Improvements to the Town of Carlisle Department of Public Works Facility

Elizabeth Ridge Rd

Carlisle, MA 01741

Prepared for:

The Town of Carlisle, Massachusetts

66 Westford Street

Carlisle, MA 01741

Prepared by:

Hill-LiRo, Corp.

529 Main Street, Suite 3303

Boston, MA 02129

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Final Report

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1. Executive Summary

LiRo-Hill, Corp. (LiRo) was engaged to perform a detailed review of improvement options for the existing DPW facility located along Elizabeth Ridge Rd in Carlisle, Massachusetts. The purpose of this study is to explore feasibility of two pathways for improvement of current DPW operations in conjunction with comparative 'rough order of magnitude' project costs. The options and evaluation of potential benefits each would provide to the facility's operations were developed with the Town's leadership team. A third pathway was added as a point of comparison with prefabricated building of similar square footage to that of pathway 2.

This study's mission is to take a broad brush look at the various practical solutions and define them sufficiently to determine 'order of magnitude' comparative costs, to help determine a recommended solution for future design efforts.

Objectives included:

- Analyze the existing DPW garage to identify areas for improving functionality, health, and safety of occupants.
- Improvements should align this facility with Carlisle's Path to Net Zero initiative, as part of the Town's master plan, including increasing the efficiency performance of the building envelope.
- Address the known building deficiencies, including: inadequate ventilation, failure of the under-slab sanitary line, roof leaks, insufficient trench drainage slope, and damaged siding.
- Improve the usable program space to better suit the needs of both DPW staff and vehicle fleet.

Pathway Attributes:
Pathway 1:
Pro:

- Maintains existing footprint, foundation and existing trailer used for administrative and dorm functionality.
- Shorter construction timeframe.
- Can accommodate approximately 100-KW system on the south side of the existing gable roof.

Con:

- Maintains current level of vehicle storage which is inadequate.
- Operations occur under two separate roofs.

Pathway 2:
Pro:

- Increased vehicle storage capacity and optimized circulation through double deep drive through bays.
- Increased operational efficiencies through better program adjacencies.
- Longer building life.
- Can accommodate approximately 220-KW rooftop solar array system.

Con:

- Additional cost overall construction cost, however with site upgrades included in pathway 1, pathway 2 is less cost per square foot with the additional square foot proposed.

Pathway 3: Similar to pathway 2 with rectangular footprint and shell.

Construction time frame:

- Pathway 1: 9 months
- Pathway 2 & 3: 12 months

Temporary vehicle storage:

- Temporary storage will be needed for all three pathways. We recommend a rental based option as opposed to purchasing. Approximate cost for the duration noted above is approximately $122,215. Please see Appendix D for rental specifications and configuration.

Pathway 1 Estimated Costs - $10M: The estimated total construction cost for renovations for code and energy compliance is approximately $7.8 million. This includes construction contingency, escalation, direct trade costs and General Contractor fees. Recommended additional budget for soft costs is an additional $2.2 million, bringing the all-in project cost to around $10 million.

AE Design and Professional Fees (12%)	$936,000.00
OPM Services (6%)	$468,000.00
FF&E	TBD
Materials Testing & Inspections	TBD
Owner's Contingency (10%)	$780,000.00
Recommended Additional Budget – Soft Costs:	$2,184,000.00

Pathway 2 Estimated Costs - $14.2M: The estimated total construction cost for a new building as designed within this report is approximately $11.1 million. This includes construction contingency, escalation, direct trade costs and General Contractor fees. Recommended additional budget for soft costs is an additional $3.1 million, bringing the all-in project cost to around $14.2 million.

AE Design and Professional Fees (12%)	$1,332,000.00
OPM Services (6%)	$666,000.00
FF&E	TBD
Materials Testing & Inspections	TBD
Owner's Contingency (10%)	$1,110,000.00
Recommended Additional Budget – Soft Costs:	$3,108,000.00

Pathway 3 Estimated Costs - $13.6M: The estimated total construction cost for a new pre-fab building of similar square footage is approximately $10.7 million. This includes construction contingency, escalation, direct trade costs and General Contractor fees. Recommend additional budget for soft costs is an additional $2.9 million, bringing the all-in project cost to around $13.6 million.

AE Design and Professional Fees (12%)	$1,248,000.00
OPM Services (6%)	$642,000.00
FF&E	TBD
Materials Testing & Inspections	TBD
Owner's Contingency (10%)	$1,070,000.00
Recommended Additional Budget – Soft Costs:	$2,960,000.00

2. Project Approach

LiRo met with the design team to understand DPW staff's specific needs and existing issues that need to be resolved. Two pathways for providing an upgraded DPW facility were explored:

Pathway #1 – This option considers the existing conditions observed and analyzed in effort to explore options for upgrades and improvements to the existing systems, including: the roof and building envelope, structural systems, and mechanical, electrical, and plumbing systems. The challenge of this option is to determine code-required upgrades that may be triggered by recommended building system improvements.

The purpose of this evaluation is to define a scope of work that will modernize the existing building while largely retaining its current form. This scope of work will be used to create a budget as a comparison to an alternative option of building a new DPW building in its place.

Pathway #2 - This option explores a conceptual design of a new DPW that is sited to optimize vehicle flow while maintaining access to existing salt shed, adjacent apparatus storage facility, maintain public vehicle access through Morse Road while meeting property setbacks and sensitivities to wetland delineations. The new DPW design will have an associated order of magnitude budget estimate based on the following:

- Architecture: develop program, conceptual layout and a rendering of exterior.
- Civil Engineering: Conceptual site design, site analysis from available regulatory and informational documents: zoning bylaws, zoning map, non-zoning wetland bylaw, regulations for sewage disposal systems, property maps, environmental protection wetlands protection act.
- Cost Estimate: based on current square foot cost for this building type/construction, including escalation for projected construction start.

3. Existing Condition Summary

The existing main building was originally built for use as an indoor horse-riding arena at 59 Morse Road; the intersection of Elizabeth Ridge Road and Morse Road, adjacent to the Town's Transfer Station. The building was repurposed into a DPW maintenance garage in 1980 with minimal alterations.

The 1980 alterations included the creation of a second floor to house a sleeping area and support spaces for emergency workers. In 2020, a detached single story modular building was added to house administration areas and support space for emergency workers, this replaced the functions from the second floor fit-out.

3.1. Site and Building Footprint

The current DPW building is located on a town owned parcel totaling approximately 18.3 acres of land to the west of Morse Rd. The town's transfer station and existing salt shed are located on two additional town owned parcels to the east side of Morse Rd. Elizabeth Ridge Road provides public access running along the northern perimeter and connecting to Lowell Street. For the purposes of this study the existing DPW parcel and the two additional town owned parcels (salt shed and transfer station) are referred to as "the site". Parking areas around the building are undefined.

Based on the available Town of Carlisle and Massachusetts Geographic Information System (GIS) information, there is a potential resource area within the property, consisting of a bordering vegetated wetland. Per FEMA flood map panel 2501C0261F, approximately half of the existing building is located within Flood Zone X (no base flood elevation).

The topography of the site is relatively hilly with approximately 20-35 feet of grade change across the property, sloping in rolling hills around the resource area. Some of the topography directly adjacent to the developed sections of the site appears to be man-made and likely from construction activities. The topography immediately around the buildings is relatively flat sloping down to the wetlands on the southern side of the building.

In addition to the main DPW building, there is a fueling station that services the town's DPW and emergency vehicles, a salt shed located adjacent to Elizabeth Ridge Road, and a secondary storage building off Morse Road used to house additional town equipment. Additional access to the secondary storage building is provided via a gravel road crossing over a culvert that bisects the bordering vegetated wetland.

The existing septic system located to the north of the existing building creates a potential limiting factor for development. Additional utilities (electric, telecom/data, etc,) are provided to the existing building structure via overhead lines and may need to be modified to accommodate future renovation improvements.

3.2. Architecture

The building is two stories including a partial second floor. The first floor is approximately 7,200 square feet in area (60' x 120'), and the second story is approximately 700 square feet in area. Although the structural system is noncombustible steel, the building is considered combustible construction due to combustible materials used in the interior.
Architecturally, the original building is overall in poor condition, and is not well suited for the intended Town operations.

3.3. Structural

The main building structure is pre-engineered with 5 bays of approximately equal spacing, about 24 feet each on center. The gable roof has a roof ridge at an elevation of about 27 feet 7.5 inches from top of slab and an eave at the elevation of 17 feet from top of slab. The roof pitch is 4:12 measured from roof elevation.

As industry standard, the pre-engineered buildings have no additional allowance for future works unless it is specified by the owner at the original design phase. Due to lack of information, it is not known what capacity or additional allowance the building structure has. But it is safe to say that the building construction likely satisfied the building code at the time of construction, which is 1980s or before. Any items installed after the original construction would challenge the safety margin in the original design and construction if not exceed the original capacities. There are glass fiber insulation, about 8 inches thick, between purlins. However, considering that the original intent of the building was a horse stable, it is not likely that the insulation was part of the original construction. It is estimated to weigh about 4 psf as a minimum, above the likely original design capacity of pre-engineered building. The planned solar panels to be installed on the roof will add another 5 to 10 psf to the building frame. This combined 14 psf additional weight would likely exceed the original capacity.

Structurally, the original building is overall in acceptable condition, and has not shown structural deficiency or distress.

3.4. Mechanical Systems

The existing heating system consists of electric baseboard heat in the office area under the loft with baseboards in the two offices and restroom. Baseboards are individually controlled via dial on the units in each space. Garage areas are heated via suspended gas fired unit heaters. The vehicle storage bays and maintenance/repair bay are served by two separate zones. Maintenance/repair bay is served by two Reznor units that are vented via flue through the roof. These units appear to be newer than the original construction and no issues were reported by staff. Vehicle storage bays are heated by two Modine unit heaters suspended at either end of the garage. There is also one bay with an engine block heater. These appear older and are likely at the end of their life. The loft area is unheated. Staff have placed portable radiator units in the break area, but they are undersized for the space served.

Cooling is provided via portable units to offices and the loft break area. In the second office a window unit utilizes the entire area of operable sash, removing the ability to have fresh air without running the unit fan. A through wall unit is provided in the loft area through the east gable wall. Both units are old, inefficient, and not insulated during the cooler months.

There is not an automatic temperature control system in place nor mechanical means of providing fresh air ventilation at the DPW. Offices each have windows which are in disrepair and utilized by window A/C unit. The window area in the superintendent's office provides more than the code required 4% floor area of ventilation. The single window in the second office is too small to provide the required ventilation and is currently filled with a window A/C unit. The loft area is served by a single slider window and is also undersized for the area it serves. The restroom has an exhaust air fan that is activated with the light switch.

The vehicle repair bay has a direct vent exhaust fan on the east wall (photo 3). When the unit is in operation it draws all conditioned air directly out of the space with no heat exchange. Fresh air is only provided with the bay door or man door are opened.

Vehicle storage bays have no ventilation other than via opening bay or man doors. Air is moved via seven ceiling suspended fans, three of them caged small blade units and four of them long blade and appear of residential quality.

3.5. Electrical Systems

The existing electrical service overhead wire to the building which feeds the existing main breaker panel board located in the northeast corner of the repair garage. The existing electrical equipment (main breaker panel board) is in good condition. Although the emergency power switch is a Square-D unit and should be replaced. The fire alarm system likely needs additional devices to provide the required coverage. Additional emergency lights and exit signs are likely required to provide full coverage.

The lighting throughout the building consists of fluorescent fixtures. Most of the lighting in the building is still original. Light fixtures are 1x4, two lamp, T8 fluorescent tubes. The vehicle garage fixtures are exposed lamp and are surface mounted, running with the slope of the ceiling. Those in the repair bay are exposed lamp and are suspended. And, the office lighting are surface mounted with pebble diffusers. All of the garage bay lighting is on occupancy sensors. Exterior lighting is via LED wall packs mounted to the building.

Electrical Distribution System: Existing service consists of an above ground service rated at 225A, 120/208V, 3Ø, 4 wire. The meter is located on the exterior of the building below the panel. The main service consists of a 2225A main circuit breaker panel located in the northeast corner of the repair bay (photo 21). The emergency power panel is rated at 200A, 120/208V, 3Ø, 4 wire. Switching is done via a Square-D switch which should be replaced.

Branch Wiring: Most of the wiring devices are old with insufficient number of outlets located throughout the building. Wiring installed at the time of original construction is concealed and

was not observed. Wiring in the garages is in exposed metal conduit and has been installed piecemeal over time. Given the age of the building, it is likely that the wiring is copper, but aluminum wiring is possible. The connections between copper on devices and any aluminum wiring should be checked for corrosion/deterioration.
D5022 Lighting: Interior lighting consists of 1x4 surface and pendant mounted fluorescent fixtures with pebbled plastic lenses in offices, break room and bathrooms. Garage bays and workroom have 1x4 surface mounted fluorescent fixtures with no lenses. All are on standard switches with occupancy sensors. The lamps are T8 size. Exterior lighting consists mainly of surface LED fixtures mounted at all exterior walls.

3.6. Plumbing and Fire Protection Systems

Plumbing Systems serving the building are cold water, hot water, sanitary, waste and vent systems, and natural gas. The building is serviced by private on-site well water and a 1,500 gallon septic system, installed in 2020. There is a single bathroom in the office area and plumbing fixtures generally are in fair to poor condition. The water closet is floor mounted, two-piece tank type and standard 1.6 gallon flush. There is also a wall mounted urinal with flush valve and wall mounted lavatory with a manual knob faucet. Faucets are chrome hot and cold knob type and single spigot. All are in working order but are not accessible and there is no separation of male and female staff.

There is not an existing sprinkler system and, at this time, one is not required by code. The requirement to install a fire protection system may be triggered by an addition or major renovation in the future.

4. Corrective Path #1: Renovation With System Rebuild

4.1. Site and Building Footprint

While the proposed site work for the rebuilding in-kind option maintains the existing vehicular patterns, informal parking, and fueling station location, replacement of the existing fuel tank was discussed during initial meeting with the town (slated for 2029) and could require additional safeguards to be implemented such as gravel aprons or other spill/leak containment measures due to applicable codes and its current proximity to the existing wetlands.

Selected materials may necessitate the design of site drainage structures to capture stormwater runoff. No evidence of significant erosion or rutting was observed; puddling could be an issue in areas of flat topography; however, none was observed during the initial site walk.

It is anticipated that while rebuilding within the existing DPW footprint would require less intervention from a Site Civil perspective, permitting with the local Conservation Commission and Massachusetts Department of Environmental Protection (MA DEP) would be required as the site is within their jurisdictional area. Any stormwater management and control measures will require additional site and soil investigations. For comparative purposes, the site work

option indicated in the cost proposal is included in the pathway 1 total budgeted cost (appendix B).

4.2. Roof and Building Envelope

The building envelope is in poor condition. The exterior wall consists of a sheet metal skin, fiberglass batt insulation, and unfinished interior drywall. The roof consists of a fully adhered single-ply EPDM over the original sheet metal roofing over steel purlins. The structure is rigid frame steel bents with lateral cross bracing steel rods. The perimeter foundation is a continuous wall that extends 3-feet below grade.

Building Component: Roofing
Description and Deficiency: fully adhered single-ply EPDM over the original sheet metal roofing over steel purlins**.** There is evidence that the membrane roofing has multiple leaks and needs to be repaired or replaced. The fascia and soffit are in poor condition and need to be rebuilt.
Life Expectancy: 0 years
Priority (with Reason): High priority, water leaks through the roofing will continue to deteriorate interior finishes and continue to degrade the interior thermal insulation.
Quantity: 8,000 square feet of roofing. 230 linear feet of fascia and soffit.
Replacement/Repair Description: Replace existing membrane roofing and sheathing. Consider replacing the roofing with 4” thick insulated metal panels.

Building Component: Exterior Cladding.
Description and Deficiency: The exterior cladding is in poor condition. It has been painted and the paint is peeling. There is excessive rust at the bottom and impact damage throughout.
Life Expectancy: 0 years
Priority (with Reason): High priority, because of the condition, the exterior cladding is not providing an air barrier or rain screen for the building.
Quantity: 3,000 square feet of wall.
Replacement/Repair Description: Replace existing wall cladding that will provide an appropriate rain screen and air barrier. Consider replacing the wall cladding with 4” thick insulated metal panels.

Building Component: Fenestrations: exterior windows, louvers, and man doors.
Description and Deficiency: The exterior windows, louvers and man doors are in poor condition and need replacement.
Life Expectancy: 0 years
Priority (with Reason): High priority, the exterior windows, louvers, and man doors are not providing thermal and weather protection and need to be replaced.
Quantity: 6 exterior windows, 3 louvers, and 4 man doors.
Replacement/Repair Description: Replace exterior windows, louvers and man doors with high performing insulated units.

Building Component: Exterior wall – insulation and drywall.

Description and Deficiency: The fiberglass batt insulation is not providing a continuous thermal barrier, is not managing thermal convection within the wall, and is not providing moisture management and should be replaced. The interior drywall is unfinished, soiled, and has considerable damage.
Life Expectancy: 0 years
Priority (with Reason): High priority, the building should have an insulation that provides continuous thermal resistance, provides moisture management, and controls internal convection of the wall. There is no air barrier and vapor barrier in the existing condition. The interior drywall needs to be a cleanable, maintainable material. A new system is needed.
Quantity: 3,000 square feet of wall.
Replacement/Repair Description: Consider replacing the wall cladding with 4" thick insulated metal panels.

Building Component: Exterior overhead doors.
Description and Deficiency: The exterior overhead doors are in poor condition and do not provide adequate thermal value.
Life Expectancy: 0 years
Priority (with Reason): High priority, the overhead doors do not provide adequate weather and thermal protection.
Quantity: 3 overhead doors.
Replacement/Repair Description: Replace exterior overhead doors with high performing insulated doors. 2 of the 3 overhead doors should be taller to accommodate taller equipment.

4.3. Interior Architectural Components

The current program includes vehicle and equipment maintenance, vehicle storage, office space for two full-time employees and rest space for four people during the event of an emergency. Eleven full-time staff members and four on-call employees currently utilize the space, residing in a portable trailer adjacent to the DPW garage. This program would ideally be integrated into the DPW garage itself. Height restrictions of the existing doors prevent the ability to work on the entire vehicle fleet.

The building interiors are in poor condition. The interior partitions are drywall over metal studs. The floor is an unfinished concrete slab on grade.

Building Component: Interior ceilings
Description and Deficiency: The ceiling is suspended acoustic tile ceiling grid that supports fiberglass batt insulation. It is in poor condition, has water damage, is soiled and sagging. The fiberglass batt insulation does not provide a continuous thermal barrier, is not managing thermal convection within the wall, and is not providing moisture management and should be replaced.
Life Expectancy: 0 years
Priority (with Reason): High priority, the building should have an insulation that provides continuous thermal resistance, moisture management, and controls internal convection of the

wall. There is no air barrier or vapor barrier in the existing condition. The interior ceiling needs to be a cleanable, maintainable material. A new system is needed.
Quantity: 8,000 square feet.
Replacement/Repair Description: Consider replacing the wall cladding with 4" thick insulated metal panels.

Building Component: Unfinished concrete slab.
Description and Deficiency: The interior slab is in fair condition. There is an existing trench drain the length of the building that has a temporary setup for drainage and the cover grate is severely damaged.
Life Expectancy: 0 years
Priority (with Reason): High priority, the trench drain needs to be rebuilt and a permanent holding tank needs to be installed below grade on site.
Quantity: 120 linear feet of trench drain, new under slab piping, new underground tank.
Replacement/Repair Description: the trench drain needs to be rebuilt and a permanent holding tank needs to be installed below grade on site.

Building Component: Second floor.
Description and Deficiency: The second floor including the spiral stairs is in poor condition and is not in use due to code deficiencies. The previous functions have been moved to the adjacent modular building on site.
Life Expectancy: 0 years
Priority (with Reason): High priority, the second floor should be rebuilt or removed.
Quantity: 700 square feet of interior fit-out.
Replacement/Repair Description: Demolish the second floor in its entirety.

Building Component: Interior partitions and finishes for the first-floor offices.
Description and Deficiency: The first-floor office area is in poor condition and needs to be renovated.
Life Expectancy: 0 years
Priority (with Reason): Moderate priority, the office space is usable but in poor condition.
Quantity: 700 square feet.
Replacement/Repair Description: Renovate the first-floor office space with new finishes.

4.4. Structural

The building structures consist of rigid frames at equal spacing, about 24 feet in the center, braced with rods, sitting over slab on grade. There are continuous grade beams supporting the slab edge along the perimeter. The grade beams extend to 3 feet below grade, which is shy by 1 foot to the normal frost depth of 4 feet, confirmed in a test pit done on March 21, 2024.

Building Component: Roof structures
Description and Deficiency: Purlins support roofing material and insulation, which are about 8 inches thick and infilled between purlins. No apparent deficiencies were observed.

Life Expectancy: Unknown, most purlins are not exposed to view for visual inspection.
Priority (with Reason): Not applicable.
Quantity: Unknown.
Replacement/Repair Description: Unknown.

Building Component: Main rigid frames
Description and Deficiency: Rigid frame with a span of 60 feet, spaced at about 24 feet on the centerline. No apparent deficiencies were observed.
Priority (with Reason): Not applicable.
Quantity: 6 frames.
Replacement/Repair Description: The additional weight of solar panels would stress the rigid frames beyond the original capacity. Additional 1/2" X 8" wide continuous plates could be welded to top and bottom of rigid frames to increase capacity. The total length of plates for each rigid frame is estimated to be 36 feet long. For 6 frames, the total length of plates would be 216 feet.

Building Component: Slab and foundation
Description and Deficiency: Slab on grade sits on perimeter grade beams. The bottom of grade beams extends 3 feet below grade, one foot shy of frost depth of 4 feet. The soil foundation below grade beams could not be confirmed to be non-frost susceptible.
Priority (with Reason): High Priority. Insufficient depth would cause frost heave that could damage the whole building structures. The force of frost heave is often much bigger than expected.
Quantity: 360 linear feet.
Replacement/Repair Description: Insulation with R = 4.5 per inch shall be installed on the face of grade beam along the perimeter without any gap. For insulation that satisfy ASTM C578 Type Iv, Vi, VII, and V, a minimum 1" thickness of insulation is needed. For insulation that satisfies ASTM C578 Type II, IX, and X, a minimum 2" thickness of insulation is needed.

4.5. Mechanical Systems

Building Component: HVAC systems
Description and Deficiency: Existing HVAC systems are beyond their useful life.
Priority (with Reason): High
Quantity: Entire building
Replacement/Repair Description: Replace existing HVAC system with new code compliant and energy efficient systems.

4.6. Electrical Systems

Building Component: Electrical System
Description and Deficiency: The existing electrical system in its entirety is beyond its useful life.
Priority (with Reason): High.
Quantity: Entire building.

Replacement/Repair Description: Replace the existing building electrical system with a new code complying and energy efficient system.

4.7. Plumbing and Fire Protection Systems

Building Component: Plumbing systems
Description and Deficiency: The existing plumbing system in its entirety is beyond its useful life.
Priority (with Reason): High
Quantity: Entire Building
Replacement/Repair Description: Replace the existing building plumbing system with a new code complying and energy efficient system.

Building Component: Fire Protection Systems
Description and Deficiency: The existing building does not have a fire sprinkler system.
Priority (with Reason): Not applicable.
Quantity: Entire building
Replacement/Repair Description: Install a new fully automatic sprinkler system monitored **by** an approved supervising system. Refer to pathway #2 system considerations for replacement parameters.

5. Corrective Path #2: New DPW Construction

The design team participated in detailed programming discussions with the DPW Facility Leadership to gauge DPW needs to best serve its community well into the future. These discussions established an understanding of the priorities and limitations which would guide the exploration of configurations for the new building. Program requirements were complemented with site circulation and critical adjacencies expressed through a variety of massing and material considerations.

5.1. Site Constraints and Footprint Expansion

The town expressed the preference of working within the existing building footprint as much as possible, due to the adjacent wetlands and property lines. However, replacing the existing DPW facility with a new building would afford greater opportunities to utilize the site more efficiently, especially regarding vehicular circulation. Siting the new building in roughly the same orientation, approximately nine (9') feet further away from the existing wetland, would allow for pull-through bays, improve the vehicular circulation around the building, and create opportunities for additional formal parking areas.

The proposed fuel station would be located outside of the FEMA flood zone but still inside of the one hundred (100') buffer zone and may require additional safeguards to be implemented such as gravel aprons or other spill/leak containment measures.

Blasting may be required for an area of exposed ledge at the southeast corner of the proposed building. Pricing for ledge removal is typically based on the volume of ledge to be removed (in

cubic yards). For the purposes of the preliminary cost estimates, the area of visible ledge was multiplied by an assumed depth of five (5') feet to come up with a total estimated volume.

Permitting with the local Conservation Commission and DEP would still be required as the proposed new building (depicted on the Track 2 sketch plan) is located within the one hundred (100') foot buffer zone and FEMA flood zone. However, due to the slight building shift, the new building results in less proposed area within the FEMA flood plain, and therefore would likely not require any additional flood plain mitigation.

Stormwater management would be required for new development to capture surface runoff from the proposed paved areas within a resource area buffer and likely consist of subsurface infiltration systems, level spreaders, and possible vegetated surface basins. Additional information is needed to determine the feasibility of various stormwater management options.

Pavement being proposed around the new building would allow opportunities for formal parking areas and vehicular paint markings. A double wide entrance and exit throat would allow for two-way traffic and larger emergency vehicle access. A designated "fuel lane" would create separation from the general vehicular circulation. Curbing (cape cod style asphalt berm) along the proposed paved area could be used to redirect surface runoff to a stormwater drainage system.

Green space on the eastern side of the proposed new building would afford opportunities for possible stormwater management (infiltration basins) and general landscape improvements.

5.2. Space Programming Needs

The proposed building provides 9000SF of usable area under one roof with optimized efficiencies. The design accounts for projected service needs in the local community and accommodates for future growth and increased diversity of staff.

5.2.1. Administrative / Dorm

Administrative and dorm areas contribute approximately 2,300SF to the overall program and are located at ground level. These functions are situated on the east end of the DPW, are closest to site entry/exit and are served by two separate entry points: one for public and one for employee use.

Sleeping quarters are designed for individual use, complete with personal storage for five staff members at any given time. These rooms are of unisex design and are located adjacent to a unisex toilet shower room as well as a laundry space.

5.2.2. Vehicle Storage / Maintenance Bays

Vehicle bay area provides 7,300SF for 6 double deep drive-thru bays for maintenance as well as two partial depth bays for vehicle/equipment storage. Also, within the vehicle storage area, adjacent to the administration seam, is a

tool room serving the lift bay with mechanic workspace and access to a storage mezzanine above. The vehicle bay area has two connection points to the administration/dorm area for ease of circulation for both employees, deliveries and vendor interface.

5.2.3. Mezzanine Storage Area

Accessible from the tool support area is approximately 2,000SF of additional storage area at a mezzanine level.

