
Vehicle Maintenance	Welding Area	600	480	D1	16	30	480	
	Maintenance Equipment/Material Storage	500	320	D1	16	20	320	
	Maintenance Bay	1,100	1,000	D1	20	50	1,000	
	Maintenance Bay	1,100	1,000	D1	20	50	1,000	
	Maintenance Bay	1,600	1,200	D1	20	60	1,200	
	Fluid Storage Room	256	196	D2	14	14	196	
	Maintenance Office / Reference Room	120	120	D3	10	12	120	
	Maintenance Workshop	180	144	D4	8	18	144	
	Maintenance Tire Storage & Shop	396	108	D5	6	18	108	
	Parts Storage Room	750	450	D6	15	30	450	
		Subtotal:	6,602	5,018				
		Area Grossing Factor (5%):	330	251				
		Circulation (5%):	347	263				
		TOTAL:	7,279	5,532				
Wash Area	Wash Bay	1,650	1,250	E1	25	50	1,250	
	Wash Equipment Room	100	100	E1	10	10	100	
		Subtotal:	1,750	1,350				
		Circulation:	n/a	n/a				
		TOTAL:	1,750	1,350				
Vehicle and Equipment Storage	Vehicle / Equipment Storage	18,620	18,050	F1	95	190	18,050	
		Subtotal:	18,620	18,050				
		Area Grossing Factor (5%):	931	903				
		Circulation:	n/a	n/a				
		TOTAL:	19,551	18,953				
TOTAL:		36,689	32,487	11.5% Reduction				



① Vestibule - 160sf
 $3/16'' = 1'-0''$

ROOM FINISHES

FLOORS: CERAMIC

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

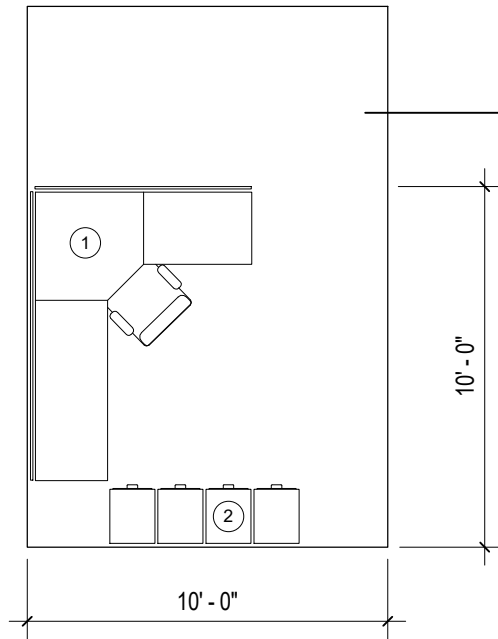
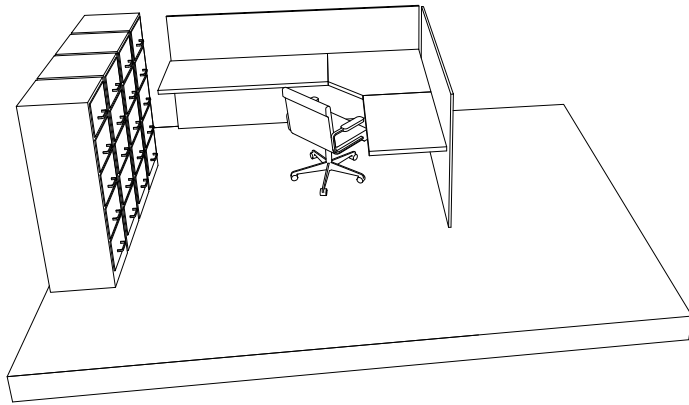
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

- 1. VESTIBULE
- 2. OPEN TO ADMIN

DRAFT



① Admin Open Office - 100sf
 3/16" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

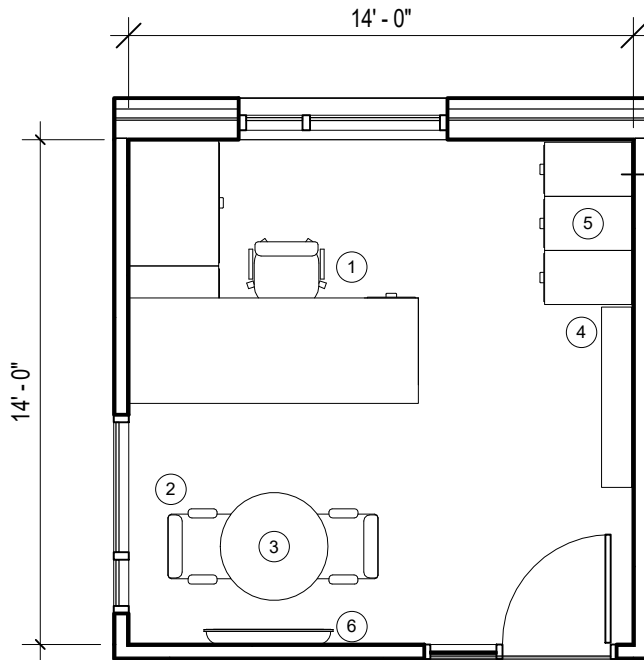
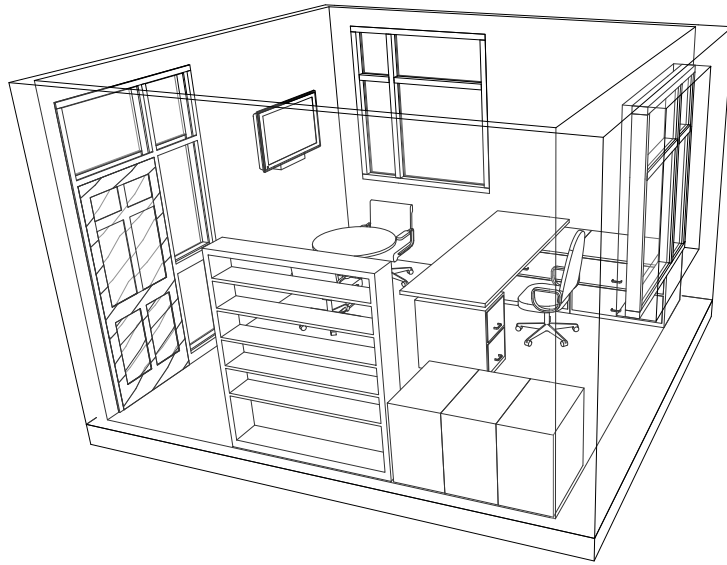
COOLING

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

- 1. CHAIR & DESK
- 2. FILE CABINETS

DRAFT



① DPW Director Office - 196sf
3/16" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

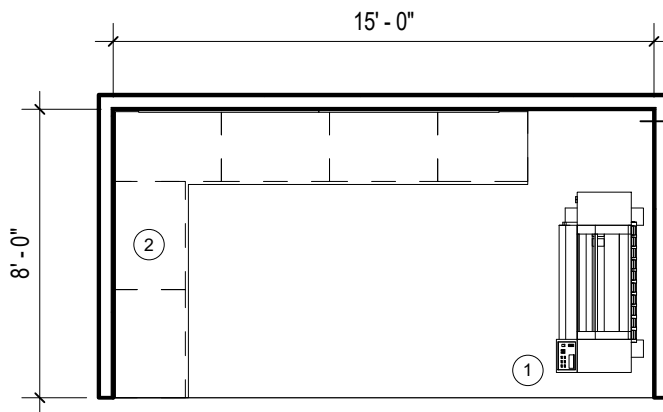
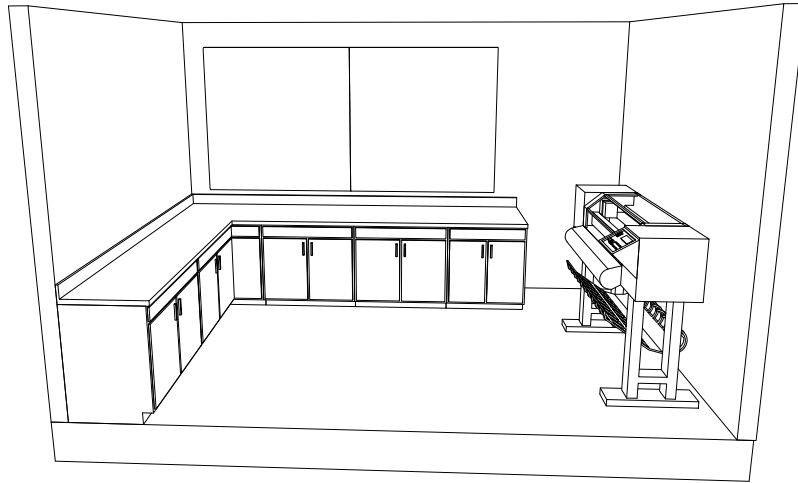
DATA OUTLET JACKS

COAX/HDMI CABLING

COMPONENTS:

1. EXECUTIVE CHAIR & DESK
2. GUEST CHAIRS
3. CONFERENCE TABLE & CHAIRS
4. BOOKCASE
5. FILE CABINETS
6. FLAT SCREEN TV

DRAFT



① Copy/File Room - 120sf
 3/16" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

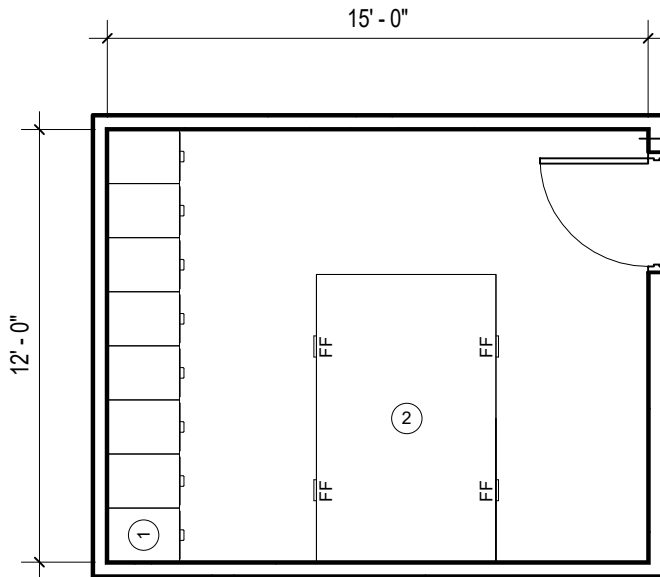
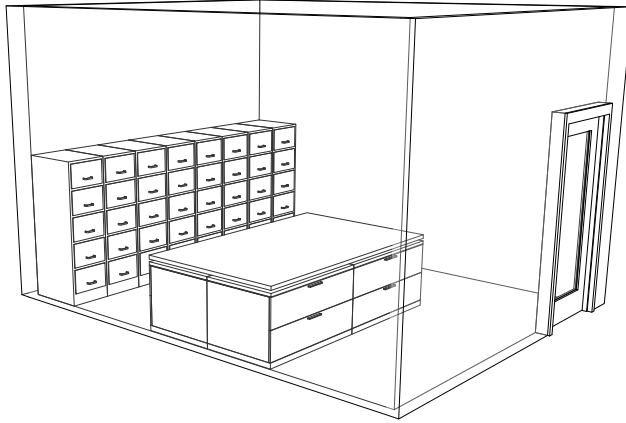
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

1. COPY MACHINE/PRINTER
2. WORK COUNTER & BASE CABINETS (BELOW)
3. BULLETIN BOARD

DRAFT



① File Storage Area - 180sf
 $3/16" = 1'-0"$

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: ACT TILES

MEP/DATA REQUIREMENTS

HEATING

COOLING

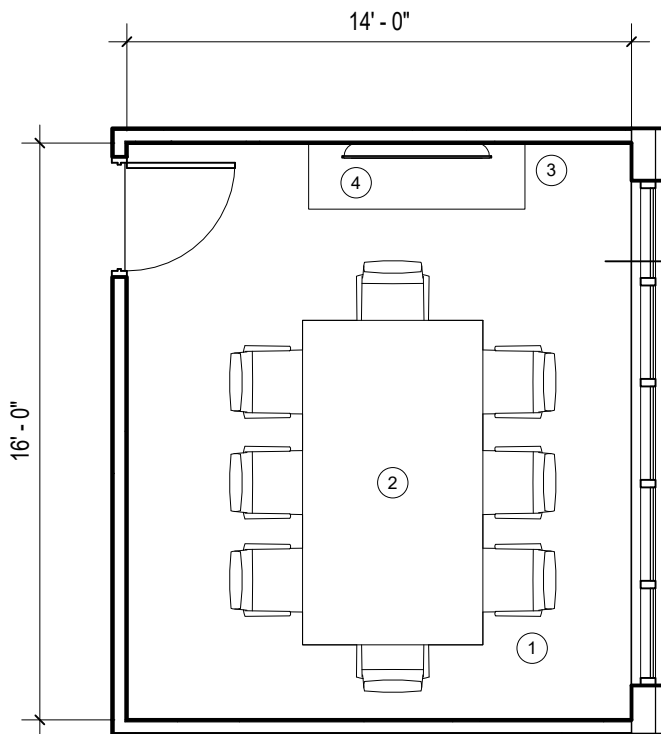
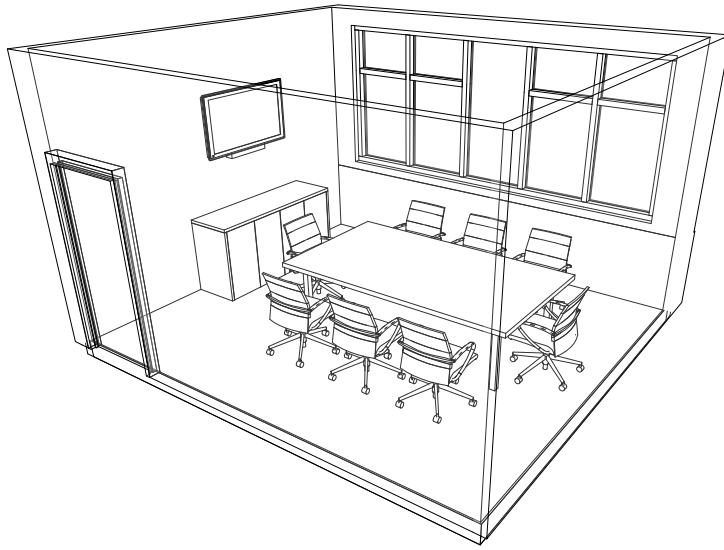
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

1. FILE CABINETS
2. (4) FLAT FILES (BELOW)
WITH TABLE TOP (ABOVE)

DRAFT



① Conference Room - 224sf
 3/16" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' x 2' AC T Tiles

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

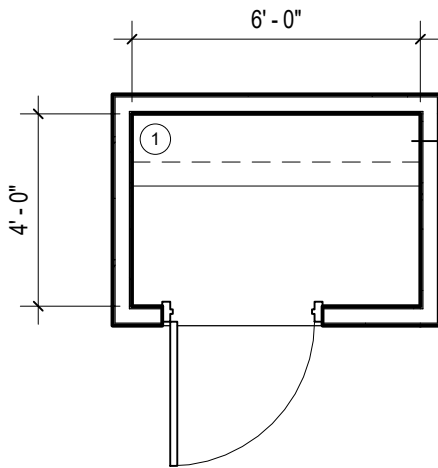
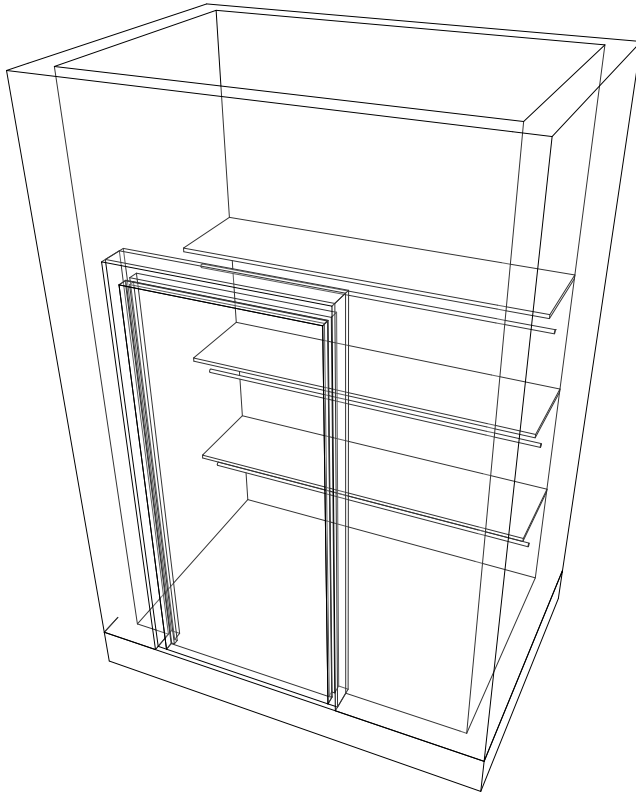
DATA OUTLET JACKS

COAX/HDMI CABLING

COMPONENTS:

1. (8) EXECUTIVE CHAIR
2. CONFERENCE TABLE
3. CREDENZA
4. FLAT SCREEN TV

DRAFT



① Small Supply Closet - 24sf
 1/4" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

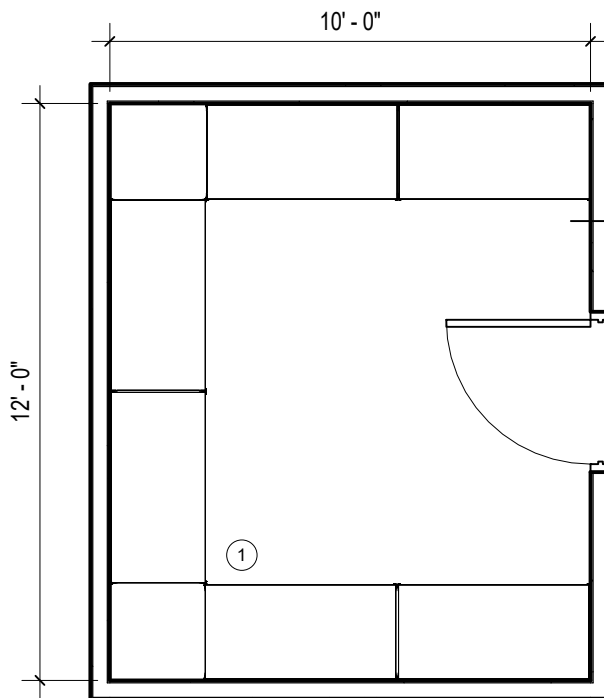
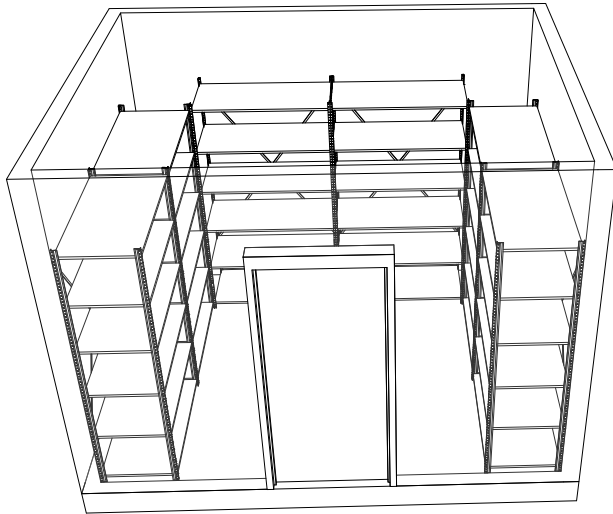
COOLING

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

1. WALL MOUNTED SHELVING

DRAFT



① Large Supply Closet 120sf
 1/4" = 1'-0"

ROOM FINISHES

FLOORS: CARPET TILE

WALLS: GWB PAINTED

CEILING: 2' X 2' ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

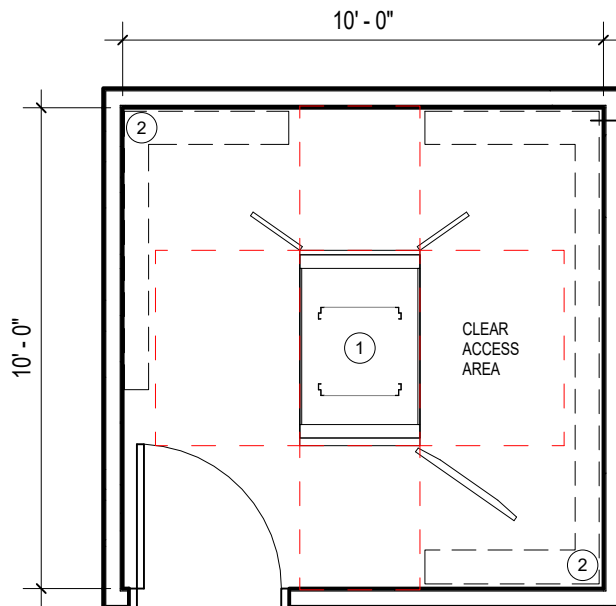
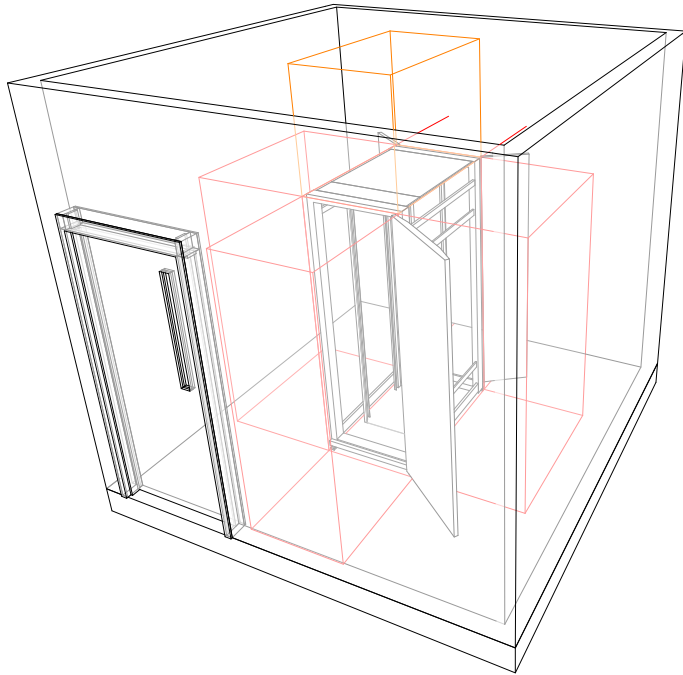
DATA OUTLET JACKS

COMPONENTS:

1. UTILITY SHELVING

NOTE:
 SIZED TO BE CONVERTED INTO
 A FUTURE OFFICE IF NEEDED

DRAFT



① Telephone/Data Room - 100 sf
1/4" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: OPEN TO ABOVE

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

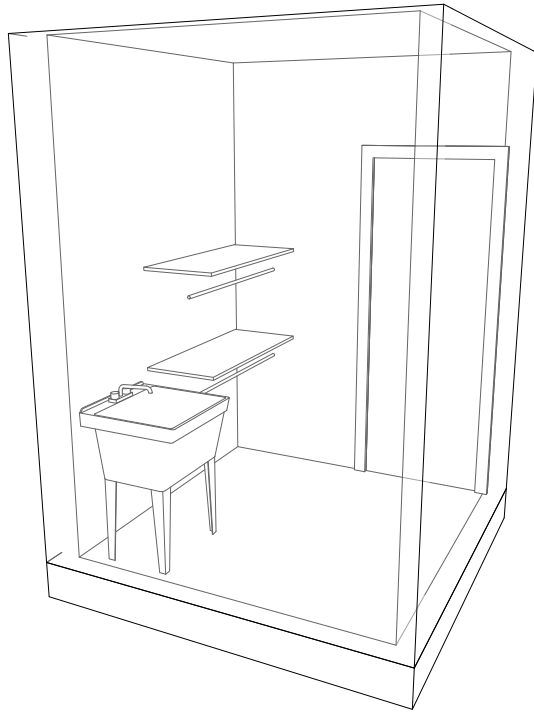
DATA OUTLET JACKS

RACKMOUNTED POWER

COMPONENTS:

1. DATA RACK
2. PLYWOOD BACKER BOARD FOR BUILDING SYSTEM COMPONENTS (SECURITY, CABLE, ETC.)

DRAFT



ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

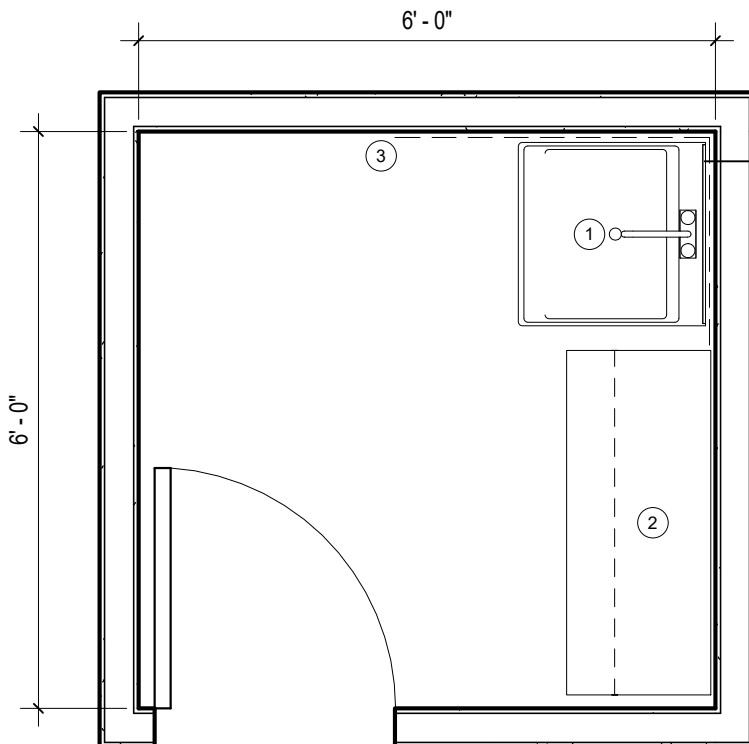
CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

