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M | DIVISION OF
CAPITAL ASSET
MANAGEMENT &
MAINTENANCE



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INTRODUCTION

The Department of Fire Services (DFS) provides training, education, prevention, investigation, and emergency response services for first responders, regulated industries, and Commonwealth citizens. This work includes training firefighters, providing support for hazardous material response and fire investigations, and facilitating public education in fire and life safety and incident support.

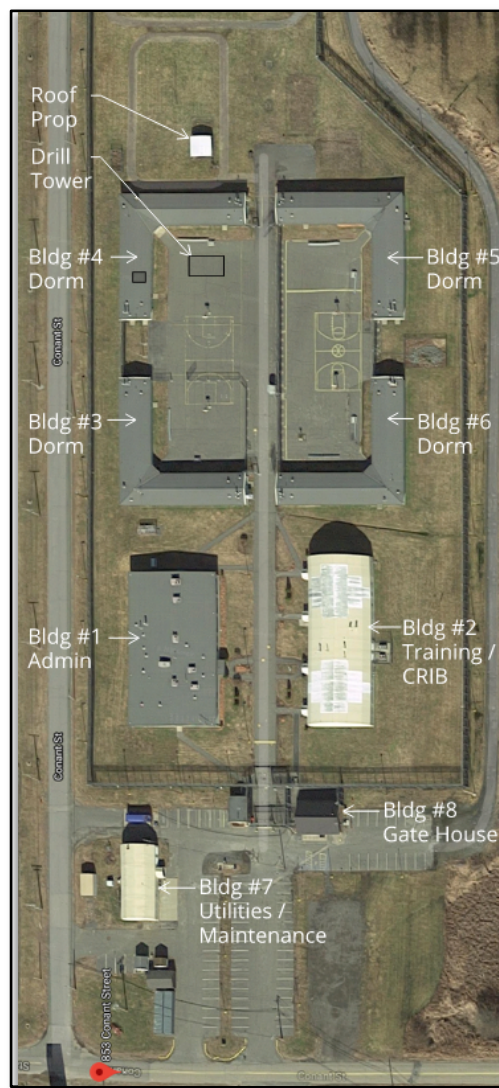
Within DFS, the Massachusetts Firefighting Academy (MFA) is responsible for providing the majority of the state's 366 fire departments with comprehensive fire and emergency service training, education, and certification. As a result of growth in training demands, the number of students being taught by the MFA has tremendously increased in recent years, with student enrollment exceeding 23,000 people.

The development of an 18-acre southeastern Massachusetts firefighter and technical rescue training facility, at the former Department of Corrections treatment facility in Bridgewater, is intended to serve as a regional location to vastly improve DFS' services within the region. Because current DFS facilities in Springfield (serving communities in the western part of the state) and Stow (serving central Massachusetts) cannot meet the current demands for training, this means a significant portion of municipal firefighters in this region are unable to be fully deployed, absent their basic training, for 7-9 months. Southeastern Massachusetts counties currently make up over 30% of the recruit waiting list, and the Bridgewater location is ideal to develop the primary technical rescue training site for the state's five newly designated Technical Rescue Regions, complementing legislation signed by the Governor in July 2018.

The 18-acre parcel of land in Bridgewater currently houses eight buildings:

- four former dormitories, approximately 5,450 gross square feet (GSF) each, which form a "quad" in the center of the property that surrounds a paved courtyard
- 11,400 GSF Administration building, housing office space, classrooms, breakrooms, and locker rooms
- 9,800 GSF Training / CRIB building, which is a fabric structure of predominately large spaces, storage areas, and facility spaces, with some office spaces.
- 2,300 GSF Utility / Maintenance building
- 936 GSF Gate House at the entrance to the secured area.

DFS envisions the Bridgewater facility to be comparable to the Springfield facility regarding types of building space for training and administration, and outdoor training areas for props and meeting areas, circulation, storage areas, and site



Existing Buildings on the DFS Site

infrastructure. The Springfield facility was acquired by DFS from the City of Springfield, and DFS started operation in 2015 at the six-acre campus, which was refurbished to construct a new administration and classroom building, three fire apparatus bays, a water reclamation system, a three-story live fire training prop burn building, a five-story training tower, in addition to other outdoor training facilities, including a Search & Rescue Prop, an Outdoor Classroom and spaces for smaller props for training for a variety of technical situations.

The objective of this Master Plan is to identify the most cost-effective scenarios to achieve long-term programming objectives for DFS, to implement immediate improvements to accommodate enough training space to reduce demands at the facilities in Stow and Springfield, and to provide a full-service DFS facility serving southeastern Massachusetts.

MASTER PLAN PROGRAMMING PROCESS

The programming process for the Master Plan included two separate series of discussions; one track to determine the space needs for future buildings and a separate track to determine the physical assets desired on the site to provide training programs and service delivery objectives of the DFS and the MFA.

BUILDING PROGRAMMING

As discussed in Chapter 5, programming for the DFS Southeast Campus has been conducted using a questionnaire for facility users to identify potential needs for the foreseeable future. The users, who included staff from DFS departments including the MFA, Special Operations & Hazmat, Fire Investigation, Fire Safety/Code Compliance & Boiler Inspection, and Facilities/Engineering were provided the questionnaire and provided initial responses to D+W.

Following receipt of the responses, D+W conducted a series of workshops with the users to review, discuss, and understand how each group envisions using the buildings and grounds in the immediate future and projected plans for the next 5-10 years or more, as well as to identify where economies of planning could be achieved. The information collected was then used by D+W to create an initial Space Needs Analysis.

The resulting Space Needs Analysis, or Program, includes a breakdown of all the potential spaces on the campus, which were then compared against existing spaces on the Bridgewater campus, as well as to spaces on the DFS Stow and Springfield Campuses. The space analysis determined that ultimately, the Bridgewater campus should include the following building spaces:

- Administration building including classrooms, assembly spaces, offices, and other support spaces, requiring approximately 29,950 GSF
- An Apparatus Bay building with 4 full depth apparatus bays, CRIB storage spaces, turn-out gear storage, locker rooms, and other support spaces, requiring approximately 22,800 GSF.
- A main storage warehouse for bulk delivery staging and storage space, requiring approximately 9,000 GSF
- Dormitory and support spaces to provide overnight accommodations for up to 50 trainees, requiring approximately 21,807 GSF.

The existing buildings on the site were evaluated in comparison to the space needs, and it was determined that they were not suitable for long-term reuse for multiple reasons, including the condition of the buildings, the size of the existing buildings as compared to the program areas, and the costs of renovating the existing structures. Given the uncertain timeframes for replacement of the structures, it is very likely that interim upgrades to some buildings will be necessary to accommodate program needs and to extend their service life. Buildings 1, 2, 4, and 7 will likely require renovations and upgrades to continue to be used by DFS until new facilities can be constructed. These are discussed in more detail in Chapter 4 - Existing Conditions.

With the consensus that the campus would be best suited with new buildings designed specifically to accommodate DFS and MFA needs, the space needs analysis was used to prepare conceptual space plans to evaluate options showing the adjacency of spaces and general building configurations. The options were presented and reviewed with the user groups and a preferred option was selected.