Schematic floorplans and a list of allocated program areas prepared by LiRo can be found in Attachment A.

5.3. Building Envelope

The proposed exterior is a clean and efficient composition of standing seam metal siding over continuous insulation panels with integral air and vapor retarders featuring a continuous air space/rain screen wrapping the entire building. The internal program is extenuated by recessed entry points at both front and rear of building and fenestrations comprised of thermally broken storefront infilled with a mix of insulating glazing in insulated panels on the administrative end of the building. Drive through vehicle storage bays are enclosed with insulated overhead doors. All envelope components are performance R-values designed to meet or exceed Stretch Energy Code.

5.4. Interior Finishes

Interior finishes for this facility will be selected based on comfort of inhabitants, reduction of operational maintenance, sensitivity to cost and life expectancy. Public interfacing components, as well as living areas, will denote a softer/welcoming sense, while more functional areas will be centered around durability and safety of occupants.

5.5. Major Building Components

5.5.1. Structural

The new building shall be a conventional steel building type of construction to provide the most cost-effective solution. This entails transverse steel frames in a repetitive pattern sitting over concrete foundation. Since the building site is within 50 feet from wetland, the foundation of building could be either deep foundation type (piles) or shallow footings over ground improvement. For the estimation purpose, shallow footings have been captured.

The slab is a structural slab with minimum 8” thickness spanning between grade beams that link pile caps. The slab reinforcements shall be designed to support heavy vehicle loads. The roof comprises of roof deck with roofing materials.

5.5.2. Fire Protection

The DPW will be protected by an automatic wet pipe system in accordance with NFPA requirements. Quick response sprinkler heads will be distributed throughout all areas of the facility. A new 6" fire main will be fed from an existing site well, provided it has sufficient capacity and pressure to meet the demands of the fire sprinkler system and will be properly equipped with a pump to deliver the necessary water flow. Careful evaluation of the well's capabilities and compliance with local regulations is crucial before utilizing it for fire protection purposes. Flow characteristics of the water supply well have not yet been obtained. The fire protection sub-contractor will need to obtain a new report detailing the flow characteristics of the existing site well to ensure it has the capacity to handle the required flow rate. If the well is not adequate to supply the fire sprinkler demand a new 120,000-gallon fire protection water storage tank (fire flow for firefighting operations and duration of supply have been calculated using local fire codes, NFPA 1, NFPA 13, and the IFC) will be provided with a new 500-gpm electric fire pump that will draw water from the storage tank and supply the new building. Appropriate fire department connection and alarm valves will be provided. Wet-pipe sprinklers will be utilized to protect most of the facility. Any areas containing sensitive/critical electrical equipment will be protected with a pre-action type sprinkler system fed from the new wet pipe system.

5.5.3. Plumbing

The DPW will consist of all standard plumbing systems. Domestic hot and cold water will be distributed throughout the facility. All fixtures will be plumbed for Sanitary Waste and Vent with waste piping being tied into an existing dual compartment septic tank installed 2020. The vent system will be collected internally and terminated through the roof. All plumbing fixtures will be low flow fixtures to comply with Massachusetts Plumbing Code CMR 248. Plumbing fixtures in all Common Restrooms, Locker rooms, Staff Toilets and Kitchens will be standard fixtures.

The hot water system will consist of an electric water heater with an integral storage tank. The system will include a mixing valve, recirculating pump and maintain a temperature of 110°F throughout the system. The water heater will be equipped with a leak detection system to shut down in the event of a leak. The water heater will be located in the mechanical room.

The roof will be drained through integral shallow pitched roof slope to gutter and downspouts at the rear of the building to be discharged into a sub-surface storm retention system. In accordance with Massachusetts Plumbing Code CMR248, the vehicle storage/ maintenance bays will have trench drains that will be required to pass through a Gas, Oil and Sand separator before entering the sanitary system. The Apparatus garage will require (1) Gas, Oil and Sand Separator then tie into the existing Sanitary System.

Wall Hydrants will be located within the vehicle storage/maintenance bays and located around the exterior of the building for any washdown or watering needs. A non-potable water connection with meter can be provided in the water service room for irrigation, if required. A local grease interceptor may be required in the Kitchen area if excessive cooking is being done or if the kitchen has a 3-Pot Sink.

5.5.4. Mechanical Systems

Install a new HVAC system with separate zone control for the different functions and sun exposures. Ventilation of garage bays and office areas will be separated to keep odors contained. Provide provisions so that air is not transferred between the administration, repair and garage spaces. Install a direct vehicle exhaust ventilation system to improve energy efficiency and comfort in the repair bay. This system would also be useful to serve a couple of bays of the vehicle storage to allow for keeping vehicle engines warm without needing to open the doors.

Heating in the vehicle maintenance area will be by gas-fired unit heaters. Other areas will be served by an air handling units using gas-fired heating and DX cooling. Variable air volume terminal with electric reheat will be used in the office area.

5.5.5. Electrical, Communication, and Security

Install a new normal power service and distribution system for lighting, power and equipment. A new emergency power and distribution system will be installed. New energy efficient lighting, communications and security systems throughout.

6. Appendices

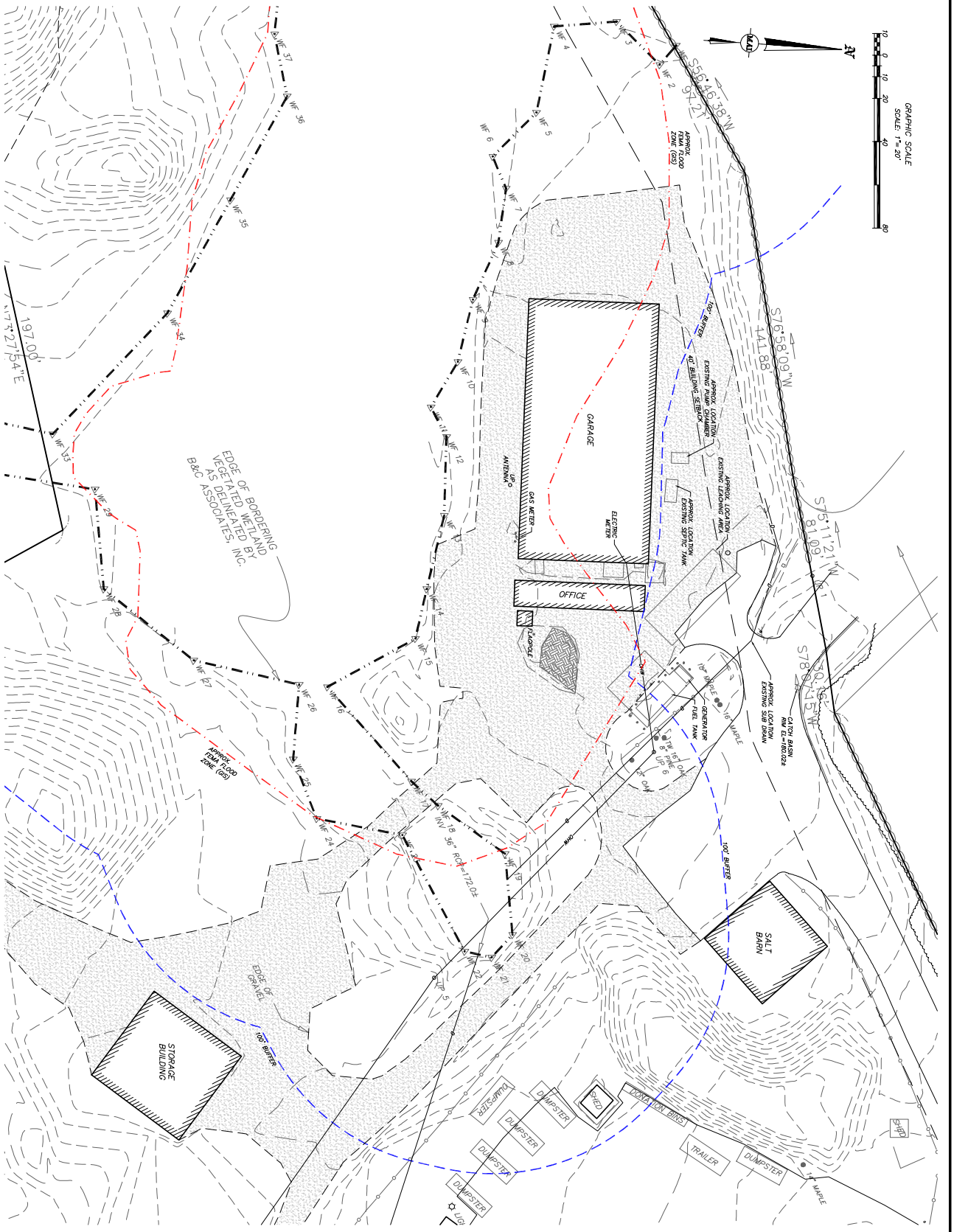
G. Schematic Design Documents
H. Cost Estimate
I. Pre-fabricated Shell estimate
J. Temporary Storage estimate
K. Design Study options
L. Existing condition documents

APPENDIX A

Schematic Design Documents

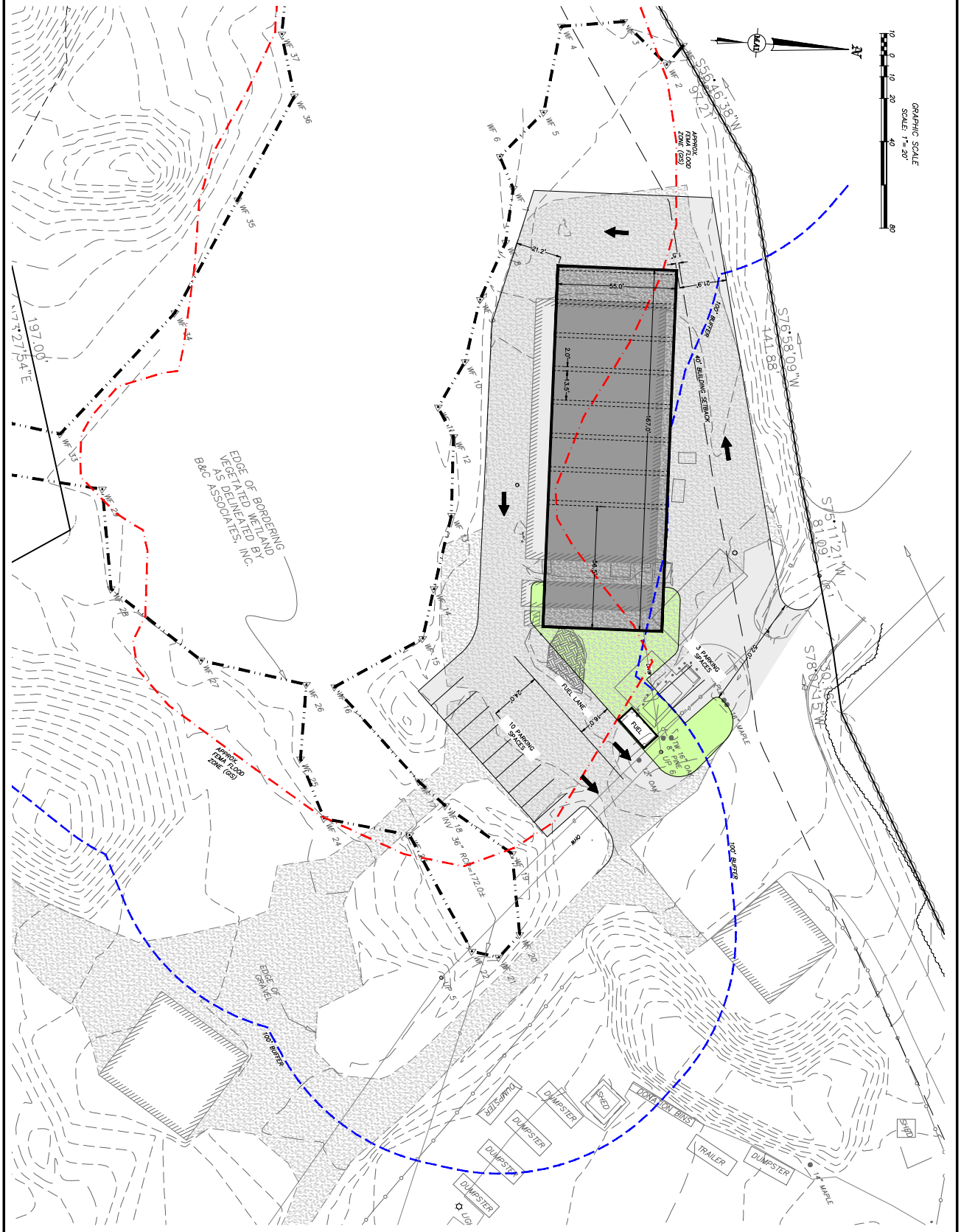
Carlisle DPW Program

Program Function		Area	Comments
Public			
Vestibule		115	
Lobby		120	
Public Restroom		64	
		299	
Admin			
Director's office		320	make large enough to accompany 2-3 people around a table outside desk interface: include storage
Mechanics office		115	
Bathroom(s): Admin		64	2
Admin storage		80	possible staging area?
Female Dorm Rooms w/Lockers		88	1P: acoustically/visually separate
Male Dorm Rooms w/Lockers		350	4P: acoustically/visually separate: confirm current sleeping configuration w/ client
MaleShower-Bathrooms		60	1 shower - 4M:
Female Shower-Bathroom		60	1 shower - 1F:
Breakroom/Flex		200	
kitchen		100	
Pantry		12	
		1449	
Support			
Maintenance Bays		6100	4 Bays: 18 pieces of equipment. Place for spare tires / seasonal storage
Tool room/Parts storage		300	
Restroom		64	
Telecom/IS/IT Room(s)		40	
Janitor's closet w/ sink, shelving		40	
Laundry		100	
Electric		80	
Mechanical		100	
FP/Sprinkler Room		80	
Generator			outside?
Solar			size to exceed site demand if possible with new roof area
		6904	
	Total SF	8652	*existing is approx 8k including trailer



DATE: MAY 24, 2024	MERIDIAN ASSOCIATES 500 CUMMINGS CENTER, SUITE 5950 BEVERLY, MASSACHUSETTS 01915 TELEPHONE: (978) 299-0447 WWW.MERIDIANASSOC.COM	59 MORSE ROAD COMPILED BASE PLAN LOCATED IN CARLISLE, MASSACHUSETTS (MIDDLESEX COUNTY) PREPARED FOR TOWN OF CARLISLE		REVISIONS	
SCALE: 1"=20'				DATE	DESCRIPTION BY
SHEET No. 1 OF 2	DESIGNED BY:	CHECKED BY:			
PROJECT No. 6577					

Plot Date: May 24, 2024 File: P:\6577_CARLISLE_DPW_59 MORSE ROAD_CARLISLE, MA\CAD\CIVIL 3D\6577_SITE-4.DWG



BK. #000, PG. #00
DWG. No. 6577_SITE-4.DWG

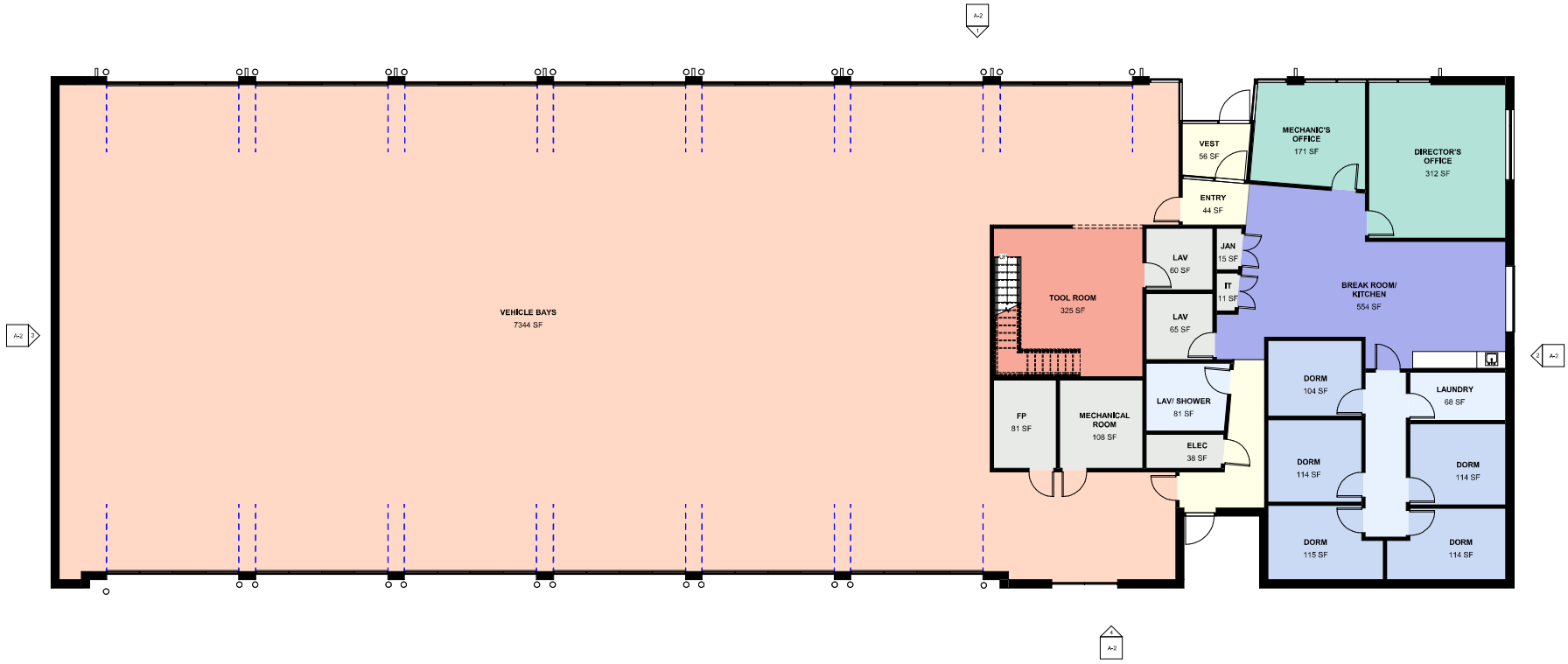
DATE:	MAY 24, 2024
SCALE:	1"=20'
SHEET No.	2 OF 2
PROJECT No.	6577

MERIDIAN ASSOCIATES
500 CUMMINGS CENTER, SUITE 5950
BEVERLY, MASSACHUSETTS 01915
TELEPHONE: (978) 299-0447
WWW.MERIDIANASSOC.COM

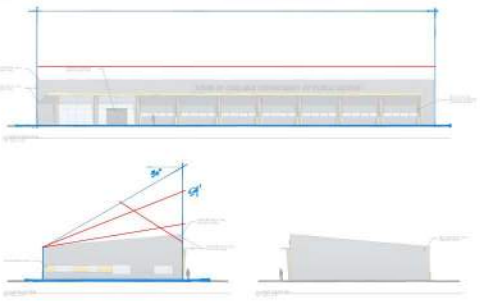
DRAWN BY: NB | DESIGNED BY: NB | CHECKED BY: XXX

59 MORSE ROAD
OPTION 3: CONCEPTUAL LAYOUT
LOCATED IN
CARLISLE, MASSACHUSETTS
(MIDDLESEX COUNTY)
PREPARED FOR
TOWN OF CARLISLE

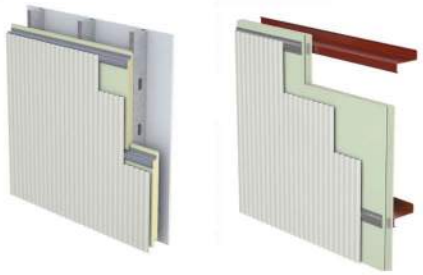
REVISIONS		
DATE	DESCRIPTION	BY

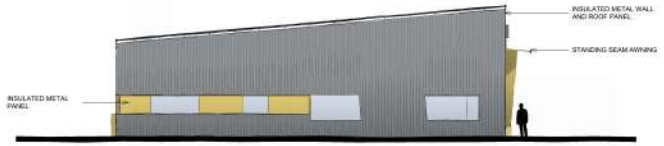


1 PROPOSED FIRST FLOOR PLAN
3/16" = 1'-0"



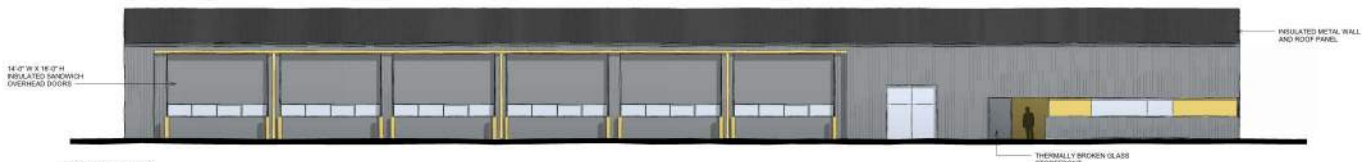
1 NORTH ELEVATION
1/8" = 1'-0"





2 EAST ELEVATION
1/8" = 1'-0"

3 WEST ELEVATION
1/8" = 1'-0"



4 SOUTH ELEVATION
1/8" = 1'-0"

APPENDIX B

Cost Estimate

Study Estimate

Carlisle DPW Complex
Improvements

Carlisle, MA

PM&C LLC
20 Downer Ave, Suite 5
Hingham, MA 02043
(T) 781-740-8007
(F) 781-740-1012

Prepared for:

Hill-LiRo, Corp

October 31, 2024

PM&C

Carlisle DPW Complex
Improvements
Carlisle, MA

31-Oct-24

Study Estimate

MAIN CONSTRUCTION COST SUMMARY

	Bid Date	Gross Floor Area	$/sf	Estimated Construction Cost
CORRECTIVE PATH 1 - RENOVATE EXISTING DPW BUILDING	Jun-25			
RENO DPW BUILDING		7,200	$351.94	$2,533,996
HAZMAT REMOVAL				N/A
SITEWORK				**$3,297,823**
SUB-TOTAL		7,200	**$809,97**	**$5,831,819**
DESIGN AND PRICING CONTINGENCY	12.0%			**$699,818**
ESCALATION	4.0%			**$233,272**
SUB-TOTAL				**$6,764,909**
GENERAL CONDITIONS/GENERAL REQUIREMENTS	10.00%			**$676,490**
BONDS	0.90%			**$60,884**
INSURANCE	1.50%			**$101,473**
PERMIT				Waived
OVERHEAD AND FEE	4.00%			**$270,596**
CONSTRUCTION CONTINGENCY				By Owner
TOTAL OF ALL CONSTRUCTION		7,200	**$1,093,66**	$7,874,352

PM&C

Carlisle DPW Complex
Improvements
Carlisle, MA

31-Oct-24

Study Estimate

MAIN CONSTRUCTION COST SUMMARY

	Bid Date	Gross Floor Area	$/sf	Estimated Construction Cost
CORRECTIVE PATH 2 - NEW DPW BUILDING	Jun-25			
DPW BUILDING		10,212	$483.41	$4,936,606
HAZMAT REMOVAL				N/A
SITEWORK				**$3,297,823**
SUB-TOTAL		10,212	**$806,34**	**$8,234,429**
DESIGN AND PRICING CONTINGENCY	12.0%			**$988,131**
ESCALATION	4.0%			**$329,377**
SUB-TOTAL				**$9,551,937**
GENERAL CONDITIONS/GENERAL REQUIREMENTS	10.00%			**$955,193**
BONDS	0.90%			**$85,967**
INSURANCE	1.50%			**$143,279**
PERMIT				Waived
OVERHEAD AND FEE	4.00%			**$382,077**
CONSTRUCTION CONTINGENCY				By Owner
TOTAL OF ALL CONSTRUCTION		10,212	**$1,088,76**	$11,118,453

Carlisle DPW Complex
Improvements
Carlisle, MA

31-Oct-24

Study Estimate

This Feasibility Design estimate was produced from drawings and specifications produced by Hill-LiRo, Corp and their design team dated June 4, 2024. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, general contractors overhead and fee and design contingency. Cost escalation has not been included.