GFI DUPLEX ELECTRICAL OUTLETS

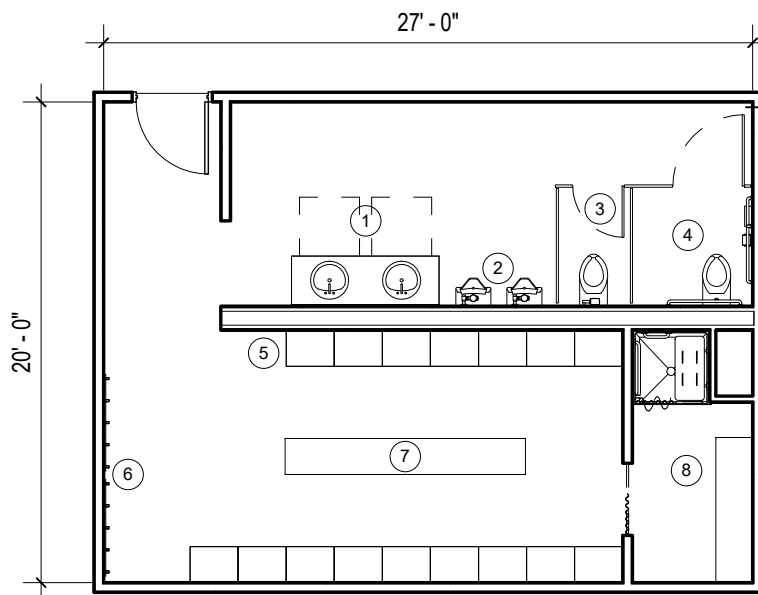
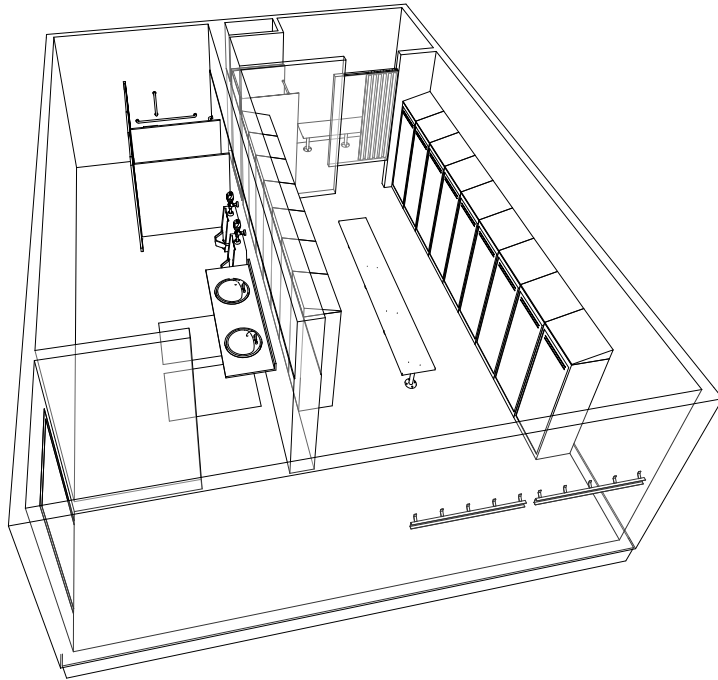
COMPONENTS:

- 1. UTILITY SINK
- 2. SHELF WITH POLE
- 3. FRP PANELING AT SINK



① Janitor Closet - 36sf
1/2" = 1'-0"

DRAFT



① Male Locker/Shower/Toilet 540sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: RESINOUS FLOORING

WALLS: CERAMIC TILE /
GWB PAINTED

CEILING: ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

SEPARATE TOILET ROOM EXHAUST

GFI DUPLEX ELECTRICAL OUTLETS

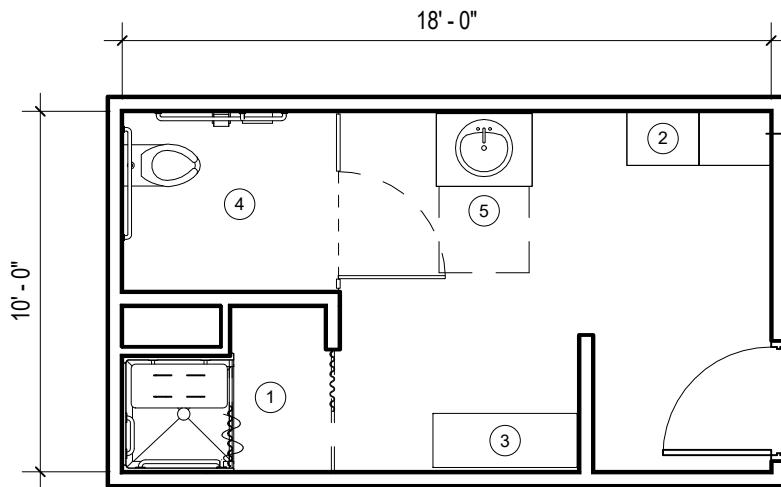
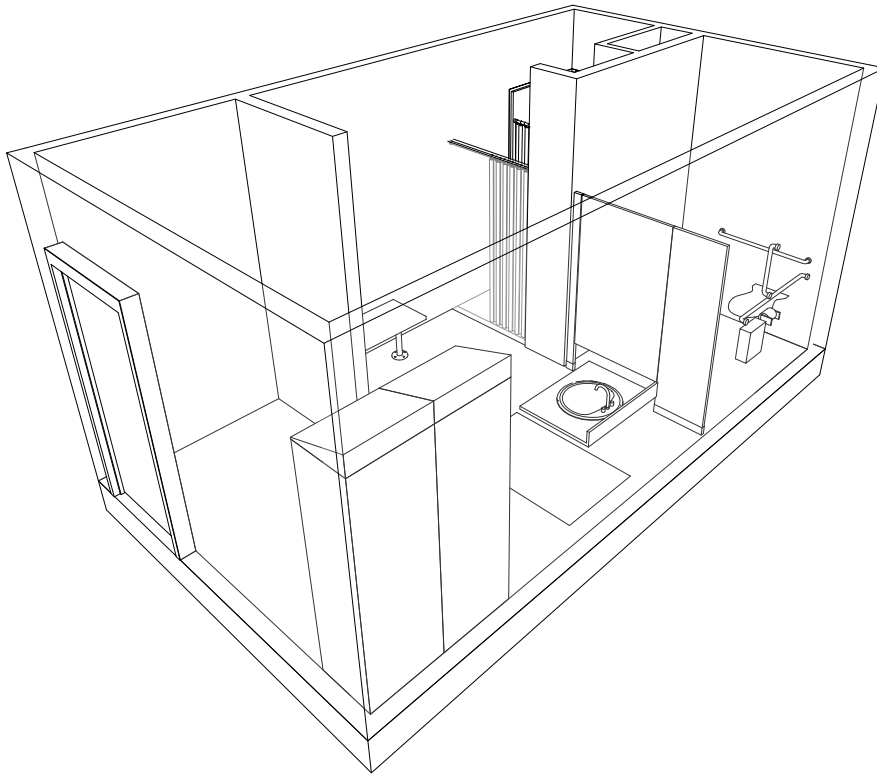
TRAP PRIMERS

FLOOR DRAINS

COMPONENTS:

1. COUNTER & SINKS
2. URINAL (2)
3. STANDARD TOILET
4. ADA TOILET
5. (16) 18" X 24" LOCKERS
6. WET GEAR AREA
7. BENCH
8. ADA SHOWER

DRAFT



① Female Locker/Shower/Toilet 180sf
 $\frac{3}{16}'' = 1'-0''$

ROOM FINISHES

FLOORS: RESINOUS EPOXY FLOOR

WALLS: CERAMIC TILES & GWB PAINTED

CEILING: MOISTURE RESISTANT ACT TILES

MEP/DATA REQUIREMENTS

HEATING

COOLING

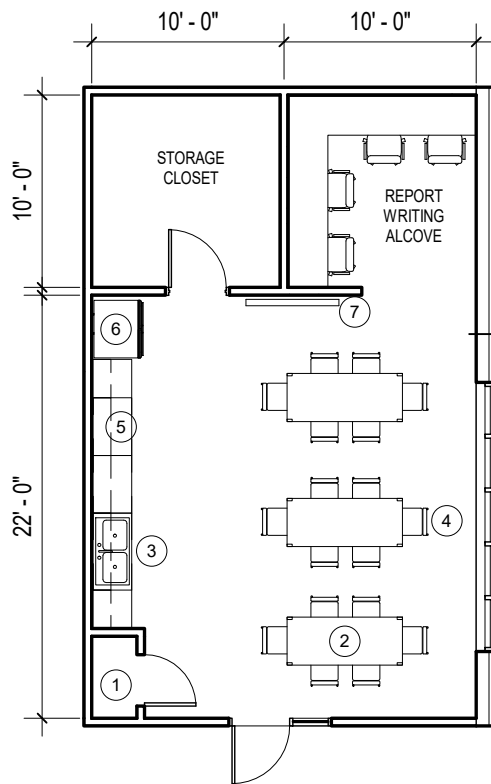
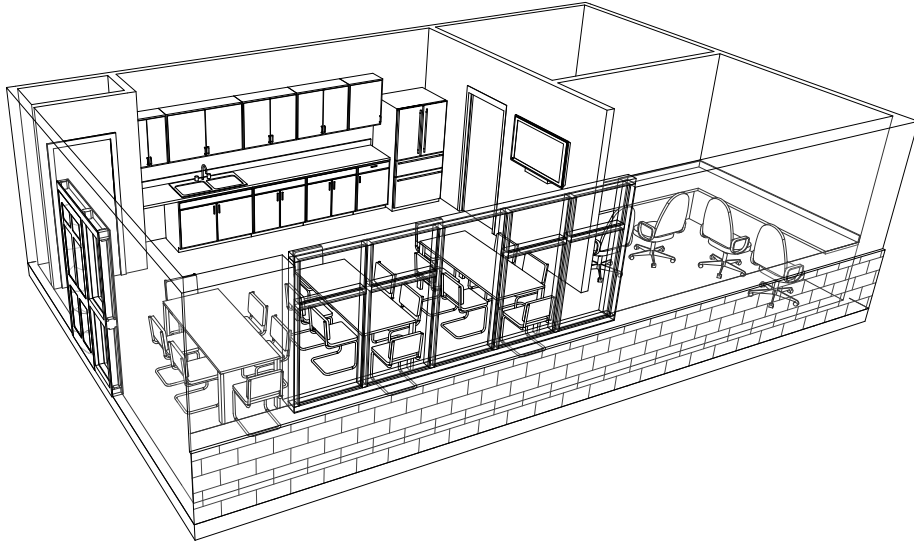
SEPARATE TOILET ROOM EXHAUST

GFI ELECTRICAL OUTLETS

COMPONENTS:

1. ADA SHOWER STALL
2. (2) 18" X 24" LOCKERS
3. BENCH
4. ADA TOILET
5. COUNTER & SINK

DRAFT



1 Muster Room/Storage/Report Writing - 640sf
1" = 10'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: 2X2 ACT TILE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

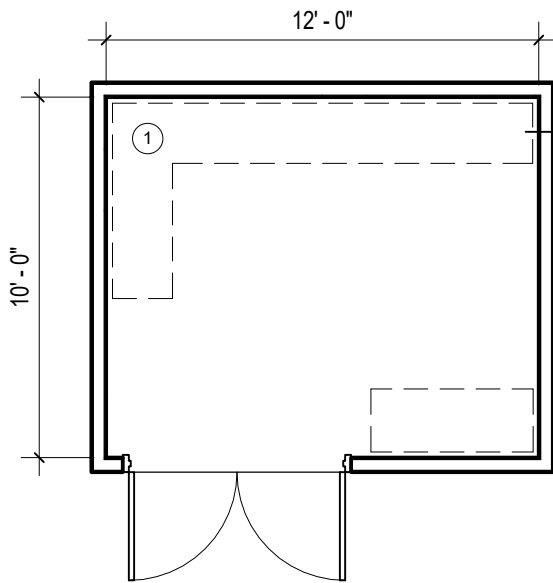
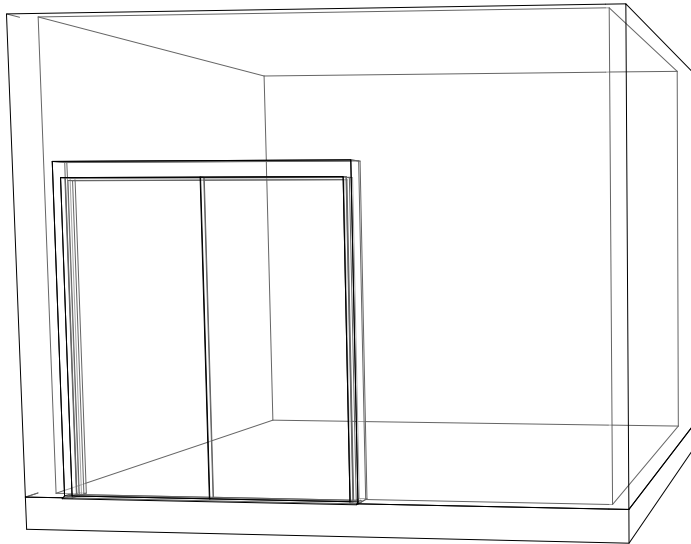
DATA OUTLET JACKS

COAX/HDMI CABLING

COMPONENTS:

1. PANTRY
2. (3) 6' LONG TABLES
3. DOUBLE SINK
4. (18) CHAIRS
5. COUNTER & CABINETS
6. REFRIGERATOR
7. FLAT SCREEN TV

DRAFT



① Main Electric Room - 120sf
 3/16" = 1'-0"

ROOM FINISHES

FLOORS: CONCRETE

WALLS: GWB PAINTED

CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

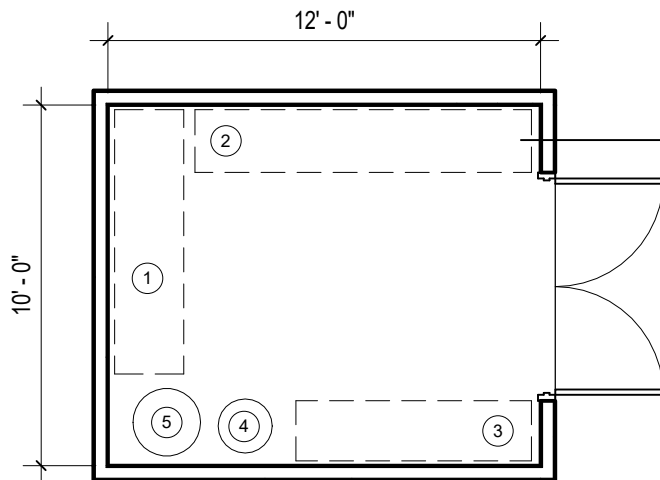
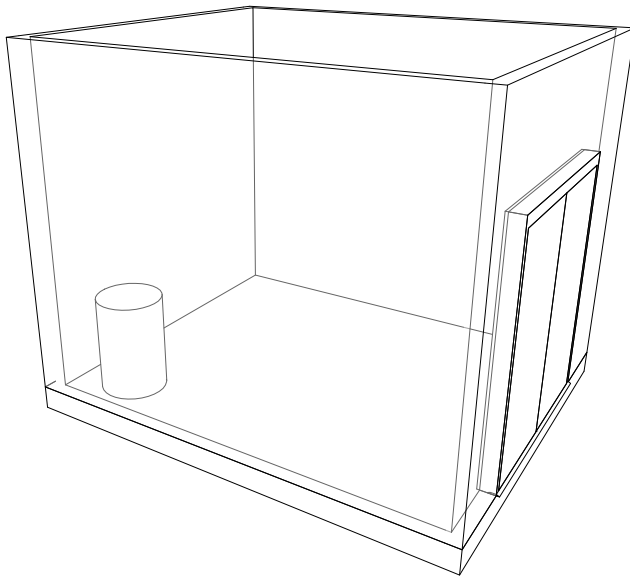
DATA OUTLET JACKS

SEPARATE EXHAUST

COMPONENTS:

1. WALL MOUNTED PANELS

DRAFT



① Plumbing/Fire Protection Room - 120sf
3/16" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OVEN TO STRUCTURE

MEP/DATA REQUIREMENTS

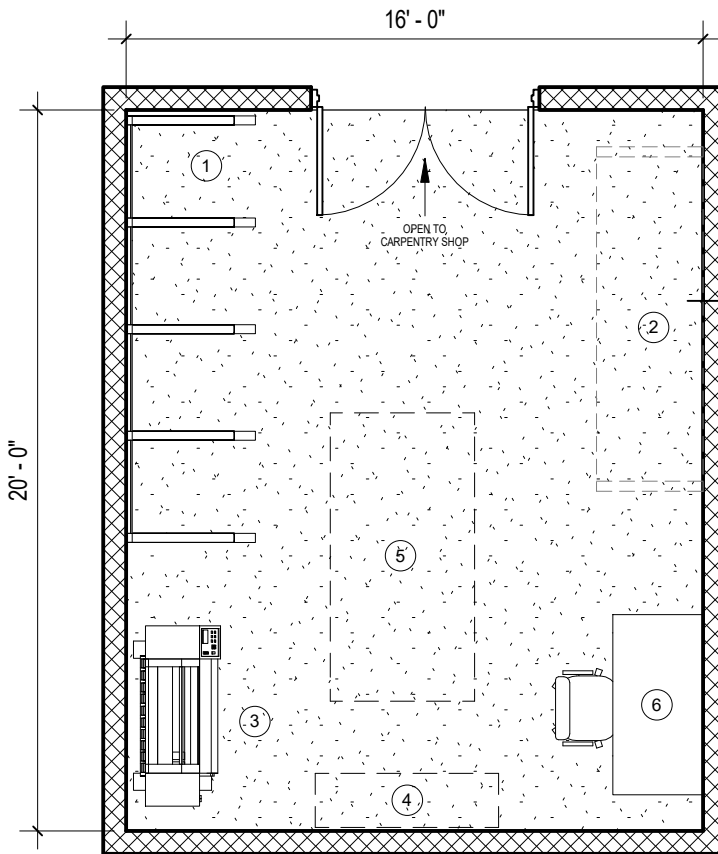
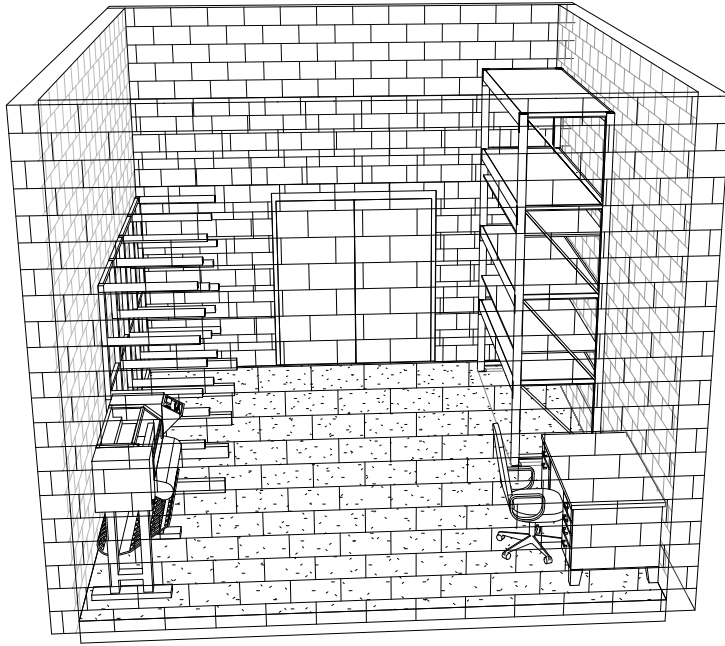
DUPLEX ELECTRICAL OUTLETS

FLOOR DRAIN

COMPONENTS:

1. FIRE PROTECTION SERVICE (DRY & WET) CHECK VALVE ASSEMBLY
2. DOMESTIC SERVICE METER & REDUCED PRESSURE BACKFLOW PREVENTER
3. TEMPERED WATER CONTROL PANEL & MIXING VALVES
4. EXPANSION TANK
5. WATER HEATER

DRAFT



① Sign Shop - 320sf
3/16" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: CMU PAINTED

CEILING: OPEN

MEP/DATA REQUIREMENTS

HEATING

COOLING

DUPLEX ELECTRICAL OUTLETS

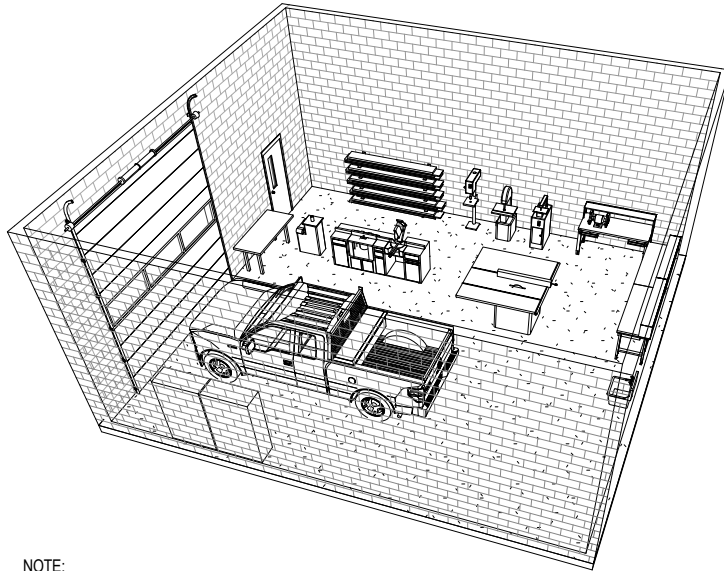
DATA OUTLET JACKS

COMPRESSED AIR PROVISIONS

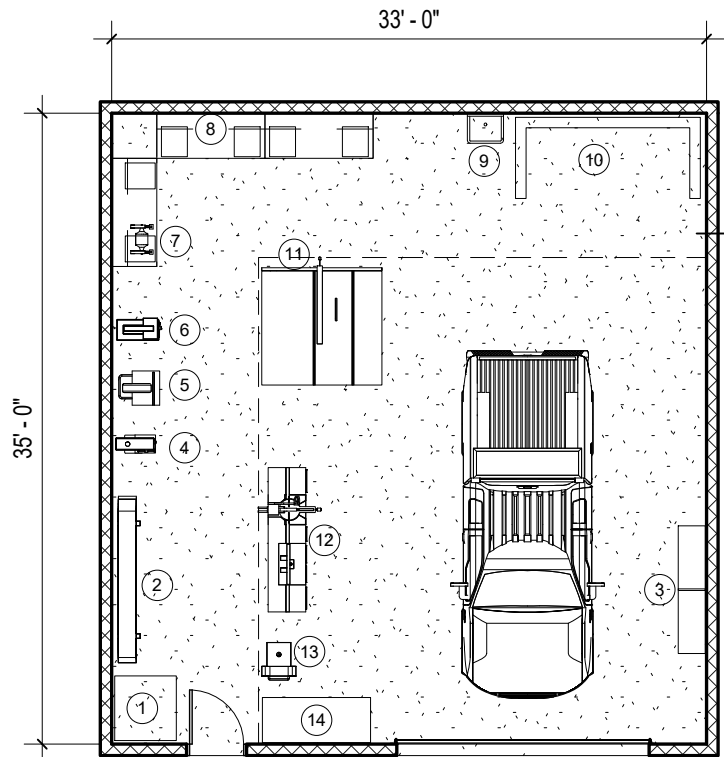
COMPONENTS:

1. 42" DEEP STORAGE RACK FOR BLANKS, SHEET VINYL & ROLL VINYL
2. HEAVY DUTY SHELVING
3. PLOTTER
4. HANGING VINYL ROLLS
5. ROLL PRESS TABLE
6. DESK & CHAIR

DRAFT



NOTE:
EQUIP. LIST IS FOR PLANNING PURPOSES ONLY. FINAL
CARPENTRY EQUIP. TO BE COORDINATED WITH TOWN



① Carpentry Shop - 1155sf
3/32" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN

MEP/DATA REQUIREMENTS

HEATING

VENTILATION

DUPLEX ELECTRICAL OUTLETS

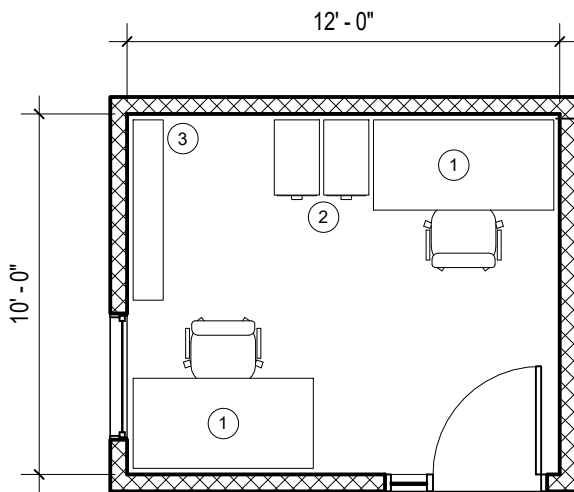
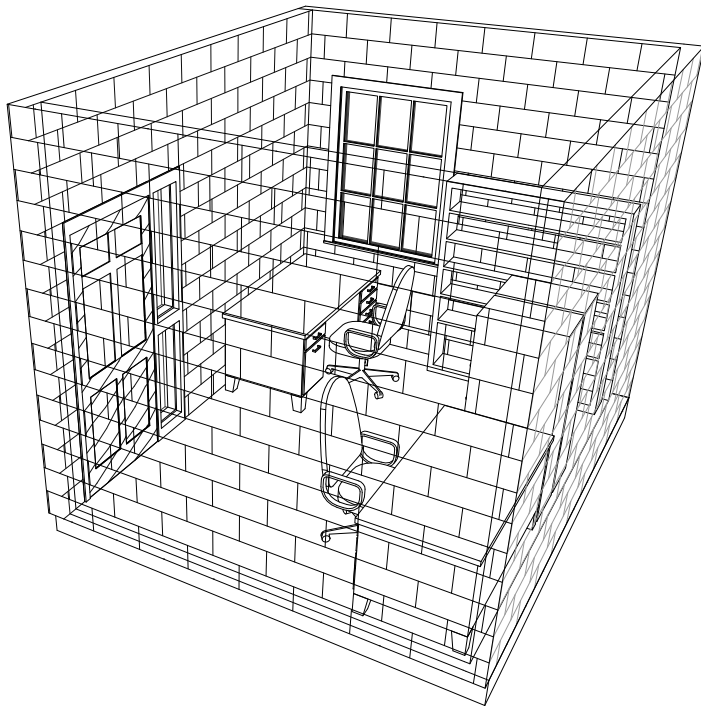
DATA OUTLET JACKS

DUST COLLECTION SYSTEM

COMPONENTS:

1. DUST COLLECTION SYSTEM
2. LUMBER STORAGE
3. FLAMMABLE CABINETS
4. DRILL PRESS
5. BAND SAW
6. JIG SAW
7. BENCH MOUNTED GRINDER
8. WORK BENCH
9. SHOP SINK
10. SMALL PARTS PAINT BOOTH
11. TABLE SAW
12. MITER SAW
13. DRUM SANDER
14. ASSEMBLY TABLE

DRAFT



① Shop Support Office - 120sf
 $\frac{3}{16}'' = 1'-0''$

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: CMU PAINTED

CEILING: 2' x 2' ACT TILES

MEP/DATA REQUIREMENTS

HEATING

COOLING (MINI-SPLIT)