The consensus reached was that the Administration Building, Apparatus Bays / CRIB Building, and the Warehouse Building should be co-located to be adjacent to and with internal access to each other. Dormitory spaces were initially considered as a separate building near the Administration Building given the different schedules and type of access needed by users, however due to site constraints and the desire to maintain open space for future expansion the consensus was to include dormitory and support spaces as part of the Administration Building.

SITE PROGRAMMING

As described in Chapter 5, the site programming focused on outdoor training props and support facilities, and was initiated with discussions with all User groups to determine the immediate and long-term goals for the programs that DFS would like to offer at the campus, and the areas needed to facilitate those goals.

The following summarizes features that were defined as desired to support the training activities:

- Search and Rescue prop (construction is currently in progress).
- A gas training area for propane-fired gas training props, approximately 21,600 SF. This area must be adjacent to the Mobile Prop Storage pad discussed below.
- An open paved area for drill training, approximately 10,000 SF.
- A multi-story Class A Burn Building with apron; approximately 7,000 SF., with adjacent areas for storage and staging of wood pallets and straw.
- A hazardous materials /spill containment training area for props such as a rolled tanker truck, oil drums, and rail cars, approximately 6,000 SF, with an adjacent area for soil stockpiling for use in the Hazmat training area, approximately 1,800 SF.
- A vehicle extrication training area with an adjacent pad for staging deliveries and removal of demolished vehicles used in training; approximately 3,000 SF.
- A multi-story gas-fed training tower with apron area, approximately 18,400 SF.
- Maintaining the existing roof chop-out training prop equipment, approximately 400 SF.

- Maintaining the existing drill tower structure, approximately 1,800 SF.
- A partially collapsed building training area with apron, approximately 6,000 SF.
- A rubble pile training area to simulate a collapsed structure with apron, approximately 8,000 SF.
- A confined space training area with partially buried manholes and large-diameter piping at grade, approximately 7,000 SF.
- An open paved driver training area approximately 300 x 400 FT and 120,000 SF in area.
- “Outdoor classroom” sheltered areas for trainee breaks, resting, and classroom-style instruction at multiple locations adjacent to prop training areas, approximately 900 SF per location.
- Storage buildings at various locations on the site to house tools and equipment used for training at the various pad areas, approximately 1,200 SF each location.
- A drafting pit structure for training on pumping equipment, approximately 1,500 SF.
- A paved apron for storage and staging mobile props and trailers brought to the site or used for the gas prop training area, 300 x 30 FT and 9,000 SF.
- Toilet facilities to serve trainees at the north end of the site.
- Areas on the site reserved for future expansion of props and/or buildings, whenever possible.

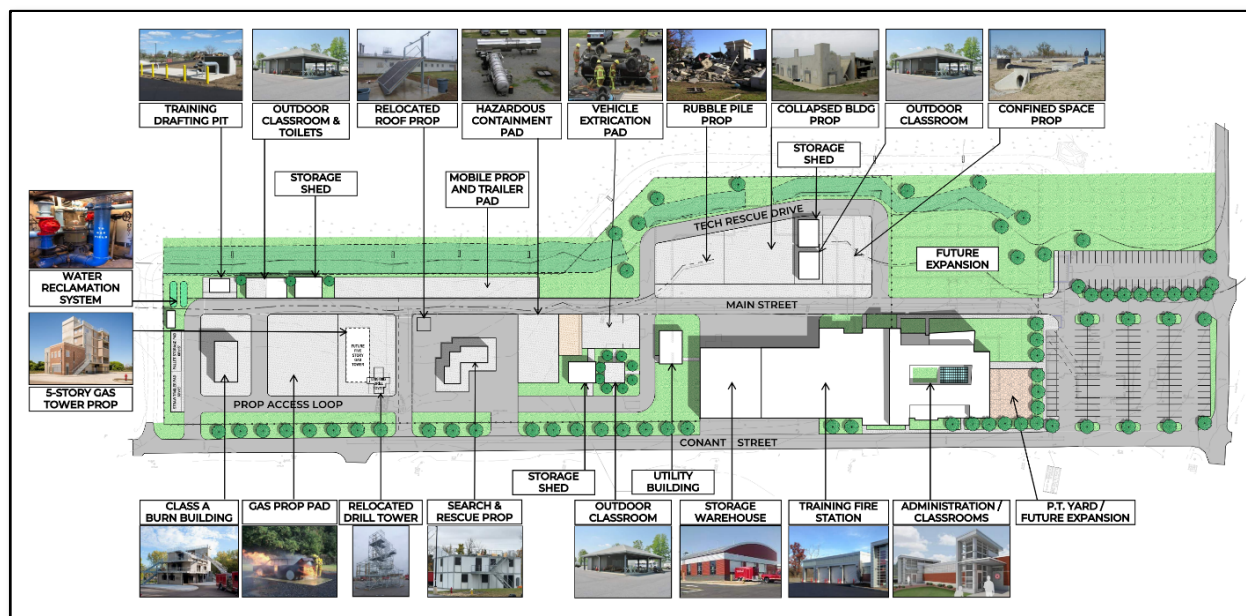
Given the size of the site and the total area of buildings and training areas desired, the planning discussions included the following:

- A dedicated, open driver training area could not fit on the site given the dimensions and area needed. Instead, the site would include a series of “streets” that navigate the prop areas to provide driver training opportunities.
- The open gas prop pad and the drill yard pad would be located adjacent to each other and shared for training purposes to accommodate the total program requirements.
- The existing drill tower would be located within the Drill Yard program area.
- When constructed, the gas training tower would be located on the Drill Yard paving area to take advantage of the open paved pad areas of the Drill Yard and Gas Prop Area required for the tower. At the time the tower is constructed, the existing Drill Tower structure would be dismantled and removed to make space for the Gas Tower, as it would replace the training functions of the current drill tower.
- The proposed training building would be a multistory structure and include the dormitory program spaces in order to conserve site space for future expansion.

require the extension of utilities, and to minimize future disruptions as other areas are developed, it makes the most sense to fully implement the extension of electric, plumbing, and gas utilities to serve the entire campus that is currently undeveloped, so the infrastructure is in place when future packages are developed.

Given these goals, a planning approach emerged similar to that of a residential development; the utility corridors and “streets” would include the utilities and paving critical to the implementation of the future prop areas, with the utilities extended a few feet beyond the “curb line” in each prop area and terminated to allow for future connection. The prop areas or “lots” beyond the curb would remain unimproved until funding becomes available for construction of the prop packages, at which time utility connections could be made within the prop area boundary, and the prop areas and some secondary paving around the prop pad would be built-out to completion without disrupting access to other areas of the site.

Once the site plan configuration was settled with a consensus solution, meetings were conducted with the users to define the specific requirements for each prop area. These were defined with notes and drawings for each developmental package, in order to establish order of magnitude cost estimates.