Bidding conditions are expected to be public bidding under C.149 to pre-qualified General Contractors, open bidding for sub-contractors, open specifications for materials and manufacturers.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- DPW Equipment
- All professional fees and insurance
- Land acquisition, feasibility, and financing costs
- All Furnishings, Fixtures and Equipment U.N.O
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items (e.g. draperies, furniture and equipment)
- Rock excavation; special foundations (unless indicated by design engineers)
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)

PM&C

Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

GSF 7,200

Study Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

		DPW BUILDING		Cost/SF
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING				
DIV. 2	**EXISTING CONDITIONS**		**$72,000**	
024120	Demolition	$72,000		
028200	HazMat Remediation	see Summary		
DIV. 3	**CONCRETE**		**$81,700**	
033000	Cast-in-Place Concrete	$81,700		$11.35
DIV. 4	**MASONRY**			
040001	**Masonry - FSB**			
DIV. 5	**METALS**		**$126,100**	
050001	**Miscellaneous And Ornamental Iron - FSB**	**$126,100**		**$17.51**
051200	Structural Steel			
053100	Steel Decking			
DIV. 6	**WOODS & PLASTICS**		**$55,307**	
061053	Rough Carpentry	$21,757		$3.02
064023	Interior Architectural Woodwork	$33,550		$4.66
DIV. 7	**THERMAL & MOISTURE PROTECTION**		**$583,234**	
070001	**Waterproofing, Dampproofing & Caulking - FSB**	**$51,018**		**$7.09**
070002	**Roofing and Flashing - FSB**	**$299,500**		**$41.60**
072100	Thermal Insulation	$6,636		$0.92
074213	Insulated Metal Wall Panels	$225,000		$31.25
078100	Fireproofing & Firestopping	$1,080		$0.15
079500	Expansion Control			
DIV. 8	**DOORS & WINDOWS**		**$214,380**	
080001	**Glass and Glazing - FSB**			
080002	**Metal Windows - FSB**	**$63,980**		**$8.89**
081110	Doors, Frames and Hardware	$26,300		$3.65
083113	Access Doors	$1,500		$0.21
083300	Coiling Doors	$117,600		$16.33
084110	Aluminum Framed Entrances and Storefronts			
086300	Skylights			
089000	Exterior Louvers	$5,000		$0.69
DIV. 9	**FINISHES**		**$204,006**	
090001	**Tile - FSB**	**$29,486**		**$4.10**
090002	**Acoustical Tile - FSB**	**$5,250**		**$0.73**
090003	**Resilient Flooring - FSB**	**$7,545**		**$1.05**
090004	**Painting - FSB**	**$24,850**		**$3.45**
092116	Gypsum Wallboard	$136,875		$19.01

PM&C

Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

GSF 7,200

Study Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

		DPW BUILDING		Cost/SF
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING				
096723	Resinous Flooring			
096820	Carpeting			
097200	Wall Coverings			
098400	Acoustic Room Components			
DIV 10	**SPECIALTIES**		**$42,395**	
101100	Visual Display Surfaces	$2,500		$0.35
101200	Display Cases			
101400	Signage	$20,720		$2.88
102100	Toilet Compartments and Cubicles			
102213	Wire Mesh Partitions			
102600	Wall Protection	$10,000		$1.39
102800	Toilet Accessories	$3,800		$0.53
104400	Fire Protection Specialties	$1,400		$0.19
105113	Lockers	$3,975		$0.55
105626	Mobile Storage Units			
107113	Exterior Sunshades			
108200	Rooftop Mechanical Screens			
DIV. 11	**EQUIPMENT**		**$35,000**	
114000	Residential Equipment	$35,000		$4.86
119000	Miscellaneous Equipment			
119000	Utility Equipment			
DIV. 12	**FURNISHINGS**		**$5,130**	
122410	Window Treatments	$3,630		$0.50
123100	Casework & Countertops			
124810	Entrance Mats and Frames	$1,500		$0.21
DIV. 13	**SPECIAL CONSTRUCTION**			
135000	Pre-Engineered Metal Building			
DIV. 14	**CONVEYING SYSTEMS**			
140001	**Elevators - FSB**			
DIV. 21	**FIRE SUPPRESSION**		**$71,100**	
210000	**Fire Protection - FSB**	**$71,100**		**$9.88**
DIV. 22	**PLUMBING**		**$232,300**	
220000	**Plumbing - FSB**	**$232,300**		**$32.26**
DIV. 23	**HVAC**		**$452,494**	
230000	**HVAC - FSB**	**$452,494**		**$62.85**
DIV. 26	**ELECTRICAL**		**$366,860**	
260000	**Electrical - FSB**	**$366,860**		**$50.95**

Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

GSF 7,200

Study Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

			Cost/SF
		DPW BUILDING	

PATHWAY 1 -RENOVATE EXISTING DPW BUILDING

DIV. 31 EARTHWORK		**($8,010)**	
311000 Site Preparation			
312000 Earthwork	($8,010)		
SUBTOTAL DIRECT (TRADE) COST		**$2,533,996**	**$351.94**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING							
	GROSS FLOOR AREA CALCULATION						
	Garage Area			7,200	sf		
	Tool Room/Mech Areas				sf		
	Office/Dorm Area				sf		
	Mezzanines - *not included in GSF*	700	sf				
	TOTAL GROSS FLOOR AREA (GFA)	*7,900*			**7,200**	***sf***	
	02 - EXISTING CONDITIONS						
024120	**DEMOLITION**						
	Interior demolition; walls, finishes + MEP	**7,200**	sf	10.00	72,000		
	SUBTOTAL					72,000	
028200	**HAZMAT REMEDIATION**				See Summary		
	SUBTOTAL					-	
	TOTAL - EXISTING CONDITIONS						**$72,000**
	03 - CONCRETE						
033000	**CONCRETE**						
	Miscellaneous						
	Allowance to insulate existing grade beams; includes E+B to expose face of the GB	**1,440**	sf	20.00	28,800		
	Patch/repair existing slab	**7,200**	sf	5.00	36,000		
	Equipment pads	**1**	ls	2,500.00	2,500		
	Seal concrete slab	**7,200**	sf	2.00	14,400		
	SUBTOTAL					81,700	
	TOTAL - CONCRETE						**$81,700**
	04 - MASONRY						
040001	**MASONRY**						
	Exterior						
	Brick				None Required		
	Interior						
	CMU partitions - floor to mezzanine	**1,560**	sf	38.00	NR		
	SUBTOTAL					-	
	TOTAL - MASONRY						
	05 - METALS						
050001	**METAL FABRICATIONS**						
	Miscellaneous metals at masonry	**1,560**	sf	2.50	3,900		
	Weld 1/2" x 8" wide plate to steel frame	**216**	lf	150.00	32,400		
	Interior railings - mezzanine	**70**	lf	350.00	24,500		
	Stair to garage mezzanine	**1**	flts	30,000.00	30,000		
	Plate/Angle assembly at overhead doors	**3**	ea	3,500.00	10,500		
	Bollards at overhead doors	**10**	ea	1,400.00	14,000		
	Allowance for misc. metals; generally	**7,200**	sf	1.50	10,800		
	SUBTOTAL					126,100	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING							
051200	**Structural Metals**						
	SUBTOTAL					-	
053100	**Steel Decking**						
	SUBTOTAL					-	
TOTAL - METALS							**$126,100**
06 - WOOD, PLASTICS AND COMPOSITES							
061053	**ROUGH CARPENTRY**						
	Exterior						
	Wood blocking at windows/doors	**386**	sf	14.00	5,404		
	Rough blocking at roof	**7,200**	sf	1.50	10,800		
	Interior						
	Rough blocking at partitions	**250**	lf	5.50	1,375		
	Rough blocking at interior door/borrow light openings	**105**	lf	5.50	578		
	Miscellaneous interior blocking/electrical back-boards	**7,200**	gsf	0.50	3,600		
	SUBTOTAL					21,757	
064023	**ARCHITECTURAL WOODWORK**						
	Interior						
	Break - base cabinets w/ counter + uppers	**12**	lf	900.00	10,800		
	Conference - base cabinets w/ counter + uppers	**17**	lf	900.00	15,300		
	Laundry - uppers	**7**	lf	350.00	2,450		
	Reception - desk at transaction window	**1**	ls	5,000.00	5,000		
	Miscellaneous architectural woodwork; allowance				Assumed Not Required		
	SUBTOTAL					33,550	
TOTAL - WOOD, PLASTICS AND COMPOSITES							**$55,307**
07 - THERMAL AND MOISTURE PROTECTION							
070001	**WATERPROOFING, DAMPPROOFING AND CAULKING**						
	Foundations						
	Dampproofing foundation wall and footing	**1,440**	sf	4.00	5,760		
	Façade/Exterior walls						
	AVB at opaque areas	**3,000**	sf	9.00	27,000		
	AVB at openings	**386**	lf	10.00	3,860		
	Miscellaneous sealants	**1**	ls	5,000.00	5,000		
	Interiors						
	Backer rod & double sealant at openings	**105**	lf	12.00	1,260		
	Miscellaneous sealants at partitions	**3,750**	sf	0.25	938		
	Miscellaneous sealants throughout building	**7,200**	gsf	1.00	7,200		
	SUBTOTAL					51,018	
070002	**ROOFING AND FLASHING**						
	Standing seam roof - metal roofing	**8,000**	sf	35.00	280,000		
	Prefinished metal fascia/caps	**230**	sf	50.00	11,500		
	Gutters and downspouts				NR		
	Miscellaneous						
	Walkway pads				NR		
	Roof hatch with perimeter safety railing and gate				NR		
	Miscellaneous flashings including at pipe penetrations, flashings etc.	**8,000**	sf	1.00	8,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING							
	SUBTOTAL					299,500	
072100	**THERMAL INSULATION**						
	Foundations						
	Rigid insulation, 2" thick - footing/foundation wall	**1,440**	sf	3.00	4,320		
	Exterior						
	Rigid insulation - walls	**3,000**	sf	4.00	NR		
	Insulation at window/door openings	**386**	sf	6.00	2,316		
	SUBTOTAL					6,636	
074213	**METAL PANELS**						
	Metal panel siding - insulated metal	**3,000**	sf	75.00	225,000		
	Metal panels at overhang/window surrounds	**800**	sf	75.00	NR		
	Metal panels at Roof overhang	**708**	sf	75.00	NR		
	SUBTOTAL					225,000	
078100	**FIREPROOFING & FIRE STOPPING**						
	Fire proofing				NR		
	Fire stopping throughout	**7,200**	gsf	0.15	1,080		
	SUBTOTAL					1,080	
079500	**EXPANSION CONTROL**						
	Expansion joints - roof/walls				w/ waterproofing		
	SUBTOTAL					-	
	TOTAL - THERMAL AND MOISTURE PROTECTION						**$583,234**
08 - OPENINGS							
080001	**GLASS AND GLAZING**				w/ below		
	SUBTOTAL					-	
080002	**METAL WINDOWS**						
	Exterior Glazing Systems						
	Aluminum storefront windows	**216**	sf	155.00	33,480		
	Glass entrance door - double - includes hardware	**2**	ea	7,000.00	14,000		
	Interior Glazing Systems						
	Transaction window	**1**	ls	4,500.00	4,500		
	Glass entrance door - single - includes hardware	**2**	pr	6,000.00	12,000		
	SUBTOTAL					63,980	
081100	**DOORS, FRAMES AND HARDWARE**						
	Exterior Doors						
	HM Frame, single	**4**	ea	450.00	1,800		
	Doors, leaves	**4**	ea	650.00	2,600		
	Hardware	**4**	leaf	1,500.00	6,000		
	Interior Doors						
	HM Frame, single	**5**	ea	450.00	2,250		
	HM Frame, double	**1**	ea	600.00	600		
	Doors, leaves	**7**	ea	650.00	4,550		
	Premium for door glazing	**1**	ls	1,500.00	1,500		
	Hardware	**7**	leaf	1,000.00	7,000		
	SUBTOTAL					26,300	
083113	**ACCESS DOORS**						
	Access doors	**1**	ls	1,500.00	1,500		
	SUBTOTAL					1,500	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING							
083300	**OVERHEAD DOORS**						
	Exterior doors; glazed - Insulated						
	Overhead coiling door - 16'-00" x 14'-00" - Solid & Glazed	**3**	ea	39,200.00	117,600		
	SUBTOTAL					117,600	
084110	**ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**				w/ windows		
	SUBTOTAL					-	
086300	**SKYLIGHTS**						
	Skylights				None Required		
	SUBTOTAL					-	
089119	**FIXED LOUVERS**						
	Louvers - exterior/interior	**1**	ls	5,000.00	5,000		
	SUBTOTAL					5,000	
	TOTAL - OPENINGS						**214,380**
09 - FINISHES							
090001	**TILE**						
	Walls						
	Bathroom walls	**412**	sf	40.00	16,480		
	Backsplash	**20**	sf	42.00	840		
	Flooring						
	Floor tile - bathrooms	**221**	sf	42.00	9,282		
	Tile base	**103**	lf	28.00	2,884		
	SUBTOTAL					29,486	
090002	**ACT**						
	ACT 2x2	**700**	sf	7.50	5,250		
	SUBTOTAL					5,250	
090003	**RESILIENT FLOORING**						
	LVT	**700**	sf	7.50	5,250		
	Mezzanine Level		sf	6.50	NR		
	Resilient Base	**765**	lf	3.00	2,295		
	SUBTOTAL					7,545	
090004	**PAINTING**						
	Finish doors and frames	**7**	ea	160.00	1,120		
	Paint to GWB/CMU partitions	**10,620**	sf	1.50	15,930		
	Paint to GWB ceilings	**300**	sf	2.00	600		
	Paint to exposed ceilings structure				NR		
	Miscellaneous painting	**7,200**	gsf	1.00	7,200		
	SUBTOTAL					24,850	
092116	**GWB**						
	EXTERIOR WALLS						
	Perimeter framing	**3,000**	sf	20.00	60,000		
	PARTITIONS						
	Standard Partitions - 6"MS, 1lyr GWB bs + insulation	**3,750**	sf	18.50	69,375		
	Install doors frame	**6**	ea	150.00	900		
	CEILINGS						
	GWB Ceiling	**300**	sf	22.00	6,600		
	SUBTOTAL					136,875	
096723	**RESINOUS FLOORING**						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 1 -RENOVATE EXISTING DPW BUILDING						
	Epoxy painted flooring/traffic coating				Assumed NR		
	SUBTOTAL					-	
096820	**CARPET**				NR		
	SUBTOTAL					-	
097200	**WALL COVERINGS**				NR		
	SUBTOTAL					-	
098120	**SPRAYED ACOUSTIC INSULATION**				NR		
	SUBTOTAL					-	
098400	**ACOUSTIC ROOM COMPONENTS**				NR		
	SUBTOTAL					-	
	TOTAL - FINISHES						**$204,006**
	10 - SPECIALTIES						
101100	**VISUAL DISPLAY BOARDS**						
	Markerboard/Tackboards - Allowance	**1**	ls	2,500.00	2,500		
	SUBTOTAL					2,500	
101200	**DISPLAY CASES**						
	Display case , allow				NR		
	SUBTOTAL					-	
101400	**SIGNAGE**						
	Exterior signage						
	Building mounted signage	**35**	ltrs	500.00	17,500		
	Interior signage - assumed						
	Room Signs	**6**	loc	120.00	720		
	Miscellaneous signage/graphics - town seals, plaques	**1**	ls	2,500.00	2,500		
	SUBTOTAL					20,720	
102110	**PLASTIC TOILET COMPARTMENTS**						
	Shower cubicles/Toilet partitions				NR		
	SUBTOTAL					-	
102213	**WIRE MESH PARTITIONS**				NR		
	SUBTOTAL					-	
102600	**WALL PROTECTION**						
	Allowance for wall protection	**1**	ls	10,000.00	10,000		
	SUBTOTAL					10,000	
102800	**TOILET ACCESSORIES**						
	Single toilet accessories	**2**	rms	1,250.00	2,500		
	Single toilet accessories w/ shower	**1**	rms	950.00	950		
	Janitor's closet	**1**	rms	350.00	350		
	SUBTOTAL					3,800	
104400	**FIRE EXTINGUISHER CABINETS**						
	Fire extinguisher cabinets	**3**	ea	350.00	1,050		
	AED cabinets ; allow	**1**	ea	350.00	350		
	SUBTOTAL					1,400	
105113	**LOCKERS**						
	Lockers	**15**	ea	265.00	3,975		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 1 -RENOVATE EXISTING DPW BUILDING						
	SUBTOTAL					3,975	
105626	**MOBILE STORAGE UNITS**				NR		
	SUBTOTAL					-	
107113	**EXTERIOR SUNSHADES**						
	SUBTOTAL					-	
108200	**ROOFTOP MECHANICAL SCREENS**						
	SUBTOTAL					-	
	TOTAL - SPECIALTIES						**$42,395**
	11 - EQUIPMENT						
114000	**RESIDENTIAL EQUIPMENT**						
	Appliances						
	Break	**1**	ea	7,500.00	7,500		
	Break Room/training	**1**	ea	15,000.00	15,000		
	Conference	**1**	ls	7,500.00	7,500		
	Laundry	**1**	ls	5,000.00	5,000		
	SUBTOTAL					35,000	
119000	**MISCELLANOUS EQUIPMENT**						
	No work in this section						
	SUBTOTAL					-	
119500	**UTILITY EQUIPMENT**						
	Equipment package			Excluded - Assumed By Owner			
	SUBTOTAL					-	
	TOTAL - EQUIPMENT						**$35,000**
	12 - FURNISHINGS						
122410	**WINDOW TREATMENT**						
	Manual shades at exterior windows	**242**	sf	15.00	3,630		
	SUBTOTAL					3,630	
123100	**CASEWORK & COUNTERTOPS**				w/ div 6		
	Incl in millwork above						
	SUBTOTAL					-	
124810	**ENTRANCE MATS**						
	Walk off mats - assumed	**100**	sf	15.00	1,500		
	SUBTOTAL					1,500	
	TOTAL - FURNISHINGS						**$5,130**
	13 - SPECIAL CONSTRUCTION						
135000	**PRE-ENGINEERED METAL BUILDINGS**						
	SUBTOTAL					-	
	TOTAL - CONVEYING						
	14 - CONVEYING SYSTEMS						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING							
140001	**ELEVATORS**						
	No work in this section						
	SUBTOTAL					-	
TOTAL - CONVEYING							
21 - FIRE SUPPRESSION							
210000	**FIRE PROTECTION**						
	Fire protection allowance	**7,900**	sf	9.00	71,100		
	SUBTOTAL					71,100	
TOTAL - FIRE SUPPRESSION							**$71,100**
22 - PLUMBING							
220000	**PLUMBING**						
	Equipment						
	Water Service Entrance	**1**	ea	8,500.00	8,500		
	Reduced pressure back flow preventer	**1**	ea	7,500.00	7,500		
	Water Meter	**1**	ea	6,000.00	6,000		
	Water heating equipment (gas fired)	**1**	ls	10,000.00	10,000		
	Gas meter connection	**1**	ea	2,100.00	2,100		
	Exterior gas/sand separator	**1**	ea	15,000.00	15,000		
	Miscellaneous plumbing equipment	**7,900**	sf	1.00	7,900		
	Plumbing Fixtures & Specialties						
	Water closet	**4**	ea	2,300.00	9,200		
	Urinal	**2**	ea	2,200.00	4,400		
	Lavatory, wall	**6**	ea	2,150.00	12,900		
	Shower	**2**	ea	4,500.00	9,000		
	Mop sink	**1**	ea	2,000.00	2,000		
	Sink	**2**	ea	2,000.00	4,000		
	Electric water cooler, bi-level	**1**	ea	4,600.00	4,600		
	Emergency shower w/mixing valve	**1**	ea	3,850.00	3,850		
	Washing machine box	**1**	ea	800.00	800		
	Ice maker connection	**2**	ea	600.00	1,200		
	Hose Bibb	**2**	ea	600.00	1,200		
	Exterior wall hydrant	**6**	ea	1,000.00	6,000		
	Compressed air reel	**6**	ea	1,500.00	9,000		
	Floor Drains	**11**	ea	1,650.00	18,150		
	Trench Drains	**120**	lf	135.00	16,200		
	Roof Drains - not required				NIC		
	Domestic Water Type L Copper Pipe						
	Domestic water pipe with fittings & hangers	**1,000**	sf	2.00	2,000		
	Domestic water pipe insulation	**1,000**	sf	1.00	1,000		
	Sanitary Waste And Vent Pipe w/ Hangers						
	Sanitary waste pipe with fittings & hangers	**1,000**	sf	3.00	3,000		
	Compressed Air Pipe w/ Hangers						
	Compressed air pipe with fittings & hangers	**600**	lf	55.00	33,000		
	Valves & accessories	**1**	ls	5,000.00	5,000		
	Storm Drainage						
	Gutters and downspouts - by others				NIC		
	Gas And Fuel Distribution Pipe						
	Gas pipe with fittings & hangers	**7,200**	sf	1.50	10,800		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 1 -RENOVATE EXISTING DPW BUILDING							
	Miscellaneous						
	Management & supervision	**1**	ls	10,000.00	10,000		
	Testing and sterilization	**1**	ls	3,000.00	3,000		
	Fees & permits	**1**	ls	5,000.00	5,000		
	SUBTOTAL					232,300	
	TOTAL - PLUMBING						**$232,300**
	23 - HVAC						
230000	**HVAC**						
	HVAC Equipment						
	Cabinet unit heater, electric	**2**	ea	3,000.00	6,000		
	Gas-fired unit heater, Vehicle Maint	**4**	ea	2,500.00	10,000		
	Gas-fired unit heater, overhead doors	**3**	ea	3,500.00	10,500		
	VAV terminal with electric reheat (Office area)	**10**	ea	1,800.00	18,000		
	Air Handling Equipment						
	Office area RTU, gas-fired with DX cooling	**805**	cfm	22.00	17,710		
	MAU equipment, Vehicle Storage	**5,760**	cfm	18.00	103,680		
	Exhaust fan						
	Exhaust fan, Vehicle Storage	**7,200**	sf	1.00	7,200		
	Vehicle exhaust system at Maintenance Bays	**2**	loc	16,000.00	32,000		
	Sheet metal & Accessories						
	Galvanized steel ductwork	**5,760**	lbs	19.00	109,440		
	Duct Insulation	**3,744**	sf	6.00	22,464		
	Registers, grilles & diffusers	**1**	ls	10,000.00	10,000		
	Duct accessories	**1**	ls	5,000.00	5,000		
	Automatic Temperature Controls						
	Automatic temperature controls DDC	**7,200**	sf	6.50	46,800		
	Balancing						
	System testing & balancing	**7,200**	sf	1.00	7,200		
	Miscellaneous						
	Management & supervision	**1**	ls	25,000.00	25,000		
	Coordination & BIM	**1**	ls	10,000.00	10,000		
	Coring, sleeves & fire stopping	**1**	ls	1,500.00	1,500		
	Equipment start-up and inspection	**1**	ls	5,000.00	5,000		
	Rigging & equipment rental	**1**	ls	5,000.00	5,000		
	SUBTOTAL					452,494	
	TOTAL - HVAC						**$452,494**
	26 - ELECTRICAL						
260000	**ELECTRICAL**						
	Gear & Distribution						
	Normal power and Distribution	**7,200**	sf	7.00	50,400		
	Emergency power and Distribution	**7,200**	sf	4.00	28,800		
	PV						
	Provisions including empty 4" conduits and pull boxes	**1**	ea	5,000.00	5,000		
	Equipment Wiring						
	VAV reheat coil feed and connection	**10**	ea	850.00	8,500		
	Exhaust fan feed and connection	**1**	ls	5,000.00	5,000		
	Vehicle exhaust system feed and connection	**1**	ls	5,000.00	5,000		
	MAU feed and connection	**1**	ea	6,500.00	6,500		
	RTU feed and connection	**1**	ea	6,500.00	6,500		
	CUH/UH feed and connection	**9**	ea	1,000.00	9,000		
	Water heater feed and connection	**1**	ls	1,500.00	1,500		
	Shop equipment feed and connection	**1**	ls	8,500.00	8,500		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 1 -RENOVATE EXISTING DPW BUILDING						
	Overhead doors feed and connection	**3**	ea	2,500.00	7,500		
	Misc. equipment feed and connections	**7,200**	sf	0.50	3,600		
	SUBTOTAL					145,800	
	LIGHTING & POWER						
	Lighting & Branch Power				-		
	LED Lighting fixtures with installation labor (Office)	**700**	sf	10.00	7,000		
	LED Lighting fixtures with installation labor (Garage)	**7,900**	sf	4.00	31,600		
	Exit and egress lighting	**7,200**	sf	0.50	3,600		
	Exterior building lighting	**1**	ls	3,000.00	3,000		
	Lighting control system						
	Lighting controls (Office)	**700**	sf	2.50	1,750		
	Lighting controls (Garage)	**7,900**	sf	0.50	3,950		
	Lighting circuitry						
	Lighting & branch circuitry	**7,200**	sf	4.00	28,800		
	Branch devices						
	Branch devices	**7,200**	sf	0.50	3,600		
	Branch circuitry						
	Branch circuitry	**7,200**	sf	4.00	28,800		
	SUBTOTAL					112,100	
	COMMUNICATION & SECURITY SYSTEMS						
	Fire Alarm						
	Fire alarm system	**7,900**	sf	5.00	39,500		
	Bi-Directional System						
	BDA system	**7,200**	sf	0.85	6,120		
	Security System						
	Security System	**7,200**	sf	3.00	21,600		
	Telephone/Data/CATV						
	VoIP, data switches/ wireless equip, computer equip				By others		
	Tel/Data cabling (Office/Admin)	**700**	sf	5.00	3,500		
	Tel/Data cabling (Garage)	**7,900**	sf	2.00	15,800		
	Telecommunications rough in	**7,200**	sf	0.20	1,440		
	Public Address/Clock System						
	PA system	**7,200**	sf	0.85	NR		
	SUBTOTAL					87,960	
	OTHER ELECTRICAL SYSTEMS						
	Miscellaneous						
	Lightning Protection				NIC		
	Grounding & Bonding	**1**	ls	1,000.00	1,000		
	Temp power and lights	**1**	ls	5,000.00	5,000		
	Coordination, BIM	**1**	ls	10,000.00	10,000		
	Fees & Permits	**1**	ls	5,000.00	5,000		
	SUBTOTAL					21,000	
	TOTAL -ELECTRICAL						**$ 366,860**
	31 - EARTHWORK						
312000	**EARTHWORK**						
	Strip footings & foundation wall						
	Excavation	**213**	cy	14.00	2,982		
	Store on site for reuse	**213**	cy	6.00	1,278		
	Backfill with selected material	**(1,227)**	cy	10.00	(12,270)		
	Miscellaneous						
	Foundation drain 4" perforated PVC				NR		
	Crushed stone/filter fabric				included above		
	E+B for under slab plumbing	7,200	sf	2.00	ETR		

PM&C

Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

Study Estimate

GFA 7,200

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 1 -RENOVATE EXISTING DPW BUILDING						
	Building Earthwork		*sf*				
	Cut	800	cy	10.00	NR		
	Store cut onsite	800	cy	3.50	NR		
	Structural fill to design subgrade						
	Fill - imported structural fill; swell 25%				Assumed NR		
	Rough and fine grade				carried in site		
	Compact subgrade	7,200	sf	1.25	Assumed NR		
	Gravel beneath slab on grade; 12" thick, compacted structural fill	267	cy	48.00	Assumed NR		
	Rock removal				NR		
	SUBTOTAL					(8,010)	
	TOTAL - EARTHWORK						**($8,010)**

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Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

GSF 10,212

Study Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

	DPW BUILDING		**Cost/SF**
PATHWAY 2 - NEW DPW BUILDING			
DIV. 2 EXISTING CONDITIONS			
024120 Demolition			
028200 HazMat Remediation	see Summary		
DIV. 3 CONCRETE		**$546,803**	
033000 Cast-in-Place Concrete	$546,803		$53.55
DIV. 4 MASONRY		**$59,280**	
040001 Masonry - FSB	**$59,280**		**$5.80**
DIV. 5 METALS		**$676,683**	
050001 Miscellaneous And Ornamental Iron - FSB	**$170,243**		**$16.67**
051200 Structural Steel	$425,800		$41.70
053100 Steel Decking	$80,640		$7.90
DIV. 6 WOODS & PLASTICS		**$55,678**	
061053 Rough Carpentry	$22,128		$2.17
064023 Interior Architectural Woodwork	$33,550		$3.29
DIV. 7 THERMAL & MOISTURE PROTECTION		**$993,185**	
070001 Waterproofing, Dampproofing & Caulking - FSB	**$83,663**		**$8.19**
070002 Roofing and Flashing - FSB	**$410,820**		**$40.23**
072100 Thermal Insulation	$14,845		$1.45
074213 Insulated Metal Wall Panels	$482,325		$47.23
078100 Fireproofing & Firestopping	$1,532		$0.15
079500 Expansion Control			
DIV. 8 DOORS & WINDOWS		**$667,800**	
080001 Glass and Glazing - FSB			
080002 Metal Windows - FSB	**$104,900**		**$10.27**
081110 Doors, Frames and Hardware	$46,800		$4.58
083113 Access Doors	$1,500		$0.15
083300 Coiling Doors	$509,600		$49.90
084110 Aluminum Framed Entrances and Storefronts			
086300 Skylights			
089000 Exterior Louvers	$5,000		$0.49
DIV. 9 FINISHES		**$291,452**	
090001 Tile - FSB	**$29,486**		**$2.89**
090002 Acoustical Tile - FSB	**$15,495**		**$1.52**
090003 Resilient Flooring - FSB	**$17,790**		**$1.74**
090004 Painting - FSB	**$33,165**		**$3.25**
092116 Gypsum Wallboard	$195,516		$19.15