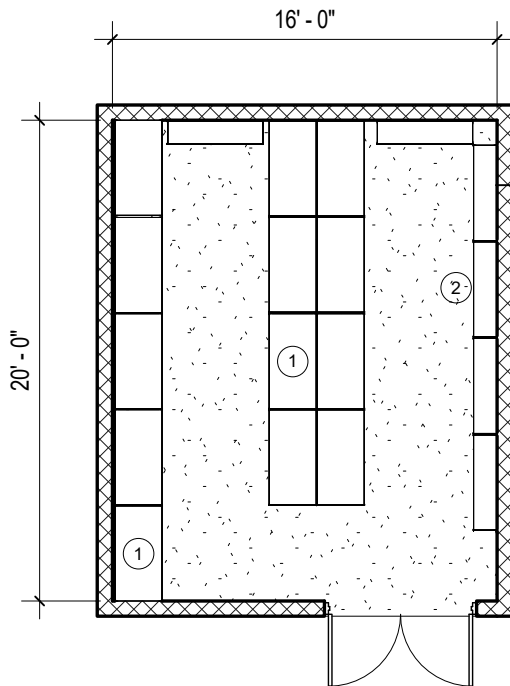
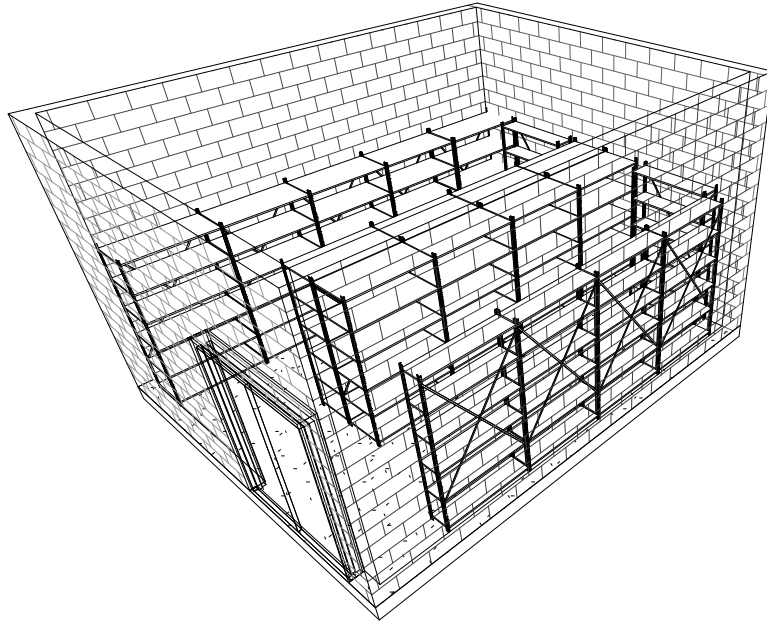
DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

COMPONENTS:

1. DESK & CHAIR
2. FILE CABINETS
3. BOOKCASE

DRAFT



① Material/Supply Storage (Custodial) - 320sf
 1/8" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

HEATING

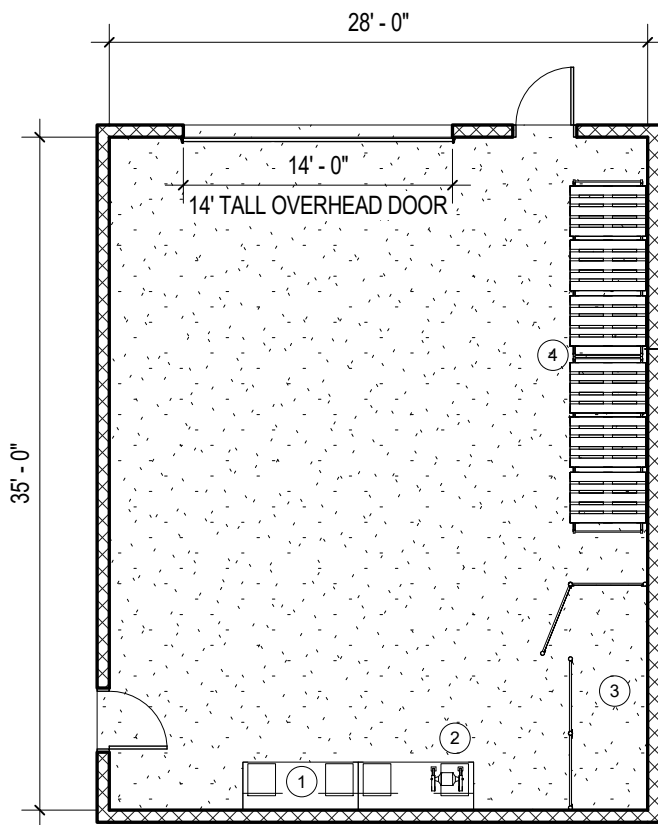
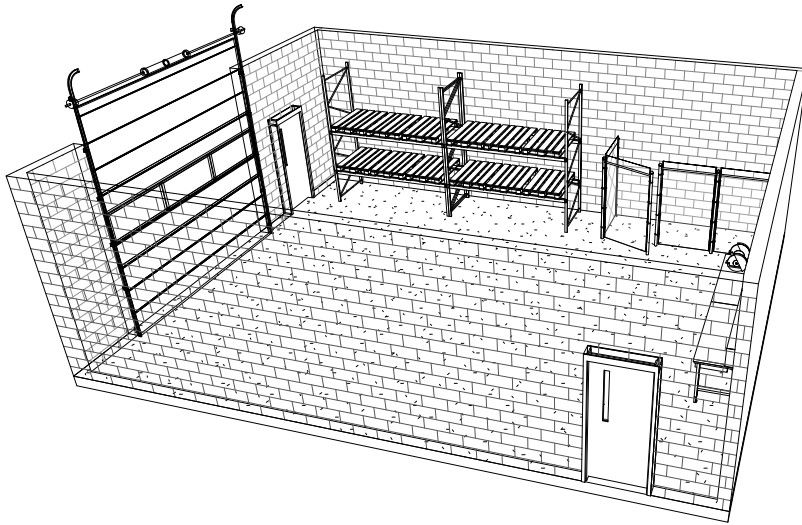
VENTILATION

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

1. 24" DEEP UTILITY SHELVING
2. 12" DEEP UTILITY SHELVING

DRAFT



1 Material/Supply Storage Shop
(Carpentry Maint.) - 980sf
1" = 10'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO STRUCTURE

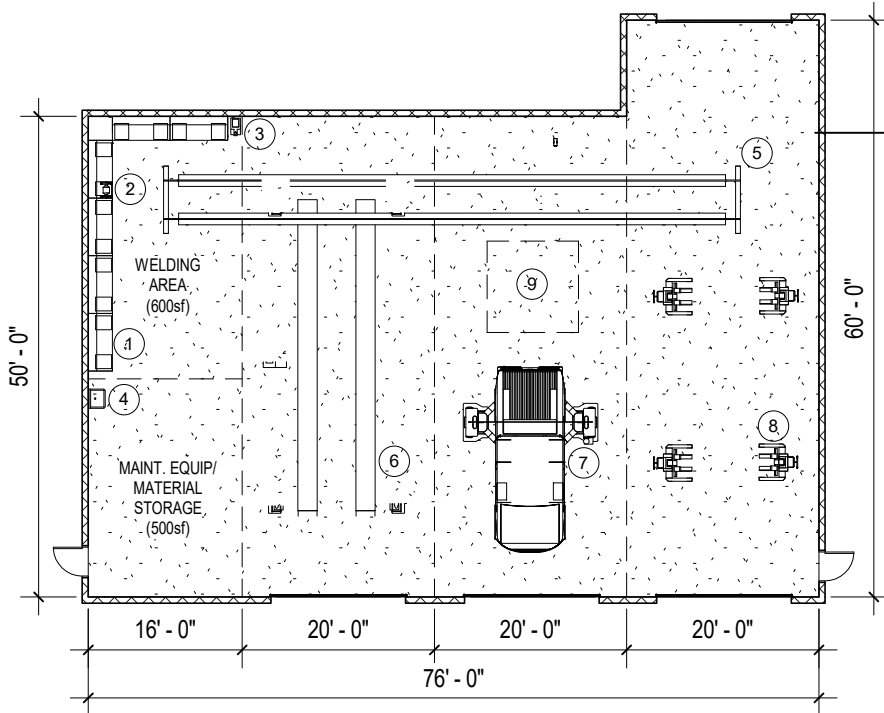
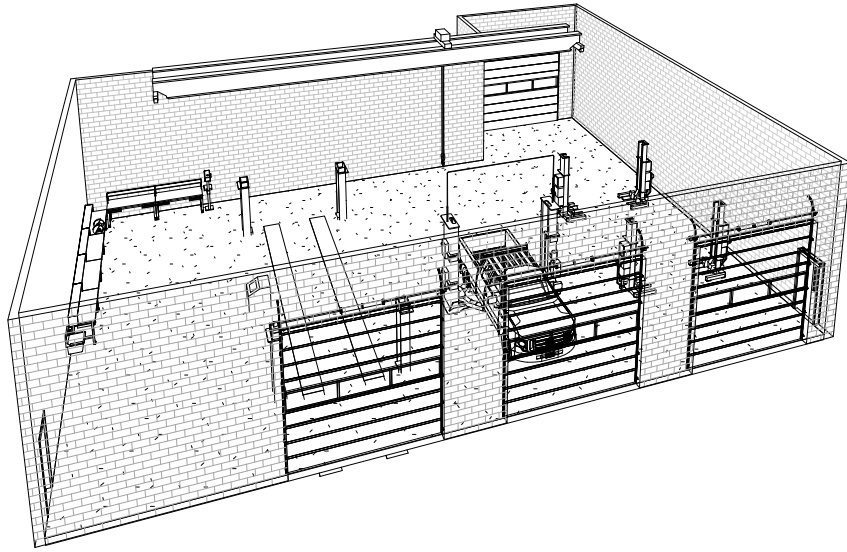
MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

COMPONENTS:

1. WORK BENCH
2. TABLE GRINDER
3. SECURED STORAGE CAGE
4. PALLET RACKS (2)

DRAFT



Vehicle/Equipment Maintenance Bays - 4000sf
 1" = 20'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CONCRETE BLOCK (PAINTED)

CEILING: OPEN

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

SPECIALTY EQUIP ELEC. OUTLETS

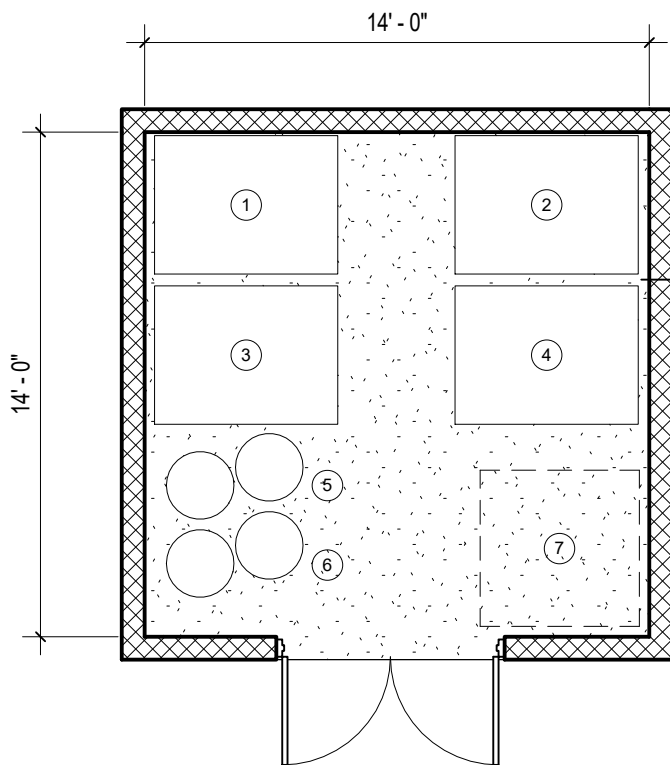
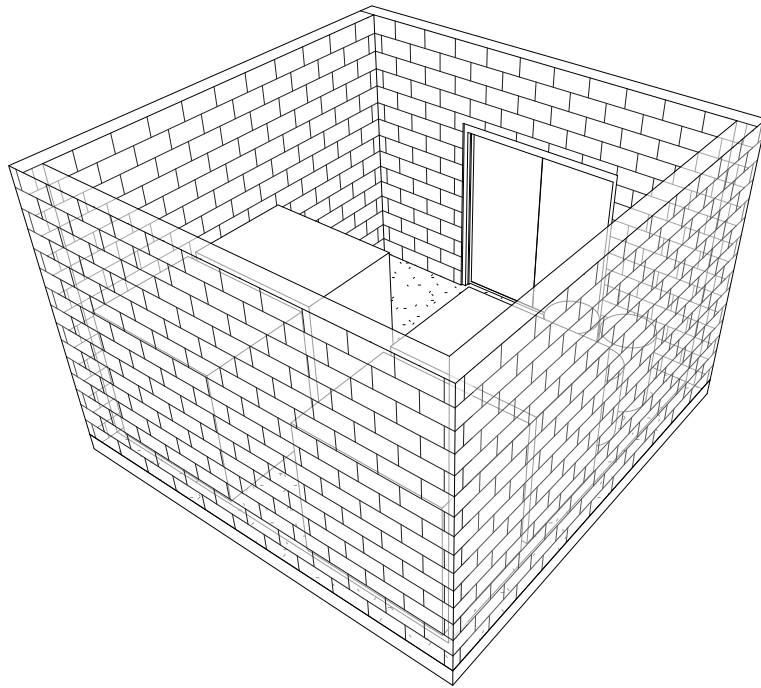
HEATING (RADIANT FLOOR HEATING)

VENTILATION

COMPONENTS:

1. WORK BENCH
2. GRINDER
3. DRILL PRESS
4. SERVICE SINK
5. INDUSTRIAL BRIDGE CRANE
6. RECESSED PLATFORM LIFT
7. 2-POST LIGHT DUTY LIFT
8. PORTABLE POST LIFT
9. SMALL EQUIPMENT PLATFORM LIFT

DRAFT



① Fluids Room - 196sf
3/16" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: GWB PAINTED

MEP/DATA REQUIREMENTS

HEATING

DEDICATED EXHAUST SYSTEM

GFI ELECTRICAL OUTLETS

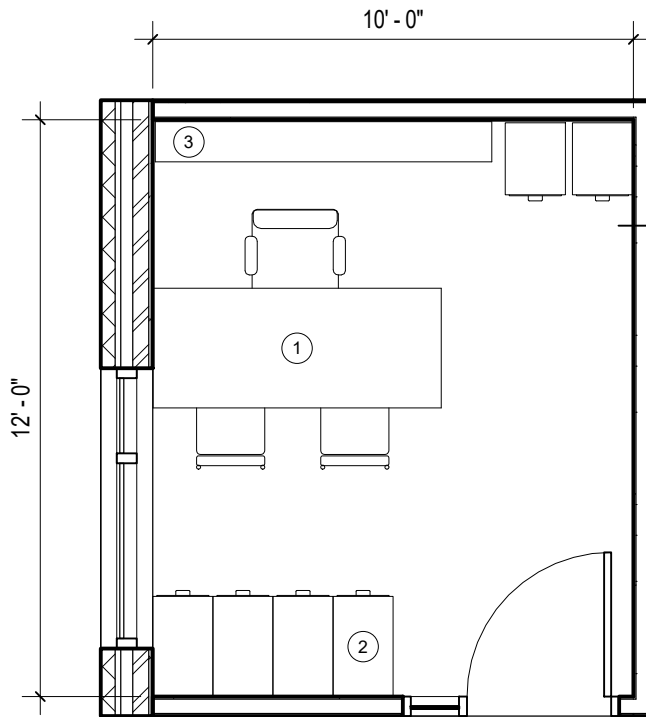
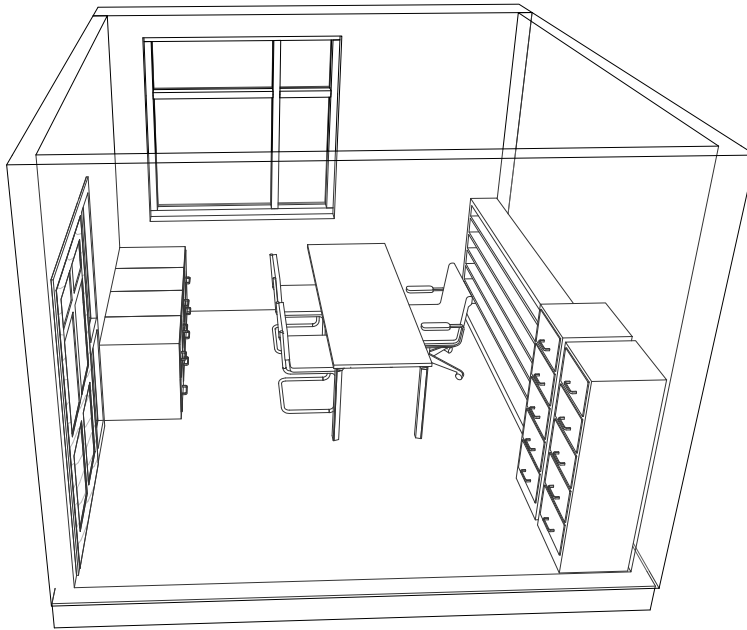
COMPRESSED AIR FOR PNEUMATIC PUMPS

CONTAINMENT SUMP

COMPONENTS:

1. WASTE OIL (BULK)
2. WASTE ANFR (BULK)
3. MOTOR OIL (BULK)
4. MOTOR OIL (BULK)
5. HYDRAULIC OIL (55 GAL)
6. ANFR (55 GAL)
7. SPARE STORAGE

DRAFT



Maintenance Office/Reference Room -

120sf

① 1/4" = 1'-0"

ROOM FINISHES

FLOORS: RESILIENT FLOORING

WALLS: GWB PAINTED

CEILING: 2x2 act tile

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

DATA OUTLET JACKS

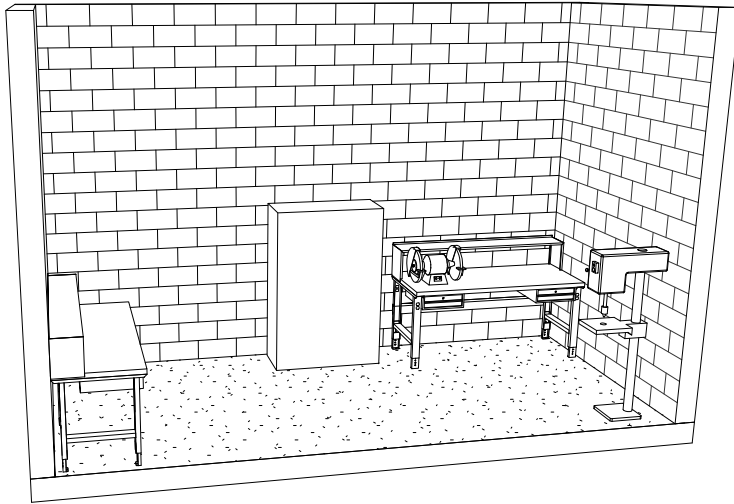
HEATING

COOLING (MINI-SPLIT)

COMPONENTS:

- 1. DESK & TASK CHAIRS
- 2. FILE CABINETS
- 3. BOOKCASE

DRAFT



ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO ABOVE

MEP/DATA REQUIREMENTS

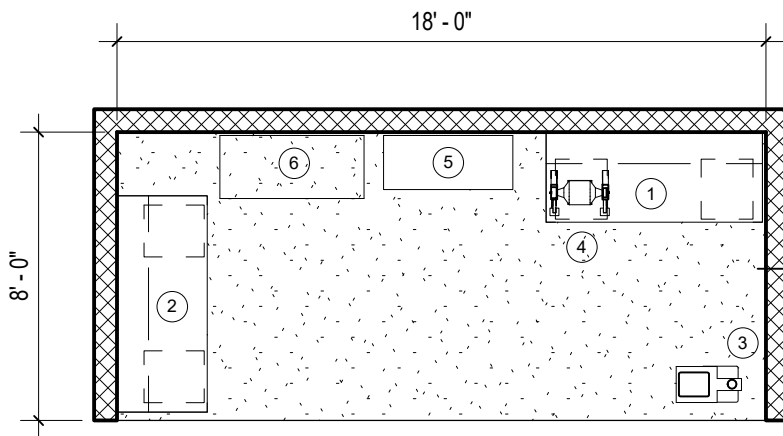
HEATING

VENTILATION

SPECIALTY EQUIP. ELEC. OUTLETS

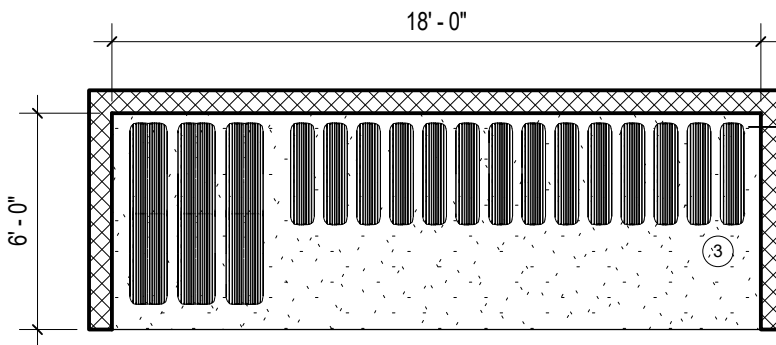
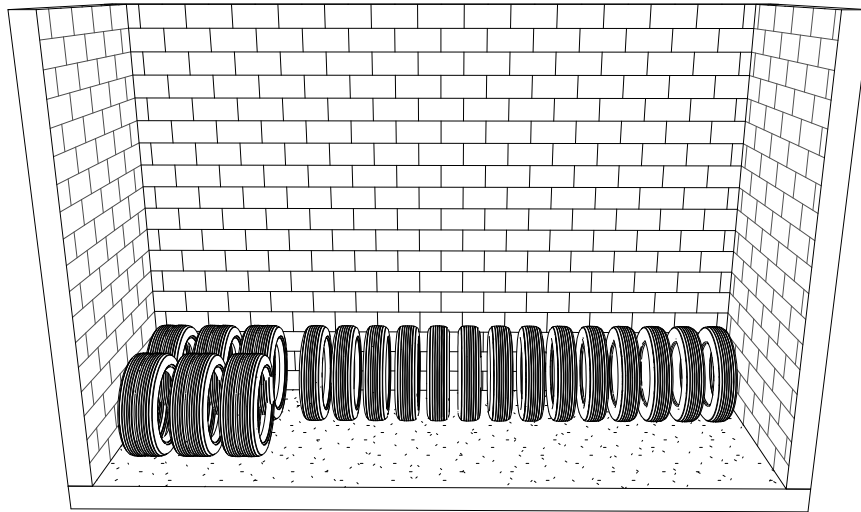
COMPONENTS:

- 1. WORK BENCH
- 2. CHOP SAW WORK BENCH
- 3. DRILL PRESS
- 4. TABLE GRINDER
- 5. PARTS CLEANER
- 6. HYDRAULIC PRESS



① Maintenance Workshop - 144sf
3/16" = 1'-0"

DRAFT



① Maintenance Tire Storage & Shop - 108sf
 3/16" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

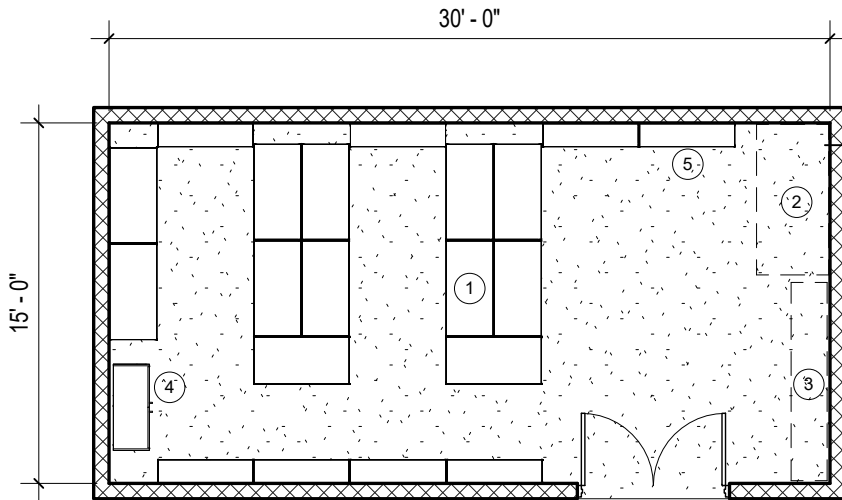
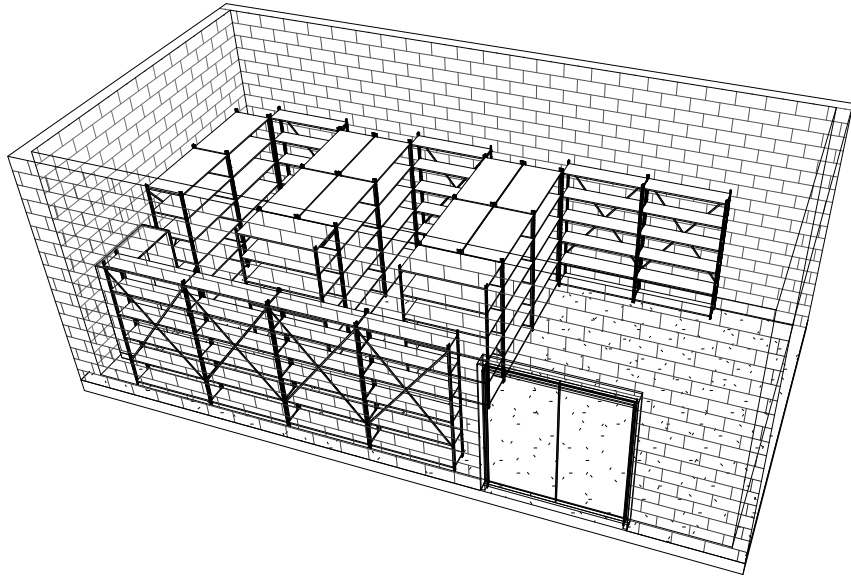
CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

COMPONENTS:

- 1. TIRE STORAGE

DRAFT



① Parts Storage Room - 450sf
1/8" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU PAINTED