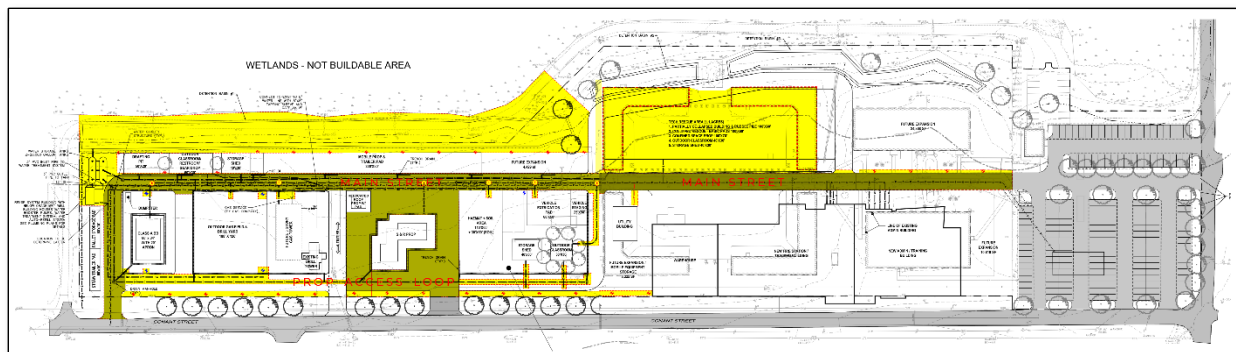


Overall Consensus Master Plan - DFS Bridgewater (Refer to Appendix I for a larger image)

DEFINITION OF PACKAGES

The following pages provide additional detail on the “packages” defined during the site programming process. A full set of the package drawings are contained in Appendix II.

UTILITY INFRASTRUCTURE / PAVING PACKAGE



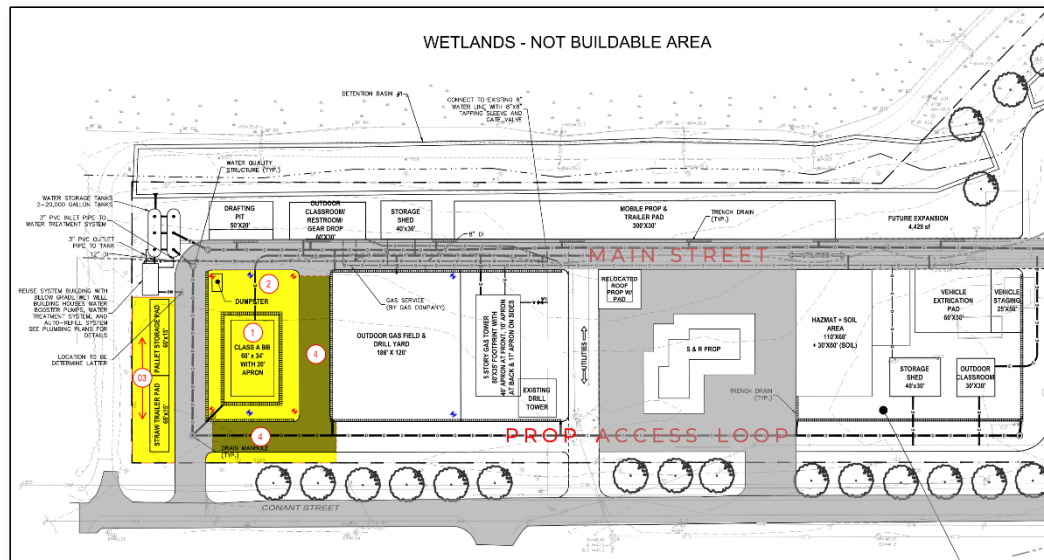
Infrastructure Package – Work Areas highlighted in yellow.

Implementation of this package is considered a prerequisite for all other developmental packages, and generally includes the following:

- Extension of domestic water supply piping and sanitary waste piping along “Main Street” from just north of the intersection of the existing utilities corridor north of the Search and Rescue Building prop to planned toilet facilities at Outdoor Classroom at north end of the site.
- Extension of a fire water service main from Conant Street at the northwest corner of the site and extending the length of “Main Street” to connect to the existing main in Main Street just north of the new Search & Rescue building.
- Installation of new electrical service from Conant Street at the north end of the site with a new transformer in vicinity of the outdoor classroom and storage building, to serve the water reclamation pump house, toilet rooms, storage buildings, Class A Burn Building, and the Gas Field / Drill Yard props north of the Search & Rescue building prop.
- Extension of new underground electrical service from the electrical duct banks and manholes below “Main Street” into each planned prop area including and south of the Search and Rescue Building and to site lighting fixtures, with temporary terminations beyond the edge of “Main Street” paving.
- Installation of new electrical and communications duct banks in Main Street from the footprint of the planned Utility Building southerly to the north edge of the parking lot for future connection to the Administration, Training Fire House, and Storage Warehouse buildings and the Tech Rescue prop area, storage building, and outdoor classroom.
- Extension of natural gas service piping from the current termination point under “Main Street” adjacent to the Vehicle Extrication pad north of the intersection of the “Prop Access Loop”, “Tech Rescue Drive”, and “Main Street”, with extension of the piping and temporary cap within the footprint of the future 5-story Gas Tower.
- Installation of storm drainage piping related to the water reclamation system along the northern extension of Main Street, southerly along Main Street to the northwest corner of the Tech Rescue training area, and under the future “Prop Access Drive”, with extensions of piping into each prop pad area for future connection to trench drains installed as part of respective prop packages.
- Installation of landscaped surface stormwater detention basins along the east edge of the site along and within the wetlands boundary area.

- Full construction of “Main Street” with new bituminous pavement for the full length from the northwest corner of the site at Conant Street to the north edge of the planned parking lot at the southern end of the site. Installation shall include curbs and trench drains connected to the water reclamation system along the east side of paving and where appropriate to grading.
- Modification of the existing perimeter fence at the north end of the site at the new access to Conant Street to provide a new 40 foot wide manually operated gate.
- Demolition of Buildings #5 and 6 to accommodate construction of utilities and “Main Street,” and to prepare the site for the future Tech Rescue area.
- Replacement of temporary paving at the Search and Rescue Building prop with permanent bituminous paving, and install continuous trench drains surrounding the prop for connection to the water reclamation system.
- Construction of a new concrete slab on grade and foundations for relocation of the existing Roof Chop Training prop and relocate prop to new pad. Demolition of the existing slab on grade and foundations at the current location.
- Construction of a water reclamation system including connection to new storm drainage water collection piping, new pump house with pumping equipment, and training water supply piping and training hydrants at the Burn Building, Gas Field, Drill Yard, and Hazmat Operations / Vehicle Extrication training pad areas.
- Installation of new site lighting fixtures on concrete bases along the “Main Street” and “Prop Access Loop” pavement, with electrical service and empty communications conduits and hand holes at each pole location for the installation of future surveillance cameras and public address equipment on the poles.