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Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

GSF 10,212

Study Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

		DPW BUILDING		Cost/SF
PATHWAY 2 - NEW DPW BUILDING				
096723	Resinous Flooring			
096820	Carpeting			
097200	Wall Coverings			
098400	Acoustic Room Components			
DIV 10	**SPECIALTIES**		**$46,455**	
101100	Visual Display Surfaces	$2,500		$0.24
101200	Display Cases			
101400	Signage	$24,780		$2.43
102100	Toilet Compartments and Cubicles			
102213	Wire Mesh Partitions			
102600	Wall Protection	$10,000		$0.98
102800	Toilet Accessories	$3,800		$0.37
104400	Fire Protection Specialties	$1,400		$0.14
105113	Lockers	$3,975		$0.39
105626	Mobile Storage Units			
107113	Exterior Sunshades			
108200	Rooftop Mechanical Screens			
DIV. 11	**EQUIPMENT**		**$35,000**	
114000	Residential Equipment	$35,000		$3.43
119000	Miscellaneous Equipment			
119000	Utility Equipment			
DIV. 12	**FURNISHINGS**		**$5,130**	
122410	Window Treatments	$3,630		$0.36
123100	Casework & Countertops			
124810	Entrance Mats and Frames	$1,500		$0.15
DIV. 13	**SPECIAL CONSTRUCTION**			
135000	Pre-Engineered Metal Building			
DIV. 14	**CONVEYING SYSTEMS**			
140001	**Elevators - FSB**			
DIV. 21	**FIRE SUPPRESSION**		**$97,308**	
210000	**Fire Protection - FSB**	**$97,308**		**$9.53**
DIV. 22	**PLUMBING**		**$259,843**	
220000	**Plumbing - FSB**	**$259,843**		**$25.44**
DIV. 23	**HVAC**		**$608,478**	
230000	**HVAC - FSB**	**$608,478**		**$59.58**
DIV. 26	**ELECTRICAL**		**$523,442**	
260000	**Electrical - FSB**	**$523,442**		**$51.26**

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Carlisle DPW Complex Improvements
Carlisle, MA

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GSF 10,212

Study Estimate

CONSTRUCTION COST SUMMARY IN CSI FORMAT

			Cost/SF
		DPW BUILDING	

PATHWAY 2 - NEW DPW BUILDING

DIV. 31 EARTHWORK		**$70,069**	
311000	Site Preparation		
312000	Earthwork	$70,069	
SUBTOTAL DIRECT (TRADE) COST		**$4,936,606**	**$483.41**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 2 - NEW DPW BUILDING						
	GROSS FLOOR AREA CALCULATION						
	Garage Area				7,212 sf		
	Tool Room/Mech Areas				600 sf		
	Office/Dorm Area				2,400 sf		
	Mezzanines - *not included in GSF*	600	sf				
	TOTAL GROSS FLOOR AREA (GFA)	*10,812*				**10,212** ***sf***	
	02 - EXISTING CONDITIONS						
024120	**DEMOLITION**				See Summary		
	SUBTOTAL					-	
028200	**HAZMAT REMEDIATION**				See Summary		
	SUBTOTAL					-	
	TOTAL - EXISTING CONDITIONS						
	03 - CONCRETE						
033000	**CONCRETE**						
	Strip Footings	*81*	*CY*				
	Foundation/Concrete Walls	*108*	*CY*				
	Spread Footings	*131*	*CY*				
	Piers	*21*	*CY*				
	Total Foundation Concrete	*341*	*CY*				
	Strip footings; 3'-0" x 1'-4"						
	Formwork	**1,394**	sf	16.00	22,304		
	Re-bar	**5,240**	lbs	2.00	10,480		
	Concrete material	**81**	cy	155.00	12,555		
	Placing concrete	**81**	cy	90.00	7,290		
	Foundation wall; 16" thick - below grade						
	Formwork	**4,192**	sf	20.00	83,840		
	Re-bar	**9,432**	lbs	2.00	18,864		
	Concrete material	**108**	cy	155.00	16,740		
	Placing concrete	**108**	cy	120.00	12,960		
	Form shelf	**524**	lf	6.00	NR		
	Column/Spread footings - F1: 8'-0"x8'-0"x1'-6"						
	Formwork	**1,680**	sf	16.00	26,880		
	Re-bar	**2,625**	lbs	2.00	5,250		
	Concrete material	**131**	cy	155.00	20,305		
	Placing concrete	**131**	cy	120.00	15,720		
	Concrete wall; 16" thick - continued above frost wall 3'-0"						
	Formwork	**3,144**	sf	20.00	62,880		
	Re-bar	**7,074**	lbs	2.00	14,148		
	Concrete material	**81**	cy	155.00	12,555		
	Placing concrete	**81**	cy	120.00	9,720		
	Form shelf	**524**	lf	6.00	NR		
	New Slab on grade, 6" thick	*2,400*	sf				
	Mesh Re-bar 15% lap	**2,760**	sf	1.80	4,968		
	Concrete - 6" thick	**47**	cy	155.00	7,285		
	Place & finish including control joints	**2,400**	sf	2.50	6,000		
	New Slab on grade, 9" thick	*7,812*	sf				
	Mesh Re-bar 15% lap	**8,984**	sf	1.80	16,171		
	Concrete - 9" thick	**228**	cy	155.00	35,340		
	Place & finish including control joints	**7,812**	sf	2.50	19,530		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
	New Slab on deck, 5" thick	*600*	sf				
	Mesh Re-bar 15% lap	**690**	sf	1.80	1,242		
	Concrete - 5" thick	**117**	cy	155.00	18,135		
	Place & finish including control joints	**600**	sf	2.50	1,500		
	Miscellaneous						
	Piers/pilasters	**21**	cy	950.00	19,950		
	Set anchor bolts grout plates	**35**	loc	250.00	8,750		
	Dewatering	**1**	ls	5,000.00	5,000		
	Moisture Mitigation; admixture				NR		
	Vapor barrier	**10,812**	sf	1.10	11,893		
	Slab depressions - premium				NR		
	Equipment pads	**1**	ls	2,500.00	2,500		
	Seal concrete slab	**7,812**	sf	2.00	15,624		
	SUBTOTAL					526,379	
TOTAL - CONCRETE							**$526,379**
04 - MASONRY							
040001	**MASONRY**						
	Exterior						
	Brick				None Required		
	Interior						
	CMU partitions - floor to mezzanine	**1,560**	sf	38.00	59,280		
	SUBTOTAL					59,280	
TOTAL - MASONRY							**$59,280**
05 - METALS							
050001	**METAL FABRICATIONS**						
	Miscellaneous metals at masonry	**1,560**	sf	2.50	3,900		
	Seismic clips	**65**	ea	225.00	14,625		
	Interior railings - mezzanine	**70**	lf	350.00	24,500		
	Stair to garage mezzanine	**1**	flts	30,000.00	30,000		
	Plate/Angle assembly at overhead doors	**13**	ea	3,500.00	45,500		
	Bollards at overhead doors	**26**	ea	1,400.00	36,400		
	Allowance for misc. metals; generally	**10,212**	sf	1.50	15,318		
	SUBTOTAL					170,243	
051200	**Structural Metals**						
	Structural framing; allowance for 13 lbs per SF	**66**	tns	5,800.00	382,800		
	Structural framing - mezzanines - based on 8#/sf	**3**	tn	6,000.00	18,000		
	Supplemental structure for 2 ton bridge crane	**1**	ls	25,000.00	25,000		
	SUBTOTAL					425,800	
053100	**Steel Decking**						
	Metal decking - roof	**10,920**	sf	7.00	76,440		
	Metal decking - mezzanines	**600**	sf	7.00	4,200		
	SUBTOTAL					80,640	
TOTAL - METALS							**$676,683**
06 - WOOD, PLASTICS AND COMPOSITES							
061053	**ROUGH CARPENTRY**						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
	Exterior						
	Wood blocking at windows/doors	**641**	sf	14.00	8,974		
	Rough blocking at roof	**3,000**	sf	1.50	4,500		
	Interior						
	Rough blocking at partitions	**313**	lf	5.50	1,722		
	Rough blocking at interior door/borrow light openings	**332**	lf	5.50	1,826		
	Miscellaneous interior blocking/electrical back-boards	**10,212**	gsf	0.50	5,106		
	SUBTOTAL					22,128	
064023	**ARCHITECTURAL WOODWORK**						
	Interior						
	Break - base cabinets w/ counter + uppers	**12**	lf	900.00	10,800		
	Conference - base cabinets w/ counter + uppers	**17**	lf	900.00	15,300		
	Laundry - uppers	**7**	lf	350.00	2,450		
	Reception - desk at transaction window	**1**	ls	5,000.00	5,000		
	Miscellaneous architectural woodwork; allowance				Assumed Not Required		
	SUBTOTAL					33,550	
TOTAL - WOOD, PLASTICS AND COMPOSITES							**$55,678**
07 - THERMAL AND MOISTURE PROTECTION							
070001	**WATERPROOFING, DAMPPROOFING AND CAULKING**						
	Foundations						
	Dampproofing foundation wall and footing	**3,144**	sf	4.00	12,576		
	Façade/Exterior walls						
	AVB at opaque areas	**4,923**	sf	9.00	44,307		
	AVB at openings	**641**	lf	10.00	6,410		
	Miscellaneous sealants	**1**	ls	5,000.00	5,000		
	Interiors						
	Backer rod & double sealant at openings	**332**	lf	12.00	3,984		
	Miscellaneous sealants at partitions	**4,695**	sf	0.25	1,174		
	Miscellaneous sealants throughout building	**10,212**	gsf	1.00	10,212		
	SUBTOTAL					83,663	
070002	**ROOFING AND FLASHING**						
	Standing seam roof - metal roofing	**10,920**	sf	35.00	382,200		
	Prefinished metal fascia/caps	**354**	sf	50.00	17,700		
	Gutters and downspouts				NR		
	Miscellaneous						
	Walkway pads				NR		
	Roof hatch with perimeter safety railing and gate				NR		
	Miscellaneous flashings including at pipe penetrations, flashings etc.	**10,920**	sf	1.00	10,920		
	SUBTOTAL					410,820	
072100	**THERMAL INSULATION**						
	Foundations						
	Rigid insulation, 2" thick - footing/foundation wall	**2,793**	sf	3.00	8,379		
	Rigid insulation, 2" thick - 2' perimeter at slab on grade	**1,048**	sf	2.50	2,620		
	Exterior						
	Rigid insulation - walls	**4,923**	sf	4.00	NR		
	Insulation at window/door openings	**641**	sf	6.00	3,846		
	SUBTOTAL					14,845	
074213	**METAL PANELS**						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
	Metal panel siding - insulated metal	**4,923**	sf	75.00	369,225		
	Metal panels at overhang/window surrounds	**800**	sf	75.00	60,000		
	Metal panels at Roof overhang	**708**	sf	75.00	53,100		
	SUBTOTAL					482,325	
078100	**FIREPROOFING & FIRE STOPPING**						
	Fire proofing				NR		
	Fire stopping throughout	**10,212**	gsf	0.15	1,532		
	SUBTOTAL					1,532	
079500	**EXPANSION CONTROL**						
	Expansion joints - roof/walls				w/ waterproofing		
	SUBTOTAL					-	
	TOTAL - THERMAL AND MOISTURE PROTECTION						**$993,185**
08 - OPENINGS							
080001	**GLASS AND GLAZING**				w/ below		
	SUBTOTAL					-	
080002	**METAL WINDOWS**						
	Exterior Glazing Systems						
	Aluminum storefront windows	**480**	sf	155.00	74,400		
	Glass entrance door - double - includes hardware	**2**	ea	7,000.00	14,000		
	Interior Glazing Systems						
	Transaction window	**1**	ls	4,500.00	4,500		
	Glass entrance door - single - includes hardware	**2**	pr	6,000.00	12,000		
	SUBTOTAL					104,900	
081100	**DOORS, FRAMES AND HARDWARE**						
	Interior Doors						
	HM Frame, single	**16**	ea	450.00	7,200		
	HM Frame, double	**3**	ea	600.00	1,800		
	Doors, leaves	**22**	ea	650.00	14,300		
	Premium for door glazing	**1**	ls	1,500.00	1,500		
	Hardware	**22**	leaf	1,000.00	22,000		
	SUBTOTAL					46,800	
083113	**ACCESS DOORS**						
	Access doors	**1**	ls	1,500.00	1,500		
	SUBTOTAL					1,500	
083300	**OVERHEAD DOORS**						
	Exterior doors; glazed - Insulated						
	Overhead coiling door - 16'-00" x 14'-00" - Solid & Glazed	**13**	ea	39,200.00	509,600		
	SUBTOTAL					509,600	
084110	**ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**				w/ windows		
	SUBTOTAL					-	
086300	**SKYLIGHTS**						
	Skylights				None Required		
	SUBTOTAL					-	
089119	**FIXED LOUVERS**						
	Louvers - exterior/interior	**1**	ls	5,000.00	5,000		
	SUBTOTAL					5,000	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
	TOTAL - OPENINGS						**667,800**
	09 - FINISHES						
090001	**TILE**						
	Walls						
	Bathroom walls	**412**	sf	40.00	16,480		
	Backsplash	**20**	sf	42.00	840		
	Flooring						
	Floor tile - bathrooms	**221**	sf	42.00	9,282		
	Tile base	**103**	lf	28.00	2,884		
	SUBTOTAL					29,486	
090002	**ACT**						
	ACT 2x2	**2,066**	sf	7.50	15,495		
	SUBTOTAL					15,495	
090003	**RESILIENT FLOORING**						
	LVT	**2,066**	sf	7.50	15,495		
	Mezzanine Level		sf	6.50	NR		
	Resilient Base	**765**	lf	3.00	2,295		
	SUBTOTAL					17,790	
090004	**PAINTING**						
	Finish doors and frames	**22**	ea	160.00	3,520		
	Paint to GWB/CMU partitions	**12,510**	sf	1.50	18,765		
	Paint to GWB ceilings	**334**	sf	2.00	668		
	Paint to exposed ceilings structure				NR		
	Miscellaneous painting	**10,212**	gsf	1.00	10,212		
	SUBTOTAL					33,165	
092116	**GWB**						
	EXTERIOR WALLS						
	Perimeter framing	**4,923**	sf	20.00	98,460		
	PARTITIONS						
	Standard Partitions - 6"MS, 1lyr GWB bs + insulation	**4,695**	sf	18.50	86,858		
	Install doors frame	**19**	ea	150.00	2,850		
	CEILINGS						
	GWB Ceiling	**334**	sf	22.00	7,348		
	SUBTOTAL					195,516	
096723	**RESINOUS FLOORING**						
	Epoxy painted flooring/traffic coating				Assumed NR		
	SUBTOTAL					-	
096820	**CARPET**				NR		
	SUBTOTAL					-	
097200	**WALL COVERINGS**				NR		
	SUBTOTAL					-	
098120	**SPRAYED ACOUSTIC INSULATION**				NR		
	SUBTOTAL					-	
098400	**ACOUSTIC ROOM COMPONENTS**				NR		
	SUBTOTAL					-	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
	TOTAL - FINISHES						**$291,452**
	10 - SPECIALTIES						
101100	**VISUAL DISPLAY BOARDS**						
	Markerboard/Tackboards - Allowance	**1**	ls	2,500.00	2,500		
	SUBTOTAL					2,500	
101200	**DISPLAY CASES**						
	Display case , allow				NR		
	SUBTOTAL					-	
101400	**SIGNAGE**						
	Exterior signage						
	Building mounted signage	**35**	ltrs	500.00	17,500		
	Interior signage - assumed						
	Room Signs	**19**	loc	120.00	2,280		
	Miscellaneous signage/graphics - town seals, plaques	**1**	ls	5,000.00	5,000		
	SUBTOTAL					24,780	
102110	**PLASTIC TOILET COMPARTMENTS**						
	Shower cubicles/Toilet partitions				NR		
	SUBTOTAL					-	
102213	**WIRE MESH PARTITIONS**				NR		
	SUBTOTAL					-	
102600	**WALL PROTECTION**						
	Allowance for wall protection	**1**	ls	10,000.00	10,000		
	SUBTOTAL					10,000	
102800	**TOILET ACCESSORIES**						
	Single toilet accessories	**2**	rms	1,250.00	2,500		
	Single toilet accessories w/ shower	**1**	rms	950.00	950		
	Janitor's closet	**1**	rms	350.00	350		
	SUBTOTAL					3,800	
104400	**FIRE EXTINGUISHER CABINETS**						
	Fire extinguisher cabinets	**3**	ea	350.00	1,050		
	AED cabinets ; allow	**1**	ea	350.00	350		
	SUBTOTAL					1,400	
105113	**LOCKERS**						
	Lockers	**15**	ea	265.00	3,975		
	SUBTOTAL					3,975	
105626	**MOBILE STORAGE UNITS**				NR		
	SUBTOTAL					-	
107113	**EXTERIOR SUNSHADES**						
	SUBTOTAL					-	
108200	**ROOFTOP MECHANICAL SCREENS**						
	SUBTOTAL					-	
	TOTAL - SPECIALTIES						**$46,455**
	11 - EQUIPMENT						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
114000	**RESIDENTIAL EQUIPMENT**						
	Appliances						
	Break	**1**	ea	7,500.00	7,500		
	Break Room/training	**1**	ea	15,000.00	15,000		
	Conference	**1**	ls	7,500.00	7,500		
	Laundry	**1**	ls	5,000.00	5,000		
	SUBTOTAL					35,000	
119000	**MISCELLANOUS EQUIPMENT**						
	No work in this section						
	SUBTOTAL					-	
119500	**UTILITY EQUIPMENT**						
	Equipment package			Excluded - Assumed By Owner			
	SUBTOTAL					-	
TOTAL - EQUIPMENT							**$35,000**
12 - FURNISHINGS							
122410	**WINDOW TREATMENT**						
	Manual shades at exterior windows	**242**	sf	15.00	3,630		
	SUBTOTAL					3,630	
123100	**CASEWORK & COUNTERTOPS**				w/ div 6		
	Incl in millwork above						
	SUBTOTAL					-	
124810	**ENTRANCE MATS**						
	Walk off mats - assumed	**100**	sf	15.00	1,500		
	SUBTOTAL					1,500	
TOTAL - FURNISHINGS							**$5,130**
13 - SPECIAL CONSTRUCTION							
135000	**PRE-ENGINEERED METAL BUILDINGS**						
	SUBTOTAL					-	
TOTAL - CONVEYING							
14 - CONVEYING SYSTEMS							
140001	**ELEVATORS**						
	No work in this section						
	SUBTOTAL					-	
TOTAL - CONVEYING							
21 - FIRE SUPPRESSION							
210000	**FIRE PROTECTION**						
	Fire protection allowance	**10,812**	sf	9.00	97,308		
	SUBTOTAL					97,308	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
PATHWAY 2 - NEW DPW BUILDING							
	TOTAL - FIRE SUPPRESSION						**$97,308**
	22 - PLUMBING						
220000	**PLUMBING**						
	Equipment						
	Water Service Entrance	**1**	ea	8,500.00	8,500		
	Reduced pressure back flow preventer	**1**	ea	7,500.00	7,500		
	Water Meter	**1**	ea	6,000.00	6,000		
	Water heating equipment (gas fired)	**1**	ls	10,000.00	10,000		
	Gas meter connection	**1**	ea	2,100.00	2,100		
	Exterior gas/sand separator	**1**	ea	15,000.00	15,000		
	Miscellaneous plumbing equipment	**2,400**	sf	1.00	2,400		
	Plumbing Fixtures & Specialties						
	Water closet	**4**	ea	2,300.00	9,200		
	Urinal	**2**	ea	2,200.00	4,400		
	Lavatory, wall	**6**	ea	2,150.00	12,900		
	Shower	**2**	ea	4,500.00	9,000		
	Mop sink	**1**	ea	2,000.00	2,000		
	Sink	**2**	ea	2,000.00	4,000		
	Electric water cooler, bi-level	**1**	ea	4,600.00	4,600		
	Emergency shower w/mixing valve	**1**	ea	3,850.00	3,850		
	Washing machine box	**1**	ea	800.00	800		
	Ice maker connection	**2**	ea	600.00	1,200		
	Hose Bibb	**2**	ea	600.00	1,200		
	Exterior wall hydrant	**6**	ea	1,000.00	6,000		
	Compressed air reel	**6**	ea	1,500.00	9,000		
	Floor Drains	**11**	ea	1,650.00	18,150		
	Trench Drains	**195**	lf	135.00	26,325		
	Roof Drains - not required				NIC		
	Domestic Water Type L Copper Pipe						
	Domestic water pipe with fittings & hangers	**2,400**	sf	2.00	4,800		
	Domestic water pipe insulation	**2,400**	sf	1.00	2,400		
	Sanitary Waste And Vent Pipe w/ Hangers						
	Sanitary waste pipe with fittings & hangers	**2,400**	sf	3.00	7,200		
	Compressed Air Pipe w/ Hangers						
	Compressed air pipe with fittings & hangers	**600**	lf	55.00	33,000		
	Valves & accessories	**1**	ls	5,000.00	5,000		
	Storm Drainage						
	Gutters and downspouts - by others				NIC		
	Gas And Fuel Distribution Pipe						
	Gas pipe with fittings & hangers	**10,212**	sf	1.50	15,318		
	Miscellaneous						
	Management & supervision	**1**	ls	20,000.00	20,000		
	Testing and sterilization	**1**	ls	3,000.00	3,000		
	Fees & permits	**1**	ls	5,000.00	5,000		
	SUBTOTAL					259,843	
	TOTAL - PLUMBING						**$259,843**
	23 - HVAC						
230000	**HVAC**						
	HVAC Equipment						
	Cabinet unit heater, electric	**2**	ea	3,000.00	6,000		
	Gas-fired unit heater, Vehicle Maint	**4**	ea	2,500.00	10,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 2 - NEW DPW BUILDING						
	Gas-fired unit heater, overhead doors	**13**	ea	3,500.00	45,500		
	VAV terminal with electric reheat (Office area)	**10**	ea	1,800.00	18,000		
	Air Handling Equipment						
	Office area RTU, gas-fired with DX cooling	**2,760**	cfm	22.00	60,720		
	MAU equipment, Vehicle Storage	**5,770**	cfm	18.00	103,860		
	Exhaust fan						
	Exhaust fan, Vehicle Storage	**7,212**	sf	1.00	7,212		
	Vehicle exhaust system at Maintenance Bays	**2**	loc	16,000.00	32,000		
	Sheet metal & Accessories						
	Galvanized steel ductwork	**8,170**	lbs	19.00	155,230		
	Duct Insulation	**5,311**	sf	6.00	31,866		
	Registers, grilles & diffusers	**1**	ls	10,000.00	10,000		
	Duct accessories	**1**	ls	5,000.00	5,000		
	Automatic Temperature Controls						
	Automatic temperature controls DDC	**10,212**	sf	6.50	66,378		
	Balancing						
	System testing & balancing	**10,212**	sf	1.00	10,212		
	Miscellaneous						
	Management & supervision	**1**	ls	25,000.00	25,000		
	Coordination & BIM	**1**	ls	10,000.00	10,000		
	Coring, sleeves & fire stopping	**1**	ls	1,500.00	1,500		
	Equipment start-up and inspection	**1**	ls	5,000.00	5,000		
	Rigging & equipment rental	**1**	ls	5,000.00	5,000		
	SUBTOTAL					608,478	
	TOTAL - HVAC						**$608,478**
	26 - ELECTRICAL						
260000	**ELECTRICAL**						
	Gear & Distribution						
	Normal power and Distribution	**10,212**	sf	7.00	71,484		
	Emergency power and Distribution	**10,212**	sf	4.00	40,848		
	PV						
	Provisions including empty 4" conduits and pull boxes	**1**	ea	5,000.00	5,000		
	Equipment Wiring						
	VAV reheat coil feed and connection	**10**	ea	850.00	8,500		
	Exhaust fan feed and connection	**1**	ls	5,000.00	5,000		
	Vehicle exhaust system feed and connection	**1**	ls	5,000.00	5,000		
	MAU feed and connection	**1**	ea	6,500.00	6,500		
	RTU feed and connection	**1**	ea	6,500.00	6,500		
	CUH/UH feed and connection	**19**	ea	1,000.00	19,000		
	Water heater feed and connection	**1**	ls	1,500.00	1,500		
	Shop equipment feed and connection	**1**	ls	8,500.00	8,500		
	Overhead doors feed and connection	**13**	ea	2,500.00	32,500		
	Misc. equipment feed and connections	**10,212**	sf	0.50	5,106		
	SUBTOTAL					215,438	
	LIGHTING & POWER						
	Lighting & Branch Power				-		
	LED Lighting fixtures with installation labor (Office)	**2,400**	sf	10.00	24,000		
	LED Lighting fixtures with installation labor (Garage)	**8,412**	sf	4.00	33,648		
	Exit and egress lighting	**10,212**	sf	0.50	5,106		
	Exterior building lighting	**1**	ls	3,000.00	3,000		
	Lighting control system						
	Lighting controls (Office)	**2,400**	sf	2.50	6,000		
	Lighting controls (Garage)	**8,412**	sf	0.50	4,206		
	Lighting circuitry						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PATHWAY 2 - NEW DPW BUILDING						
	Lighting & branch circuitry	**10,212**	sf	4.00	40,848		
	Branch devices						
	Branch devices	**10,212**	sf	0.50	5,106		
	Branch circuitry						
	Branch circuitry	**10,212**	sf	4.00	40,848		
	SUBTOTAL					162,762	
	COMMUNICATION & SECURITY SYSTEMS						
	Fire Alarm						
	Fire alarm system	**10,812**	sf	5.00	54,060		
	Bi-Directional System						
	BDA system	**10,212**	sf	0.85	8,680		
	Security System						
	Security System	**10,212**	sf	3.00	30,636		
	Telephone/Data/CATV						
	VoIP, data switches/ wireless equip, computer equip				By others		
	Tel/Data cabling (Office/Admin)	**2,400**	sf	5.00	12,000		
	Tel/Data cabling (Garage)	**8,412**	sf	2.00	16,824		
	Telecommunications rough in	**10,212**	sf	0.20	2,042		
	Public Address/Clock System						
	PA system	**10,212**	sf	0.85	NR		
	SUBTOTAL					124,242	
	OTHER ELECTRICAL SYSTEMS						
	Miscellaneous						
	Lightning Protection				NIC		
	Grounding & Bonding	**1**	ls	1,000.00	1,000		
	Temp power and lights	**1**	ls	5,000.00	5,000		
	Coordination, BIM	**1**	ls	10,000.00	10,000		
	Fees & Permits	**1**	ls	5,000.00	5,000		
	SUBTOTAL					21,000	
	TOTAL -ELECTRICAL						**$ 523,442**
	31 - EARTHWORK						
312000	**EARTHWORK**						
	Strip footings & foundation wall						
	Excavation	679	cy	14.00	9,506		
	Store on site for reuse	679	cy	6.00	4,074		
	Backfill with selected material	490	cy	10.00	4,900		
	Isolated Column footings						
	Excavation	373	cy	14.00	5,222		
	Store on site for reuse	373	cy	6.00	2,238		
	Backfill with selected material	242	cy	10.00	2,420		
	Miscellaneous						
	Foundation drain 4" perforated PVC				NR		
	Crushed stone/filter fabric				included above		
	E+B for under slab plumbing	10,212	sf	2.00	20,424		
	Building Earthwork		*sf*				
	Cut	800	cy	10.00	8,000		
	Store cut onsite	800	cy	3.50	2,800		
	Structural fill to design subgrade						
	Fill - imported structural fill; swell 25%				Assumed NR		
	Rough and fine grade				carried in site		
	Compact subgrade	10,212	sf	1.25	12,765		
	Gravel beneath slab on grade; 12" thick, compacted structural fill	378	cy	48.00	18,144		
	Rock removal				NR		
	SUBTOTAL					90,493	