CEILING: OPEN TO STRUCTURE

MEP/DATA REQUIREMENTS

DUPLEX ELECTRICAL OUTLETS

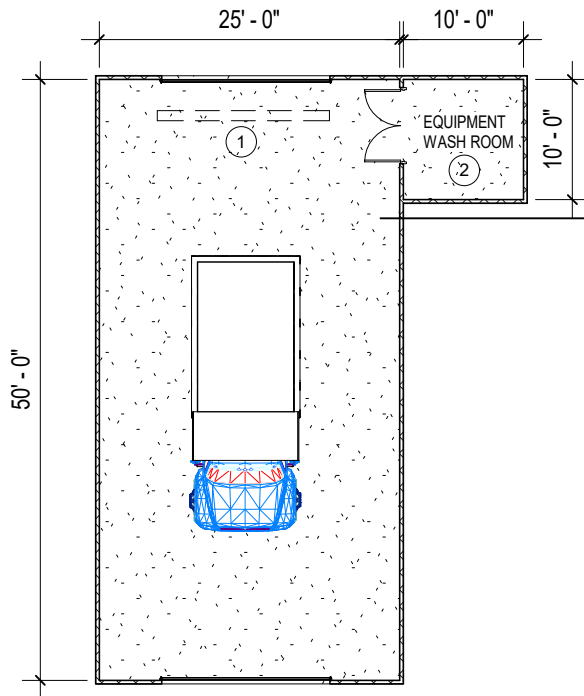
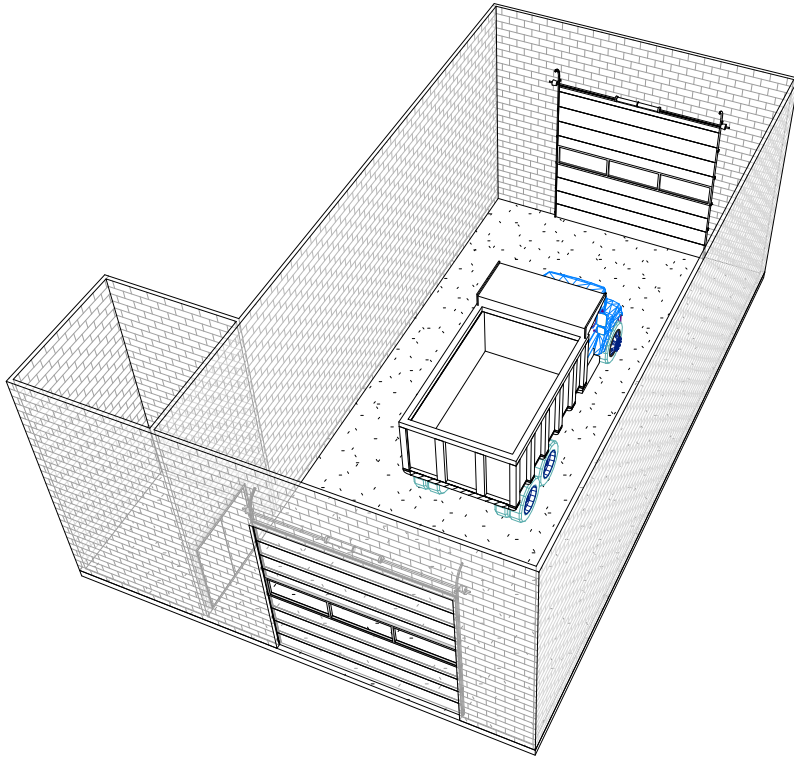
HEATING

VENTILATION

COMPONENTS:

1. HEAVY DUTY SHELVING (48" W X 24" D X 84" H)
2. SMALL PARTS BIN
3. WALL STORAGE
4. FLAMMABLE CABINET
5. HEAVY DUTY SHELVING (48" W X 12" D X 84" H)

DRAFT



① Vehicle & Equipment Wash Bay - 1350sf
 1/16" = 1'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: PVC PANELS

CEILING: PVC PANELS

MEP/DATA REQUIREMENTS

2" WATER SUPPLY

HEATING

VENTILATION

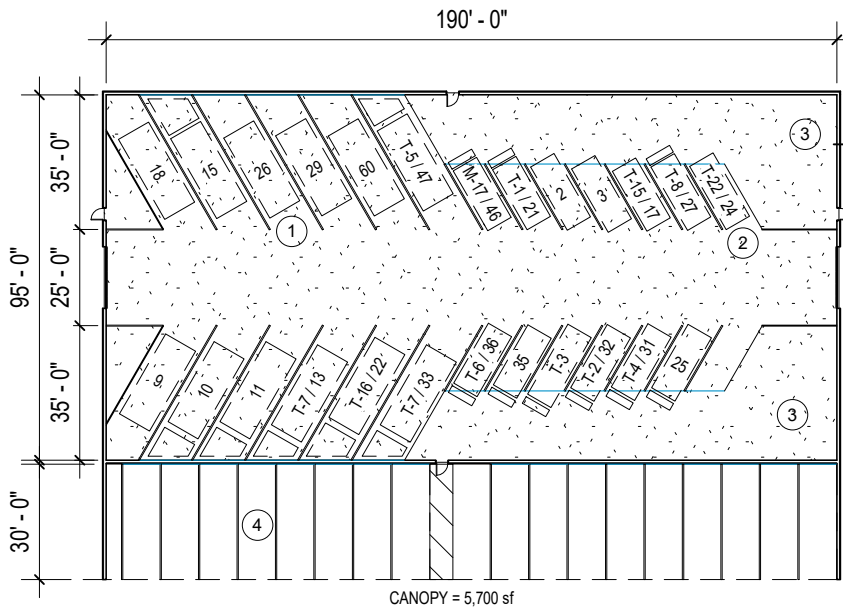
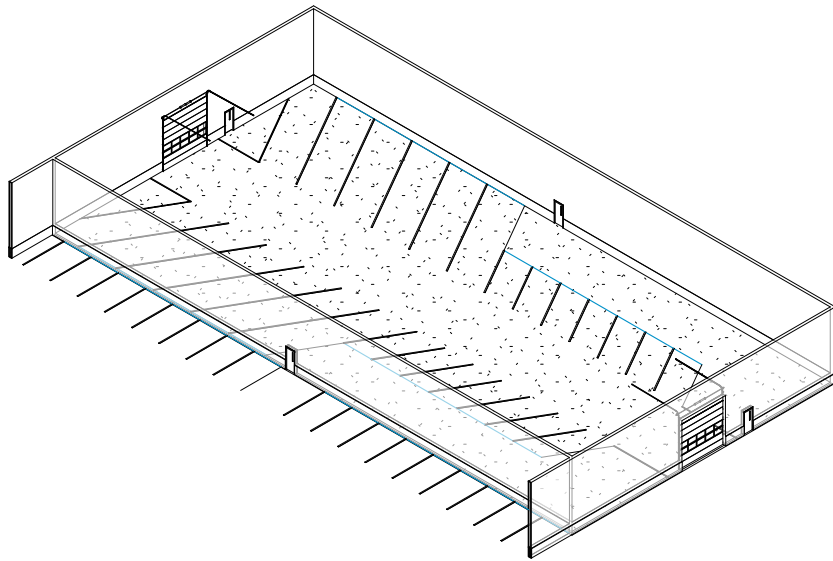
WATERPROOF DEVICES

GFI ELECTRICAL OUTLETS

COMPONENTS:

1. UNDERCARRIAGE WASH
2. MANUAL WASH EQUIP. PACKAGE

DRAFT



① Vehicle/Equipment Storage - 18,050sf
 1" = 50'-0"

ROOM FINISHES

FLOORS: SEALED CONCRETE

WALLS: CMU TO 3'-4", METAL PANEL (ABOVE)

CEILING: OPEN

MEP/DATA REQUIREMENTS

COMPONENTS:

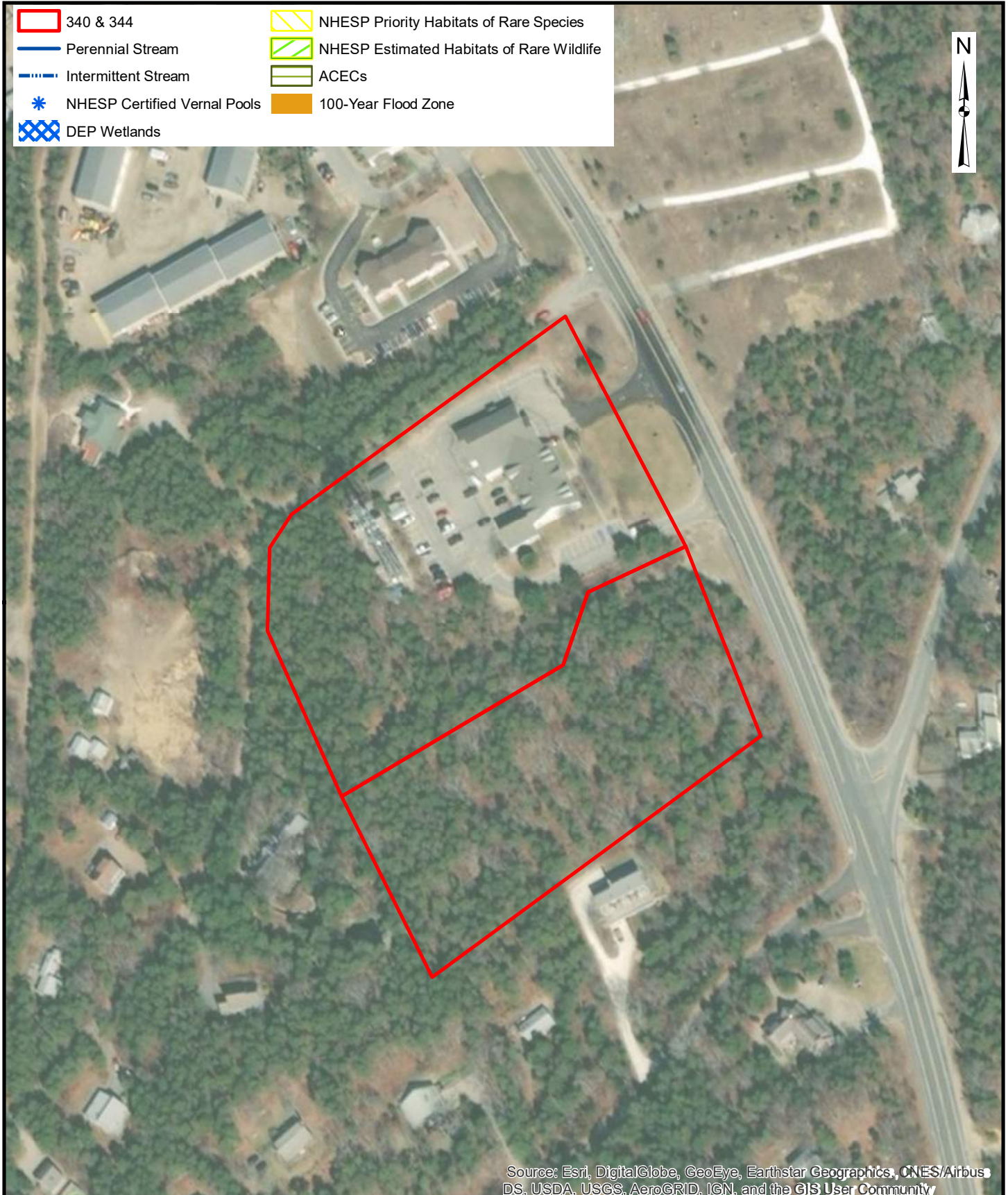
1. LARGE VEHICLE/EQUIP. STORAGE (12)
2. SMALL VEHICLE/EQUIP. STORAGE (14)
3. DEDICATED SMALL/TOWED EQUIPMENT & ATTACHMENT STORAGE
4. EQUIPMENT & TRAILERS
5. (5) SEMI-TRAILER STORAGE

DRAFT

Town of Truro
New Public Works Facility
Feasibility Study

Section 5
Receptor Maps & Test-Fit Conceptual Plans

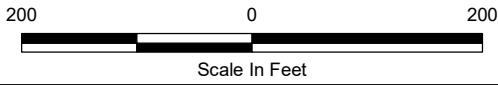
- 340 & 344
- Perennial Stream
- Intermittent Stream
- * NHESP Certified Vernal Pools
- DEP Wetlands
- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife
- ACECs
- 100-Year Flood Zone



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FIGURE 2
340 & 344, Route 6
Truro, Massachusetts

ENVIRONMENTAL RECEPTORS



<BOL>Path:</BOL> \\wse03.local\WSE\Depis\Water\ERMA\P\GIS - Constraints Mapping\Truro\Routes 6\Env Receptor(340&344).mxd <BOL>User:</BOL> Gaspara <BOL>Saved:</BOL> 11/29/2018 10:28:03 AM <BOL>Opened:</BOL> 1/17/2019 10:35:20 AM

Path: \\wse03\local\WSE\Depts\Water\ERMAP\GIS - Constraints\Mapping\Truro\Route 6\Figure 2 - Human Receptor.mxd User: GasparA Saved: 1/16/2019 3:41:52 PM Opened: 1/16/2019 3:43:12 PM

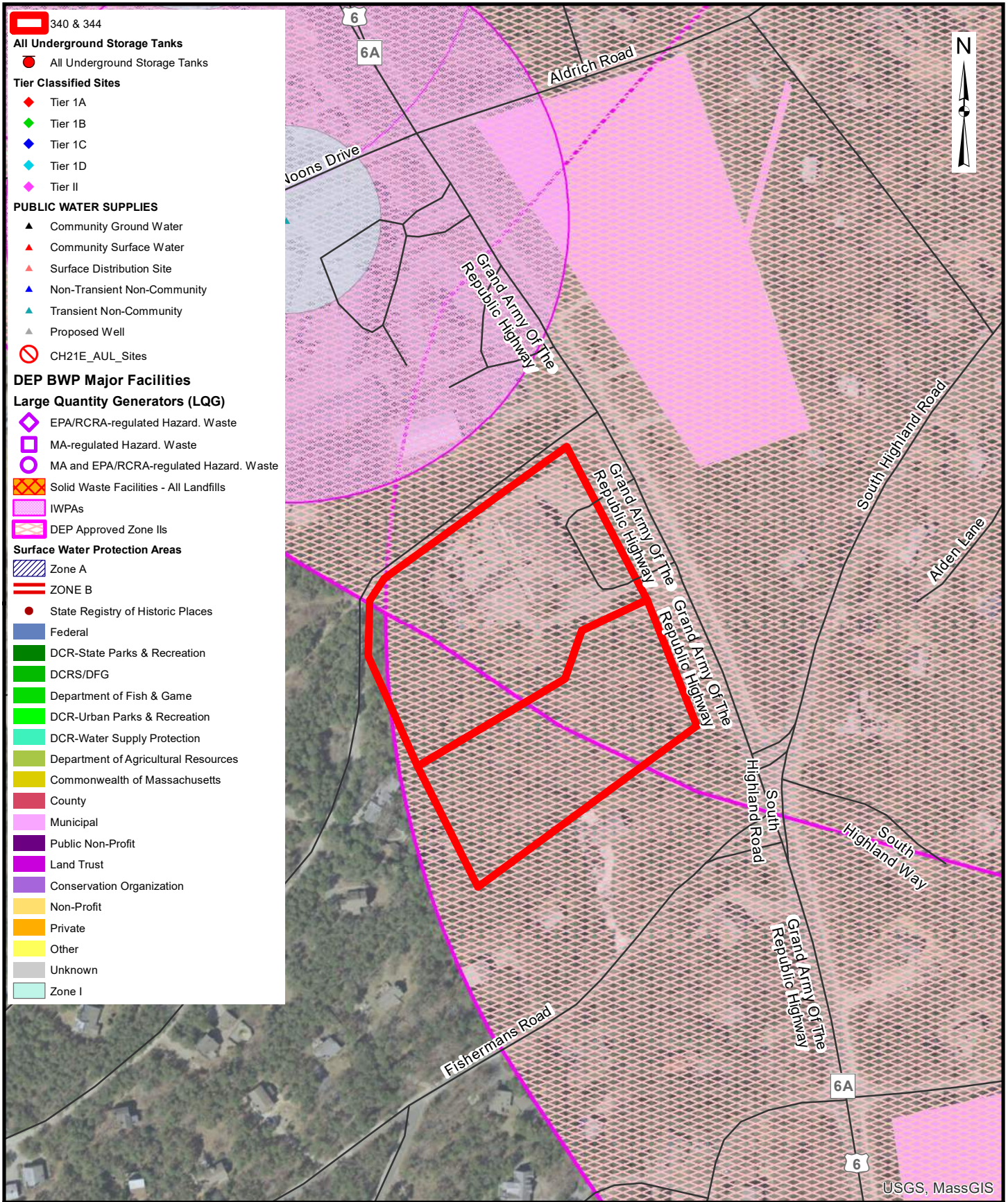









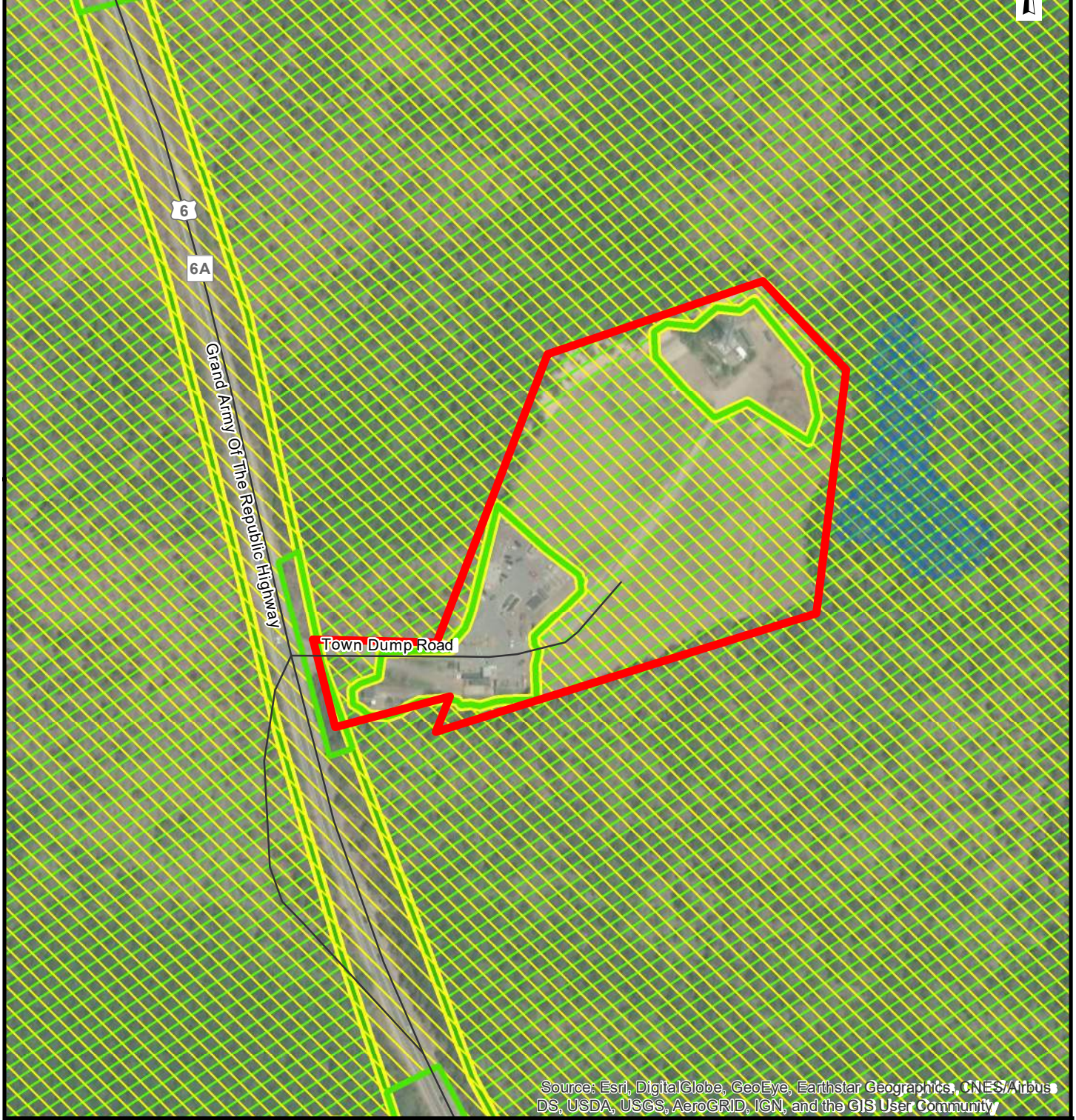


FIGURE 1
340 & 344, Route 6
Truro, Massachusetts

HUMAN RECEPTORS

100 0 100
 Scale In Feet

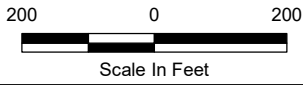
-  Work Area
-  Perennial Stream
-  Intermittent Stream
-  NHESP Certified Vernal Pools
-  DEP Wetlands
-  NHESP Priority Habitats of Rare Species
-  NHESP Estimated Habitats of Rare Wildlife
-  ACECs
-  100-Year Flood Zone











































Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FIGURE 2
115, Route 6
Truro, Massachusetts

ENVIRONMENTAL RECEPTORS



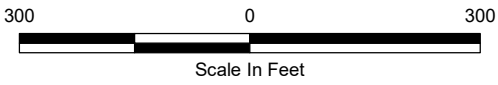
-  Work Area
- All Underground Storage Tanks**
-  All Underground Storage Tanks
- Tier Classified Sites**
-  Tier 1A
-  Tier 1B
-  Tier 1C
-  Tier 1D
-  Tier II
- PUBLIC WATER SUPPLIES**
-  Community Ground Water
-  Community Surface Water
-  Surface Distribution Site
-  Non-Transient Non-Community
-  Transient Non-Community
-  Proposed Well
-  CH21E_AUL_Sites
- DEP BWP Major Facilities**
- Large Quantity Generators (LQG)**
-  EPA/RCRA-regulated Hazard. Waste
-  MA-regulated Hazard. Waste
-  MA and EPA/RCRA-regulated Hazard. Waste
-  Solid Waste Facilities - All Landfills
-  IWPA's
-  DEP Approved Zone IIs
- Surface Water Protection Areas**
-  Zone A
-  ZONE B
-  State Registry of Historic Places
-  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
-  Zone I



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FIGURE 1
115, Route 6
Truro, Massachusetts

HUMAN RECEPTORS



Path: \\wse03\local\WSE\Depts\Water\ERMAP\GIS - Constraints\Mapping\Truro\Route 6\Human_Receptor(115).mxd User: GasparaA Saved: 1/17/2019 10:29:25 AM Opened: 1/17/2019 3:37:13 PM

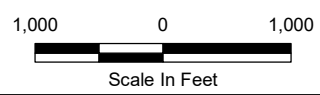
- 340 & 344
- Perennial Stream
- Intermittent Stream
- * NHESP Certified Vernal Pools
- DEP Wetlands
- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Wildlife
- ACECs
- 100-Year Flood Zone



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

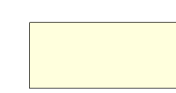

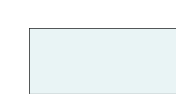



FIGURE 2
340 & 344, Route 6
Truro, Massachusetts

ENVIRONMENTAL RECEPTORS



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**PROGRAM -
SQUARE FOOTAGE:**

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,836 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	

Project:
TOWN OF TRURO



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TRURO, MA

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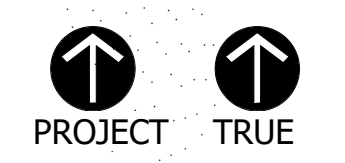
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Revisions:

Rev	Date	Description

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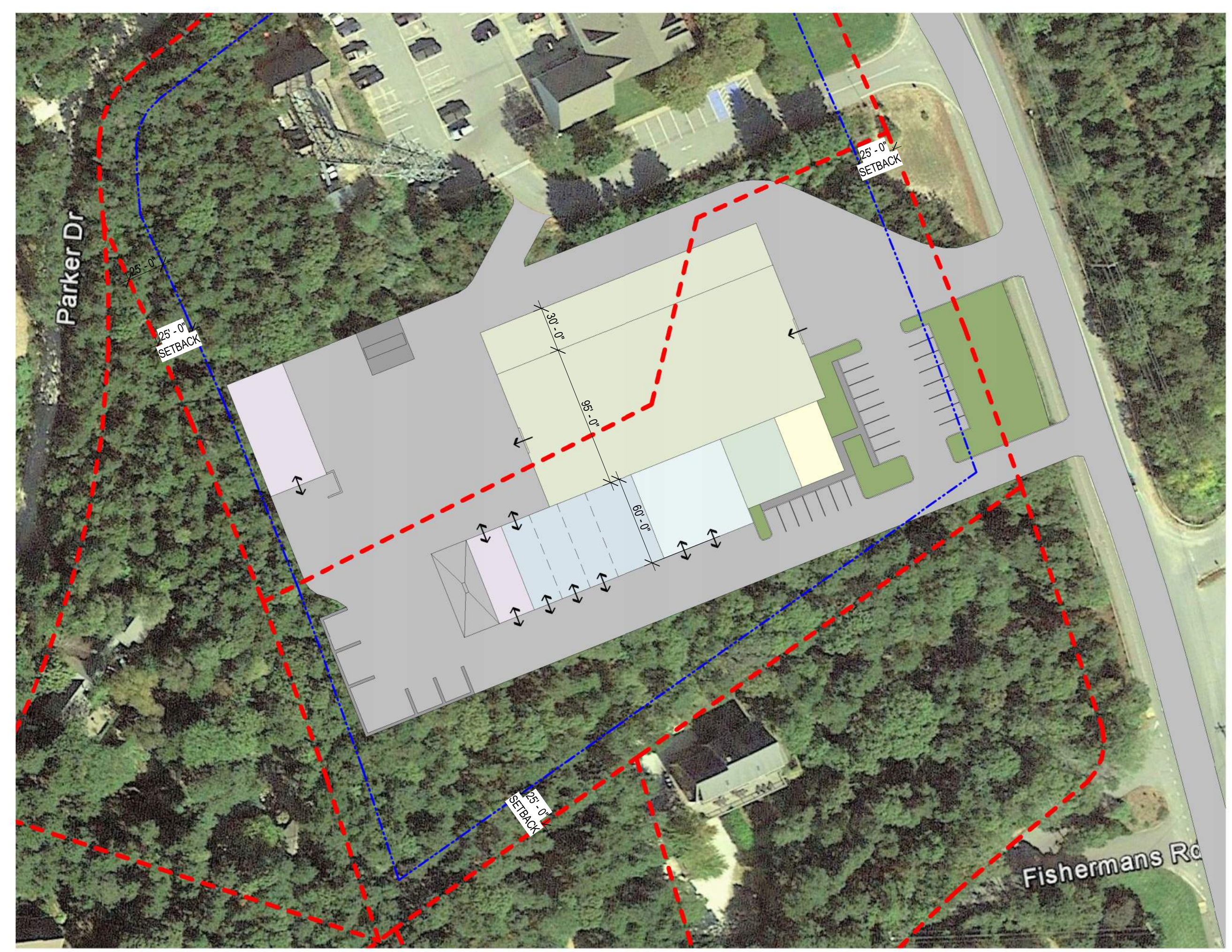
SCALE: AS NOTED

Date:	Issue Date
Drawn By:	Author
Reviewed By:	Checker
Approved By:	Approver
W&S Project No:	2180765