CLASS A BURN BUILDING PACKAGE



Burn Building Prop Package; Work area highlighted

Implementation of this package generally consists of the following:

- Construction of a 3-story Burn Building of non-combustible construction for live fire training, consisting of approximately 2,000 SF footprint and 6,500 SF in area, featuring fire resistant interior treatments to protect the structure from heat-related stress failures.
- Construction of a minimum 20 ft wide concrete apron on all sides of the building.
- Installation of bituminous paving for the secondary access road south and west of the concrete apron.
- Installation of bollards at the trash dumpster.
- Construction of concrete pads for tractor trailer units containing supplies for the Burn Building. This concrete pad area is located on the opposite side of the paved roadway installed with the utility package.
- Construction of drainage features within the prop area, including:
 - Continuous trench drains surrounding the Burn Building.
 - Trench drains at the edge of the "street" paving for the collection of rainwater.
 - Connection of the storm drainage systems within the site to the water reclamation system piping termination at the curb line of the infrastructure paving.
- Extension of underground electric and communications utilities from the curb line of the paved roadway to the building, to an above-ground power center within the prop area, and to site lighting.
- Installation of site lighting poles with raised concrete bases to illuminate the prop structure. The lighting locations shall include the infrastructure to add surveillance cameras in the future.
- Restoration / improvement of adjacent landscaped areas disturbed by construction.

BUILDINGS PACKAGE

This package includes the construction of the buildings summarized in the Programming and Space Needs Analysis, consisting of the Apparatus Bay / CRIB building, Administration / Dorm Building, and Warehouse. Multiple construction and demolition phases will likely occur based on the availability of funding; the construction of each building is essentially a stand-alone project implemented over time, however the sequence developed in this study provides a strategic approach for construction to accommodate ongoing operations through temporary swing-space requirements on the site. As such, they are presented here as one combined package but are shown as phases to be implemented as funding becomes available.

APPARATUS BAY / CRIB BUILDING

PHASE 1

- Renovation of existing Building #4 to provide classroom and support space for administration functions.
- Demolition of existing Building #3 to clear a footprint for future Apparatus Bay / CRIB building.

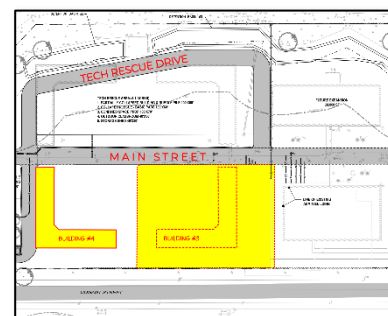
PHASE 2

- Construction of a new 22,800 GSF training Apparatus Bays / CRIB area and support spaces (SCBA, TOG lockers, staff & student lockers).
- Construction of concrete aprons at each side of the apparatus bays to meet existing pavement at "Main Street" and Conant Street.
- Modification of the existing perimeter fence along Conant Street to provide new opening at apparatus bay apron.
- Stabilization of the disturbed landscape areas.

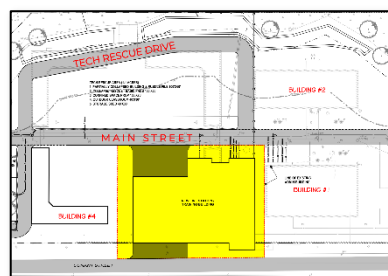
ADMINISTRATION / DORM BUILDING

PHASE 1

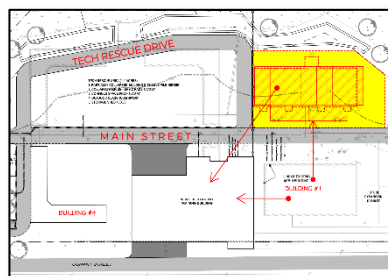
- Relocation of CRIB and SCBA functions from Building #2 to new Apparatus Bay / CRIB building.
- Demolition of Building #2.
- Relocation of student and staff lockers from Building #1 to the new Apparatus Bay / CRIB Building.
- Installation of approximately 11,500 SF of modular office and classroom space in the area of Building #2 to serve as swing space for construction of the new administration / dorm building



Apparatus Bay / CRIB Pkg - Phase 1



Apparatus Bay / CRIB Pkg - Phase 2



Admin / Dorm Building Pkg - Phase 1

- Relocation of Administration and training functions from existing Administration Building #1 to the temporary modular structure.

PHASE 2

- Demolition of Building #1.

PHASE 3

- Construction of a new 3-story, 51,757 SF administration / training building with classrooms, offices, and support spaces. Optionally, the structure could be designed as 29,950 SF and 2 stories with provisions of future addition of the 21,807 SF 3rd story housing 50 dormitory rooms and support spaces.
- Relocation of Administration and training functions from Building #4 and modular buildings to new Administration building.

WAREHOUSE AND UTILITY BUILDING

PHASE 1

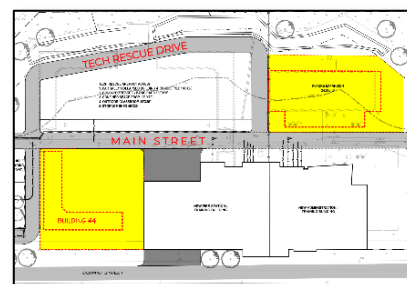
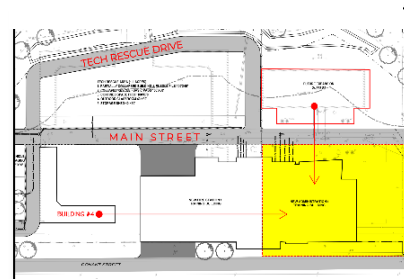
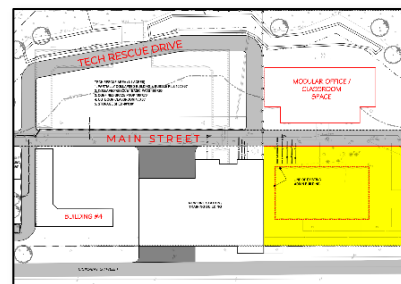
- Demolition of Building #4.
- Removal of modular buildings and restore area to landscape. Relocation of perimeter fencing along southern portion of "Tech Rescue Drive" and across "Main Street" with a new gate to meet the new Administration and Apparatus / CRIB Buildings.

PHASE 2

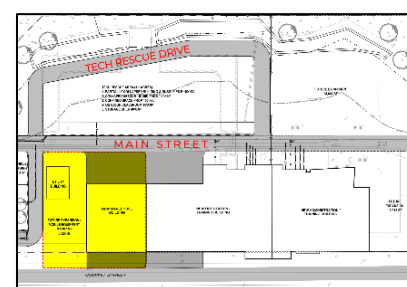
- Construction of a new 9,000 SF heated Warehouse Storage Building adjacent to new Apparatus Bays.
- Construction of a new 1,500 SF heated Utility Building for campus electrical service and generator.
- Relocation of electric services to new buildings and fire alarm head end over to new Utility Building.
- Note: depending on future needs, uses in the Utility Building couple be incorporated into the Warehouse Building, pending design determinations when implemented

PHASE 3

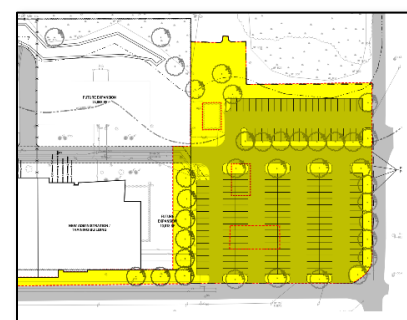
- Demolition of Buildings #7 (existing Maintenance building) and #8 (existing Gate House) and removal of underground fuel storage tank at parking lot.
- Construction of the parking lot with all landscaping, site lighting, vehicle charging stations, infrastructure for solar canopies, etc. at parking area, and complete all landscaping outside the perimeter fence along Conant Street.