PM&C

Carlisle DPW Complex Improvements
Carlisle, MA

31-Oct-24

Study Estimate

GFA 10,212

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST

PATHWAY 2 - NEW DPW BUILDING

592		
593	***TOTAL - EARTHWORK***	**$90,493**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK - OPTION 3							
	SITEWORK	*30,000*	*sf*		-		
311000	**SITE PREPARATION**						
	6' high site construction fence	**760**	lf	20.00	15,200		
	6' high site construction fence sliding gate	**1**	loc	10,000.00	10,000		
	Site construction entrance and removal/restoration	**1**	ea	12,000.00	12,000		
	Mobilizations	**1**	ea	15,000.00	15,000		
	Engineer soil plan	**1**	ls	5,000.00	5,000		
	Construction offices area prep - allowance	**1**	ls	10,000.00	10,000		
	Wheel wash rack	**1**	ls	20,000.00	20,000		
	Engineering/layout	**2**	mths	8,000.00	16,000		
	Remove gravel lot	**21,795**	sf	1.00	21,795		
	Demolish buildings	**8,205**	sf	8.00	65,640		
	Misc. demo	**1**	ls	15,000.00	15,000		
	SUBTOTAL					205,635	
312000	**EARTHWORK**						
	GENERAL EARTHWORK						
	Site cut to design subgrade	*1,200*	*cy*				
	Cut	**1,200**	cy	10.00	12,000		
	Rock allowance	**1**	ls	20,000.00	20,000		
	SOIL DISPOSAL - conversion factor 1.7 to tons						
	Load excess soils for disposal	**1,200**	cy	2.50	incl. above		
	Less than RCS1	**2,040**	tns	25.00	51,000		
312000	*DEWATERING*						
	Allowance to dewater during over excavation	**1**	mnths	10,000.00	10,000		
312000	*ESTABLISHING GRADE*						
	Sub grade establishment	**30,000**	sf	0.25	7,500		
	Fine grading throughout the site	**30,000**	sf	0.35	10,500		
	SUBTOTAL					111,000	
312500	**EROSION CONTROL**						
	Silt fence/erosion control- LOW	**760**	lf	12.00	9,120		
	Silt fence maintenance and monitoring	**1**	ls	5,000.00	5,000		
	SUBTOTAL					14,120	
320000	**SITE PAVING**						
	Asphalt paving	*21,600*	*sf*				
	gravel base;12" thick	**800**	cy	50.00	40,000		
	asphalt top; 2" thick	**276**	tns	200.00	55,200		
	asphalt binder; 2.5" thick	**344**	tns	190.00	65,360		
	VGC - 100% curbing	**1,330**	lf	50.00	66,500		
	Asphalt berm - 0% curbing	**0**	lf	18.00			
	Single solid lines, 4" thick	**13**	space	25.00	325		
	Wheelchair Parking	**3**	space	75.00	225		
	Other road markings	**1**	ls	1,000.00	1,000		
	Entrance sign	**1**	ea	15,000.00	15,000		
	Pedestrian concrete walkways	*2,000*	*sf*				
	gravel base; 12" thick	**74**	cy	50.00	3,700		
	4" concrete paving	**2,000**	sf	13.00	26,000		
	Dumpster/ Generator/ Fuel Station Concrete Pads	*800*	*sf*				
	gravel base; 12" thick	**30**	cy	50.00	1,500		
	8" concrete paving with haunch	**800**	sf	24.00	19,200		
	SUBTOTAL					294,010	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK - OPTION 3							
323000	**SITE IMPROVEMENTS**						
	Flag pole	**1**	ea	8,000.00	8,000		
	Bollards - allowance	**10**	ea	1,400.00	14,000		
	Dumpster enclosure	**100**	lf	80.00	8,000		
	Vehicular gates	**2**	loc	25,000.00	Assumed NR		
	Fuel station; relocate existing	**1**	ls	150,000.00	150,000		
	SUBTOTAL					180,000	
329000	**LANDSCAPING**						
	Import topsoil	**124**	cy	65.00	8,060		
	Seeding/planting	**5,000**	sf	6.00	30,000		
	Irrigation				assume NR		
	SUBTOTAL					38,060	
330000	**CIVIL UTILITIES**						
210000	*FIRE PROTECTION*						
	6" CLDI	**180**	lf	80.00	14,400		
	Fire department connection	**1**	ea	2,500.00	2,500		
	Gate valve	**2**	ea	1,200.00	2,400		
	Thrust blocks	**4**	ea	500.00	2,000		
331000	*WATER UTILITIES*						
	2" CLDI	**50**	lf	40.00	2,000		
331000	*CONNECTIONS*						
	Connect to existing water line	**1**	ea	5,000.00	5,000		
312000	*EXCAVATION & BACKFILL*	*230*	*lf*				
	DI gravity piping excavation	**204**	cy	25.00	5,100		
	Trench bedding	**46**	cy	50.00	2,300		
	Backfill w/ new fill material w/ 25% swell factor	**198**	cy	45.00	8,910		
	Load excess soils for disposal	**158**	cy	2.50	395		
	Less than RCS-1 - clean non-regulated	**269**	tn	25.00	6,725		
	Pressure test & chlorinate	**230**	lf	5.00	1,150		
	120,000 underground storage tank w/ 500gpm electric pump	1	**ea**	**2,000,000.00**	**$2,000,000**		
	SUBTOTAL					**$2,052,880**	
	Sanitary						
	Sewer piping	**180**	lf	35.00	6,300		
	Manhole	**2**	ea	6,000.00	12,000		
	Connections to existing	**1**	ea	5,000.00	5,000		
312000	*EXCAVATION & BACKFILL - Gravity*	*180*	*lf*				
	PVC gravity piping excavation	**160**	cy	25.00	4,000		
	Trench bedding	**53**	cy	50.00	2,650		
	Backfill w/ new fill material w/ 25% swell factor	**134**	cy	45.00	6,030		
	Load excess soils for disposal	**107**	cy	2.50	268		
	Less than RCS-1 - clean non-regulated	**182**	tn	25.00	4,550		
	Pressure testing	**180**	lf	4.00	720		
	SUBTOTAL					41,518	
	Storm water						
	Stormwater management; drain lines; structures; infiltration	**21,600**	sf	10.00	216,000		
	SUBTOTAL					216,000	
	Gas service						
	Gas service allowance	**180**	lf	35.00	6,300		
	SUBTOTAL					6,300	
	Fueling station						
	Fuel station allowance				w/ Site Improvements		
	SUBTOTAL					-	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK - OPTION 3							
334000	**ELECTRICAL WORK**						
	Site Electrical Civil Work						
	Concrete:						
	Primary duct bank	**180**	lf	35.00	6,300		
	Secondary service duct bank	**40**	lf	70.00	2,800		
	Generator service duct bank	**40**	lf	35.00	1,400		
	Telecommunications duct bank	**180**	lf	65.00	11,700		
	Transformer pad	**1**	ea	3,500.00	3,500		
	Generator pad	**1**	ea	3,500.00	3,500		
	Excavation and backfill						
	Primary duct bank	**180**	lf	25.00	4,500		
	Secondary service duct bank	**40**	lf	40.00	1,600		
	Generator service duct bank	**40**	lf	30.00	1,200		
	Telecommunications duct bank	**180**	lf	30.00	5,400		
	SUBTOTAL					41,900	
	Power						
	Utility co. back charges, allow				By Owner		
	Manhole connections				By others		
	Primary duct bank 2-4" duct bank, empty, allow (from Civil plans)	**180**	lf	50.00	9,000		
	Transformer by utility company				By Utility Co.		
	Transformer pad				Civil		
	Secondary service (allow)	**40**	lf	400.00	16,000		
	Generator service (allow)	**40**	lf	250.00	10,000		
	Communications						
	Pole riser	**1**	ea	1,500.00	1,500		
	Tele/data/catv duct bank 4-4", allow	**180**	lf	125.00	22,500		
	Site Lighting						
	Site Lighting and circuitry	**21,600**	sf	1.50	32,400		
	Site Security						
	Pole mounted cameras and circuitry				Assumed NR		
	EV Stations (Future Rough-in only)						
	Dual EV Station and circuitry				Assumed NR		
	Site Demolition						
	Site demolition work	**1**	ls	5,000.00	5,000		
	SUBTOTAL					96,400	
	TOTAL - SITE DEVELOPMENT						$3,297,823

APPENDIX C

Pre-fabricated
Shell estimate

8600 South I-35 Service Road Oklahoma City, OK

Pricing Report

myPortal | Star Building Systems ABS 2.0.1
Price Engine v2.0.1
12-18-2024
284763
A

Buyer acknowledges and agrees that this quotation is not valid for plan and specification projects since it is based on the Manufacturer's product standards only. Any Buyer-supplied information has been used only for general reference and the Manufacturer's scope of work is strictly limited as described herein.

Buyer Information

P.O. Number	**N/A**
Buyer Number	**284763**
Name	**LiRo-Hill**
C/O (if required)	**N/A**
Mailing Address	**N/A**
County	**N/A**
Physical Address	**N/A**
County	**N/A**
Attention	**Mark Anderson**
Phone	**N/A**
Fax	**N/A**
Night Phone	**N/A**
Cell Phone	**207-747-8956**
Email	**eric.jenkins@nucor.com**
District Manager	**Jon Kozlowski**

Owner Information

Name	**N/A**
Contact	**N/A**
Business	**Town of Carlisle**
Phone Number	**N/A**
Address	**29 Morse Road Carlisle, MA, 01741**
County	**Middlesex**
End Use of Building	**4E - Community (Public and Private) - Government Administration and Service**

Shipping

Shipping Terms	**FOB plant with Freight allowed to jobsite**
Shipping Contact	**N/A**
Ship To	**29 Morse Road Carlisle, MA, 01741**
County	**Middlesex**
Day Phone	**N/A**
Night Phone	**N/A**
Shipping Weight	**134,919.83 lbs**
Miles to Jobsite	**276.83**
Shipping From	**Rome, NY**
Add Export Overages	**No**
Requested Delivery	**06/16/2025**
Truck Tarps	**No**
IMP Freight Calculation	**All Building Ship Together**
Add IMP Overages	**Yes**

Credit Information

Contact	**N/A**
Phone	**N/A**
General Contractor	
Name	**N/A**
City	**N/A**
State	**N/A**
Sub-Erector	
Name	**N/A**
City	**N/A**
State	**N/A**
Lender	
Name	**N/A**
Phone	**N/A**
Lender Address	**N/A**
Credit Terms	**To Be Determined**
Tax Exempt Status	**Exempt**
Tax Exempt Number	**N/A**

General Information

Quote Number Q -	**N/A**
Project ID	**Town of Carlisle DPW - BW Stretch**
CRM Quote Send #	**N/A**
Material Origin	**Non-Domestic Steel Allowed**
Estimator	**JLK**
City Limits	**Outside**
Project Status	**Production**
Quote Request	**No**
Quote Date	**12/13/2024**
Complexity	**2**
Int. Use: (Drft/Eng Pts)	**(29.25/5.00)**
Min. EW Anc. Rod Dia.	**5/8**

Jobsite Information

Address	**29 Morse Road Carlisle, MA, 01741**
County	**Middlesex**
TDI Required	**N/A**

Using Builder System generated Anchor Rod Plan **No**
(Order must contain Anchor Rod Plan and Design Report)

Drawings & Documentation

Qty	Type	Purpose	Seal	Size	Ship To
3	**Anchor Rod Plan**	**Final**	**Sealed**	**(22" x 34")**	**Buyer**
3	**Enhanced Issued for Approval Includes Member Sizes (This selection may impact cost & lead time)**	**Approval**	**ID Note**	**(22" x 34")**	**Buyer**
3	**Hard Copy of Calculations**	**Final**	**Sealed**		**Buyer**
3	**Issued For Construction Includes Member Sizes**	**Final**	**Sealed**	**(22" x 34")**	**Buyer**

Send Dwgs Express Delivery	**No**
Corp of Engs, DOD, DOE Fed	**No**
UFC 4-01-01 Anti-Terrorism requirements	**No**
Expedited Permit Drawings	**No**
Requested Mailing Dates	
Final Anchor Rod	**N/A**
Approval	**N/A**
Permit	**N/A**

Electronic Drawings & Documentation

Type	Purpose	Seal	Size

*Note: For projects that qualify for expedited anchor rod & permits, drawing package will be electronic only.

Project Notes

Loads

Project Use Category	**N/A**	Jobsite Address	**29 Morse Road Carlisle, MA, 01741**
Building Code	**Massachusetts 9th Ed.**	County	**Middlesex**

Live/Wind

Live Load	**20.0000 psf**	Wind Category	**N/A**
Trib. Area Reduction Allowed	**No**	Miles From Coastline	**N/A**
Wind Exposure	**C**	Rain Intensity	**5.0000 in/hr**

Snow

Ground Snow Load	**50.0000 psf**	Snow Exposure	**Partially Exposed**
Min Roof Snow Load	**30.0000 psf**	Rain Load	**N/A**
		Elevation Above Sea Level	**N/A**

Seismic

Spectral Response(Ss)	**32.00 %**	% of Snow Load for Seismic	**Normal**
Spectral Response(Sh)	**N/A**	Seismic Zone	**N/A**
Spectral Response(S1)	**7.20 %**	Near Source Factor	**N/A**
Spectral Response(S2)	**N/A**	Design Seismic for Schools	**N/A**
Accelerated Coefficient(Aa)	**N/A**	Site Class/Soil Type	**(D) Stiff Soil**
Velocity Coefficient(Av)	**N/A**		

* Note - Snow Exposure could be updated by the application to a per building value based on user input into this project.

Sustainability and Energy Efficiency

Sustainability Goal	**None**
Climate Controlled Building	**No**
Energy Efficiency Code	**N/A**
Has Panel Air Infiltration Requirements	**No**

New Building A - DPW

Label - Name	**A - DPW**	Frame Type	**Single Slope**
Structure	**New**	Elevation A	**Sidewall**
Type	**Stand Alone**		

Loads, Wind Enclosure, Deflections & Sidesway

Building Loads

Roof Snow Load By Design	**35.0000 psf**
Risk Factor	**II - Normal**
Thermal Condition	**All Others**
Seismic Design Category	**B**
Wind Speed	**117.00 mph**

Importance Factors

Snow Is	**1.00**
Wind Iw	**N/A**
Seismic Ie	**1.00**
Designed Snow Exposure	**Partially Exposed**

Wind Enclosure

Enclosure	**Calculated - Enclosed**
Are all Framed Openings enclosed with materials designed to resist building wind loads?	**Yes**
Are all Open Areas for Other enclosed with materials designed to resist building wind loads?	**Yes**
Open Building Condition	**Obstructed flow**

Uniform Collateral Loads

Ceiling Load	**0.0000 psf**
Ceiling Type	**N/A**
Brittle Wall/Dryvit	**No**
RTS Panel System	**N/A**
Other	**10.0000 psf**

Deflections

Purlins			**Roof Panel**			**Rafters**		
Live	**L/150**	**Code Limit**	Live	**L/240**	**Code Limit**	Live	**L/180**	**Code Limit**
Snow	**L/180**	**Code Limit**	Snow	**L/240**	**Code Limit**	Snow	**L/180**	**Code Limit**
Wind	**L/180**	**Code Limit**	Wind	**L/240**	**Code Limit**	Wind	**L/180**	**Code Limit**
Total Gravity	**L/120**	**Code Limit**	Total Gravity	**L/240**	**Code Limit**	Total Gravity	**L/120**	**Code Limit**
Total Uplift	**N/A**		Total Uplift	**L/240**	**Code Limit**	Total Uplift	**N/A**	

Girts	**L/90**	**Code Limit**
Wall Panel	**L/60**	**Code Limit**
Endwall Columns	**L/120**	**Code Limit**

Sidesway

Portal Frame			**Frame**		
Serviceability Wind	**H/60**	**Code Limit**	Live	**H/60**	**Code Limit**
Seismic	**H/40**	**Code Limit**	Snow	**H/60**	**Code Limit**
Crane			Serviceability Wind	**H/60**	**Code Limit**
Crane	**H/100**	**Code Limit**	Total Gravity	**H/60**	**Code Limit**
			Total Seismic	**H/40**	**Code Limit**

* Note - Code deflection limits are based on the applicable building code, user defined loading and the manufacturer's interpretation of what the minimum value should be.

* Note - The material supplied by the Building Manufacturer has been designed with the deflection criteria as listed above. The actual deflection may be less depending on the actual load and member length. The frame sidesway for wind loading is based on ASCE 7 commentary equation CC-3 of 0.7W.

Topography - Escarpments

Does the building lie on the upper half of a hill,ridge, or escarpment?	**No**
Is this hill, ridge or escarpment unobstructed in any direction by another similar topographic feature within a distance of 100 times its height or 2 miles (3.21 km), whichever is less?	**No**
Is the hill or escarpment at least twice as tall as any other topographic features within 2 miles (3.21 km)?	**No**
Does the average slope on the top half of the hill, ridge, or escarpment equal or exceed 20% (11.3")?	**No**
Is the height of the hill, ridge or escarpment equal to or greater than 15 feet (49.21 m) for Exposure C or D, or 60ft (196.8 m) for Exposure B?	**No**

Topographic Effects

Hill Shape	**N/A**
Lh, Horizontal distance of crest to half height of hill or escarpment	**N/A**
H, Height of Hill or Escarpment	**N/A**
X, Distance From the Crest to the Building Site	**N/A**

New Building A - DPW Continued...

Geometry, Sidewalls & Endwalls

Width	**62'-0"**	Length	**177'-0"**

SWA

Eave Height	**17'-0"**
Roof Slope	**1.000000 / 12**
Distance To Ridge	**62'-0"**
Girts	**8.0" - Bypass**

SWC

Eave Height	**22'-2"**
Roof Slope	**0.000000 / 12**
Distance To Ridge	**0'-0"**
Girts	**8.0" - Bypass**

EWB

Type	**Bearing Frame**
Girts	**8.0" - Bypass**
User Specified Setback	**System Standard 1'-2"**
Designed Setback	**1'-2"**
Insulation Trim	**No**

EWD

Type	**Bearing Frame**
Girts	**8.0" - Bypass**
User Specified Setback	**System Standard 1'-2"**
Designed Setback	**1'-2"**
Insulation Trim	**No**

Purlins	**8.0" Z**	Pregalvanized Secondary	**Yes**
LBP Min Depth	**N/A**	Hot-Dipped Primary	**Yes**
LBP Max Depth	**N/A**	Seal Welds	**No**
Steel Shop Coat	**N/A**		
Bolt Finish	**Plated**		

Bracing

Roof	**Rod**	(EWB to EWD) @ Bays	**5**
LBP Bracing Location	**N/A**		
SWA	**Full Height Portal Frame**	(EWB to EWD) @ Bays	**8**
SWC	**Full Height Portal Frame**	(EWD to EWB) @ Bays	**1**
EWB	**1 Tier Rod**	(SWC to SWA) @ Bays	**3**
EWD	**1 Tier Rod**	(SWA to SWC) @ Bays	**1**
Purlin Bracing	**Sag Angles**		
SWA Girts	**Sag Angles**		
SWC Girts	**Sag Angles**		
EWB Girts	**Sag Angles**		
EWD Girts	**Sag Angles**		
Rafter Flange Braces	**Standard**		
Override Rafter Flange Brace rqmts	**No**		
Column Flange Braces	**Standard**		
Override Column Flange Brace rqmts	**No**		

Portal Frames

SWA

Rod Tiers Above	**N/A**
Max Column Web Depth	**60.0000"**
Max Rafter Web Depth	**60.0000"**

SWC

Rod Tiers Above	**N/A**
Max Column Web Depth	**60.0000"**
Max Rafter Web Depth	**60.0000"**

EWB

Rod Tiers Above	**N/A**
Max Column Web Depth	**N/A**
Max Rafter Web Depth	**N/A**

EWD

Rod Tiers Above	**N/A**
Max Column Web Depth	**N/A**
Max Rafter Web Depth	**N/A**

* Note - If Rods are selected, Manufacturer may adjust bracing tiers or substitute angle for a more efficient design.

* Note - It may be possible to reduce bracing costs by locating the bracing in a wider bay. If the braced bay is not as wide as it is tall, consider moving the bracing to a bigger bay if Possible.

Spacing

SWA Bay Spacing	**(EWB-EWD)**	**24'-0", 7@18'-0", 27'-0"**
Roof Bay Spacing	**(EWB-EWD)**	**24'-0", 7@18'-0", 27'-0"**
SWC Bay Spacing	**(EWD-EWB)**	**27'-0", 7@18'-0", 24'-0"**
SWA Soldier Column Recesses	**(EWB-EWD)**	**N/A**
SWC Soldier Column Recesses	**(EWD-EWB)**	**N/A**
EWB Column Spacing	**(SWC-SWA)**	**11'-0", 2@20'-0", 11'-0"**
EWD Column Spacing	**(SWA-SWC)**	**20'-0", 22'-0", 20'-0"**
EWB Column Recesses	**(SWC-SWA)**	**0.0", 0.0", 0.0", 0.0", 0.0"**
EWD Column Recesses	**(SWA-SWC)**	**0.0", 0.0", 0.0", 0.0"**

* Note - Negative column recess dimension raises the base of the column above the finished floor. A positive dimension will put the column base plate below the finished floor elevation.

SWA Girt Spacings	**(Base to Eave)**	**System Standard**	**7'-6", 4'-8", 3'-0",**
SWC Girt Spacings	**(Base to Eave)**	**System Standard**	**7'-6", 6'-0", 2'-11", 1'-4",**
EWB Girt Spacings	**(Base to Peak)**	**System Standard**	**7'-6", 4'-8", 5'-9 3/4",**
EWD Girt Spacings	**(Base to Peak)**	**System Standard**	**7'-6", 6'-0", 5'-9",**
Purlin Spacing		**System Standard**	**N/A**
Designed Purlin Spacings on the Slope - SWA		**(Eave to Peak)**	**2@2'-3 1/16", 14@3'-10 3/16"**
Designed Purlin Spacings on the Slope - SWC		**(Eave to Peak)**	

* Note - Purlin and girt depths, DESIGNED purlin locations, and SYSTEM SPECIFIED girt locations are supplied for reference only, and may be changed at Manufacturer's discretion without notice unless the user specifically stated otherwise in the "Notes" section of this document.

Frame Groups

Group Number	**1 (Clearspan)**
Frame Lines	**2 to 9**
Hardened Washers for High Strength Bolts	**No**

SWA

Column	**Tapered Allowed**
Unbraced To Elevation	**N/A**
Max Column Web Depth	**60.0"**
Max Rafter Web Depth	**60.0"**
Exterior Column Elevation	**At Finished Floor**

SWC

Column	**Tapered Allowed**
Unbraced To Elevation	**N/A**
Max Column Web Depth	**60.0"**
Max Rafter Web Depth	**60.0"**
Exterior Column Elevation	**At Finished Floor**

Roof Panel (11,119 sqft)

Type	**IMP by MetlSpan CFR42**
Thickness	**4**
Width	**42"**
Exterior Profile	**CFR**
Exterior Gauge	**24**
Exterior Texture	**Stucco Embossed**
Exterior Color	**Galvalume**
Exterior Sherwin Williams Code	**N/A**
Interior Profile	**Mesa**
Interior Gauge	**26**
Interior Texture	**Stucco Embossed**
Interior Color	**Poly – Igloo White**
Interior Sherwin Williams Code	**PMW0532**
Min. Qty. Required	**No**
R Value	**31.45**
U Value	**0.0318**
Grooves of Factory Applied Sealant	**1**
Finish Warranty	**Yes**
Cold Storage Building	**No**

Options

SS Clip Type	**Standard**
Thermal Blocks	**N/A**
FM-4471 Roof Panel Anchorage	**No**
UL90	**No**
UL Letter	**No**
Ridge Pan	**No**
Alignment Strip	**N/A**
Eave Panel Extension	**No**
Eave Icing	**No**
Wide Tape	**No**

Weathertightness Warranty

Type	**None**
Term	**N/A**

Fastener Information

Type	**Standard**
Head Finish	**Standard**
Length	**Standard**

Roof Panel (11,119 sqft)

* Note - R Value is @ an ambient temperature of 75 degrees
* Note - Insulation not included unless specified on the Insulation page of this document.

Wall Panel (6,255 sqft)

Type	**Single Skin ShadowRib**
Thickness	**N/A**
Width	**16"**
Gauge	**24**
Color	**S300 Standard TBD**
Sherwin Williams Code	**N/A**
Yield (KSI)	**50**
Finish Warranty	**Yes**
R Value	**N/A**
U Value	**N/A**
Grooves of Factory Applied Sealant	**N/A**

Options

Reverse Rolled	**N/A**
Concrete Notch	**Yes (1 1/2" x 3")**
Sealed Wall	**Yes**
Eave Closure	**Yes**
Rake Closure	**Yes**
Outside Metal EW Closures	**Not Allowed**
Foam Tape (If applicable)	**No**

Fastener Information

Type	**Standard**
Head Finish	**Long-Life**
Length	**1-1/4"**
Vendor	**N/A**

* Note - Wall panel fasteners will have washers unless noted otherwise.