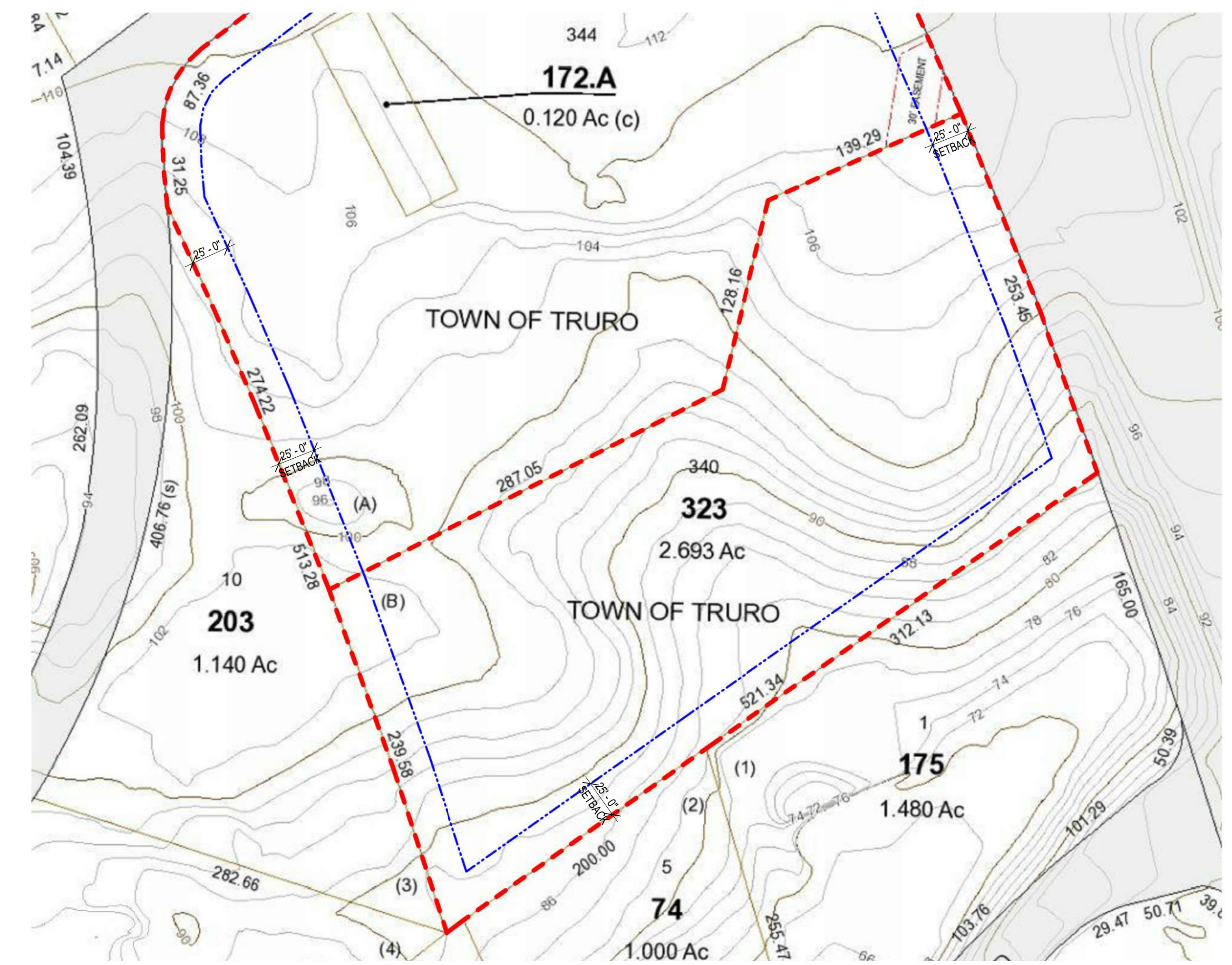
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**SITE 1 OVERVIEW
- 340/344 ROUTE 6**

Sheet Number:

A1.00

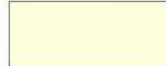


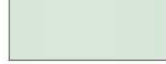

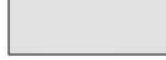


① SITE 1 - OVERVIEW - AERIAL
1" = 60'-0"



② SITE 1 - OVERVIEW - TOPOGRAPHY
1" = 60'-0"


PROGRAM - SQUARE FOOTAGE:

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	



① SITE 1 - 340/344 ROUTE 6
1" = 30'-0"

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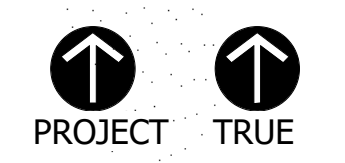
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Revisions:

Rev	Date	Description

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Approved By: Approver
W&S Project No: 2180765

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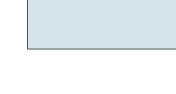
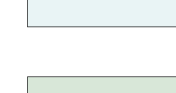

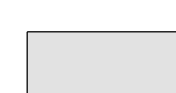

SITE 1 - 340/344
ROUTE 6

Sheet Number:

A1.01

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**PROGRAM -
SQUARE FOOTAGE:**

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,836 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	

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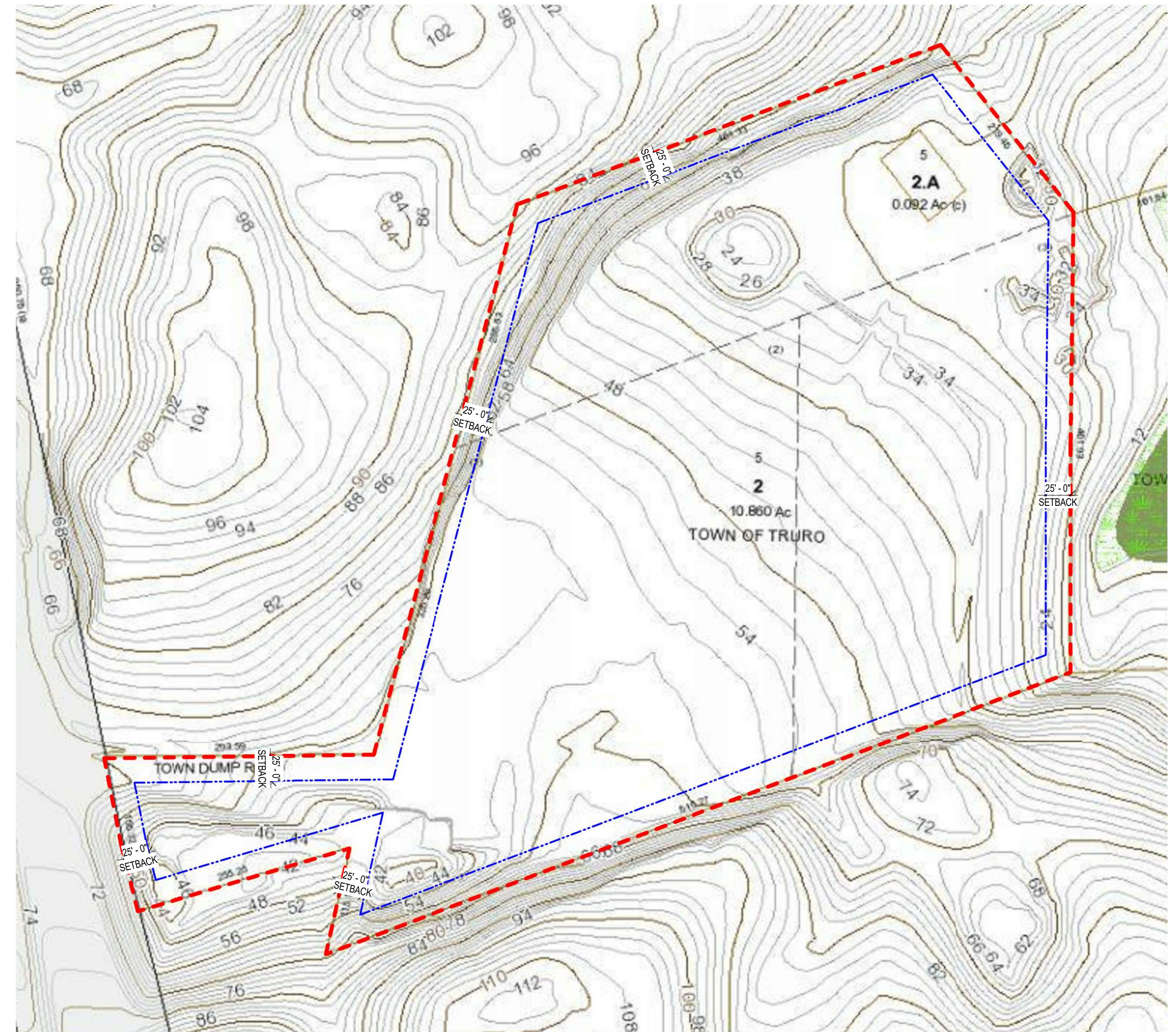
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Drawn By: Author
Reviewed By: Checker
Approved By: Approver
W&S Project No: 2180765

Drawing Title:
**SITE 2 OVERVIEW
- 5 TOWN DUMP ROAD**

Sheet Number:
A2.00

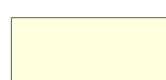

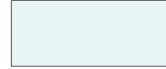





② TRANSFER STATION - GENERIC SITE PLAN - AERIAL
1" = 80'-0"

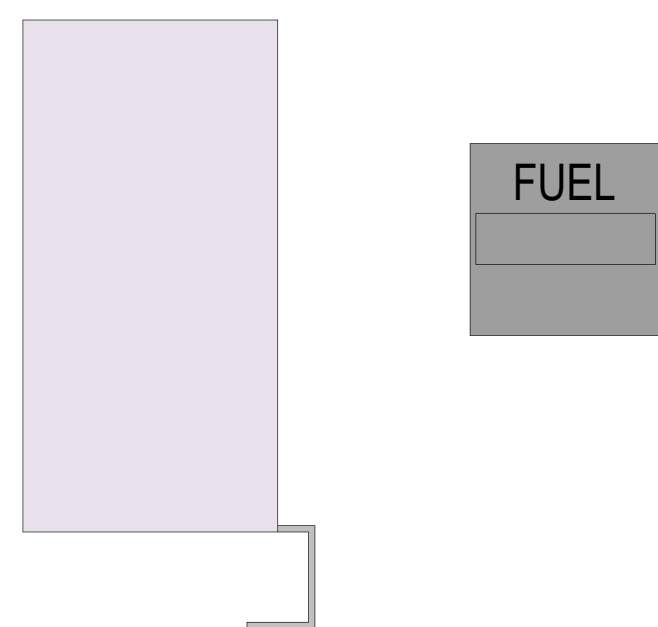
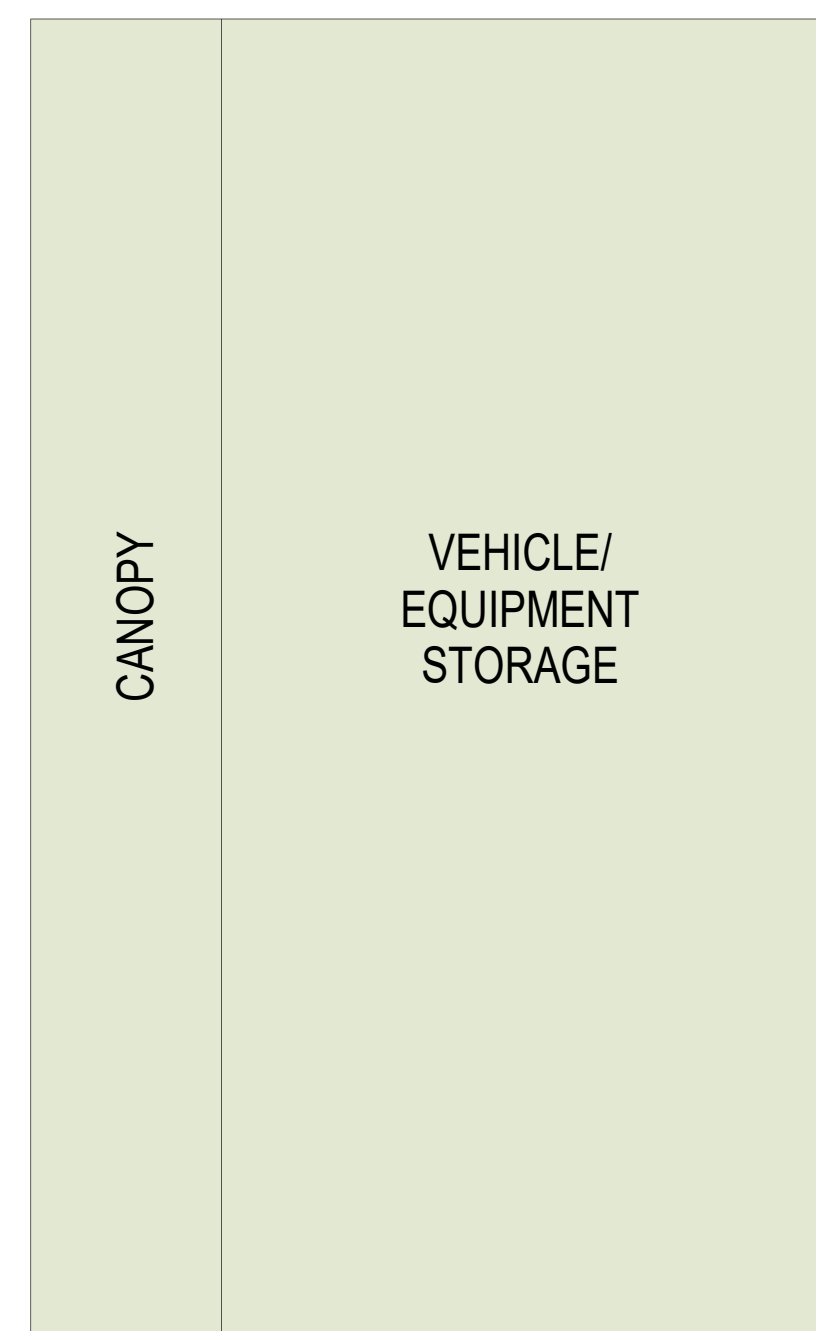


① TRANSFER STATION - GENERIC SITE PLAN - TOPOGRAPHY
1" = 80'-0"

**PROGRAM -
SQUARE FOOTAGE:**

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	

THERE IS NO ROOM FOR THE FOLLOWING SPACES:



① SITE 2 - 5 TOWN DUMP ROAD
1" = 30'-0"

Consultants:

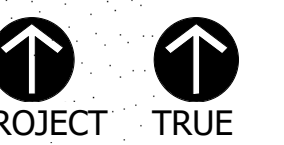
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Approved By: Approver
W&S Project No: 2180765

Drawing Title:
SITE 2 - 5 TOWN DUMP ROAD

Sheet Number:
A2.01

PROGRAM - SQUARE FOOTAGE:

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	

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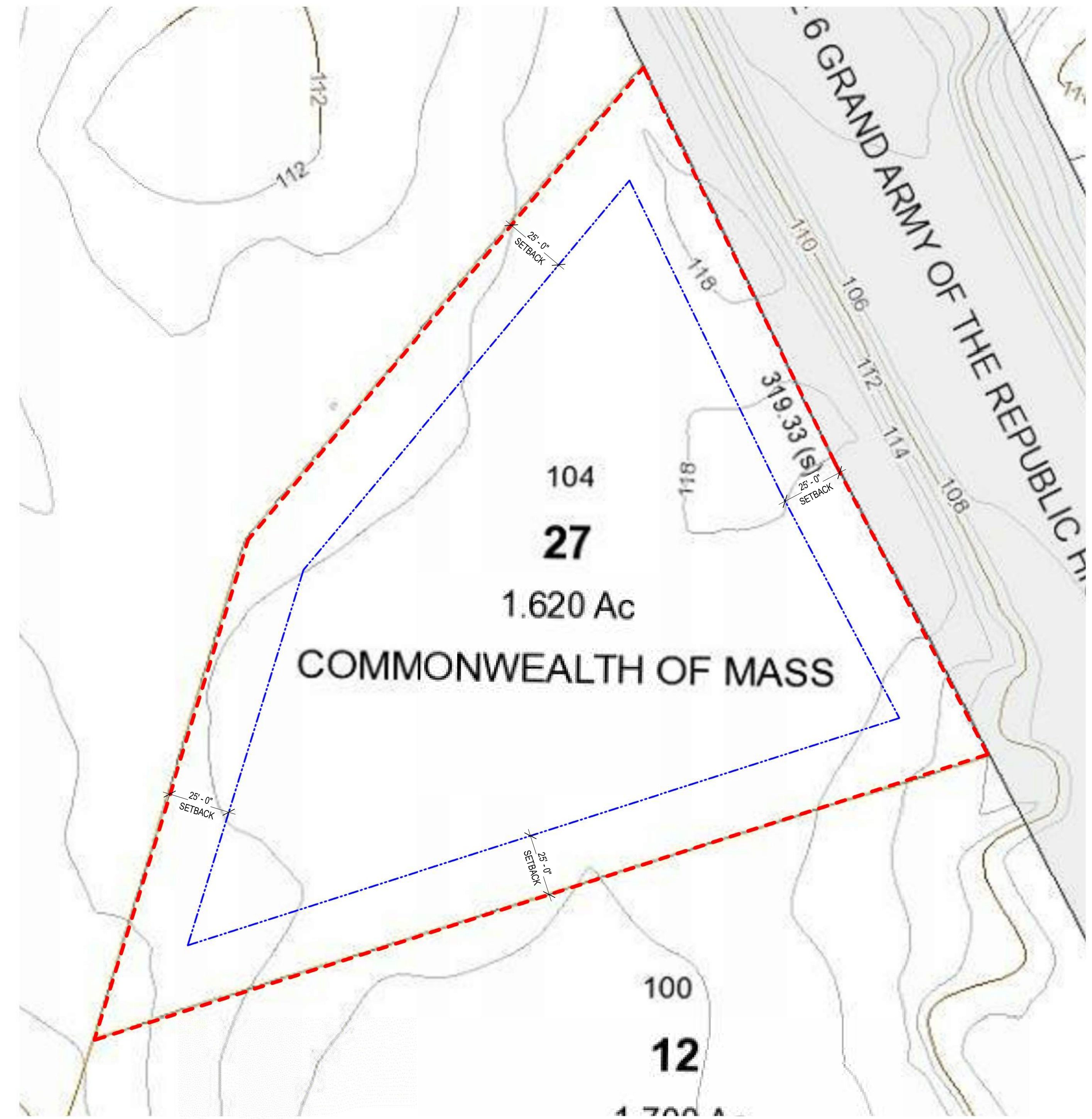
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W&S Project No: 2180765

Drawing Title:
SITE 3 OVERVIEW
- LOT 104 ROUTE 6
Sheet Number:

A3.00



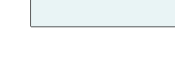





① SITE 3 - LOT 104 ROUTE 6 - AERIAL
1" = 30'-0"



② SITE 3 - LOT 104 ROUTE 6 - TOPOGRAPHY
1" = 30'-0"

**PROGRAM -
SQUARE FOOTAGE:**

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 16,963 SF	

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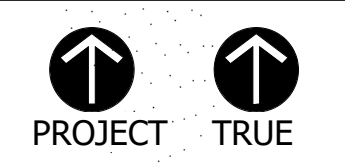
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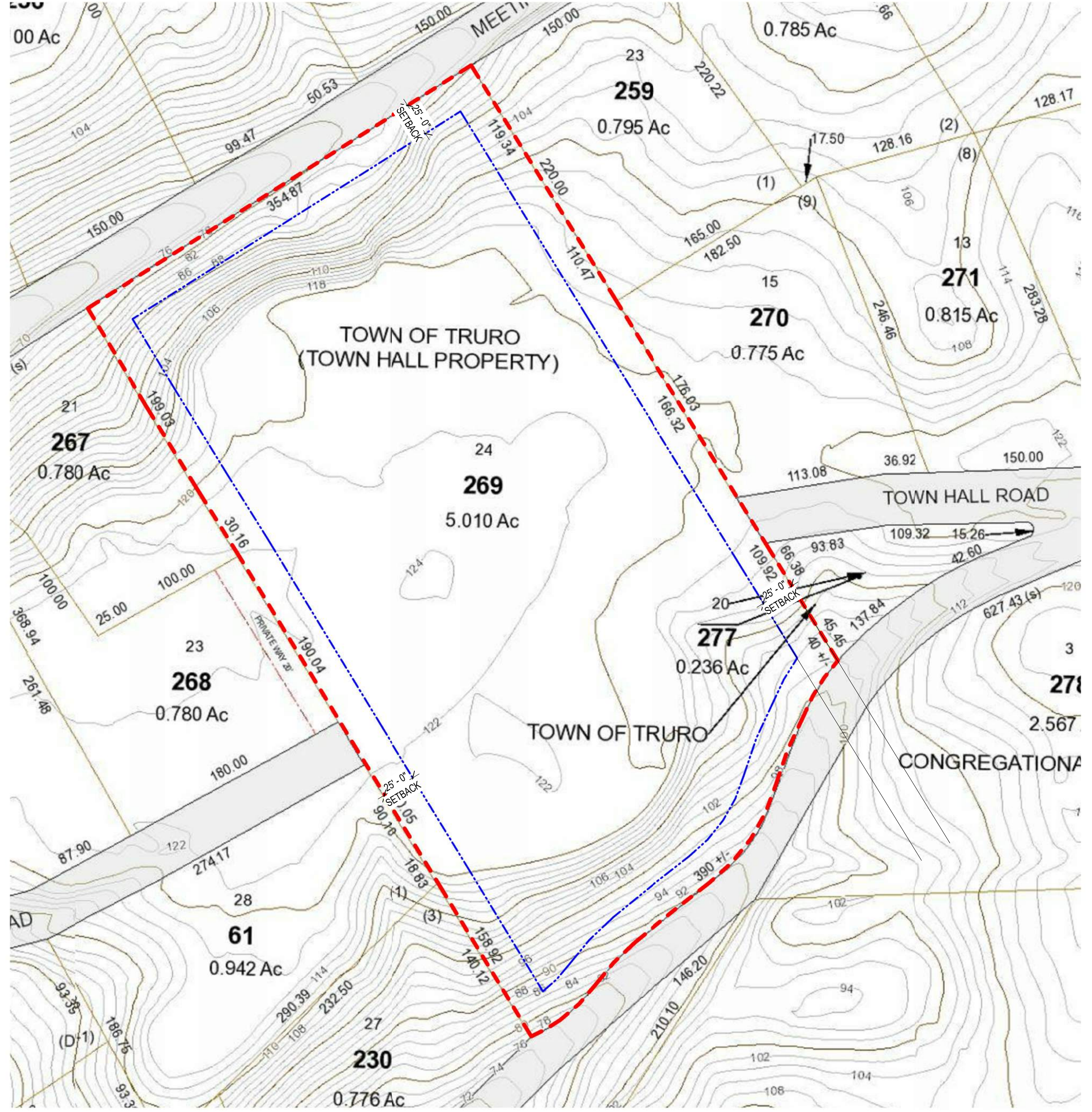
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Drawn By: Author
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W&S Project No: 2180765

Drawing Title:
**SITE 4 OVERVIEW
- 24 TOWN HALL ROAD**

Sheet Number:
A4.00

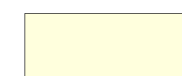







1 EXISTING SITE - GENERIC SITE PLAN - GOOGLE EARTH
1" = 60'-0"



2 EXISTING SITE - GENERIC SITE PLAN - TOPOGRAPHY
1" = 60'-0"

PROGRAM - SQUARE FOOTAGE:

OFFICES & OFFICE SUPPORT AREAS = 1,528 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,632 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 16,953 SF	



① SITE 4 - 24 TOWN HALL ROAD
1" = 30'-0"

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Approved By: Approver
W&S Project No: 2180765

Drawing Title:

SITE 4 - 24 TOWN HALL ROAD

Sheet Number:

A4.01

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Town of Truro
New Public Works Facility
Feasibility Study

Section 6

Initial Alternatives, Massing Models, and Conceptual Floor Plan



Consultants:

Seal:

Revisions:

Rev	Date	Description

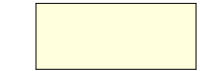
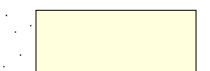




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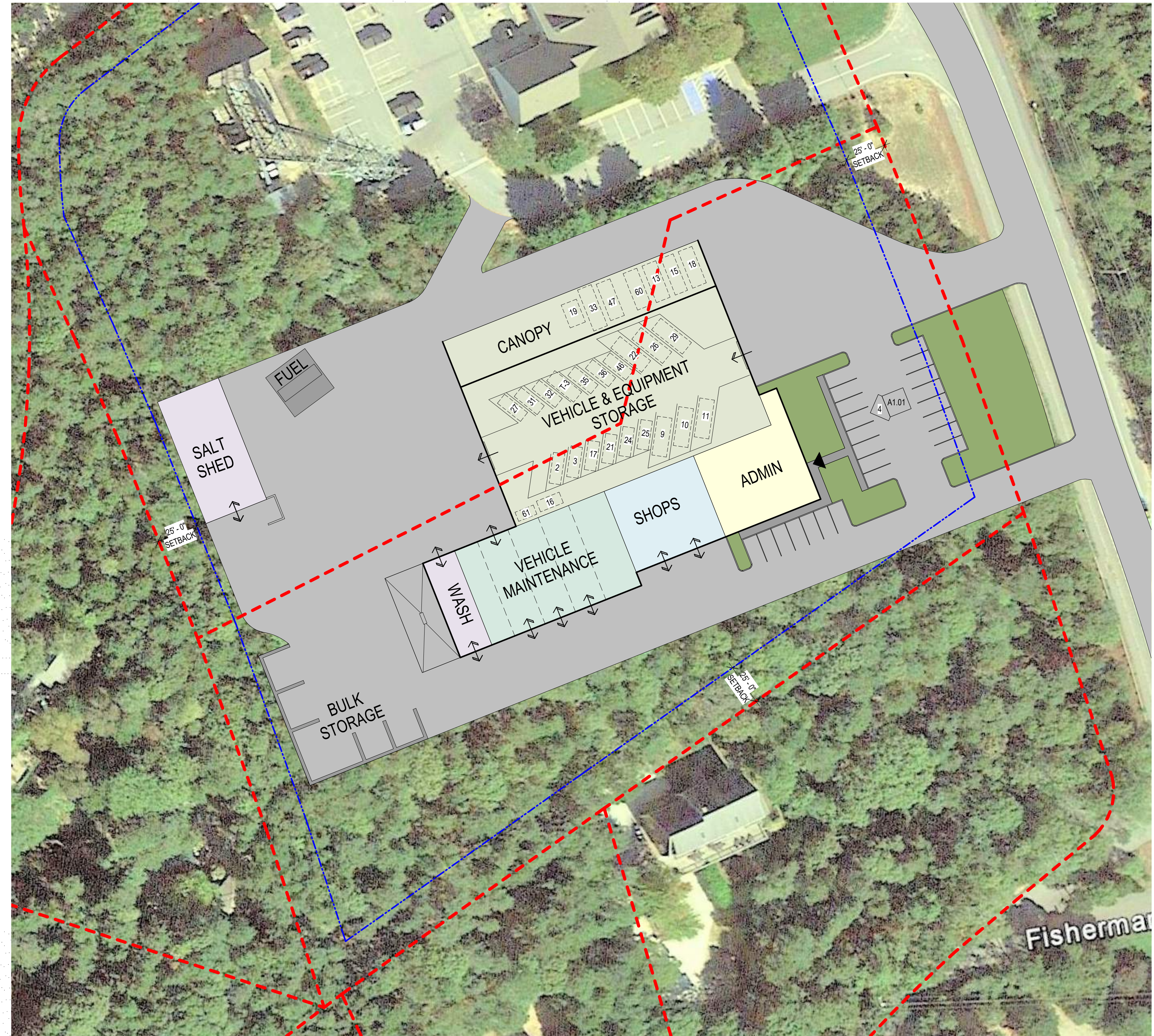
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SCALE: AS NOTED
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 Reviewed By: Checker
 Approved By: Approver
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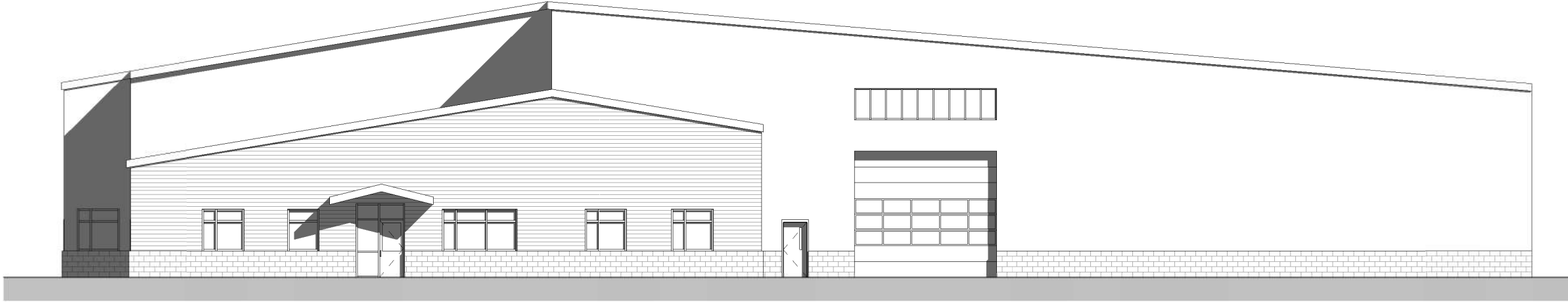
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SITE PLAN 1
 Sheet Number:
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PROGRAM - SQUARE FOOTAGE:

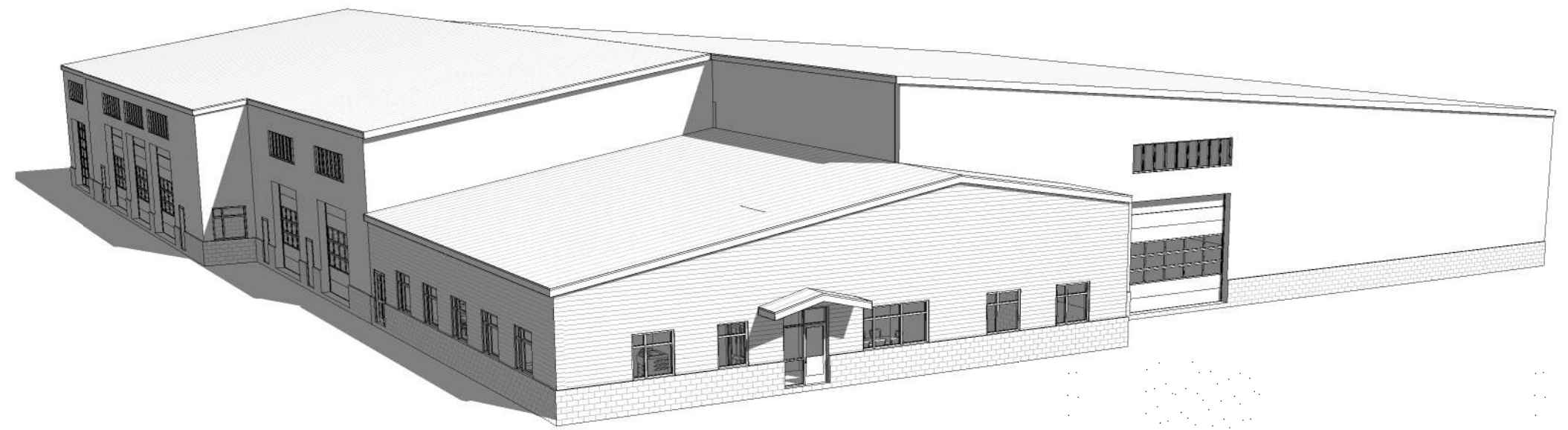
OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	



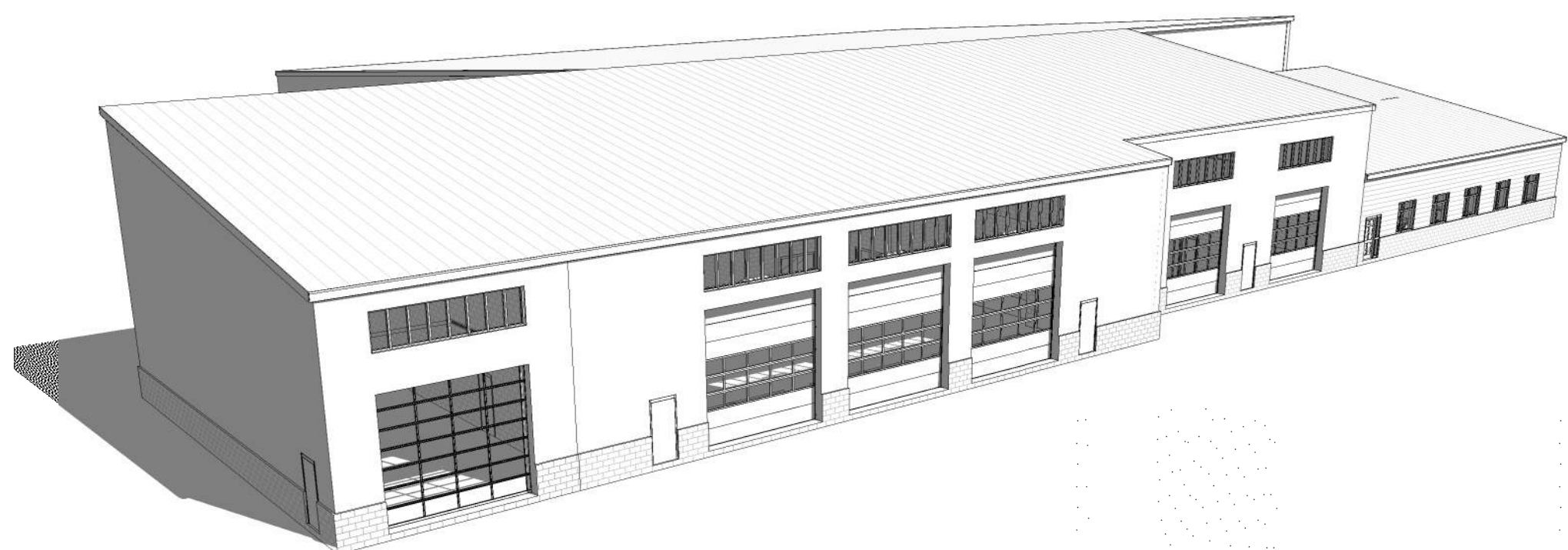
① SITE 1 - STANDARD
 1" = 40'-0"



④ SITE 1 - FRONT ELEVATION
 1/16" = 1'-0"

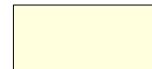




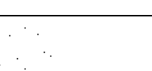


② SITE PLAN 1 - ENTRY



③ SITE PLAN 1 - VEHICLE MAINTENANCE

**PROGRAM -
SQUARE FOOTAGE:**

OFFICES & OFFICE SUPPORT AREAS = 1,525 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	

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W&S Project No: 2180765

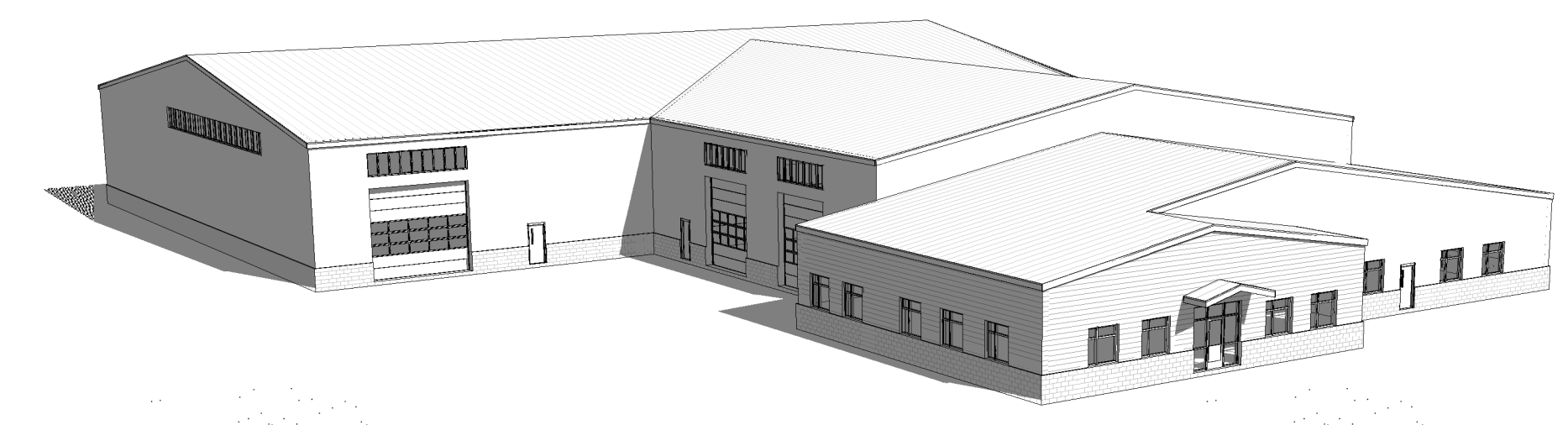
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Sheet Number:
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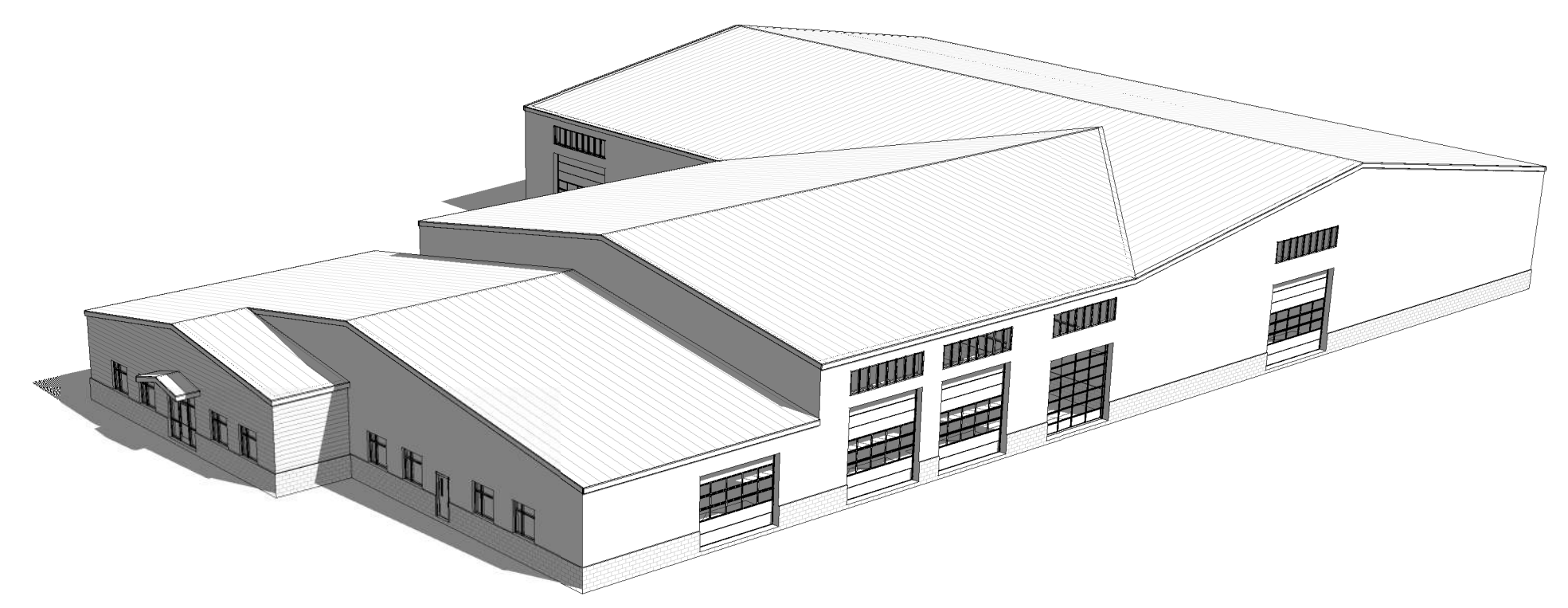
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③ SITE 2 - FRONT ELEVATION
1/16" = 1'-0"



① SITE PLAN 2 - ENTRANCE



② SITE PLAN 2 - MAINTENANCE



④ SITE PLAN 2 - CONSOLIDATED "L"
1" = 40'-0"



Consultants:

Seal:

Revisions:

Rev	Date	Description

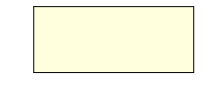
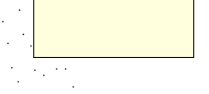
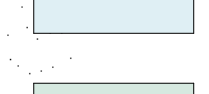

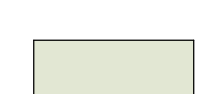
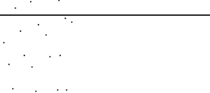
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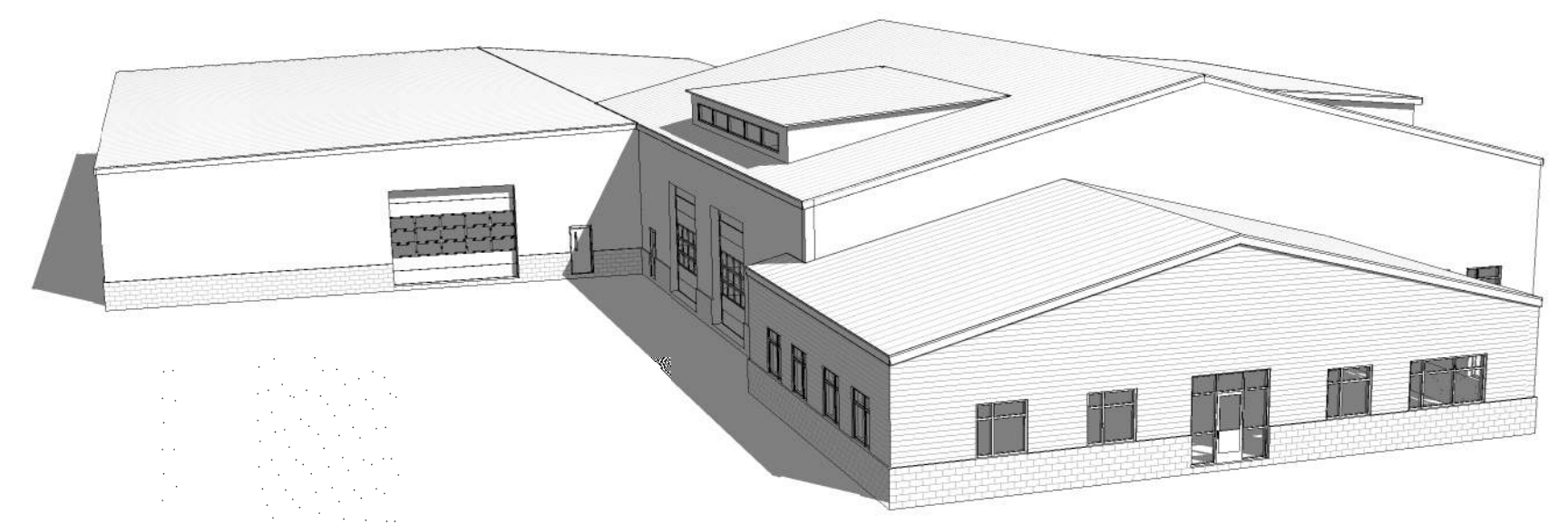
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SITE PLAN 3
 Sheet Number:
A3.01

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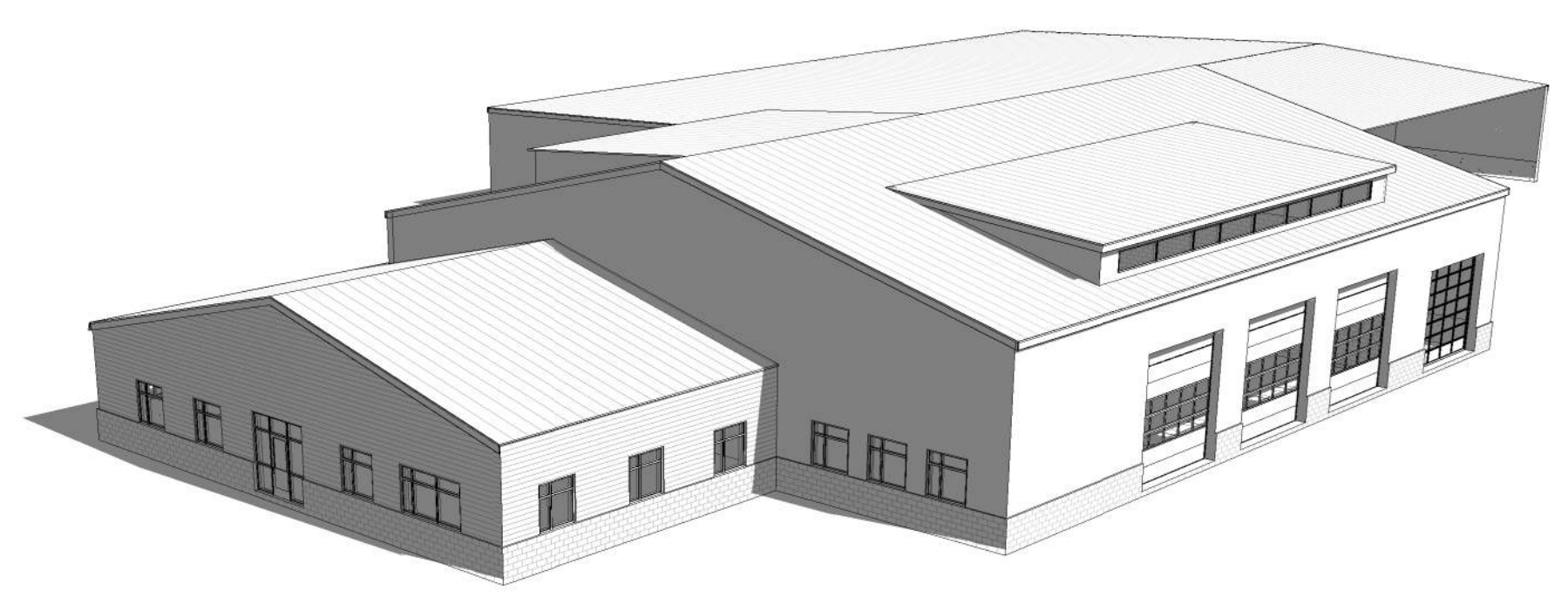
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EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,380 SF	
VEHICLE & EQUIPMENT STORAGE = 18,953 SF	



4 SITE 3 - FRONT ELEVATION
 1/16" = 1'-0"



2 SITE PLAN 3 - ENTRY

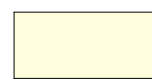
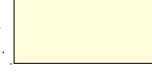






3 SITE PLAN 3 - MAINTENANCE



1 SITE PLAN 3 - CONSOLIDATED BAR
 1" = 40'-0"

**PROGRAM -
SQUARE FOOTAGE:**

OFFICES & OFFICE SUPPORT AREAS = 1,526 SF	
EMPLOYEE FACILITIES = 1,936 SF	
WORKSHOPS = 3,192 SF	
VEHICLE MAINTENANCE = 5,532 SF	
WASH BAY = 1,350 SF	
VEHICLE & EQUIPMENT STORAGE = 16,953 SF	

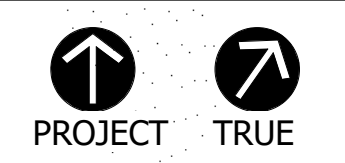
Consultants:

Seal:

Revisions:

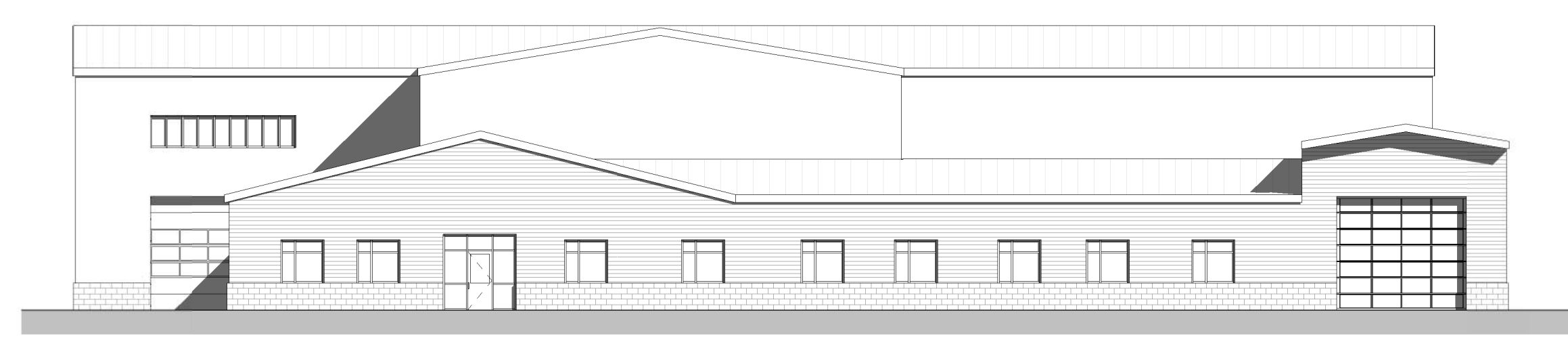
Rev	Date	Description

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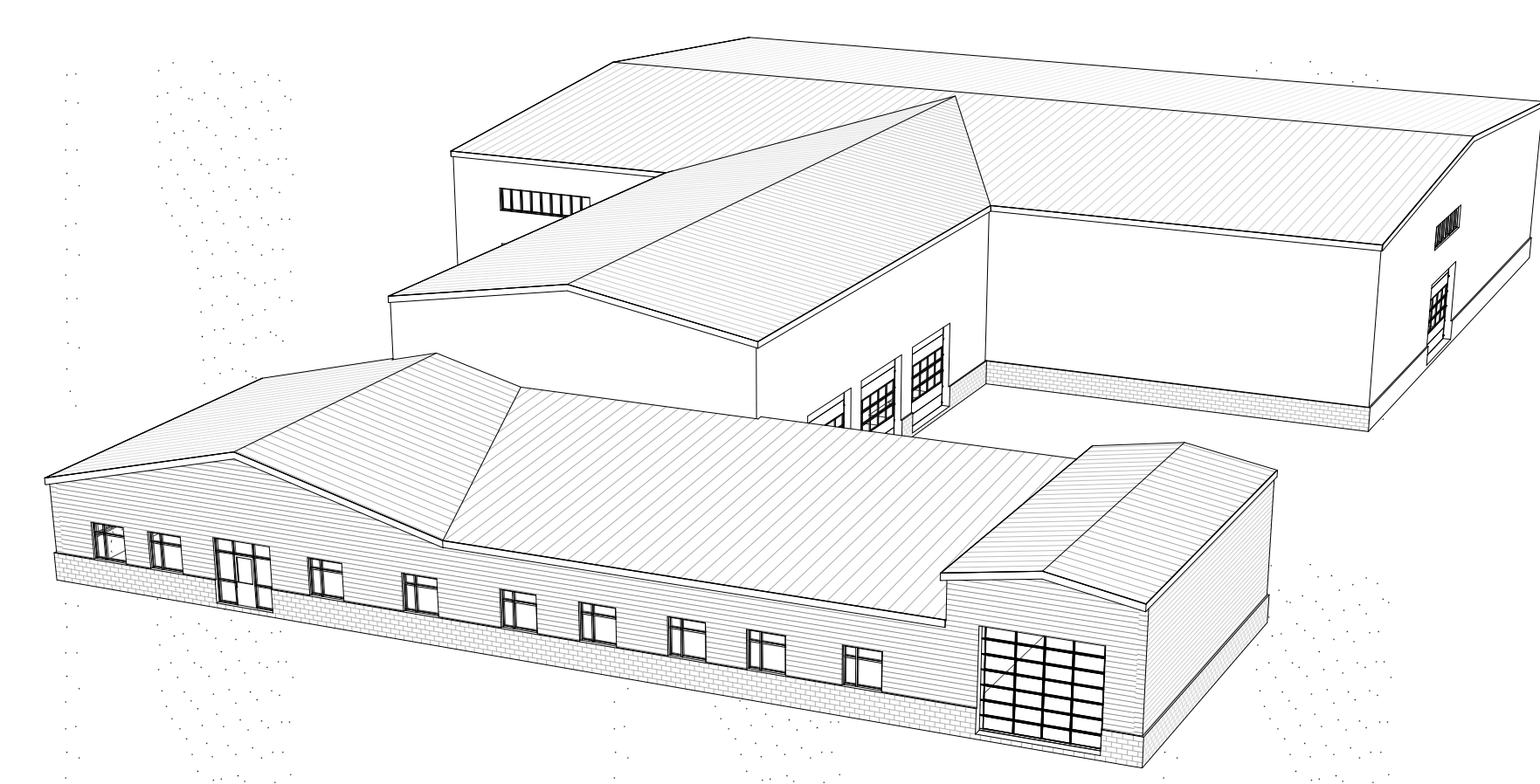
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SCALE: AS NOTED
Date: Issue Date
Drawn By: Author
Reviewed By: Checker
Approved By: Approver
W&S Project No: 2180765