Warehouse & Utility Bldgs Pkg - Phase 1



Warehouse & Utility Bldgs Pkg - Phase 2

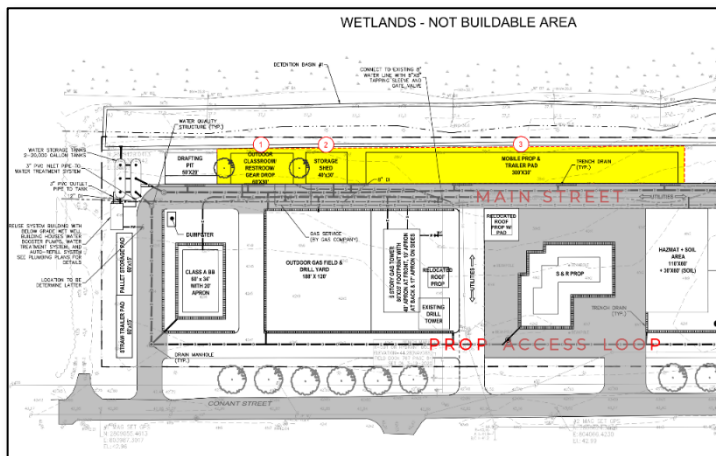


Warehouse & Utility Bldgs Pkg - Phase 3

PROP SUPPORT PACKAGE

Implementation of this package generally consists of the following:

- Installation of a concrete pad on grade intended for mobile prop storage and staging of props for the gas training field.
- Construction of a 1,200 SF storage building for materials and equipment related to the training use of the nearby Burn Building, Gas Field, and future 5-story Gas Tower props. The storage building will include power for lighting but will not be heated.
- Construction of a combination Outdoor Classroom & gear drop / toilet building for trainee use, with approximate area of 1,800 SF, with approximately half of that being an outdoor classroom canopy area and half being a heated building with toilet facilities and a gear drop room for trainees to store bags and equipment.
- Connection of utilities including domestic water, sewer, electric, site lighting, and communications from terminations at the edge of paving at "Main Street" to the Outdoor Classroom / toilet structure and Storage Building.
- Installation of landscape plantings adjacent to the outdoor classroom to provide additional shade to occupants of the classroom.
- Restoration of disturbed landscape areas.



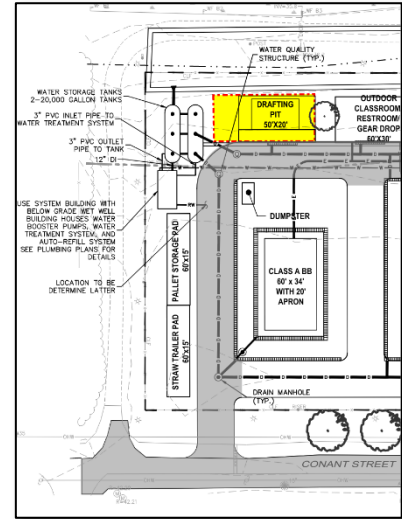
Prop Support Package - Site North. Work Area Highlighted.



DRAFTING PIT PACKAGE

Implementation of this package consists of the following:

- Installation of a concrete drafting pit structure with a capacity of 20,000 gallons.
- Construction of an 8" thick concrete slab on grade apron in front of the drafting pit.
- Installation of heavy duty 8" diameter steel bollards spaced along the front edge of the apron adjacent to the edge of "Main Street" paving.
- Installation of piping connections between the drafting pit and the water reclamation system for recharging the water volume of the prop when needed.
- Installation of site lighting pole fixtures at the pit, including electrical service and empty communications conduits or future surveillance cameras.
- Restoration of disturbed landscape areas.



*Drafting Pit Package – Site North.
Work Area Highlighted.*

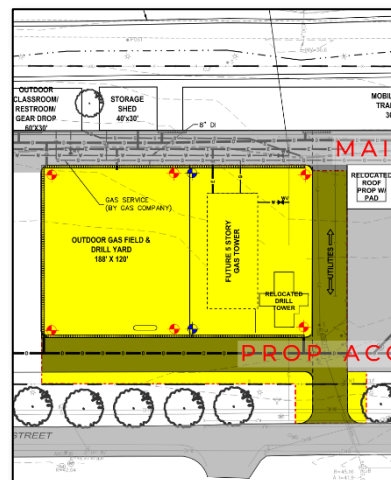


GAS FIELD – DRILL YARD PACKAGE

Implementation of this package generally consists of the following:

- Construction of an 8" thick reinforced slab on grade for prop placement in the Drill Yard (future Gas Tower area) and relocated Drill Tower prop.
- Relocation of the existing Drill Tower structure from its current location to the new pad area.
- Installation of bituminous paving at the secondary access drives south and west of the pad area, including a new 40 ft wide access point from Conant Street.
- Modification of the existing perimeter fence to install a new 40 ft wide manual gate access to Conant Street.
- Installation of curbing at edges of bituminous paving where abutting landscape areas.
- Installation of site lighting fixtures on poles within prop areas for illumination of the training areas, including electrical service and empty communications conduits for future surveillance cameras.
- Extension of underground electric and communications utilities from the edge of paving along "Main Street", to an above-ground power center within the prop area.
- Extension of gas utility piping from the edge of paving at "Main Street" to a new termination within the footprint of the future gas tower building.
- Installation of an above-ground 1,000-gallon liquid propane gas tank to serve the gas props.
- Installation of gas piping in concrete trenches to serve gas-fed fire training props located on the concrete pads for connecting the props to the gas system.
- Installation of underground LPG piping branch from the gas tank location to the footprint of the future Gas Tower.
- Installation of trench drains along the north and west sides of the new pad at the edge of street paving with connection to the water reclamation system.
- Restoration of disturbed landscape areas along the west edge of the fenced perimeter.

This package does not include the future 5-story Gas Tower, discussed below.



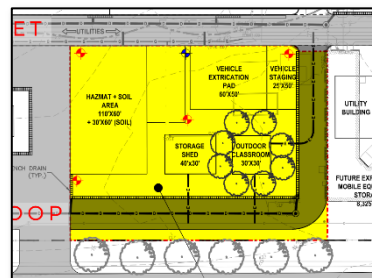
Gas Field - Drill Yard Package - Site North. Work Area highlighted.