Base Condition

Framing	**ShadowRib Angle**	Closure	**None**
Trim	**T6012 ShadowRib Standard**		

Trim

SWA Options

Trim Type	**Box Eave Trim**
Gutter Type	**N/A**
Gutter Type by Design	**N/A**
Additional Gutter Supports	**N/A**
Downspout Drops	**N/A**
Downspout Height	**N/A**
Include Elbow	**N/A**

SWC Options

Trim Type	**Box Eave Trim**
Gutter Type	**N/A**
Gutter Type by Design	**N/A**
Additional Gutter Supports	**N/A**
Downspout Drops	**N/A**
Downspout Height	**N/A**
Include Elbow	**N/A**

EWB Options

Trim Type	**Rake Trim**
Gutter Type	**N/A**
Gutter Type by Design	**N/A**
Additional Gutter Supports	**N/A**
Downspout Drops	**N/A**
Downspout Height	**N/A**
Include Elbow	**N/A**

EWD Options

Trim Type	**Rake Trim**
Gutter Type	**N/A**
Gutter Type by Design	**N/A**
Additional Gutter Supports	**N/A**
Downspout Drops	**N/A**
Downspout Height	**N/A**
Include Elbow	**N/A**

Color Selections

Eave	**S300 Standard TBD**
Eave Sherwin Williams Code	**N/A**
Rake	**PVDF TBD**
Rake Sherwin Williams Code	**N/A**
Corner	**S300 Standard TBD**
Corner Sherwin Williams Code	**N/A**
Base	**S300 Standard TBD**
Base Sherwin Williams Code	**N/A**
All Other	**N/A**
Gutters	**N/A**
Downspouts	**N/A**
Roof to Roof	**N/A**
Roof to Wall	**N/A**

Trim Profile	**Edgecraft**
Downspout Type	**N/A**
All Trim Yield (KSI)	**50**

* Note - Gutters selected may differ from the Gutters designed.

Accessories

All Framed Openings

Elevation	**A**	Vertical Lift/Door Jamb	**Yes**
Bay	**1**	Distance From Left Steelline	**7'-0"**
Quantity	**1**	Distance From Left Column	**7'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**A**	Vertical Lift/Door Jamb	**Yes**
Bay	**2**	Distance From Left Steelline	**25'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**A**	Vertical Lift/Door Jamb	**Yes**
Bay	**3**	Distance From Left Steelline	**43'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**A**	Vertical Lift/Door Jamb	**Yes**
Bay	**4**	Distance From Left Steelline	**61'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**A**	Vertical Lift/Door Jamb	**Yes**
Bay	**5**	Distance From Left Steelline	**79'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**A**	Vertical Lift/Door Jamb	**Yes**
Bay	**6**	Distance From Left Steelline	**97'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

All Framed Openings

Elevation	**A**	Vertical Lift/Door Jamb	**No**
Bay	**7**	Distance From Left Steelline	**119'-9 3/4"**
Quantity	**1**	Distance From Left Column	**5'-9 3/4"**
Width	**6'-4 1/2"**	Distance From Floor	**0'-0"**
Height	**7'-2 1/2"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**No**
Bay	**1**	Distance From Left Steelline	**7'-0"**
Quantity	**1**	Distance From Left Column	**7'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**No**
Bay	**2**	Distance From Left Steelline	**28'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**3**	Distance From Left Steelline	**46'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**4**	Distance From Left Steelline	**64'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**5**	Distance From Left Steelline	**82'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**6**	Distance From Left Steelline	**100'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

All Framed Openings

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**7**	Distance From Left Steelline	**118'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**8**	Distance From Left Steelline	**136'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**C**	Vertical Lift/Door Jamb	**Yes**
Bay	**9**	Distance From Left Steelline	**154'-0"**
Quantity	**1**	Distance From Left Column	**1'-0"**
Width	**16'-0"**	Distance From Floor	**0'-0"**
Height	**14'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**D**	Vertical Lift/Door Jamb	**No**
Bay	**2**	Distance From Left Steelline	**31'-0"**
Quantity	**1**	Distance From Left Column	**11'-0"**
Width	**8'-0"**	Distance From Floor	**2'-6"**
Height	**4'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Four Sided (with Sill)** **Full Cover Trim** **Pre-Galvanized Framing**

Elevation	**D**	Vertical Lift/Door Jamb	**No**
Bay	**3**	Distance From Left Steelline	**49'-3"**
Quantity	**1**	Distance From Left Column	**7'-3"**
Width	**8'-0"**	Distance From Floor	**2'-6"**
Height	**4'-0"**	Trim	**S200 Standard TBD**
Cut Girts	**Yes**	Trim Sherwin Williams Code	**N/A**
Cut Panels	**Yes**	Require 3.5" Flanges on Jambs	**No**
Clip Attachment	**Bolted**	Options	**Four Sided (with Sill)** **Full Cover Trim** **Pre-Galvanized Framing**

Canopies

Type	**Slimline Below Eave Ht.**
Elevation	**SWC**
Roof Panel	**24ga IMP by MetlSpan Double-Lok S200 Standard TBD Low Sliding (Up to 4" Blkt. Insulation) 3/8" Thick**
Soffit Panel	**24ga Artisan L12 S200 Polar White 431R813**
Start Column	**1**
Stop Column	**10**
Eave Condition	**Sculptured Eave Trim**
Insulated	**No**
Gutter Color	**N/A**
Gutter Color Sherwin Williams Code	**N/A**
Downspouts Color	**S200 Standard TBD**
Downspouts Color Sherwin Williams Code	**N/A**
Roof Tie-in Trim	**S200 Standard TBD**
Roof Tie-in Sherwin Williams Code	**N/A**
Corner Trim	**N/A**
Corner Trim Sherwin Williams Code	**N/A**
Soffit Trim	**S200 Standard TBD**
Soffit Trim Sherwin Williams Code	**N/A**
Projection	**4'-0"**
Slope	**0.5000 / 12**
Roof Framing Attachment at Steel Line	**16'-0"**
Soffit Framing Clearance at Lowest Point	**15'-0"**
Sill/Cap Trim	**N/A**
Sill/Cap Trim Sherwin Williams Code	**N/A**

* Note - Soffit panel slope will be the same as the canopy roof panel slope unless noted otherwise.

Insulation

Building Has Insulation **No**

Miscellaneous Adds

List

Description	**Gutter and Downspouts**			
Quantity	**1.00**			
By Star Building Systems	**No**			
Quote #	**N/A**			
Add to Freight	**Yes**			
Estimator's Initials	**N/A**	Unit Weight	**599.00 lbs**	
Expires On	**N/A**			**599.00 lbs**

Net

Description	**HDG**			
Quantity	**1.00**			
By Star Building Systems	**No**			
Quote #	**N/A**			
Add to Freight	**No**			
Estimator's Initials	**N/A**	Unit Weight	**2,386.00 lbs**	
Expires On	**N/A**			**2,386.00 lbs**
Description	**BW Stretch Panel per Eric Jenkins**			
Quantity	**1.00**			
By Star Building Systems	**No**			
Quote #	**N/A**			
Add to Freight	**No**			
Estimator's Initials	**N/A**	Unit Weight	**16,340.00 lbs**	
Expires On	**N/A**			**16,340.00 lbs**

NOTES

Note: Pricing does not include any export overages or containerization, unless otherwise noted.

Note: Anchor Rods, leveling plates, shim plates, sill plates, embedded items and other miscellaneous metals are not supplied by Manufacturer.

Note: If project contains screw-down roof or wall panels, they may be up to 45'-0" in length (at Manufacturer's discretion) unless otherwise noted. If project contains standing seam panels, they may be up to 53'-0" in length (at Manufacturer's discretion) unless otherwise noted.

Note: NOTICE: Uniform visual appearance of Galvalume® Plus coated panels cannot be guaranteed. The Galvalume® Plus coating is subject to variances in spangle from coil to coil which may result in a noticeable shade variation in installed panels. The Galvalume® Plus coating is also subject to differential weathering after panel installation. Panels may appear to be different shades due to this weathering characteristic. If uniform visual appearance is required, Manufacturer recommends that our prepainted Signature® 200 or Signature® 300 panels be used in lieu of Galvalume® Plus. Shade variations in panels manufactured from Galvalume® Plus coated material do not diminish the structural integrity of the product. These shade variations should be anticipated and are not a cause for rejection.

Note: Any in-plant inspection requirements must be noted on this document, and will be at the Buyer's expense.

Note: Buyer acknowledges that, although minimum loads may be supplied automatically, it is Buyer's responsibility to determine the intended use of the Metal Building System ordered, its appropriateness for all loads to be encountered, including but not limited to, live load, wind load, snow/ice load, water load, collateral and auxiliary loads, as well as its appropriateness for drainage systems and compliance with the requirements of all governing code bodies, statutory and regulatory agencies.

Note: All design information provided is preliminary, including but not limited to "Designed", "System Standard" and "Default" design criteria. The Manufacturer will not be responsible for conditions resulting from changes in the final design unless that specific requirement is noted on the Purchase Order.

Note: Manufacturer's specifications, including welding standards and specifications, are applicable unless specifically described otherwise on this document. If plans, specifications, and/or Buyer's Purchase Order accompany this document, and there is a conflict between those documents and Manufacturer's standard specifications, the Manufacturer's standard specifications shall prevail unless specifically listed on this document. The words "See Attached" do not fulfill this reference requirement.

Note: The complexity rating is derived from the geometry and accessories input into the builder system. The use of Miscellaneous Adds, Project Notes, or any other modifications can influence this rating. Manufacturer reserves the right to change this rating at any time without notification.

Note: Anchor Rods are not supplied by Manufacturer unless noted specifically on this document. Embedment length is not designed by Manufacturer.

Note: All Support Beams (spandrel beams) are designed and priced with the assumption that the beam is located at or within 2'-0" of the top of the open area material and that the open area does not extend above the eave line and/or roofline.

Note: Buyer is responsible for determining the correct fastener length for use with the insulation used on the project. See the Help file or contact the Manufacturer for documents regarding the proper selection of fasteners, clips and thermal blocks.

Note: Structural paint is intended as a primer. The primers supplied by the Manufacturer are not intended to provide the uniformity of appearance of a finish coat nor to provide extended protection if subjected to prolonged exposure. If immediate erection of steel is not possible, it must be protected from exposure to atmospheric and/or environmental conditions that may be detrimental to primer performance. These conditions would include, but not be limited to, prolonged exposure to ultra-violet light resulting in possible fading and or spotting or standing water resulting in spotting, peeling or localized surface oxidation. Gray Primer in particular will show rust spots/streaks due to imperfections in the application process and the properties associated with Gray Primers. Primer touch-up due to transit abrasions and/or scratching during loading and unloading and erection is to be expected. Rusting or abrasions on structural members is not subject to customer rejection or claim for touch up. Additional guidelines can be found in the MBMA Commentary, the AISC Code of Standard Practice and the Manufacturer's Standard Specifications.

Note: Standard Minimum shop cut panel lengths are 4'-0. (8'-0 for IMP's) Panels shorter than this will require field cutting. If field cutting is unacceptable, send to Estimating for special short panel cut charges as required.

Note: Hot dip galvanized primary framing members consist of rigid frames, bearing end frames, and bracing members. Galvanized material is coated to ASTM-A-123 specification. Required attachment bolts will be provided zinc coated.

Note: Tarping is recommended for all loads that travel through or to areas that make use of road salt during winter or wintry weather conditions.

Note: All doors, windows, and other accessories not supplied by the building Manufacturer must be designed to withstand the applicable wind pressures and are not considered as openings when determining whether or not the building is enclosed.

Note: All glazed openings not supplied by building Manufacturer must be designed to resist wind-borne debris impact and are not considered as openings when determining whether or not the building is enclosed.

Note: Unless Noted Otherwise, Standard doors, windows, and other accessories supplied by the building Manufacturer are not wind rated and are not approved for wind-borne debris resistance. These are considered as openings when determining whether or not the building is enclosed.

Note: Pregalvanized secondary framing members consist of roof purlins, eave struts, wall girts, and base angle only. Pregalvanized material is a mill galvanized coil that is coated to G90 specification per ASTM A 653. All other secondary framing (clips, flange braces, sheeting angles, cold-form endwall columns/rafters, etc.) will be prime painted. Required attachment bolts will be provided zinc coated.

NOTES

Note: Any quoted delivery schedules are only approximations (Not Guarantees), are rendered as a convenience to the customer, and are subject to variations depending upon Manufacturer's shipment backlog at the time of order placement.

Project Summation

Project ID	**Town of Carlisle DPW - BW Stretch**
Owner	**N/A**
Buyer P.O. Number	**N/A**
Buyer	**LiRo-Hill**
Buyer Phone	**N/A**
Buyer Fax	**N/A**

Estimated Weight (lbs)	**134,919.83**
Weathertightness Warranty	**N/A**
Estimated Freight*	**Included**
Estimated Tax (0.0000 %) Applicable tax will be added at the time of invoice.	**Not Included**
Contract Total (67.46 Tons, ECF: 2)	**($USD) 430,932.96**

*This total is for materials for rib frame and building shell. $15/sf should be expected as well as remaining construction cost for interiors, fenetrations and site.

NOTES

1. All price quoted are valid till 01/15/2025.

2. The terms and conditions applicable to this are:
   a. Uniform Terms and Conditions
   b. General Conditions of Contract
   c. If buyer is a Star Building Systems Builder, Star Building Systems Builder Agreement all of which, as applicable, are incorporated by reference herein.

3. Payment will be in accordance with terms (downpayment, COD or other terms) as established by Star Building Systems Credit Department.

4. This quotation is not a contract, but an offer to sell, which can be accepted only by the Star Building Systems Purchase Order or Quotation/Contract form.

* Excluding Applicable tax.
*Final Freight and Tax charges will be based on rates in effect at time of Shipment.

This project is price-protected only if the project status is Production, and order scope remains unchanged, and ALL materials are shipped to the jobsite based on the first available manufacturing slot. Any scope changes will result in updated pricing. Delayed materials will be subject to current steel price levels at the time of shipment release.

Alternates

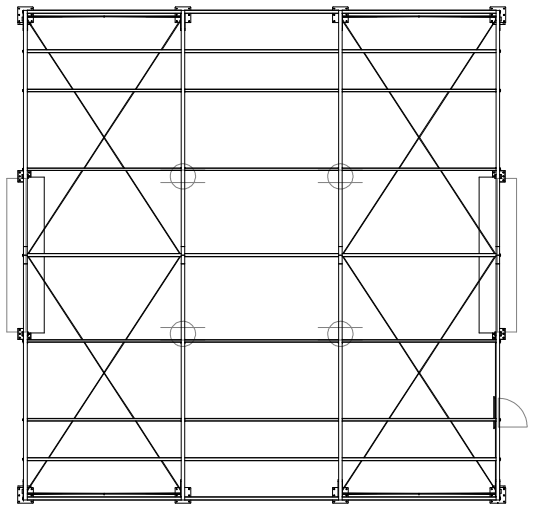
Exclusions

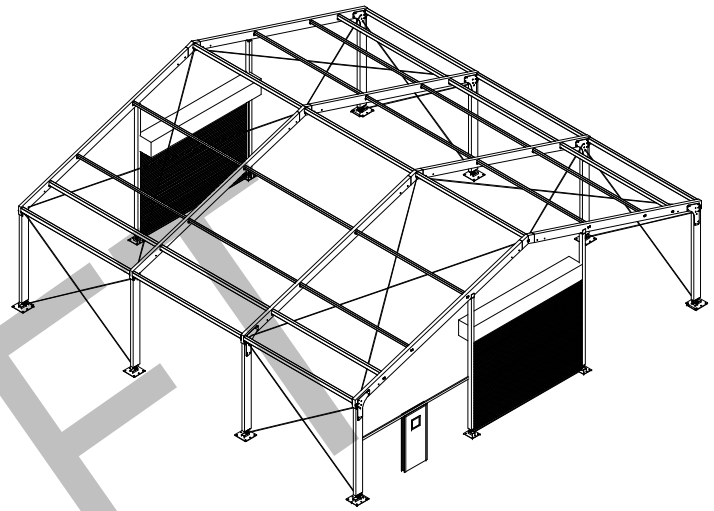
Star Building Systems Representative | Title | Date

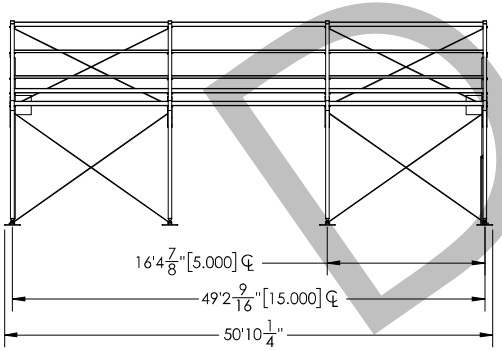
For Office use Only: 2.0000, 113.2154, 12.2945, 0.0000, 4.6997, 92.6508, 0.0000, 1433.6293, 1886.0000, -0.0000, 0.6483, 73.6786, 71.2306, 75.0148

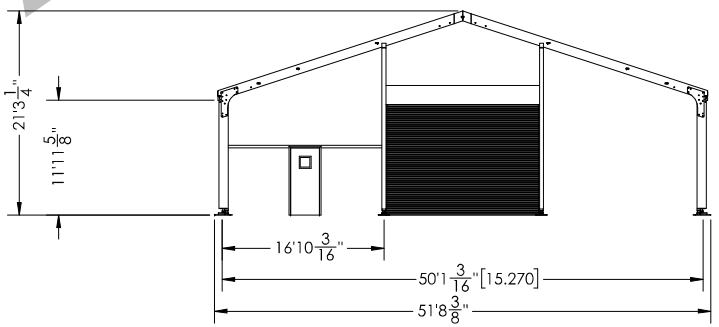
APPENDIX D

Temporary Storage Estimate









NOTES:
- IF STRUCTURE IS LOCATED IN AREA THAT HAS HEAVY SNOW OR 130 MPH WIND, STRUCTURE WILL HAVE BRACE BARS AND/OR RIDGE STRUTS OR STRUCTURE MAY FEATURE BRACE BARS AND/OR RIDGE STRUTS IF ENGINEER REQUIRES EXTRA BRACING
- SQUARE MEASUREMENT FOR L300 EAVE BASE PLATES 52' 8 9/16 [16.068]

ACCESSORIES:
- 4 - LED LIGHT
- 2 - ROLLUP DOOR 16FT
- 1 - SINGLE PERSONNEL DOOR
- 1 - EXIT LIGHT KITS
- 1 - FIRE EXTINGUISHERS

NOT FOR CONSTRUCTION

		NAME	DATE
UNLESS OTHERWISE SPECIFIED:			
DIMENSIONS ARE IN FEET & INCHES	DRAWN	KBMax	2/19/2025
MATERIAL	LAST SAVED	KBMax	2/19/2025
	PROJECT MGR.	CT	
FINISH	ENG EX.		
	DO NOT SCALE DRAWING		

LIRO HILL XX

SIZE	DWG. NO.	REV
C	3650	

SCALE: 1:120 WEIGHT: SHEET 1 OF 1

COMMENTS:
L300 15Mx15Mx4M

SUNBELT RENTALS
TEMPORARY STRUCTURES

Structure Details: 15Mx15Mx4M (49'x49'x13')

(Approx. 2,400 sq. ft)

Leg Height:13' Peak Height:21'

Accessories:

LED Light Package

(1) Single Personnel Door w/ exit sign and fire extinguisher

(2) 16' Overhead Roll-up Doors w/ pull chain

Pricing:
Delivery & Installation: $20,600 (add $6,000 for engineering if needed by the town)

Takedown & Site Recovery: $12,840

Rental Rates:

*28-day billing cycle

Months: $6,500/cycle

3 day install/ 1 day dismantle

QTY	EQUIPMENT #	Min	Day	Week	4 Week	Amount
1.00	550K BTU MA DIRECT FIRE LPNG H 0100476 Air Reg#:	150.00	150.00	367.50	906.75	2720.25
2.00	20" X 25' DUCT Air Reg#:	20.00	20.00	40.00	60.00	360.00
1.00	GAS HOSE 1" X 50' Air Reg#:	20.00	20.00	40.00	60.00	180.00

*** EQP MSG ***
NOTICE: MASSACHUSETTS AND RHODE ISLAND EACH REQUIRE STATE ISSUED HOISTING LICENSES TO OPERATE ANY EQUIPMENT THAT CAN LIFT 10 FEET IN HEIGHT OR 500 POUNDS OR 1/4 YARD OF MATERIAL.

SALES ITEMS:

Qty	Item number	Unit	Price	
1	LABOR CHARGE LABOR CHARGE # setup/teardown of all equipment	EA	760.000	760.00
1	DLPKSRCHG TRANSPORTATION SURCHARGE	EA	102.000	102.00
1	ENVIRONMENTAL 2133XXX000 ENVIRON/HAZMAT/DISPOSAL FEE	EA	53.040	53.04
	DELIVERY CHARGE			300.00

QTY	EQUIPMENT #	Min	Day	Week	4 Week	Amount

SALES ITEMS:

Qty	Item number	Unit	Price	
	PICKUP CHARGE			300.00

Sub-total:	4775.29
Total:	4775.29

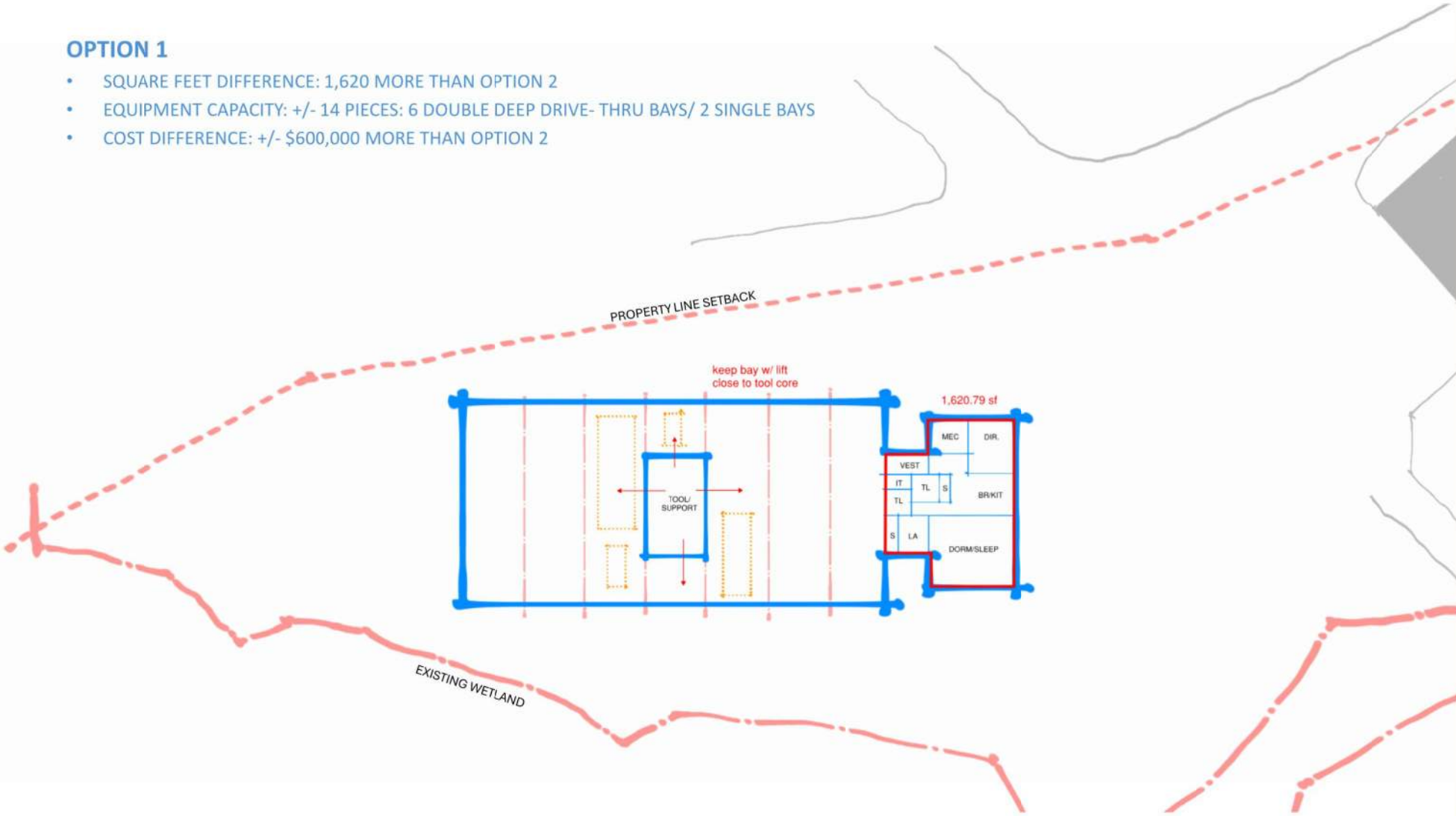
All amounts are in USD

APPENDIX E

Design Study Options

OPTION 1

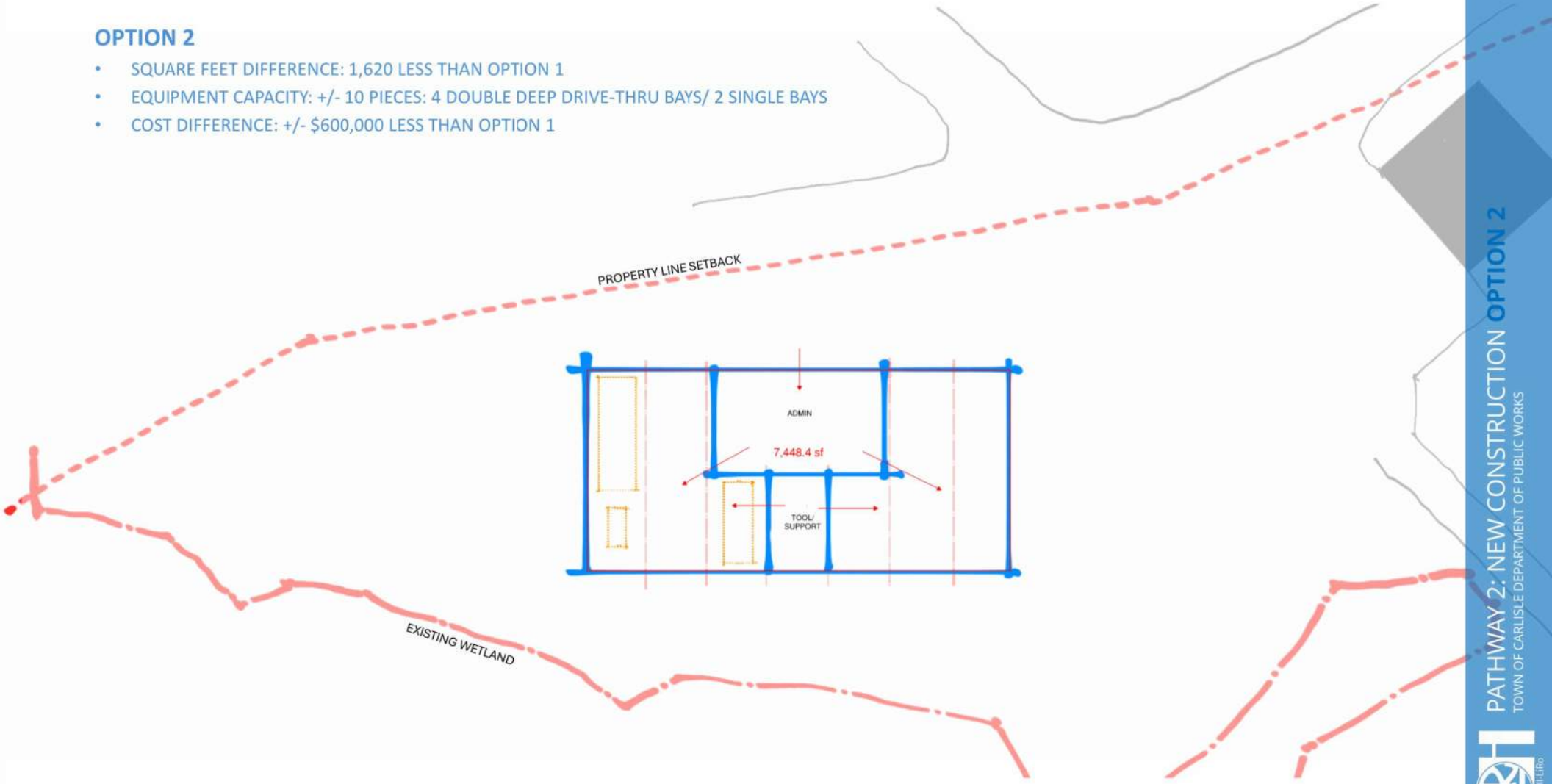
- SQUARE FEET DIFFERENCE: 1,620 MORE THAN OPTION 2
- EQUIPMENT CAPACITY: +/- 14 PIECES: 6 DOUBLE DEEP DRIVE- THRU BAYS/ 2 SINGLE BAYS
- COST DIFFERENCE: +/- $600,000 MORE THAN OPTION 2