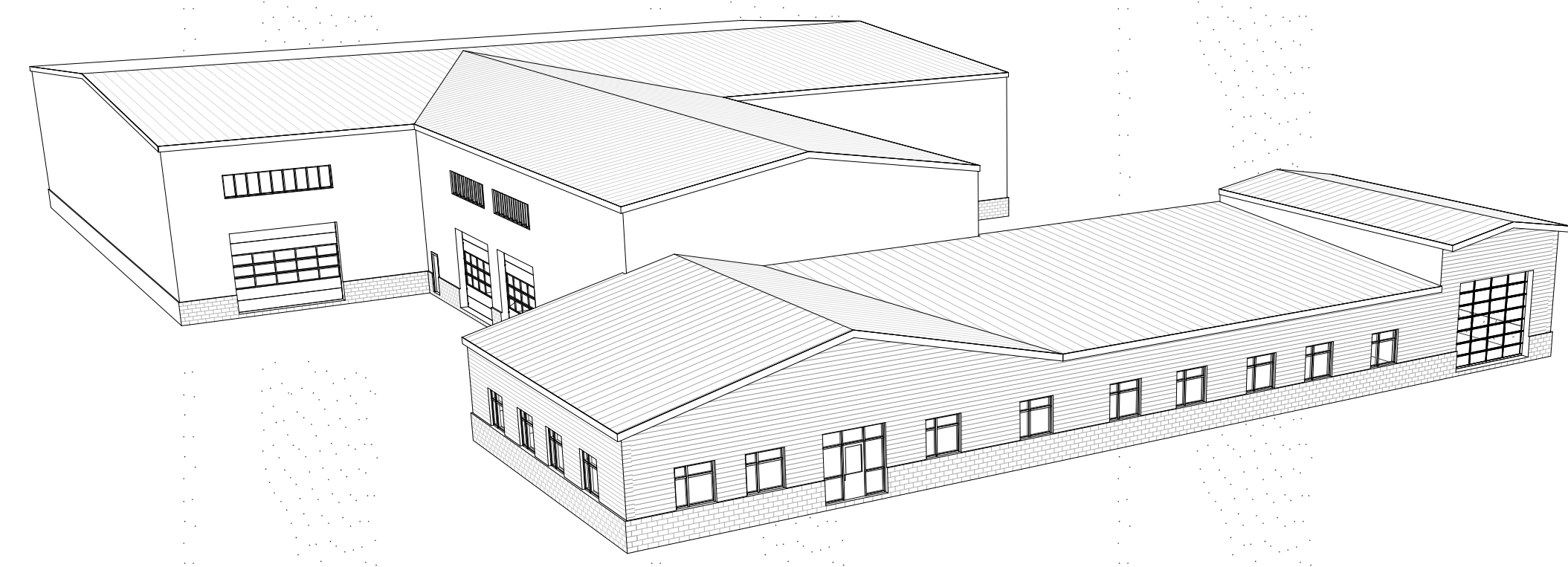
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SITE PLAN 4
Sheet Number:
A4.01
WESTON & SAMPSON COPYRIGHT 2018



④ SITE 4 - FRONT ELEVATION
1/16" = 1'-0"



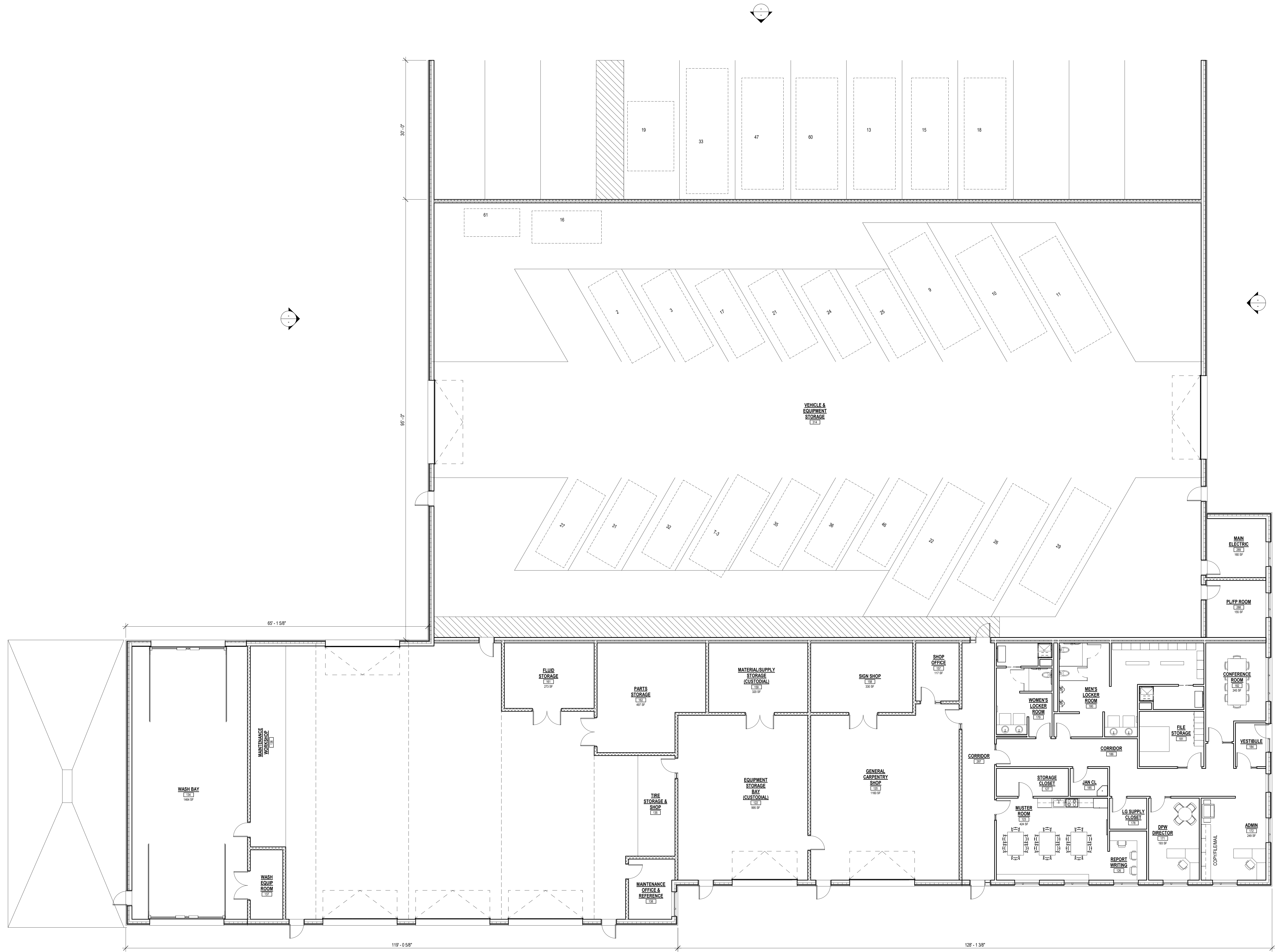
② SITE PLAN 4 - WASH



③ SITE PLAN 4 - ENTRY



① SITE PLAN 4 - CAMPUS
1" = 40'-0"



Project:
TOWN OF TRURO

NEW PUBLIC WORKS
FACILITY
TRURO, MA

Weston & Sampson
Weston & Sampson Engineers, Inc.
100 Foxborough Boulevard - Suite 250
Foxborough, MA 02035
(508) 698-3024 (800) SAMPSON
www.westonandsampson.com

Consultants:

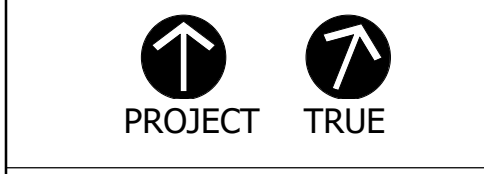
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Rev	Date	Description

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SCALE: AS NOTED

Date: Issue Date
Drawn By: Author
Reviewed By: Checker
Approved By: Approver
W&S Project No: 2180765

Drawing Title:

GENERIC SITE PLAN

Sheet Number:

A1

1 GENERIC SITE PLAN
1/8" = 1'-0"

Town of Truro
New Public Works Facility
Feasibility Study

Section 7
Conceptual Cost Estimate

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

6/13/2019

<u>New Construction</u>	Area	Size (SF)	2019 Cost/SF (w/ markups)	Cost
	Administration / Employee Facilities	3,461	\$ 356	\$ 1,233,207
	Shops	3,192	\$ 250	\$ 799,225
	Vehicle Maintenance (not including equipment)	5,532	\$ 250	\$ 1,385,123
	Wash	1,350	\$ 473	\$ 639,201
	Vehicle/Equipment Storage	18,953	\$ 197	\$ 3,741,662
	Added Cost for Specialty Foundations (based on 1st floor area)	32,488	\$ 18	\$ 584,784
			Place a "x" if applicable	
	Increase for Specialty Finishes / Conventional Construction (25%):		x	\$ 308,302
	New Construction Subtotal:	32,488		\$ 8,691,504
	Building Cost per SF:	268		
			Place a "x" here if included	
	Industrial Equipment			
	- Wash Equipment	\$ 76,300	x	\$ 76,300
	- Wash Equipment - Undercarriage Wash	\$ 48,200	x	\$ 48,200
	- Heavy Duty Vehicle Lift (Portable)	\$ 99,000	x	\$ 99,000
	- Light Duty Vehicle Lift (16,000 lb capacity minimum)	\$ 36,400	x	\$ 36,400
	- Small Equipment Lift (16,000 lb capacity minimum)	\$ 26,000	x	\$ 26,000
	- Small Parts Paint Booth	\$ 15,000	x	\$ 15,000
	- Bridge Crane	\$ 66,600	x	\$ 66,600
	- Overhead Lubrication System	\$ 90,000	x	\$ 90,000
	- Miscellaneous Shop and Support Equipment	\$ 50,700	x	\$ 50,700
	- Storage Shelving / Benches / Racks	\$ 40,600	x	\$ 40,600
	- Exhaust Removal System (2 units)	\$ 40,000	x	\$ 40,000
	Industrial Equipment Subtotal:			\$ 588,799
	Fuel System			
	- Relocate Existing Fuel System (allowance)	\$ 150,000	x	\$ 150,000
	- Bollards	\$ 18,500	x	\$ 18,500
	- Fire Suppression	\$ 47,200	x	\$ 47,200
	- Concrete Pad & Island	\$ 35,000	x	\$ 35,000
	- Startup & Closeout	\$ 32,200	x	\$ 32,200
	Fuel System Subtotal:			\$ 282,900
	Building & Equipment Total:			\$ 9,563,202

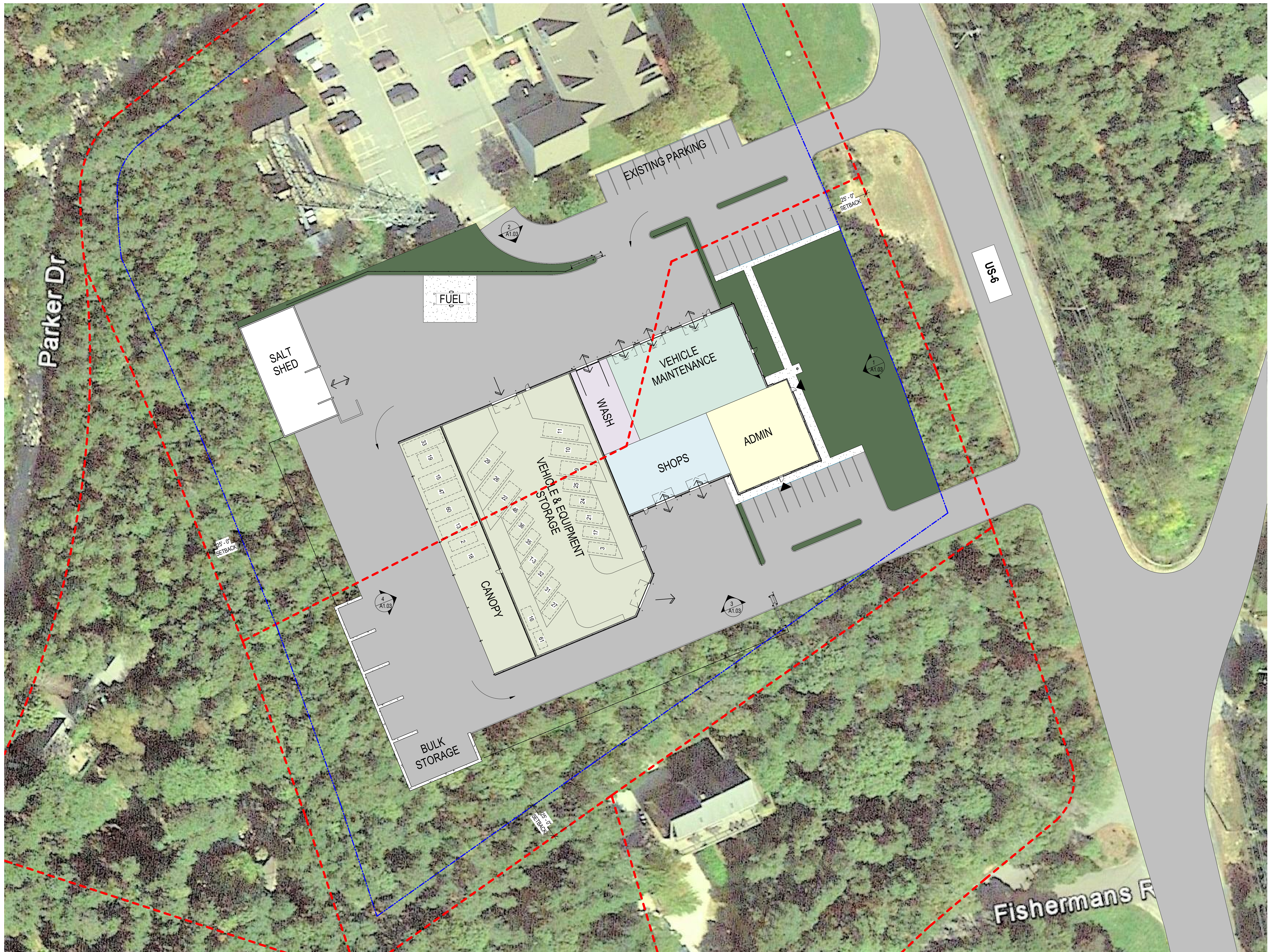
**Town of Truro
New Public Works Facility
Budget Total Project Cost**

6/13/2019

Mezzanines	2,879	\$	118	\$	339,649
Open Canopy Storage	5,700	\$	91	\$	519,582
Site Development (acres) - assumes level site with no contamination, existing structures/utilities, etc.	3.0	\$	446,800	\$	1,340,400
Specialty Sitework (retaining walls & fill)	1	\$	312,500	\$	312,500
Salt/Sand Sheds	2,400		117	\$	280,476
			Subtotal Bldg, Equip, & Site: \$		12,355,809
			2019 Market Adjustment (4%): \$		494,232
			Design Contingency (5%): \$		642,502
			Escalation - 2020 (6% per year): \$		809,553
			Escalation - 2021 (6% per year): \$		858,126
			Location Factor (4%): \$		606,409
			Total Construction:		\$ 15,766,631
			Total Construction Cost/SF:		485
Department of Public Works					
Budget Total Project Cost					
<u>Owner's Soft Costs</u>					
A&E Fees (design, bid, const.)	\$ 1,576,663		(Assume 10% of Const. Value)		
A&E Special Services	\$ 315,333		(Assume 2% of Const. Value)		
Owner's Project Manager Fees	\$ 630,665		(Avg 4% of Const. Value)		
Furnishings (FFE)	\$ 80,000		allowance		
Communic. / Low Voltage System	\$ 120,000		allowance		
Commissioning	\$ 40,000		allowance		
Chapter 17 Test & Inspections	\$ 40,000		allowance		
Moving Costs	\$ 30,000		allowance		
Construction Contingency (6%)	\$ 945,998		allowance		
			Total Soft Costs: \$		3,778,659
			TOTAL PROJECT COST \$		19,545,290

Feasibility Study Report Supplement No. 1

- Updated Preferred Site Plan
- Conceptual Building Elevations
- Conceptual Massing Model
- Conceptual Rendering
- Updated Cost Estimate



④ SITE PLAN - CONCEPT 2 - CONSOLIDATED "L"
1" = 30'-0"

Consultants:

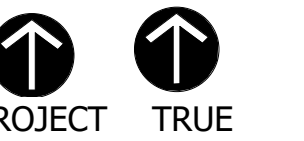
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Revisions:

Rev	Date	Description

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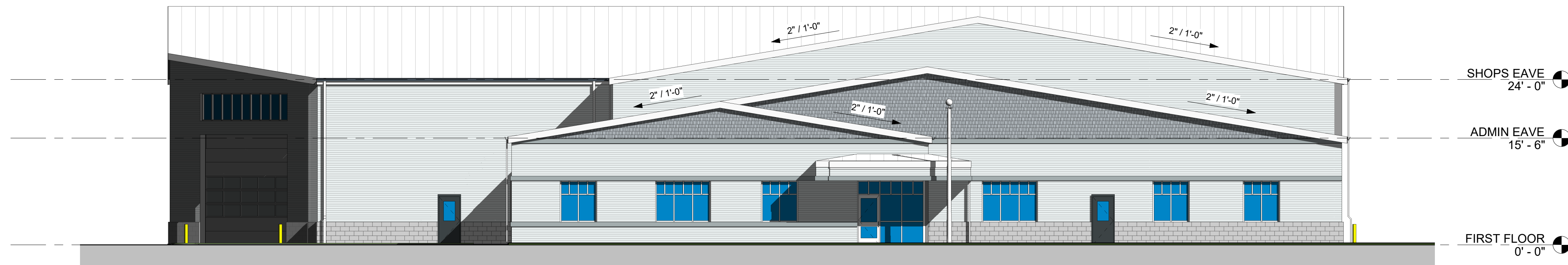
Date:	Issue Date
Drawn By:	Author
Reviewed By:	Checker
Approved By:	Approver
W&S Project No:	2180765

Drawing Title:

CONCEPT PLAN

Sheet Number:

A1.01



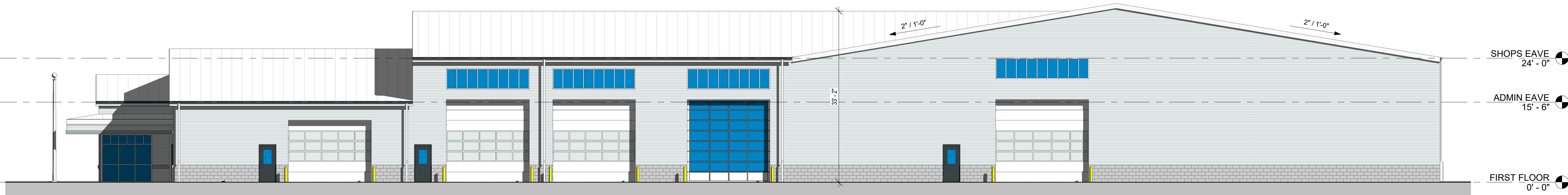
① EAST ELEVATION
1" = 10'-0"



④ WEST ELEVATION
1" = 10'-0"



③ SOUTH ELEVATION
1" = 10'-0"



② NORTH ELEVATION
1" = 10'-0"

Project:
TOWN OF TRURO



NEW PUBLIC WORKS FACILITY
TRURO, MA

Weston & Sampson
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100 Foxborough Boulevard Suite 250
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Consultants:

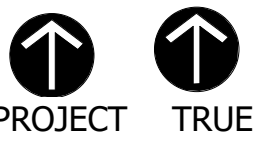
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Revisions:

Rev	Date	Description

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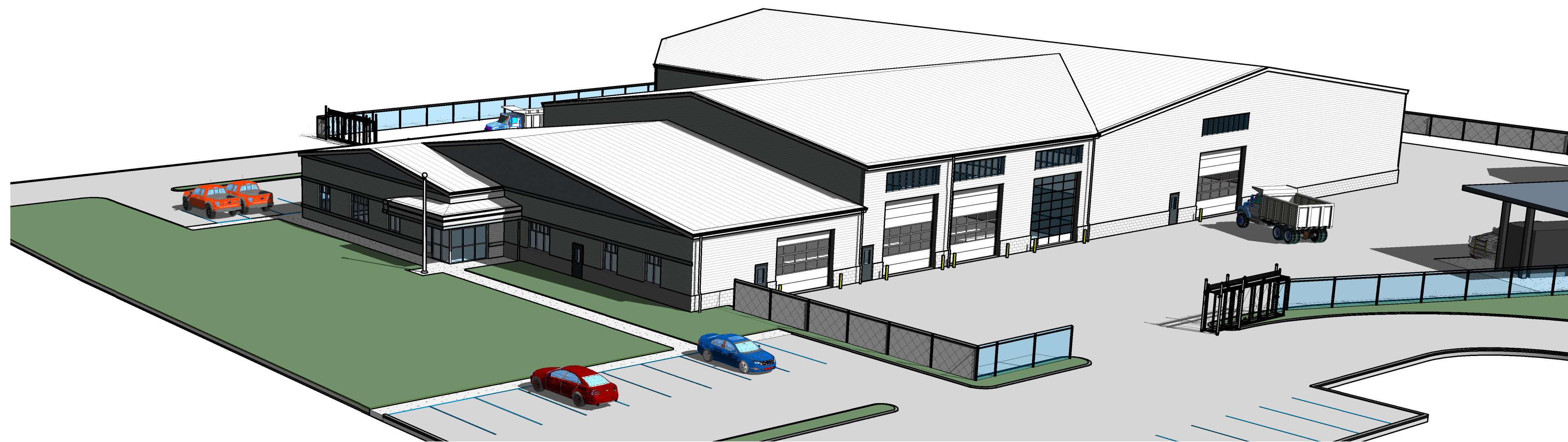


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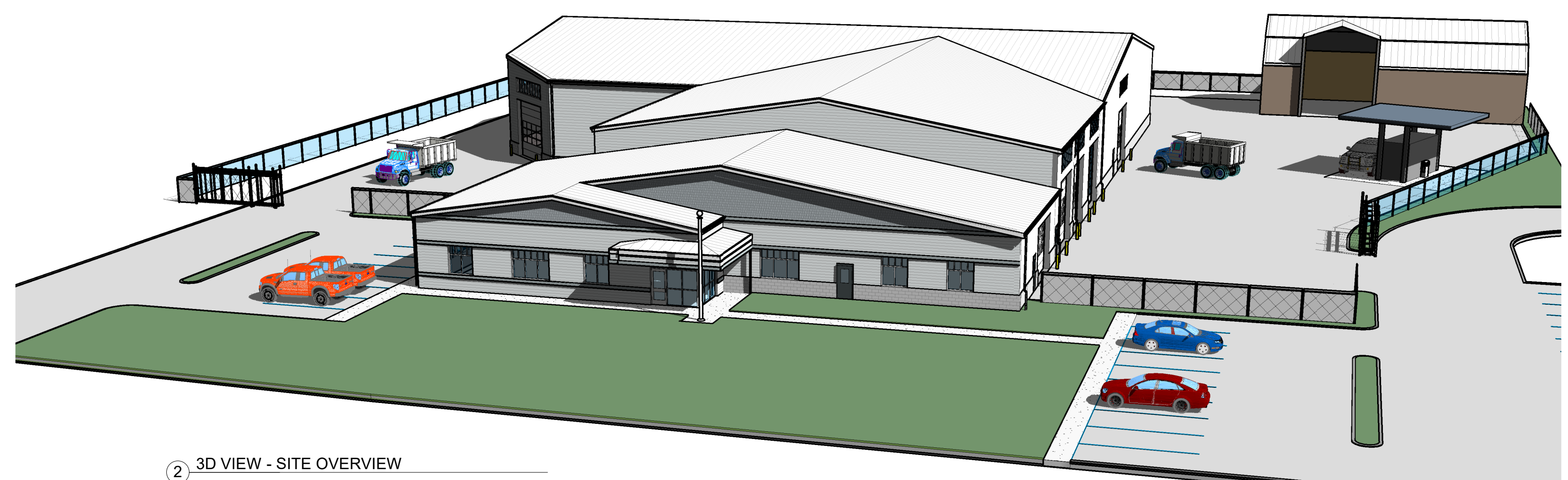
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Drawn By: Author
Reviewed By: Checker
Approved By: Approver
W&S Project No: 2180765

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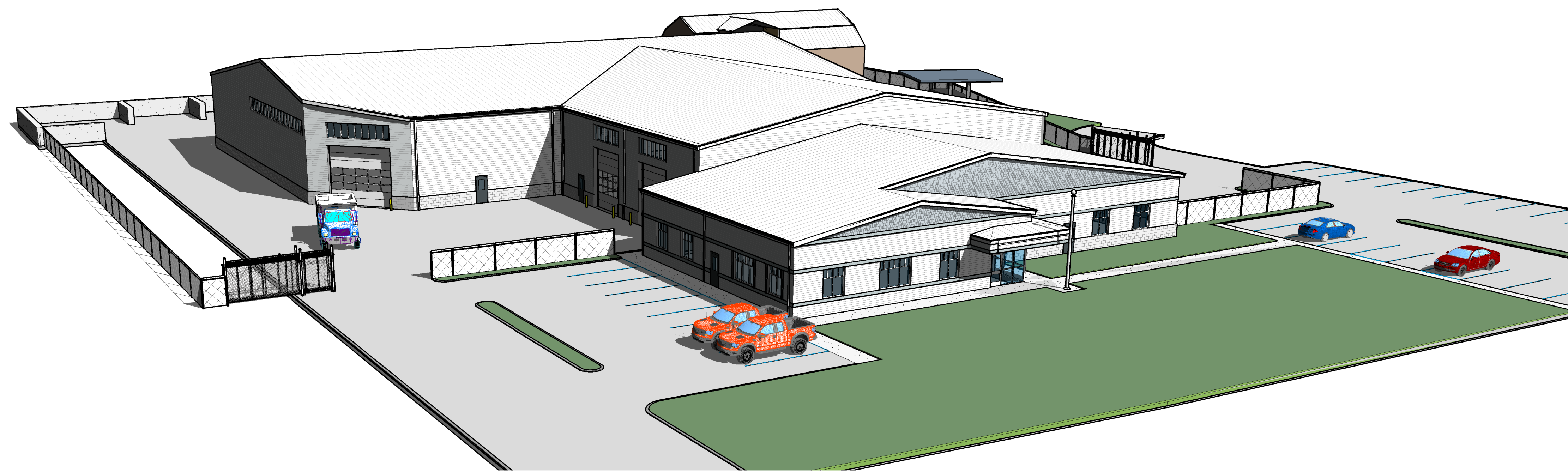
Sheet Number:
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① 3D VIEW - VEHICLE MAINTENANCE



② 3D VIEW - SITE OVERVIEW



③ 3D VIEW - ENTRANCE

Consultants:

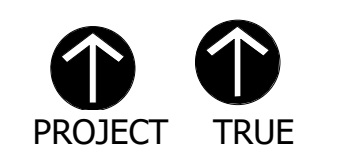
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Issued For: PROJECT STATUS



SCALE: AS NOTED

Date:	Issue Date
Drawn By:	Author
Reviewed By:	Checker
Approved By:	Approver
W&S Project No:	2180765

Drawing Title:
3D VIEWS
 Sheet Number:
A1.04

Town of Truro
New Public Works Facility

Conceptual Rendering



Town of Truro
New Public Works Facility

Conceptual Cost Estimate

Building Construction Costs:	\$9,210,000
Mezzanines:	\$340,000
Industrial Equipment:	\$589,000
Fuel System Relocation:	\$283,000
Site Development:	\$1,653,000
Salt/Sand Storage Structure:	\$280,000
Market & Location Adjustment Factor:	\$1,875,000
Design Contingencies & Escalation:	\$2,445,000
Construction Contingencies:	\$1,000,000
Owner's Project Development Costs:	\$2,980,000