HAZMAT OPERATIONS – VEHICLE EXTRICATION PACKAGE

Implementation of this package generally consists of the following:

- Construction of an 8" thick concrete slab on grade Hazardous Materials Operations training pad of approximately 6,600 SF with an adjacent site area of approximately 1,800 SF for stockpiling soil.
- Construction of an 8" thick concrete slab on grade Vehicle Extrication training pad of approximately 3,000 SF, with an adjacent pad of 1,250 SF for staging, delivery, and removal of multiple demolished cars used for training.
- Construction of a 1,200 SF storage building for materials and equipment. The storage building will include power for lighting but will not be heated.
- Construction of a 900 SF outdoor classroom canopy shelter for training and rehabilitation.
- Installation of bituminous paving at the "Prop Access Loop" drive south and west of the pad area with curbing at landscaped areas.
- Installation of site lighting fixtures on poles within prop areas for illumination of the training areas, including electrical service and empty communications conduits for future surveillance cameras.
- Extension of underground electric and communications utilities from the edge of paving along "Main Street" or from existing electric utilities below the Access Loop paving included in this package to an above-ground power center within each prop area and to the storage building and outdoor classroom.
- Installation of trench drains along the south and west sides of the new pad at the edge of street paving with connection to the water reclamation system for rainwater capture.
- Installation of landscaping at the Outdoor Classroom to provide additional shade and cooling, with sidewalk paving to connect the shelter to pad and street paving.
- Restoration of disturbed landscape areas between prop pads and buildings and along the west edge of the fenced perimeter.



Typical Outdoor Classroom Structure

TECH RESCUE PACKAGE



Tech Rescue Package - Site South. Work Area Highlighted.

Implementation of this package generally consists of the following:

- Construction of landscaped surface stormwater storage swales along the east side of the site.
- Construction of an 8" thick concrete slab on grade at the Rubble Pile prop area, approximately 7,000 SF in area.
- Construction of a partially collapsed building prop adjacent to the Rubble Pile, including foundations and slab on grade. An 8" thick concrete pad should surround the prop, with a total area of approximately 8,800 SF.
- Construction of a confined space training area, including engineered fill with multiple partially buried concrete manholes connected to an array of large-diameter concrete piping at the surface of grade. The prop area should be approximately 7,000 SF.
- Construction of a continuous concrete apron approximately 20 feet in width along the length of the prop areas at the edge of "Main Street" for temporary parking of vehicles and staging of operations. The area of the pad should be approximately 6,400 SF.
- Installation of bituminous paving with curbing at "Tech Rescue Drive" at the north, east, and south of the prop area.
- Construction of a 1,200 SF unheated storage building for materials and equipment related to the Tech Rescue training props.



- Construction of a 900 SF outdoor classroom canopy shelter for training and rehabilitation.
- Installation of site lighting pole fixtures around the pad areas for proper illumination, including electrical service and empty communications conduits for future surveillance cameras.
- Installation of landscaped surface stormwater detention basins along the east edge of the site along and within the wetland boundary area.
- Installation of landscape plantings adjacent to the outdoor classroom to provide additional shade to occupants of the classroom.
- Restoration of disturbed landscape areas.

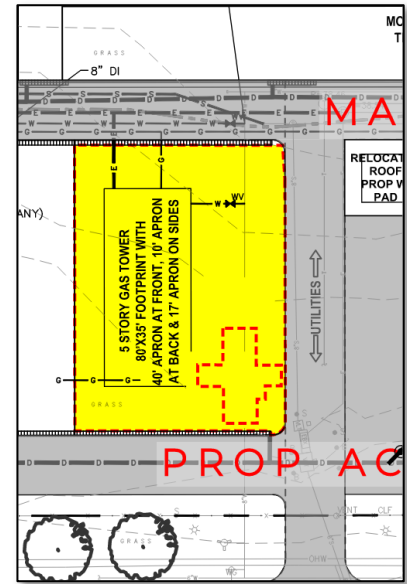


Typical Outdoor Classroom Structure

5-STORY GAS TOWER PACKAGE

Implementation of this package generally consists of the following:

- Demolition / removal of the existing drill tower structure.
- Demolition of a portion of the slab on grade pad at the Drill Yard to the extent needed to facilitate construction of the new Gas Tower.
- Installation of a new 5-story Gas Tower prop with foundations and slab on grade. The footprint of the tower should be approximately 2,400 SF.
- Extension of underground liquid propane gas piping installed in the Gas Field for connection to the Gas Tower prop.
- Extension of underground gas piping from the edge of “Main Street” and for connections to the Gas Tower prop.
- Extension of underground water utility piping within the Drill Yard prop area for connections to the Gas Tower Prop.
- Extension of underground electric and communications utilities from the edge of “Main Street” to the Prop.



5-Story Gas Tower Package - Site North. Work area highlighted.



Prototypical Gas Tower Prop

UNIVERSAL ACCESSIBILITY

The DFS Bridgewater Campus serves members of the public, so the site is required to be fully accessible to accommodate use of each building and training area. Universal accessibility is a primary goal of the master plan.

There are two different accessibility regulations that apply, the state accessibility regulations, 521 CMR, are part of 780 CMR and are enforced by the building inspector and the Massachusetts Architectural Access Board (MAAB). Any feature that is required to be compliant must meet the regulations unless a variance is granted by the MAAB. Even with a MAAB variance, there may be ADA requirements that must be met.

The federal law governing accessibility in state and municipal buildings is Title II of the Americans with Disabilities Act (ADA). It requires that all programs and services offered to the public be accessible, either structurally or programmatically. Non-structural accommodations can be used to provide access to physically inaccessible facilities, if provided in an equal and integrative way. The architectural requirements for compliance with the ADA are embodied in the ADAAG (American with Disabilities Architectural Guidelines) and are generally (but not always) similar to the requirements of the MAAB.

SUSTAINABILITY GOALS AND OBJECTIVES FOR THE MASTER PLAN

The DFS Bridgewater Campus will be required to meet the objectives of Executive Order 594: Decarbonizing and Minimizing Environmental Impacts of State Government. The goals will be achieved by advancing high performance buildings; expanding energy efficiency; and the deployment of new renewable energy. The following sections recommend targets to achieve the required objectives during implementation of the Master Plan.

Overall Goals And Objectives For The Bridgewater Campus

- Achieve zero net energy through use of renewable energy generated onsite to offset the campus buildings annualized energy consumption.
- Implement energy storage, especially when paired with onsite renewables.
- Evaluate and implement strategies to reduce embodied carbon contained in building materials.

Site Development Goals And Objectives

- Use of a water reclamation system to capture site water runoff for reuse for fire training exercises.
- Use of pervious pavement for passenger vehicle parking areas, and other selected paving on the site whenever practical.
- For areas not within the water reclamation system, incorporate low impact development (LID) and green-infrastructure techniques for water runoff.
- Incorporate electric vehicle charging stations for state, employee, and visitor-owned vehicles.
- Prioritize clean energy resources through onsite renewable energy generation, energy storage and resilience, and use of advanced building controls.

- Participate in DCAMM's programs to manage and expand energy metering and monitoring to ensure access to utility and real-time energy data.