PATHWAY 2: NEW CONSTRUCTION OPTION 1
TOWN OF CARLISLE DEPARTMENT OF PUBLIC WORKS

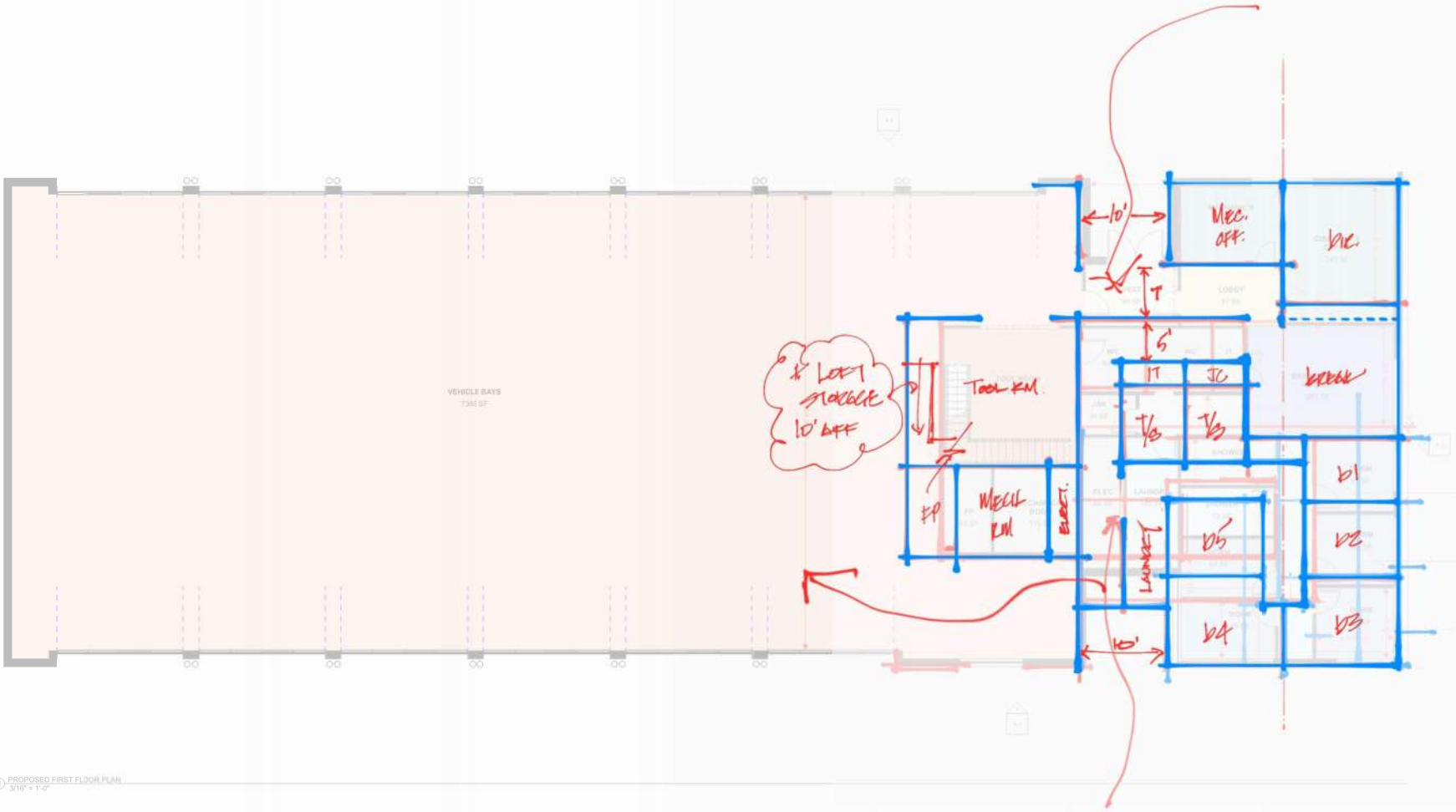
OPTION 2

- SQUARE FEET DIFFERENCE: 1,620 LESS THAN OPTION 1
- EQUIPMENT CAPACITY: +/- 10 PIECES: 4 DOUBLE DEEP DRIVE-THRU BAYS/ 2 SINGLE BAYS
- COST DIFFERENCE: +/- $600,000 LESS THAN OPTION 1



PATHWAY 2: NEW CONSTRUCTION OPTION 2

TOWN OF CARLISLE DEPARTMENT OF PUBLIC WORKS



1 PROPOSED FIRST FLOOR PLAN
3/16" = 1'-0"

TOWN OF CARLISLE

29 MORSE ROAD CARLISLE, MA 01741

TOWN OF CARLISLE DEPARTMENT OF PUBLIC WORKS FEASIBILITY STUDY

Hill-Little Corp

CONSULTANT

ISSUE/REVISION

NO.	DATE	DESCRIPTION

KEY PLAN

SCHEMATIC DESIGN

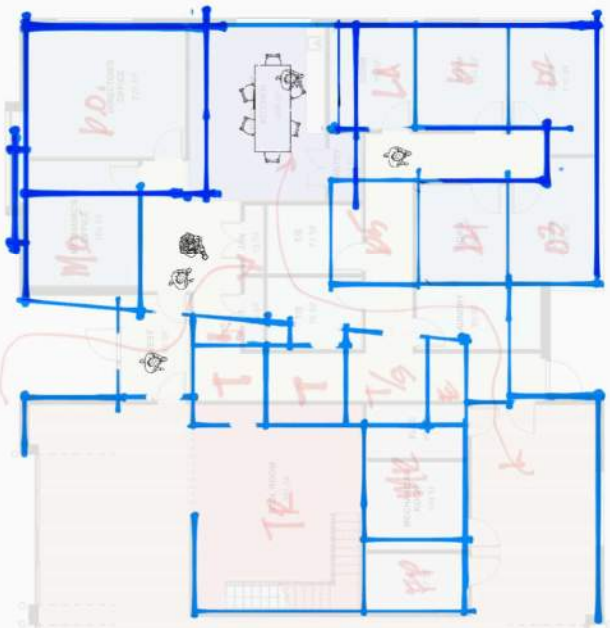
DOB APP. #:
DOB APPROVAL STAMP:

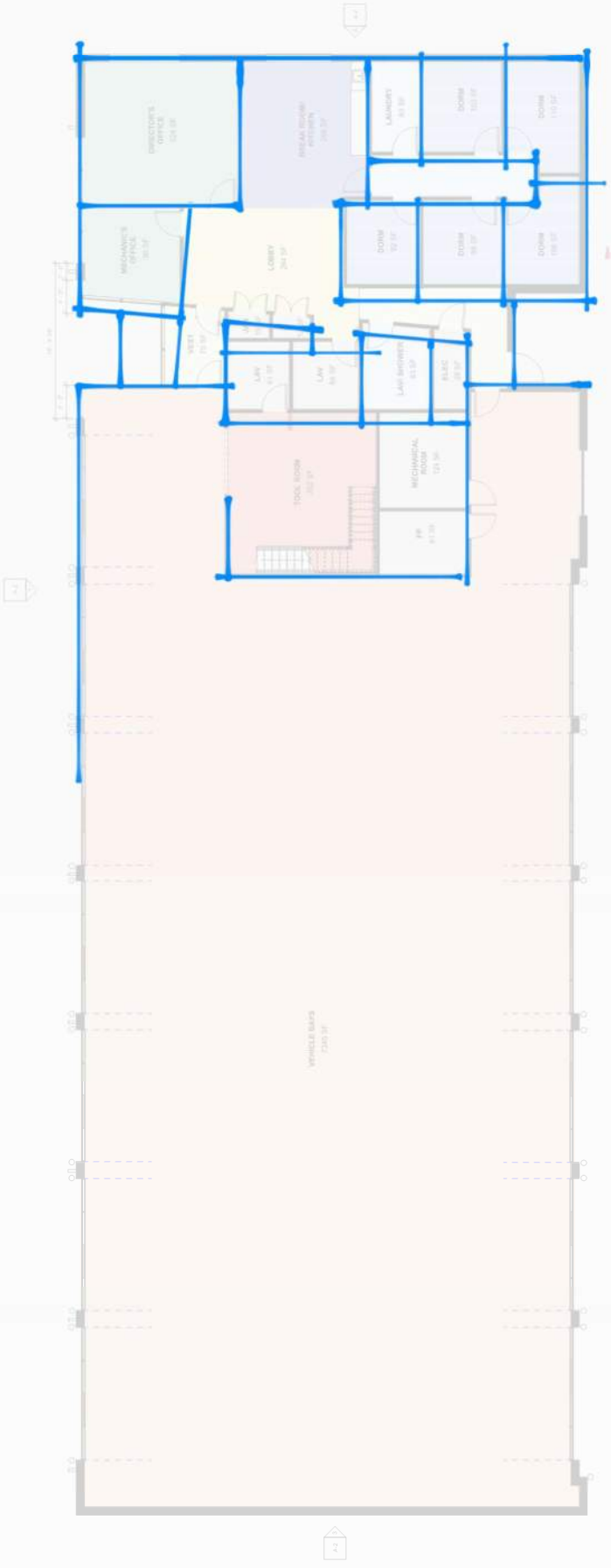
SCHEMATIC DESIGN

DRAWING TITLE:
PROPOSED FIRST FLOOR PLAN

DRAWN	AN
CHECKED	MA
SCALE	3/16" = 1'-0"
PROJECT NO.	23-216-1993.01

DRAWING NO.:
A-1





TOWN OF CARLISLE

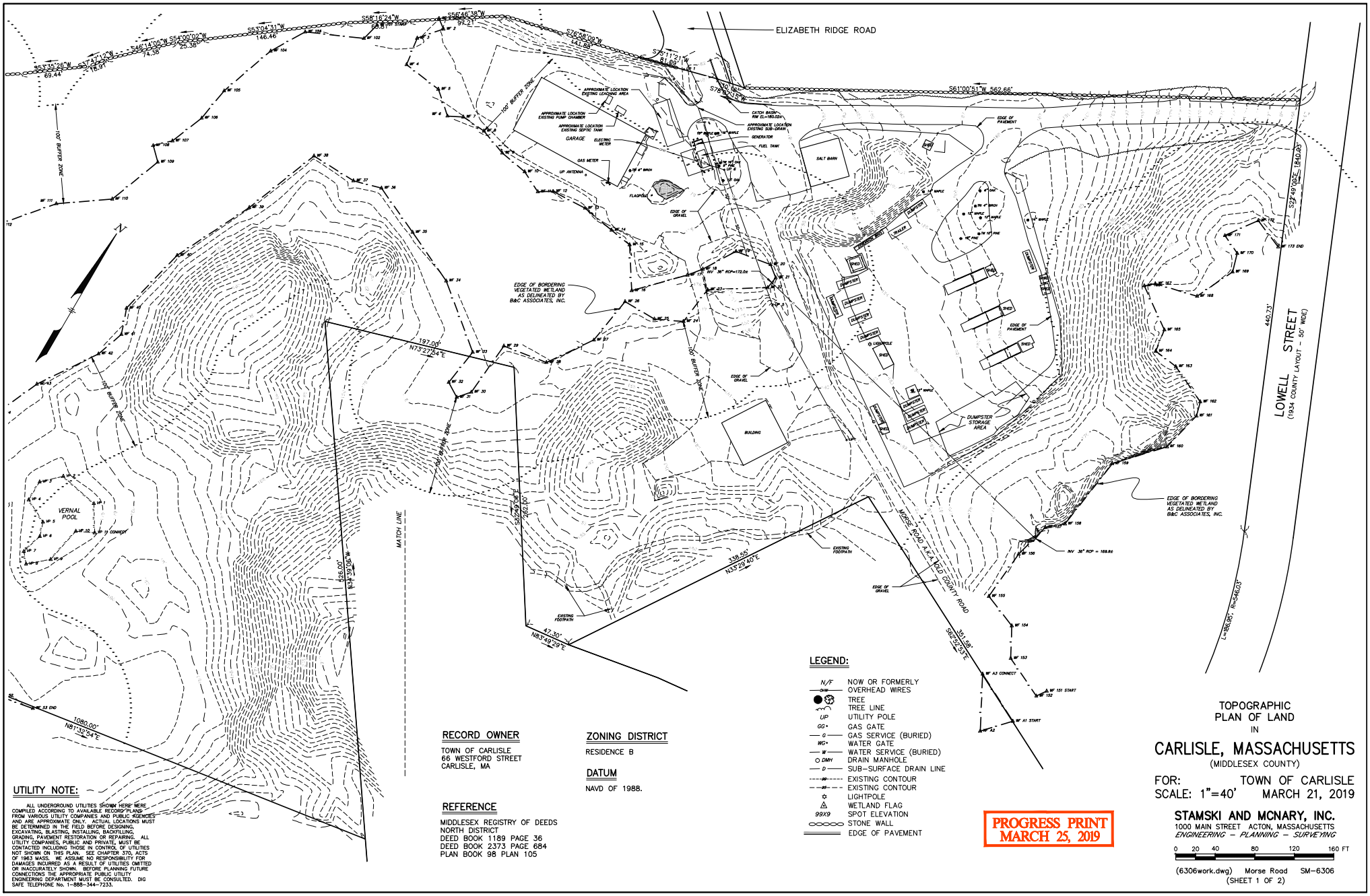
TOWN OF CARLISLE DEPARTMENT OF PUBLIC WORKS FEASIBILITY STUDY

1 PROPOSED FIRST FLOOR PLAN
3/16" = 1'-0"

Hill-Ulla Corp

APPENDIX D

Existing Condition Documents



UTILITY NOTE:

ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD BEFORE DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORATION OR REPAIRING. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN. SEE CHAPTER 370, ACTS OF 1963 MASS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS THE APPROPRIATE PUBLIC UTILITY ENGINEERING DEPARTMENT MUST BE CONSULTED. DIG SAFE TELEPHONE No. 1-888-344-7233.

RECORD OWNER

TOWN OF CARLISLE
66 WESTFORD STREET
CARLISLE, MA

ZONING DISTRICT

RESIDENCE B

DATUM

NAVD OF 1988.

REFERENCE

MIDDLESEX REGISTRY OF DEEDS
NORTH DISTRICT
DEED BOOK 1189 PAGE 36
DEED BOOK 2373 PAGE 684
PLAN BOOK 98 PLAN 105

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- EXISTING CONTOUR
- EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT

PROGRESS PRINT
MARCH 25, 2019

TOPOGRAPHIC
PLAN OF LAND
IN

CARLISLE, MASSACHUSETTS

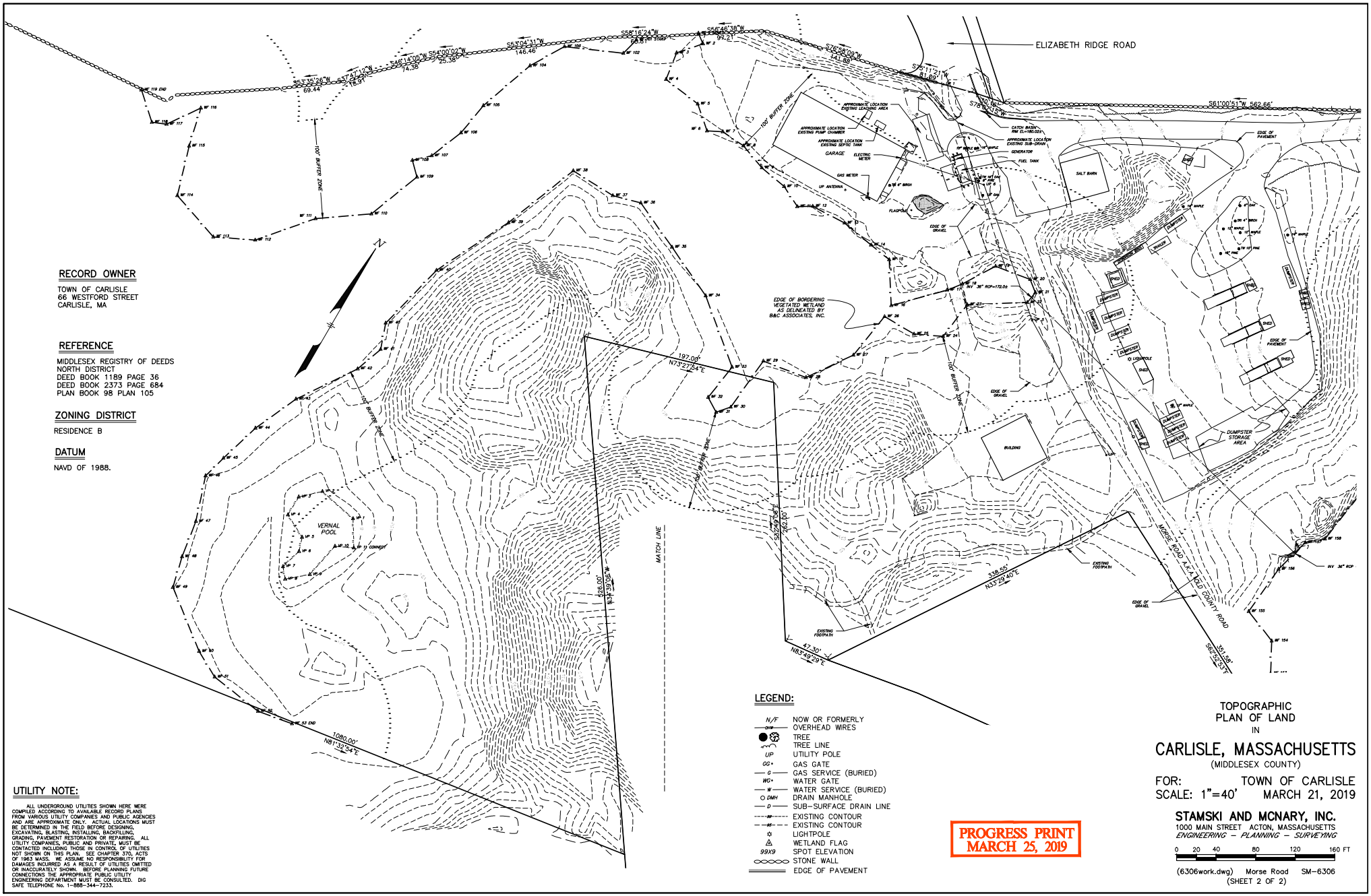
(MIDDLESEX COUNTY)

FOR: TOWN OF CARLISLE
SCALE: 1"=40' MARCH 21, 2019

STAMSKI AND MCNARY, INC.
1000 MAIN STREET ACTON, MASSACHUSETTS
ENGINEERING – PLANNING – SURVEYING

0 20 40 80 120 160 FT

(6306work.dwg) Morse Road SM-6306
(SHEET 1 OF 2)



RECORD OWNER

TOWN OF CARLISLE
66 WESTFORD STREET
CARLISLE, MA

REFERENCE

MIDDLESEX REGISTRY OF DEEDS
NORTH DISTRICT
DEED BOOK 1189 PAGE 36
DEED BOOK 2373 PAGE 684
PLAN BOOK 98 PLAN 105

ZONING DISTRICT

RESIDENCE B

DATUM

NAVD OF 1988.

LEGEND:

N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRES
	TREE
	TREE LINE
UP	UTILITY POLE
GG	GAS GATE
G	GAS SERVICE (BURIED)
WG	WATER GATE
W	WATER SERVICE (BURIED)
DMH	DRAIN MANHOLE
D	SUB-SURFACE DRAIN LINE
98	EXISTING CONTOUR
95	EXISTING CONTOUR
	LIGHTPOLE
	WETLAND FLAG
99X9	SPOT ELEVATION
	STONE WALL
	EDGE OF PAVEMENT

UTILITY NOTE:

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PROGRESS PRINT
MARCH 25, 2019

TOPOGRAPHIC PLAN OF LAND IN CARLISLE, MASSACHUSETTS

(MIDDLESEX COUNTY)

FOR: TOWN OF CARLISLE
SCALE: 1"=40' MARCH 21, 2019

STAMSKI AND MCNARY, INC.
1000 MAIN STREET ACTON, MASSACHUSETTS
ENGINEERING – PLANNING – SURVEYING

0 20 40 80 120 160 FT

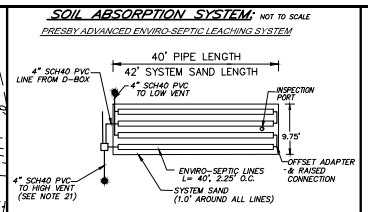
(6306work.dwg) Morse Road SM-6306
(SHEET 2 OF 2)

NOTES:

1. THIS PLAN IS FOR THE DESIGN AND CONSTRUCTION OF A SEWAGE DISPOSAL FACILITY ONLY.
2. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO TITLE 5 AND THE CARLISLE BOARD OF HEALTH REGULATIONS.
3. IF ALTERATIONS (REMOVAL OF VEGETATION, GRADING, EXCAVATIONS, ETC.) ARE TO BE MADE WITHIN 100 FT OF WETLAND AREAS (PONDS, BROOKS, SWAMPS, ETC.) A REQUEST FOR DETERMINATION OF APPLICABILITY OF THE WETLANDS PROTECTION ACT (c131 s40A) SHOULD BE FILED WITH THE TOWN'S CONSERVATION COMMISSION. THE FILING OF A NOTICE OF INTENT MAY BE REQUIRED AND LOCAL BYLAWS MAY APPLY.
4. ACCEPTABLE MATERIAL SPECIFICATIONS FOR DISTRIBUTION LINES: PVC–SCHEDULE 40 (ASTM D 1785 & D 2665), SDR 35 (ASTM D 3034), ABS–SCHEDULE 40 (ASTM F 628), HDPE–SHALL MEET OR EXCEED ASTM F 810 FOR SMOOTH WALL POLYETHYLENE PIPE FOR USE IN DRAINAGE AND WASTE DISPOSAL FIELDS. SCHEDULE 40 PVC SHALL BE USED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.
5. UNLESS OTHERWISE SHOWN, THERE ARE NO KNOWN WELLS WITHIN 200' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM.
6. ALL TOP, SUBSOIL, FILL, BOULDERS, AND OTHER MATERIALS UNDER AND WITHIN 5' OF THE PROPOSED LEACHING AREA SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL ACCORDING TO TITLE V SECTION 15.255 "CONSTRUCTION IN FILL"
7. PER TITLE 5 REQUIREMENTS, THE DESIGN ENGINEER IS REQUIRED TO INSPECT CONSTRUCTION OF THE SEPTIC SYSTEM AND CERTIFY THAT THE SYSTEM IS CONSTRUCTED ACCORDING TO THE PLANS, LOCAL REGULATIONS, AND TITLE 5. IN MOST INSTANCES THE DESIGN ENGINEER IS ALSO REQUIRED TO PREPARE AN "AS–BUILT" PLAN. UNLESS OTHERWISE SPECIFICALLY STATED IN WRITING BETWEEN OWNER AND THE INSTALLER, THE INSTALLER SHALL BE RESPONSIBLE FOR COORDINATING INSPECTIONS WITH THE DESIGN ENGINEER AND PAY FOR THESE SERVICES. NOTIFYING THE DESIGN ENGINEER DOES NOT RELIEVE THE OWNER OR INSTALLER FROM THE RESPONSIBILITY OF HAVING THE REQUIRED INSPECTIONS ETC. BY THE BOARD OF HEALTH.
8. FINISHED GRADE OVER THE LEACHING AREA SHALL HAVE A MINIMUM SLOPE OF 2%
9. THE FIRST TWO FOOT SECTIONS OF PIPE FROM THE D. BOX SHALL BE SET LEVEL.
10. THE SYSTEM SHALL BE STAKED AND THE BENCHMARK SET IN THE FIELD BY THE DESIGN ENGINEER.
11. ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED BEFORE DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, OR PAVEMENT RESTORATION OR REPAIR. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED, INCLUDING THOSE IN CONTROL OF UTILITIES. SEE CHAPTER 370, ACTS OF 1963 MASS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE APPROPRIATE UTILITY ENGINEERING DEPARTMENT MUST BE CONSULTED. D.I.G. SAFE TELE. NO.: 1–888–344–7233.
12. THIS SEPTIC SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER.
13. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO BE LOCATED ONCE BURIED.
14. ALL DISTURBED SURFACES SHALL BE RESTORED WITH 4" OF LOAM AND SEED. THE GRAVEL DRIVING SURFACE SHALL BE RESTORED.
15. TABEL EFFLUENT TEE FILTER SHALL BE INSTALLED IN COMPLIANCE WITH APPROVAL ISSUED AUGUST 11, 1997. ALL SEWER MANHOLES AT FINISHED GRADE SHALL BE SECURED TO PREVENT UNAUTHORIZED ACCESS. COVER SHALL BE PERMANENTLY MARKED "EFFLUENT TEE FILTER".
16. THE PRESBY ADVANCED ENVIRO–SEPTIC LEACHING SYSTEM HAS BEEN CERTIFIED FOR REMEDIAL USE; THIS SYSTEM SHALL BE INSTALLED AND OPERATED IN COMPLIANCE WITH THE MODIFIED APPROVAL FOR REMEDIAL USE REVISED OCTOBER 30, 2019, TRANSMITTAL NUMBER X283867, AS THE DESIGNER OF RECORD, WE HEREBY CERTIFY WE HAVE RECEIVED THE REQUIRED TRAINING AND THE PLAN IS IN ACCORDANCE WITH THE LATEST DEP I/A APPROVAL.
17. THERE ARE NO KNOWN SEWAGE DISPOSAL SYSTEMS WITHIN 100' OF THE PROPOSED SEWAGE DISPOSAL SYSTEM UNLESS OTHERWISE SHOWN ON THE PLAN.
18. FINAL VENT LOCATION SUBJECT TO OWNER'S APPROVAL.
19. PRIOR TO OBTAINING A CERTIFICATE OF COMPLIANCE FOR INSTALLATION OF A NEW UPGRADED SYSTEM, THE SYSTEM OWNER SHALL RECORD IN THE CHAIN OF TITLE FOR THE PROPERTY SERVED BY THE ALTERNATIVE SYSTEM IN THE REGISTRY OF DEEDS OR LAND REGISTRATION OFFICE, AS APPLICABLE, A FORM OF NOTICE APPROVED BY THE DEPARTMENT DISCLOSING THE EXISTENCE OF THE ALTERNATIVE ON–SITE SYSTEM AND ITS APPROVAL. THE SYSTEM OWNER SHALL PROVIDE EVIDENCE OF SUCH RECORDING TO THE APPROVING AUTHORITY.
20. ALL PIPE CONNECTIONS SHALL BE MADE WATERTIGHT BY USE OF BOOT, HYDRAULIC CEMENT OR COMPARABLE MEANS. EXPANDABLE FOAM SPRAY IS NOT ACCEPTABLE. RISERS SHALL ALSO BE WATER TIGHT.
21. CONTRACTOR SHALL VERIFY EXISTING BUILDING SEWER INVERT AND SEPTIC TANK INVERT PRIOR TO CONSTRUCTION OF THE PROPOSED SOIL ABSORPTION SYSTEM, DISTRIBUTION BOX, SEPTIC TANK, AND PUMP CHAMBER. ANY DISCREPANCIES SHALL BE REPORTED TO THE DESIGN ENGINEER.
22. THE EXISTING SEPTIC TANK AND PUMP CHAMBER SHALL BE PUMPED DRY, BOTTOM RUPTURED AND BACKFILLED WITH CLEAN SAND IN ACCORDANCE WITH TITLE 5, SECTION 15.354 "ABANDONMENT OF SYSTEMS" OR DISPOSED OFFSITE. IF THE EXISTING LEACH FIELD IS ENCOUNTERED, SOIL SPOILS MAY BE PLACED AS GENERAL FILL WITH ONE FOOT OF COVER. THE REMAINDER OF THE LEACH FIELD MAY BE ABANDONED IN PLACE.
23. PROVIDE 1/4 CUBIC YARD CONCRETE THRUST BLOCKS AT ALL ANGLES IN FORCE MAIN.