**Construction
Cost per SF
\$513**

TOTAL PROJECT COST: \$20,655,000

Town of Truro New Public Works Facility

Construction Cost Comparison (Does not include soft costs)

Description	Size (SF)	Bid Date	Average Bid Price	2019 Avg Cost per SF	2020 Avg Cost per SF	2021 Avg Cost per SF
Wayland Public Works Facility	39,869	2014	\$ 10,519,754	\$397	\$421	\$438
Medford Public Works Facility	45,000	2014	\$ 12,340,333	\$413	\$438	\$455
Bourne Public Works Facility	39,040	2014	\$ 11,063,598	\$427	\$452	\$470
Norwood Public Works Facility	53,870	2014	\$ 15,437,343	\$431	\$457	\$476
Boylston Highway Facility	13,926	2015	\$ 3,935,419	\$408	\$432	\$449
Hopkinton Public Works Facility	42,410	2016	\$ 12,112,833	\$395	\$419	\$435
Orleans Public Works Facility	42,278	2017	\$ 12,833,834	\$373	\$396	\$412
Andover Municipal Services Facility	54,088	2017	\$ 18,413,675	\$418	\$443	\$461
Longmeadow Public Works Facility	44,858	2018	\$ 14,773,364	\$374	\$396	\$412
Grafton DPW Facility	33,710	2018	\$ 12,399,201	\$418	\$443	\$460
Middleboro DPW Facility	34,000	2019	\$ 14,355,199	\$422	\$448	\$465
Yarmouth DPW Facility	37,990	2019	\$ 16,367,227	\$431	\$457	\$475
Burlington DPW Facility	66,200	2019	\$ 26,074,333	\$394	\$418	\$434
Average Cost per SF:				\$411	\$436	\$453

Truro DPW 2021 Construction Cost per SF: \$513
(higher cost per SF due to location factor & higher contingencies associated with early nature of project)

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

12/2/2019

<u>New Construction</u>	Area	Size (SF)	2019 Cost/SF (w/ markups)	Cost
	Administration / Employee Facilities	3,461	\$ 356	\$ 1,233,207
	Shops	3,192	\$ 250	\$ 799,225
	Vehicle Maintenance (not including equipment)	5,532	\$ 250	\$ 1,385,123
	Wash	1,350	\$ 473	\$ 639,201
	Vehicle/Equipment Storage	18,953	\$ 197	\$ 3,741,662
	Added Cost for Specialty Foundations (based on 1st floor area)	32,488	\$ 18	\$ 584,784
			Place a "x" if applicable	
	Increase for Specialty Finishes / Conventional Construction (25%):		x	\$ 308,302
	New Construction Subtotal:	32,488		\$ 8,691,504
	Building Cost per SF:	268		
			Place a "x" here if included	
	Industrial Equipment			
	- Wash Equipment	\$ 76,300	x	\$ 76,300
	- Wash Equipment - Undercarriage Wash	\$ 48,200	x	\$ 48,200
	- Heavy Duty Vehicle Lift (Portable)	\$ 99,000	x	\$ 99,000
	- Light Duty Vehicle Lift (16,000 lb capacity minimum)	\$ 36,400	x	\$ 36,400
	- Small Equipment Lift (16,000 lb capacity minimum)	\$ 26,000	x	\$ 26,000
	- Small Parts Paint Booth	\$ 15,000	x	\$ 15,000
	- Bridge Crane	\$ 66,600	x	\$ 66,600
	- Overhead Lubrication System	\$ 90,000	x	\$ 90,000
	- Miscellaneous Shop and Support Equipment	\$ 50,700	x	\$ 50,700
	- Storage Shelving / Benches / Racks	\$ 40,600	x	\$ 40,600
	- Exhaust Removal System (2 units)	\$ 40,000	x	\$ 40,000
	Industrial Equipment Subtotal:			\$ 588,799
	Fuel System			
	- Relocate Existing Fuel System (allowance)	\$ 150,000	x	\$ 150,000
	- Bollards	\$ 18,500	x	\$ 18,500
	- Fire Suppression	\$ 47,200	x	\$ 47,200
	- Concrete Pad & Island	\$ 35,000	x	\$ 35,000
	- Startup & Closeout	\$ 32,200	x	\$ 32,200
	Fuel System Subtotal:			\$ 282,900
	Building & Equipment Total:			\$ 9,563,202

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

12/2/2019

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Open Canopy Storage	5,700	\$	91	\$	519,582
Site Development (acres) - assumes level site with no contamination, existing structures/utilities, etc.	3.0	\$	446,800	\$	1,340,400
Specialty Sitework (retaining walls & fill)	1	\$	312,500	\$	312,500
Salt/Sand Sheds	2,400		117	\$	280,476
			Subtotal Bldg, Equip, & Site:		\$ 12,355,809
			2019 Market Adjustment (10%):		\$ 1,235,581
			Design Contingency (5%):		\$ 679,570
			Escalation - 2020 (6% per year):		\$ 856,258
			Escalation - 2021 (6% per year):		\$ 907,633
			Location Factor (4%):		\$ 641,394
			Total Construction:		\$ 16,676,244
			Total Construction Cost/SF:		513
Department of Public Works					
Budget Total Project Cost					
<u>Owner's Soft Costs</u>					
A&E Fees (design, bid, const.)	\$ 1,667,624		(Assume 10% of Const. Value)		
A&E Special Services	\$ 333,525		(Assume 2% of Const. Value)		
Owner's Project Manager Fees	\$ 667,050		(Avg 4% of Const. Value)		
Furnishings (FFE)	\$ 80,000		allowance		
Communic. / Low Voltage System	\$ 120,000		allowance		
Commissioning	\$ 40,000		allowance		
Chapter 17 Test & Inspections	\$ 40,000		allowance		
Moving Costs	\$ 30,000		allowance		
Construction Contingency (6%)	\$ 1,000,575		allowance		
			Total Soft Costs:		\$ 3,978,774
			TOTAL PROJECT COST		\$ 20,655,018

Feasibility Study Report Supplement No. 2

- Modified Space Needs Assessment based on 12/10/19 Select Board Discussion
- Updated Cost Estimate based on 12/10/19 Select Board Discussion

MEMORANDUM

TO: Town of Truro

FROM: Jeff Alberti, Weston & Sampson

DATE: December 19, 2019

SUBJECT: Truro Public Works Facility

Following the recent Select Board meeting, Weston & Sampson has completed an analysis of the facility program and associated cost estimate to identify cost reduction measures as discussed at the meeting. The following is a brief summary of the measures which have been implemented:

- Reduced the overall program by another +/- 8%
- Deferred several industrial equipment purchases (potential bid alternates)
- Reduced mezzanine area by +/- 13%
- Reduced canopy area by +/- 10%
- Adjusted site development costs based on a detailed estimate for the anticipated site development (basic site development work was reduced and specialty site work increased)
- Reduced Market Adjustment from 10% to 8%
- Reduced Design Contingency from 5% to 4% (based on the development of a detailed site estimate which accounts for potential unknown conditions typically covered by the design contingency)
- Reduced Year 1 escalation from 6% to 5% and Year 2 from 6% to 4% (based on discussions of anticipated escalation rates with four separate contractors - consensus is that escalation has been running approximately 1 to 1.5 points per quarter)
- Reduced A&E Fee and OPM Fee allowances

Based on these adjustments, the total project cost presented at the 12/10/19 Select Board meeting of \$20.6 Million has been revised down to \$18.6 Million.

Town of Truro
 Department of Public Works
Space Needs Summary
 12/15/2019

Building Requirements

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Rev 2 Size (SF)	Sheet Ref #	Room / Area Dimensions			
						length	width	size	
Office & Office Support Areas	Vestibule/Waiting/Reception	220	160	120	A1	10	12	120	
	Admin Open Office (1 Admin Staff)	120	100	100	A2	10	10	100	
	DPW Director	224	196	180	A3	12	15	180	
	Copy/File/Mail Area	225	120	96	A4	8	12	96	
	File Storage	225	180	144	A5	12	12	144	
	Conference Room	320	224	224	A6	14	16	224	
	Small Supply Closet	24	24	24	A7	4	6	24	
	Large Supply Closet	168	120	120	A8	10	12	120	
	Telephone / Data Room	120	100	100	A9	10	10	100	
	Janitor Closet	36	36	36	A10	6	6	36	
		Subtotal:	1,682	1,260	1,144				
		Area Grossing Factor (10%):	168	126	114				
		Circulation (10%):	185	139	126				
		TOTAL:	2,035	1,525	1,384				
Employee Facilities	Male Locker/Shower/Toilet	540	540	500	B1	20	25	500	
	Female Locker/Shower/Toilet	180	180	160	B2	10	16	160	
	Muster Room	480	440	440	B3	20	22	440	
	Break/Training/Muster Room Storage Closet	120	100	80	B3	8	10	80	
	Report Writing Room	120	100	80	B3	8	10	80	
	Main Electric Room	140	120	120	B4	10	12	120	
	Plumbing/Fire Protection Room	192	120	120	B5	10	12	120	
		Subtotal:	1,772	1,600	1,500				
	Area Grossing Factor (10%):	177	160	150					
	Circulation (10%):	195	176	165					
	TOTAL:	2,144	1,936	1,815					
Work Shops & Material Storage	Sign Shop	500	320	320	C1	16	20	320	
	Carpentry Shop	1,400	1,155	1,050	C2	30	35	1,050	
	Shop Support Office	144	120	100	C3	10	10	100	
	Material / Supply Storage (Custodial)	400	320	320	C4	16	20	320	
	Equipment Storage Bay (Custodial)	1,120	980	875	C5	25	35	875	
		Subtotal:	3,564	2,895	2,665				
		Area Grossing Factor (5%):	178	145	133				
	Circulation (5%):	187	152	140					
	TOTAL:	3,929	3,192	2,938					

Town of Truro
 Department of Public Works
Space Needs Summary
 12/15/2019

Building Requirements

Area	Description	Original Size (SF)	Rev 1 Size (SF)	Rev 2 Size (SF)	Sheet Ref #	Room / Area Dimensions			
						length	width	size	
Vehicle Maintenance	Welding Area	600	480	480	D1	16	30	480	
	Maintenance Equipment/Material Storage	500	320	320	D1	16	20	320	
	Maintenance Bay	1,100	1,000	1,000	D1	20	50	1,000	
	Maintenance Bay	1,100	1,000	1,000	D1	20	50	1,000	
	Maintenance Bay	1,600	1,200	1,200	D1	20	60	1,200	
	Fluid Storage Room	256	196	196	D2	14	14	196	
	Maintenance Office / Reference Room	120	120	120	D3	10	12	120	
	Maintenance Workshop	180	144	144	D4	8	18	144	
	Maintenance Tire Storage & Shop	396	108	108	D5	6	18	108	
	Parts Storage Room	750	450	450	D6	15	30	450	
		Subtotal:	6,602	5,018	5,018				
		Area Grossing Factor (5%):	330	251	251				
		Circulation (5%):	347	263	263				
	TOTAL:	7,279	5,532	5,532					
Wash Area	Wash Bay	1,650	1,250	1,250	E1	25	50	1,250	
	Wash Equipment Room	100	100	100	E1	10	10	100	
		Subtotal:	1,750	1,350	1,350				
		Circulation:	n/a	n/a	n/a				
		TOTAL:	1,750	1,350	1,350				
Vehicle and Equipment Storage	Vehicle / Equipment Storage	18,620	18,050	16,150	F1	95	170	16,150	
		Subtotal:	18,620	18,050	16,150				
		Area Grossing Factor (5%):	931	903	808				
		Circulation:	n/a	n/a	n/a				
		TOTAL:	19,551	18,953	16,958				
TOTAL:		36,689	32,487	29,977	18.3% Reduction				

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

12/15/2019

<u>New Construction</u>	Area	Size (SF)	2019 Cost/SF (w/ markups)	12/2/2019 Cost	12/15/2019 Updated Cost Estimate Cost	Updated Cost Estimate Notes
Administration / Employee Facilities		3,461	\$ 356	\$ 1,233,207	\$ 1,139,853	Reduced size to 3,199 SF
Shops		3,192	\$ 250	\$ 799,225	\$ 735,627	Reduced size to 2,938 SF
Vehicle Maintenance (not including equipment)		5,532	\$ 250	\$ 1,385,123	\$ 1,385,123	
Wash		1,350	\$ 473	\$ 639,201	\$ 639,201	
Vehicle/Equipment Storage		18,953	\$ 197	\$ 3,741,662	\$ 3,347,813	Reduced size to 16,958 SF
Added Cost for Specialty Foundations (based on 1st floor area)		32,488	\$ 18	\$ 584,784	\$ 539,586	Adjusted based on revised SF
			Place a "x" if applicable			
Increase for Specialty Finishes / Conventional Construction (25%):			x	\$ 308,302	\$ 284,963	Adjusted based on revised SF
New Construction Subtotal:		32,488		\$ 8,691,504	\$ 8,072,166	Reduced bldg size to 29,977 SF
Building Cost per SF:		\$268			\$269	
			Place a "x" here if included			
Industrial Equipment						
- Wash Equipment		\$ 76,300	x	\$ 76,300	\$ 76,300	
- Wash Equipment - Undercarriage Wash		\$ 48,200	x	\$ 48,200	\$ 48,200	
- Heavy Duty Vehicle Lift (Portable)		\$ 99,000	x	\$ 99,000	\$ 99,000	
- Light Duty Vehicle Lift (16,000 lb capacity minimum)		\$ 36,400	x	\$ 36,400	\$ 36,400	
- Small Equipment Lift (16,000 lb capacity minimum)		\$ 26,000	x	\$ 26,000	\$ -	Defer equipment purchase
- Small Parts Paint Booth		\$ 15,000	x	\$ 15,000	\$ 15,000	
- Bridge Crane		\$ 66,600	x	\$ 66,600	\$ 66,600	
- Overhead Lubrication System		\$ 90,000	x	\$ 90,000	\$ 90,000	
- Miscellaneous Shop and Support Equipment		\$ 50,700	x	\$ 50,700	\$ 38,025	Defer partial equipment purchase
- Storage Shelving / Benches / Racks		\$ 40,600	x	\$ 40,600	\$ 30,450	Defer partial equipment purchase
- Exhaust Removal System (2 units)		\$ 40,000	x	\$ 40,000	\$ 40,000	
Industrial Equipment Subtotal:				\$ 588,799	\$ 539,974	

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

12/15/2019

<u>New Construction</u>	Area	Size (SF)	2019 Cost/SF (w/ markups)	12/2/2019 Cost	12/15/2019	
					Cost	Updated Cost Estimate Notes
Fuel System						
	- Relocate Existing Fuel System (allowance)	\$ 150,000	x	\$ 150,000	\$ 150,000	
	- Bollards	\$ 18,500	x	\$ 18,500	\$ 18,500	
	- Fire Suppression	\$ 47,200	x	\$ 47,200	\$ 47,200	
	- Concrete Pad & Island	\$ 35,000	x	\$ 35,000	\$ 35,000	
	- Startup & Closeout	\$ 32,200	x	\$ 32,200	\$ 32,200	
	Fuel System Subtotal:			\$ 282,900	\$ 282,900	
Building & Equipment Total:				\$ 9,563,202	\$ 8,895,040	
Mezzanines		2,879	\$ 118	\$ 339,649	\$ 294,945	Reduced size to 2,500 SF
Open Canopy Storage		5,700	\$ 91	\$ 519,582	\$ 464,889	Reduced size to 5,100 SF
Site Development (acres) - assumes level site with no contamination, existing structures/utilities, etc.		3.0	\$ 446,800	\$ 1,340,400	\$ 1,279,000	Modified per detailed estimate attached
Specialty Sitework (retaining walls & fill)		1	\$ 312,500	\$ 312,500	\$ 690,250	Modified per detailed estimate attached
Salt/Sand Sheds		2,400	117	\$ 280,476	\$ 280,476	
	Subtotal Bldg, Equip, & Site:			\$ 12,355,809	\$ 11,904,600	
	2019 Market Adjustment (10%):			\$ 1,235,581	\$ 952,368	Modified to 8%
	Design Contingency (5%):			\$ 679,570	\$ 514,279	Modified to 4%
	Escalation - 2020 (6% per year):			\$ 856,258	\$ 668,562	Modified to 5%
	Escalation - 2021 (6% per year):			\$ 907,633	\$ 561,592	Modified to 4%
	Location Factor (4%):			\$ 641,394	\$ 584,056	Adjusted based on % of reductions
	Total Construction:			\$ 16,676,244	\$ 15,185,457	
	Total Construction Cost/SF:			513	507	

Town of Truro
New Public Works Facility
Budget Total Project Cost

12/15/2019

New Construction Area	Size (SF)	2019 Cost/SF (w/ markups)	12/2/2019 Cost	12/15/2019	
				Cost	Updated Cost Estimate Notes
Department of Public Works Budget Total Project Cost					
Owner's Soft Costs					
A&E Fees (design, bid, const.)	\$ 1,667,624	(10% of Const. Value)		\$ 1,518,546	
A&E Special Services	\$ 333,525	(2% of Const. Value)		\$ 151,855	Reduced to 1%
Owner's Project Manager Fees	\$ 667,050	(4% of Const. Value)		\$ 531,491	Reduced to 3.5%
Furnishings (FFE)	\$ 80,000	allowance		\$ 80,000	
Communic. / Low Voltage System	\$ 120,000	allowance		\$ 120,000	
Commissioning	\$ 40,000	allowance		\$ 40,000	
Chapter 17 Test & Inspections	\$ 40,000	allowance		\$ 40,000	
Moving Costs	\$ 30,000	allowance		\$ 30,000	
Construction Contingency (6%)	\$ 1,000,575	allowance		\$ 911,127	Adjusted based on % of reductions
	Total Soft Costs:		\$ 3,978,774	\$3,423,019	
TOTAL PROJECT COST			\$ 20,655,018	\$18,608,476	
				Overall Reduction:	\$ (2,046,542)

Town of Truro
New Public Works Facility
Site Specific Site Development Cost Estimate

12/15/2019

Description	Unit	2019 Cost	DPW Facility	
			Quantity	Subtotal
DIVISION 2 - SITE WORK				
<u>GENERAL SITE WORK</u>				
Clear and Grub Site	AL	\$10,000.00	1	\$10,000
Field Engineering	Day	\$2,500.00	2	\$5,000
Trench Plated Trench Safety	LS	\$3,500.00	1	\$3,500
Site Contractor Supervision	Mo	\$5,000.00	4	\$20,000
Mobilization	LS	\$5,000.00	1	\$5,000
Construction Entrance	LS	\$5,000.00	1	\$5,000
Dewatering	AL	\$5,000.00	1	\$5,000
Strip & Stockpile Top Layer Surface	CY	\$8.25	4,500	\$37,125
Screen Top Layer	CY	\$5.75	4,500	\$25,875
Respread/Reuse Top Layer	CY	\$10.00	2,000	\$20,000
Site Cuts to Fill	CY	\$13.50	2,500	\$33,750
Import & Place Fill	CY	\$25.00	12,500	\$312,500
Tree Removal	AC	\$10,000.00	3	\$30,000
Stump Removal	AC	\$12,000.00	3	\$36,000
Finish Grading	SY	\$1.50	15,000	\$22,500
Concrete Block Retaining Wall	SF	\$45.00	5,800	\$261,000
Seed	SF	\$0.40	40,000	\$16,000
Granite Curb	LF	\$47.00	600	\$28,200
HMA Berm	LF	\$20.00	1,000	\$20,000
Gravel Pavement Subbase	CY	\$25.00	2,370	\$59,250
Bituminous Concrete (Hot Mix Asphalt)	SY	\$28.00	7,100	\$198,800
Drainage System #1- Underground Infiltration Chambers	SF	\$15.00	4,000	\$60,000
Drainage System #2- Underground Infiltration Chambers	SF	\$15.00	2,000	\$30,000
Street Cut and Patch	SY	\$30.00	200	\$6,000
Drainage System - Manhole	EA	\$5,800.00	8	\$46,400
Drainage System - Catchbasin	EA	\$4,800.00	10	\$48,000
Storm Piping	LF	\$45.00	1,500	\$67,500
OCS	EA	\$11,000.00	2	\$22,000
SWTU	EA	\$10,500.00	2	\$21,000
Precast Flared End and Riprap Level Spreader	EA	\$3,800.00	1	\$3,800
Water Distribution System - Domestic Tap	LS	\$2,500.00	1	\$2,500
Water Distribution System - Fire Service Tap	LS	\$4,500.00	1	\$4,500
Water Distribution System - 4" Copper	LF	\$55.00	350	\$19,250
Water Distribution System - 6" DI Fire Service	LF	\$65.00	400	\$26,000
Water Distribution System - Hydrant	EA	\$3,700.00	1	\$3,700
Water Distribution System - Valves	EA	\$1,500.00	4	\$6,000
Water Distribution System - Misc. Accessories	LS	\$10,000.00	1	\$10,000
Electrical - 4x4" Concrete Encased Electrical Conduit	LF	\$104.00	350	\$36,400
Electrical - Generator Pad	EA	\$5,500.00	1	\$5,500
Electrical - Transformer Pad	EA	\$3,500.00	1	\$3,500
Sanitary Sewer - Oil/Sand Trap	EA	\$6,500.00	1	\$6,500
Sanitary Sewer - 6" PVC Service	LF	\$45.00	80	\$3,600
Septic System	LS	\$50,000.00	1	\$50,000
Tight Tank System	EA	\$18,500.00	1	\$18,500
Bollards	EA	\$550.00	20	\$11,000
Landscaping	AL	\$60,000.00	1	\$60,000
Sedimentation Control	LF	\$15.00	1,200	\$18,000
Infiltration Filters at CB	EA	\$500.00	10	\$5,000

Town of Truro
New Public Works Facility
Site Specific Site Development Cost Estimate

12/15/2019

Description	Unit	2019 Cost	DPW Facility	
			Quantity	Subtotal
Chain Link Fence	LF	\$50.00	800	\$40,000
Chain Link Fence Gate	EA	\$15,000.00	2	\$30,000
Pavement Markings	LS	\$5,000.00	1	\$5,000
Traffic Signage	EA	\$250.00	10	\$2,500
Concrete Wash Pad	CY	\$444.27	70	\$31,099
Misc Utility Concrete Pads	CY	\$450.00	20	\$9,000
Main Entry / Approach Concrete Slabs / Side Walks	CY	\$450.00	30	\$13,500
Timber Guardrail	LF	\$36.00	400	\$14,400
Flagpole	LS	\$5,000.00	1	\$5,000
Site Lighting	EA	\$6,000.00	8	\$48,000
Light Pole Bases	EA	\$600.00	8	\$4,800
E&B Site Lighting Conduit	LF	\$14.00	1,200	\$16,800
Retaining Walls & Fill:			\$690,250	
Remaining Site Development:			\$1,279,000	
TOTAL CONSTRUCTION COST:			\$1,969,250	

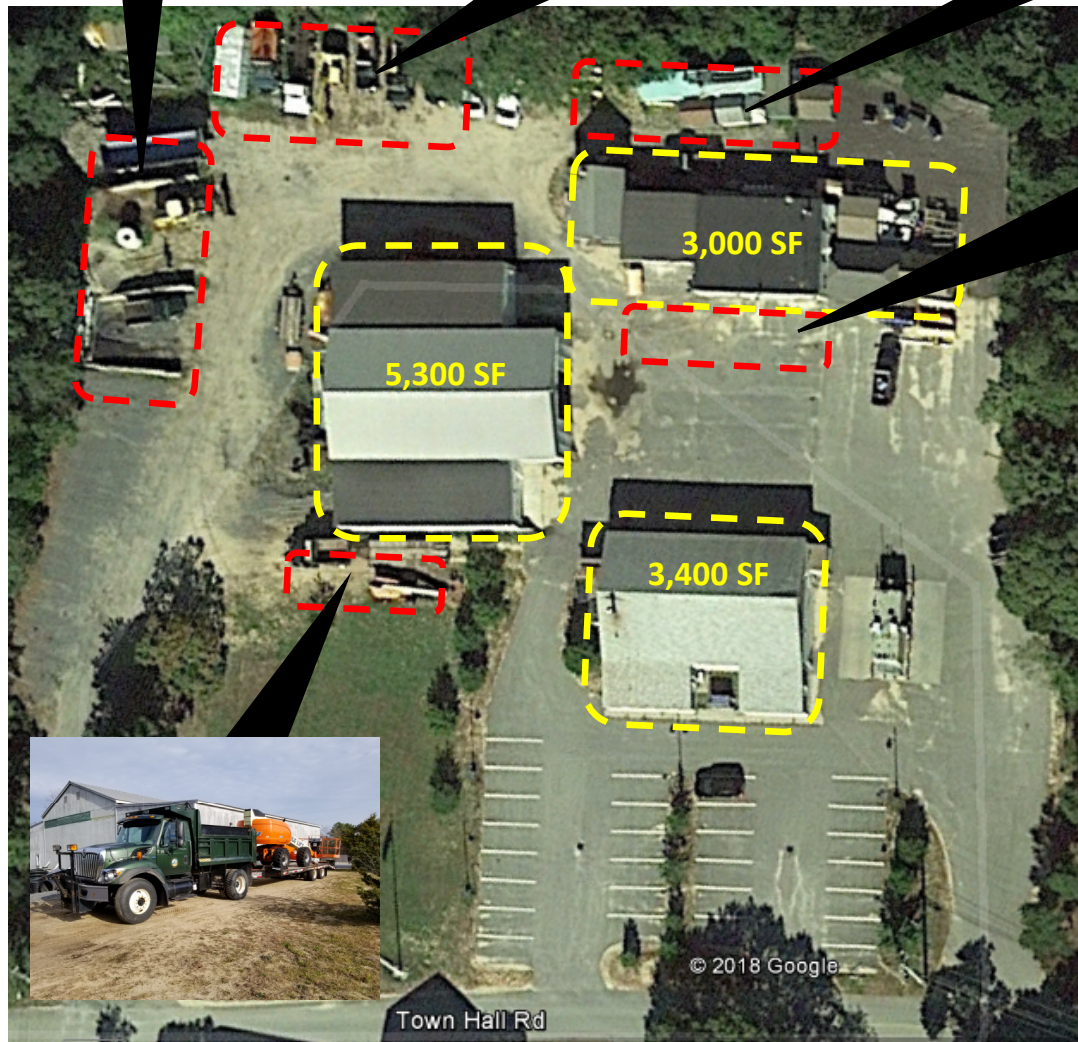
Weston & Sampson

*Town of Truro
Department of Public Works
Feasibility Study*

Feasibility Study Report Supplement No. 3

- Existing DPW Facility Size Information (Building & Site)

TRURO – EXISTING DPW FACILITY



Existing Facility Size:	11,700 SF
Exterior Storage Size:	<u>8,300 SF</u>
Total Building & Exterior:	20,000 SF