Building Goals And Objectives

- Obtain a "Silver" level certification or higher for the buildings and campus pursuant to the most recent version of the Leadership in Energy and Environmental Design (LEED) Standard.
- Reduce building energy use intensity (EUI) by at least 20% lower than an equivalent building that meets the Massachusetts Energy Code, by prioritizing:
 - Improved envelope performance
 - Reduced air infiltration
 - Ventilation heat recovery
 - External shading and reduction in solar heat gains.
- Include alternatives to fossil fuels for thermal energy that include low- or zero-carbon fuels or alternative electricity technologies that meet minimum performance specifications
- Implement building envelope upgrades to ensure thermal performance
- Install renewable energy and energy storage, while building the infrastructure necessary to support future renewable energy and storage installations; and
- In collaboration with DCAMM, track the energy performance of existing buildings or sites and take concrete steps to reduce building energy use through operational efficiencies.

PROJECT COSTS

Order of magnitude estimated construction costs have been prepared that are based on assumptions about the site costs, square foot building costs, and allowances for specialty fire training props that are proposed under the Master Plan.

The cost estimates are a reasonable opinion of cost based on public bidding under Chapter 149 of the Massachusetts General Laws. The estimates represent only an order of magnitude accuracy based on conceptual designs and limited information about the site. Actual costs will likely vary based on the development of more complete scope documents at the time of implementation. Refer to Appendix III for a detailed cost estimate of each implementation package.

The costs provided are current (2021) values, since it is unknown at this time when specific packages will be implemented. As such, costs should be revisited when implementation is considered in order to estimate applicable escalation based on cost increases over time.

Once developed, the Estimated Construction Costs (ECCs) were reviewed and reconciled multiple times to help assure reasonable accuracy of the scope. The revised ECCs were established, and a factor was determined to cover all soft costs such as design fees, consulting and permitting fees, and contingencies, etc., resulting in a Total Project Cost (TPC) for each package. For planning purposes, a factor of 1.3 was applied for projects of predominantly horizontal construction (i.e., site work), and a factor of 1.4 for projects involving vertical construction.

The following table summarizes the ECC and TPC for each package in the master plan (note; costs have been rounded):

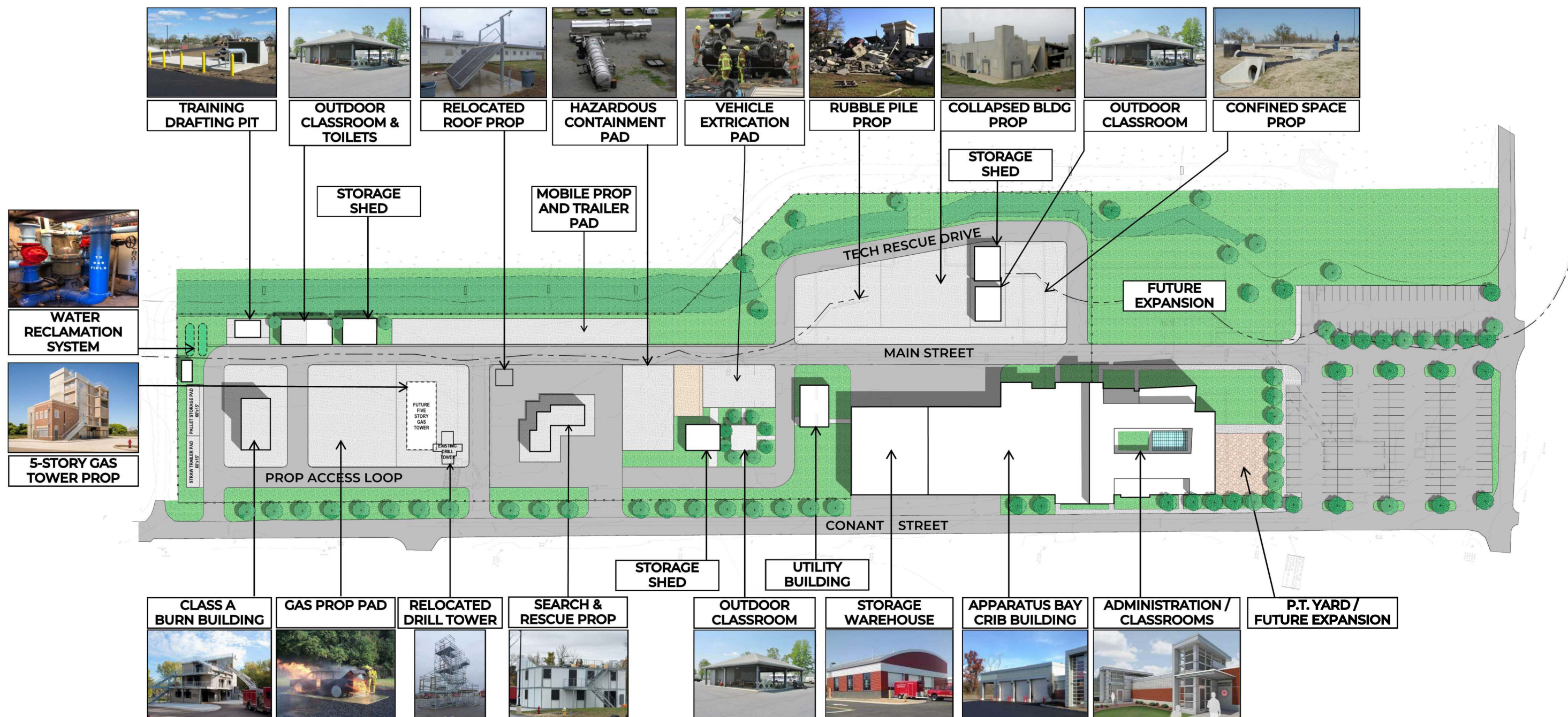
Package	Estimated Construction Cost	Total Project Cost
Utility Infrastructure / Paving	\$4,800,000	\$6,240,000
Class A Burn Building	\$4,400,000	\$6,200,000
Administration / Dorm Building	\$27,400,000	\$38,400,00
Apparatus Bay / CRIB Building	\$19,300,00	\$27,000,000
Warehouse Building	\$6,800,000	\$9,500,000
Prop Support	\$2,000,000	\$2,600,000
Drafting Pit	\$360,000	\$470,000
Gas Field / Drill Tower	\$2,500,000	\$3,250,000
Haz. Mat. / Vehicle Extrication	\$1,500,000	\$1,950,000
Tech Rescue	\$5,400,000	\$7,000,000
5-Story Gas Tower	\$8,500,000	\$11,900,000

IMPLEMENTATION TIMELINE

The various packages were organized into implementation phases, based on availability of funding and desired timelines DFS indicated for implementation. Packages in the “Immediate” column are priorities for implementation based upon training objectives; the “Mid-Range” and “Long-Range” columns suggest general priorities for implementation, however the packages in these columns could be implemented at any time if funding is procured.