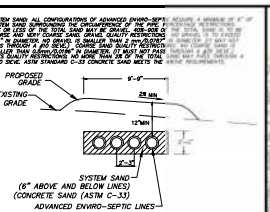
SOIL ABSORPTION SYSTEM: NOT TO SCALE

PRESBY ADVANCED ENVIRO-SEPTIC LEACHING SYSTEM



SYSTEM SAND: ALL CONFIGURATIONS OF ENVIRO–SEPTIC REQUIRE A MINIMUM OF 6" OF SYSTEM SAND SURROUNDING THE CHAMBERS/PIPE TO THE NEAREST EXISTING RESTRICTIONS. 50% OR LESS OF THE TOTAL SAND MAY BE GRAVEL: 50%–90% OF THE TOTAL SAND IS TO BE COARSE AND VERY COARSE SAND GRAVEL QUALITY RESTRICTIONS: NO MORE THAN 2% OF THE TOTAL SAND MAY PASS THROUGH A #200 SIEVE. ASTM STANDARD C–33 CONCRETE SAND MEETS THE ABOVE REQUIREMENTS. File: Presby SAS.dwg

SYSTEM SAND: ALL CONFIGURATIONS OF ENVIRO–SEPTIC REQUIRE A MINIMUM OF 6" OF SYSTEM SAND SURROUNDING THE CHAMBERS/PIPE TO THE NEAREST EXISTING RESTRICTIONS. 50% OR LESS OF THE TOTAL SAND MAY BE GRAVEL: 50%–90% OF THE TOTAL SAND IS TO BE COARSE AND VERY COARSE SAND GRAVEL QUALITY RESTRICTIONS: NO MORE THAN 2% OF THE TOTAL SAND MAY PASS THROUGH A #200 SIEVE. ASTM STANDARD C–33 CONCRETE SAND MEETS THE ABOVE REQUIREMENTS.



PRESBY ADVANCED ENVIRO–SEPTIC LEACHING SYSTEM SECTION

LOCUS PLAN:

INVERT ELEVATIONS

4" INV. @ BUILDING	=177.55*
4" INV. @ SEPTIC TANK(IN)	=177.31
4" INV. @ SEPTIC TANK(OUT)	=177.06
4" INV. @ PUMP CHAMBER(IN)	=176.96
4" INV. @ PUMP CHAMBER(OUT)	=176.71
4" INV. @ D.BOX(IN)	=188.75
4" INV. @ D.BOX(OUT)	=188.58

AT LEACHING FACILITY:

TOP OF SYSTEM SAND	= 189.30
4" INV. TO LINE	= 188.38
BOTTOM OF SYSTEM SAND	= 187.30

* SEE NOTE 21

DESIGN DATA:

DESIGN FLOW:

WAREHOUSE WITHOUT CAFETERIA
15 GPD PER PERSON
20 PERSONS X 15 GPD/PERSON= 300 GPD
NO GARBAGE DISPOSAL ALLOWED

REQUIRED SEPTIC TANK:

REQUIRED: 600 & 300 GAL=900 GAL
PROVIDED: 1,000 & 500 GAL=1,500 GAL

REQUIRED SIZE SOIL ABSORPTION SYSTEM: (PRIMARY & RESERVE)

PT=3 = <2 MIN/IN CLASS I SOIL
300 GPD/0.74 GPD/S.F.=406 S.F.

TYPE AND SIZE OF SOIL ABSORPTION SYSTEM PROVIDED:

PRIMARY:
PRESBY ADVANCED ENVIRO–SEPTIC LEACHING SYSTEM: DEP APPROVAL = 400 S.F. MIN. OR 80% OF 310 CMR 15.242 (SEE NOTE 16)
0.5 x 406 S.F. = 244 S.F.
<2 MPI, 300 GPD =150 L.F. OF PIPING
160 L.F. > 150 L.F. MIN.
SYSTEM SAND = 9.75' W x 42' L
9.75' x 42' = 409.5 S.F.
409.5 S.F. > 400 S.F. O.K.

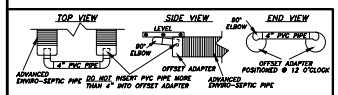
CONVENTIONAL TRENCHES:
2 TRENCHES x 2'D x 2'W x 34'L
2 TRENCHES x 6 SF x 34'=408 S.F.
408 S.F. > 406 S.F. O.K.
4' SPACING IN BETWEEN
FOOTPRINT = 34' L x 8' W

D.BOX DETAIL:

TO CONFORM TO TITLE 5 REQUIREMENTS

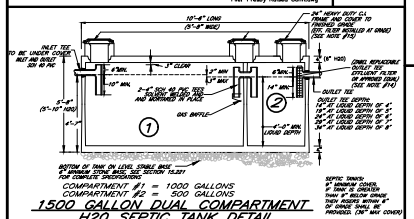
NO. OF OUTLETS: 6

NOTES:
1) FLOW EQUALIZERS SHALL BE PROVIDED ON ALL USED OUTLETS OF THE D–BOX.



RAISED CONNECTION DETAIL (NOT TO SCALE)

File: Presby Raised Conn.dwg



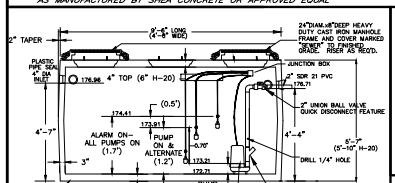
COMPARTMENT #1 = 1000 GALLONS
COMPARTMENT #2 = 500 GALLONS

1500 GALLON DUAL COMPARTMENT H20 SEPTIC TANK DETAIL

TANK SHALL CONFORM TO TITLE 5 REQUIREMENTS.
N.T.S.
AS MANUFACTURED BY SHEA CONCRETE OR APPROVED EQUAL

INSPECTION PORT DETAIL
N.T.S.

File: Pres Inspec port.dwg



1,000 GALLON MONOLITHIC H20 PUMP CHAMBER DETAIL

ITEM NO. TN–1000 AS MANUFACTURED BY SHEA CONCRETE PRODUCTS OR APPROVED EQUAL. TANK SHALL CONFORM TO TITLE 5 DESIGN REQUIREMENTS. N.T.S.

PUMP DETAIL
NOT TO SCALE

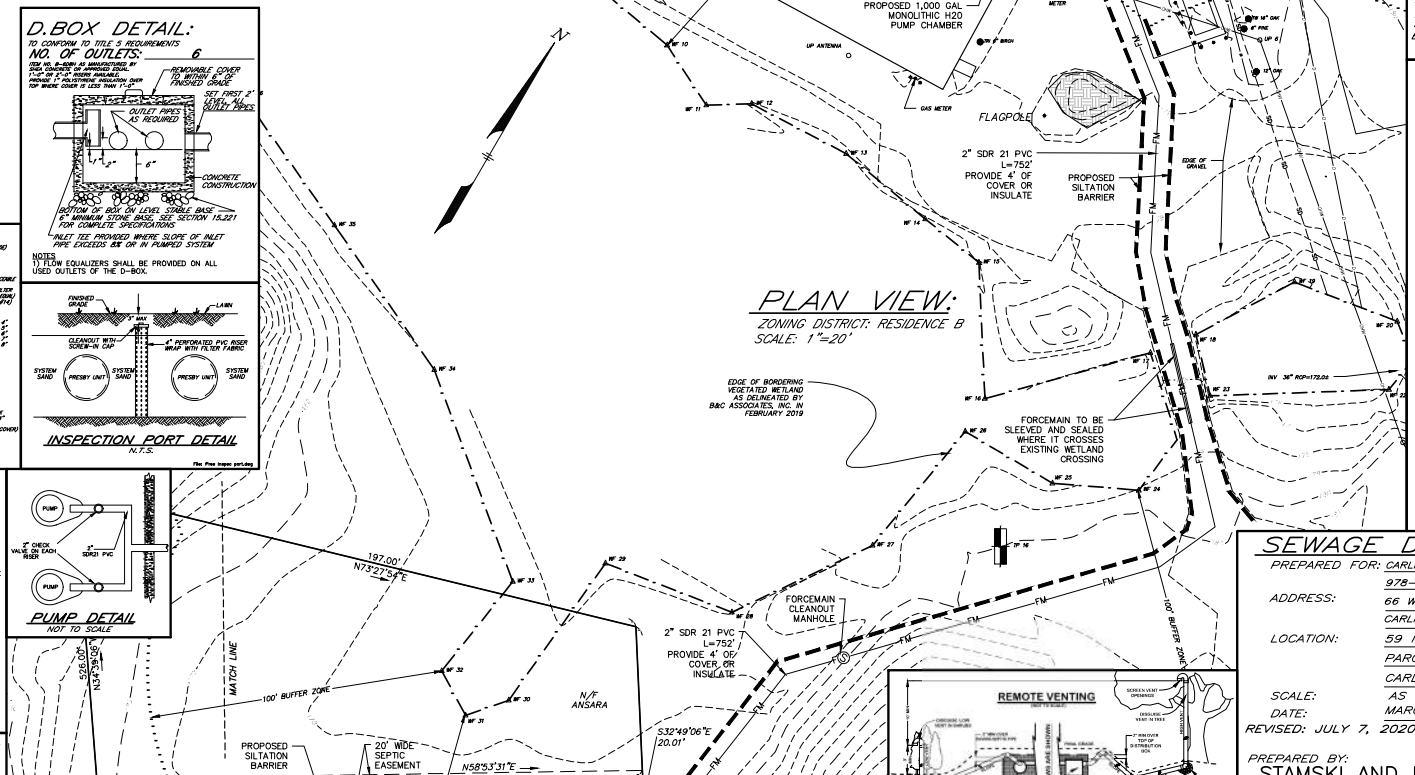
PUMP NOTES:
1. DESIGN REQUIREMENTS
PUMP CHAMBER CAPACITY:
RECOMMENDED: 907 GAL
PROVIDED : 1193 GAL
DOSING:
PROVIDED : 198 GAL(INCLUDES DRAIN BACK)*
PUMPING CURVE DATA:
RATE = 46 GPM
TDH = 40'

2. PUMP AND PUMP ALARMS SHALL BE WIRED ON SEPARATE CIRCUITS.
3. THE PUMP ALARM AND PUMP CONTROL PANEL SHALL BE MOUNTED WITHIN THE BUILDING IN A READILY AUDIBLE AND OBSERVABLE LOCATION SELECTED BY THE OWNER.
4. THERE WILL BE THIS GAL OF STORAGE ABOVE THE NORMAL OPERATING LEVEL (ALARM ON TO INV IN).
5. PUMP SIZE SUBJECT TO VERIFICATION BY SUPPLIER
6. ALL PUMPS AND CONTROLS SHALL BE SUPPLIED BY THE SAME SUPPLIER.
7. THE SYSTEM SHALL BE PRESSURE TESTED PRIOR TO BACKFILLING.

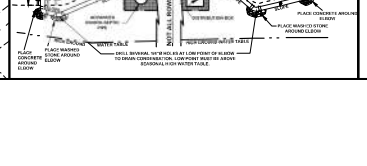
File: 1000–SINGLE–PC–WATERTIGHT.DWG

PLAN VIEW:

ZONING DISTRICT: RESIDENCE B
SCALE: 1"=20'



REMOTE VENTING



SEWAGE DISPOSAL PLAN

PREPARED FOR: CARLISLE MUNICIPAL FACILITIES COMMITTEE

978–764–9984

ADDRESS: 66 WESTFORD STREET
CARLISLE, MA 01741

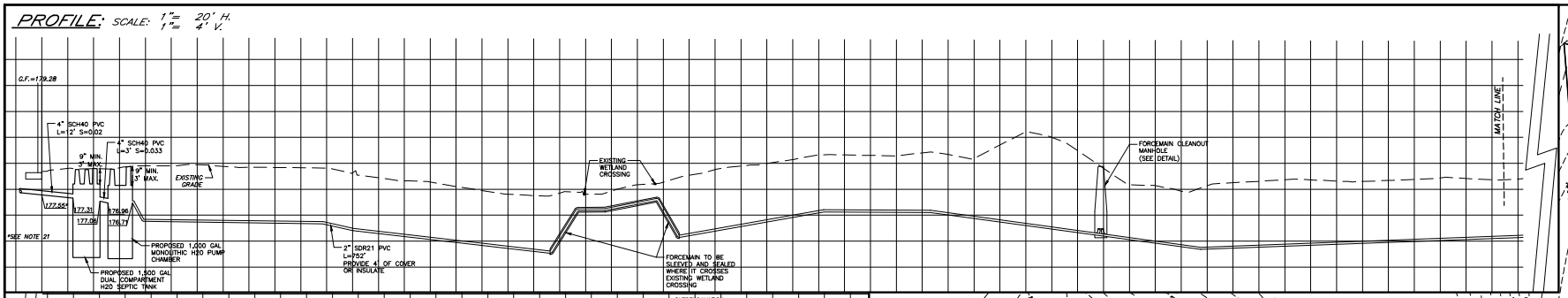
LOCATION: 59 MORSE ROAD
PARCEL 20–1–0
CARLISLE, MA 01741

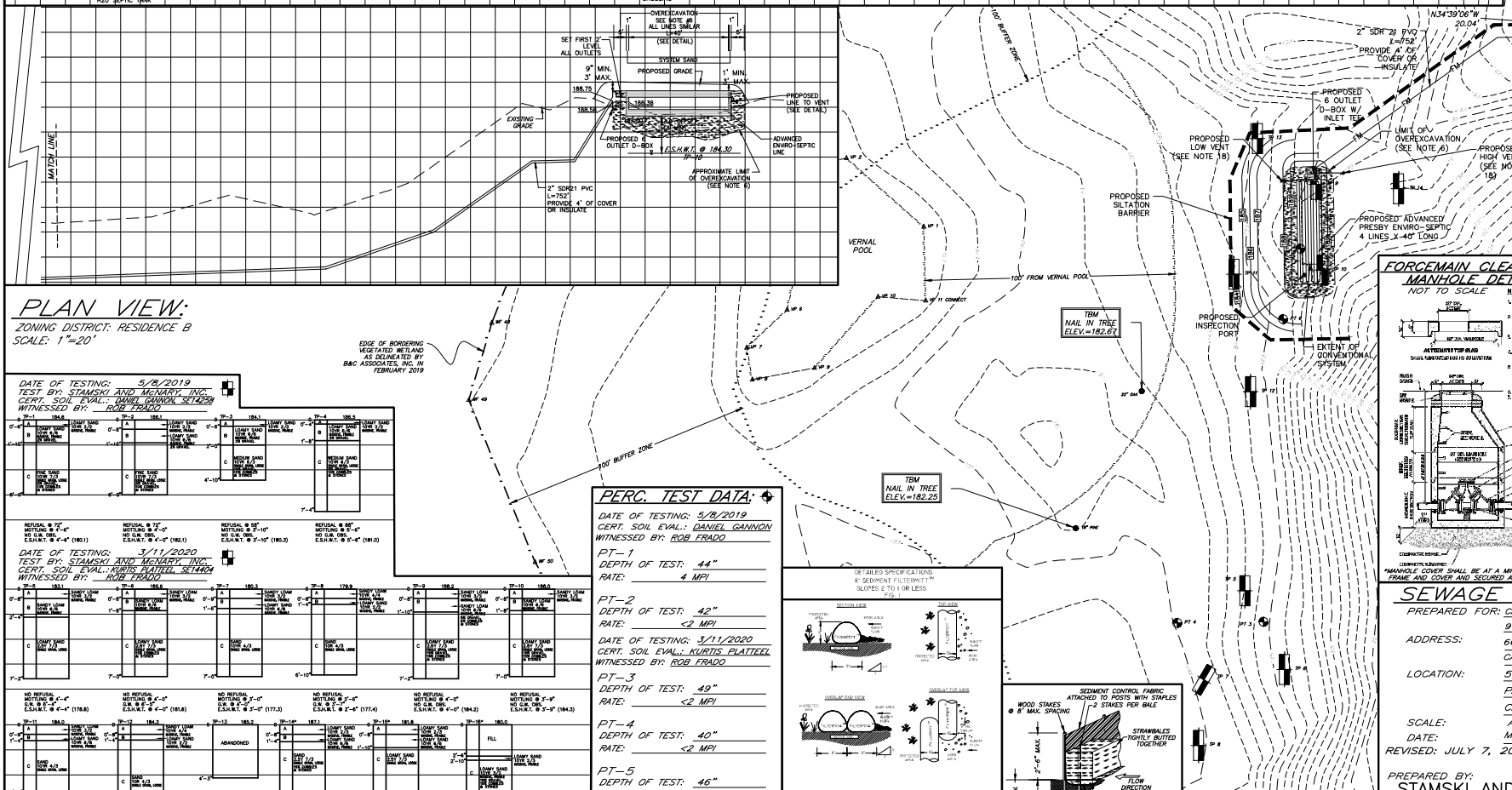
SCALE: AS SHOWN
DATE: MARCH 26, 2020
REVISED: JULY 7, 2020 (SLEEVE, LABELS)

PREPARED BY:
STAMSKI AND McNARY, INC.
CIVIL ENGINEERS LAND SURVEYORS
1000 MAIN STREET – ACTON, MA 01720
(978) 263–8585

DESIGNED BY: DJC DRAWN BY: DJC JOB No. SM–6406 FILE: 6406 SDS.DWG

PROFILE: SCALE: 1"= 20' H. 1"= 4' V.



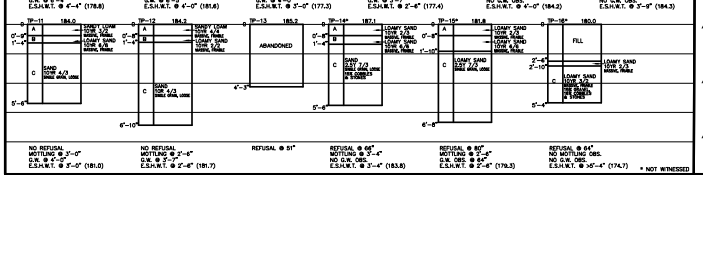


PLAN VIEW:

ZONING DISTRICT: RESIDENCE B
SCALE: 1"=20'

DATE OF TESTING: 5/8/2019
TEST BY: STAMSKI AND McNARY, INC.
CERT. SOIL EVAL.: DANIEL GANNON, SE1425
WITNESSED BY: ROB FRADO

DATE OF TESTING: 3/11/2020
TEST BY: STAMSKI AND McNARY, INC.
CERT. SOIL EVAL.: KURTIS PLATTEEL, SE1404
WITNESSED BY: ROB FRADO



* NOT WITNESSED

PERC. TEST DATA:

DATE OF TESTING: 5/8/2019
CERT. SOIL EVAL.: DANIEL GANNON
WITNESSED BY: ROB FRADO

PT-1
DEPTH OF TEST: 44"
RATE: 4 MPI

PT-2
DEPTH OF TEST: 42"
RATE: <2 MPI

DATE OF TESTING: 3/11/2020
CERT. SOIL EVAL.: KURTIS PLATTEEL
WITNESSED BY: ROB FRADO

PT-3
DEPTH OF TEST: 49"
RATE: <2 MPI

PT-4
DEPTH OF TEST: 40"
RATE: <2 MPI

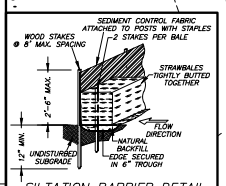
PT-5
DEPTH OF TEST: 46"
RATE: 3 MPI

PT-6
DEPTH OF TEST: 42"
RATE: <2 MPI

DETAILED SPECIFICATIONS 8" SEDIMENT FILTERMITT™ SLOPES 2 TO 1 OR LESS FIG. I

ALTERNATIVE SILTATION BARRIER DETAIL
NOT TO SCALE

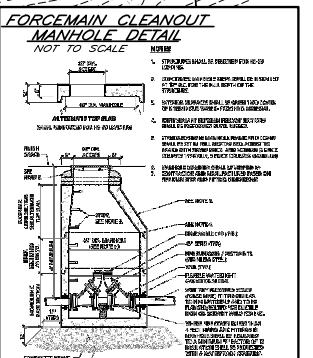
FOR FURTHER INFORMATION ABOUT FILTREXX SYSTEMS, INC. CONTACT US AT: P.O. BOX 727 - WRENTHAM, MA 02093 - PH: (508) 384-7143 - FAX: (508) 384-0571
WWW.STORMWATERBOSS.COM



SILTATION BARRIER DETAIL
N.T.S.

FORCEMAIN CLEANOUT MANHOLE DETAIL

NOT TO SCALE



*MANHOLE COVER SHALL BE AT A MINIMUM MEDIUM DUTY CAST IRON FRAME AND COVER AND SECURED AGAINST UNAUTHORIZED ACCESS

SEWAGE DISPOSAL PLAN

PREPARED FOR: CARLISLE MUNICIPAL FACILITIES COMMITTEE

978-764-9984

ADDRESS: 66 WESTFORD STREET
CARLISLE, MA 01741

LOCATION: 59 MORSE ROAD
PARCEL 20-1-0
CARLISLE, MA 01741

SCALE: AS SHOWN
DATE: MARCH 26, 2020
REVISED: JULY 7, 2020 (SLEEVE, LABELS)

PREPARED BY:
STAMSKI AND McNARY, INC.
CIVIL ENGINEERS LAND SURVEYORS
1000 MAIN STREET - ACTON, MA 01720
(978) 263-8585

DESIGNED BY: DJC DRAWN BY: DJC JOB No. SM-6406 FILE: 6406 SDS.DWG
SHEET 2 OF 2

EQUIPMENT INVENTORY LIST

Item Description	Storage Location	Truck/Equipment Number	L	W	H
2016 Chevy Tahoe	DPW Building	#26			
2019 Ford F-350 Pickup	DPW Building	#1	19'	8'	7'
2020 Ford F-350 Pickup	DPW Building	#2	19'	8'	7'
2011 Ford F-450 1-Ton Dump	DPW Building "Outside"	#3	20'	8'	8'
2006 Ford F-450 1-Ton Dump	DPW Building	#20	20'	8'	8'
2022 Ford F-550 1-Ton Dump	DPW Building	#4	20'	8'	8'
2022 Ford F-550 1-Ton Dump	DPW Building	#9	20'	8'	8'
2018 Ford F-750 6 wheel Dump	DPW Building	#5	20'	10'	10'
2002 Intl. 4700 6 wheel Sander	Storage Building	#6			
2016 Intl. 7400 6 wheel Dump	DPW Building	#7	20'	10'	10'
2012 Intl. 7300 6 wheel Dump	DPW Building	#8	20'	10'	10'
2010 Intl. 7600 Roll-Off	Storage Building	#10	34'	10'	10'
2008 Intl. 7000 6 wheel Sander	Storage Building	#14			
2013 Intl. 7300 6 wheel Dump	DPW Building "Outside"	#15			
2014 Elgin Street Sweeper	Storage Building	#17	19'	10'	10'
2020 Intl. HV613 Roll-Off	DPW Building	#19	34'	10'	10'
2005 JCB 215 Backhoe	DPW Building	#16	24'	8'	13
2019 JCB 3CX Backhoe	DPW Building	#11	20'	7'	10'
2006 JCB 426 Loader	DPW Building	#21	20'	9'	11'
2001 Bobcat 773T Skidsteer	DPW Building	#25	11'	5'	7
2016 Terex R070T Mini-Skidsteer	DPW Building	#22	9'	4'	6'
1986 Kubota B2700HST Tractor/Loader	DPW Building "Outside"	#23			
2019 Bandit 15XP Chipper	Storage Building	#24			
6 Snow Plows for Pickup and 1-Ton Trucks	Storage Building				
Spare Tires - for all vehicle	Storage Building		23'	4'	4
Paint Machine	Storage Building				
Landscape Trailer	Storage Building				
Paint Trailer	Storage Building				
Skidsteer Trailer	Storage Building				

Item Description	Storage Location	Truck/Equipment Number
Water Tank Trailer	Storage Building	
Snow Plows for Sander Trucks	Storage Building	
4 slide-in dump body sanders	Storage Building	
Safety Cones, Barricades, Roadwork Signs	Storage Building	
Attachments for Bobcat & Terex skidsteer	Storage Building	
Asphalt Roller	Storage Building	
Spare Tires for Backhoe & Loader	Storage Building	
Buckets for both Backhoe's	Storage Building	
Sweeper Brooms	Storage Building	
3 Billygoat push blowers	Storage Building	
Billygoat walk-behind brush mower	Storage Building	
Billygoat truck loader leaf vac	Storage Building	
Ariens walk-behind snowblower	Storage Building	
Cement Mixer	Storage Building	
Hydraulic Press	Storage Building	