Package	Immediate	Mid-Range	Long-Range
Utility Infrastructure / Paving	■		
Class A Burn Building	■		
Apparatus Bay Building		■	
Administration Building		■	
Prop Support		■	
Drafting Pit		■	
Warehouse & Utility Building			■
Gas Field / Drill Tower			■
Haz Mat / Vehicle Extrication			■
Tech Rescue Package			■
5-Story Gas Tower			■

APPENDIX I - OVERALL SITE MASTER PLAN



DEPARTMENT OF FIRE SERVICES SOUTHEAST CAMPUS - MASTER SITE PLAN

SCALE: 1" = 60'-0"



AUGUST 31, 2021



APPENDIX II - PACKAGE SITE PLANS

UTILITY INFRASTRUCTURE / PAVING PACKAGE

CLASS A BURN BUILDING PACKAGE

BUILDINGS PACKAGE PHASING PLANS

PROP SUPPORT PACKAGE

DRAFTING PIT PACKAGE

GAS FIELD – DRILL YARD PACKAGE

HAZMAT OPERATIONS – VEHICLE EXTRICATION PACKAGE

TECH RESCUE PACKAGE

5-STORY GAS TOWER PACKAGE

KEYED NOTES

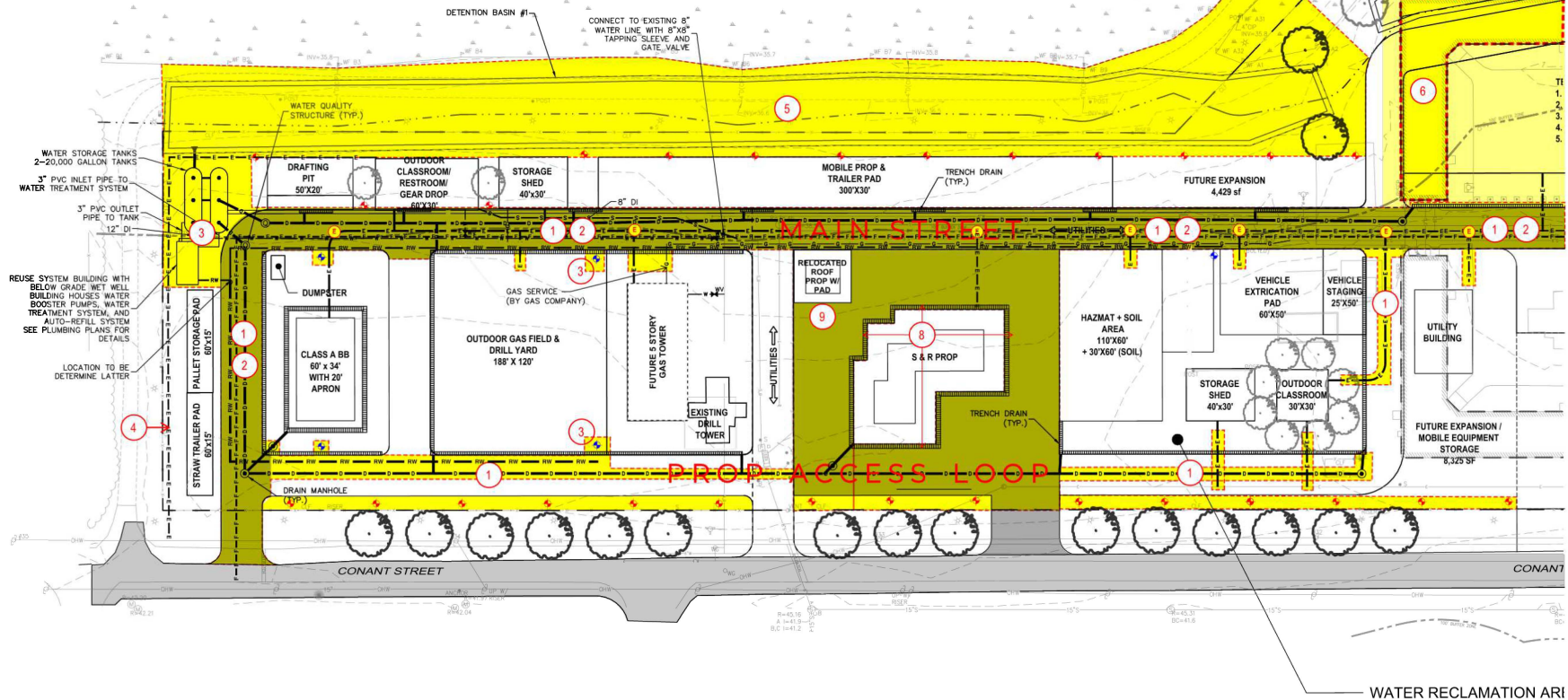
- 1 EXTEND UNDERGROUND UTILITIES:
 - WATER SUPPLY ALONG MAIN STREET
 - FIRE WATER SUPPLY LOOP, WITH HYDRANTS
 - ELECTRICAL SERVICE, WITH CONNECTIONS TO EACH FUTURE BUILDING / PROP SITE
 - NATURAL GAS SERVICE
 - STORMWATER DRAINAGE PIPING
- 2 FULLY CONSTRUCT MAIN STREET, WITH NEW GATE AT ACCESS TO CONANT STREET
- 3 INSTALL WATER RECLAMATION SYSTEM AND ASSOCIATED INFRASTRUCTURE
- 4 INSTALL ELECTRICAL SERVICE TO SERVE THE NORTH END OF THE CAMPUS FROM CONANT STREET
- 5 CONSTRUCT LANDSCAPED STORMWATER RETENTION AREA

- 6 DEMOLISH BUILDINGS #5 AND 6 TO ACCOMMODATE CONSTRUCTION OF UTILITIES AND MAIN STREET, AND PREPARE SITE FOR FUTURE TECH RESCUE AREA. STRIP AND REMOVE ALL EXISTING SITE PAVING AND ABOVE-GRADE FEATURES. PROVIDE NEW TEMPORARY ASPHALT BINDER COURSE THROUGHOUT ALL EXISTING PAVED AREAS AND FOOTPRINTS OF DEMOLISHED BUILDINGS.
- 7 FULLY CONSTRUCT PARKING AREA, WITH INFRASTRUCTURE FOR LIGHTING, EV CHARGING, STORMWATER RETENTION AND ACCOMMODATIONS FOR FUTURE INSTALLATION OF SOLAR CANOPY REMOVE GRAVEL PARKING AREA AND RESTORE WETLANDS
- 8 REPLACE TEMPORARY PAVING AT SRB PROP WITH PERMANENT SURFACE, PROVIDE DRAINAGE CONNECTION TO WATER RECLAMATION SYSTEM
- 9 RELOCATE ROOF PROP
- 10 COMPLETE LANDSCAPING ALONG CONANT STREET

LEGEND

- WORK AREA
- ALTERNATE WORK AREA
- BUILDING DEMOLITION
- 1 KEYED NOTE - SEE NOTES AT LEFT
- NEW SITE LIGHTING POLE LOCATION
- NEW TRAINING HYDRANT LOCATION - CONNECTED TO WATER RECLAMATION SYSTEM
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM

WETLANDS - NOT BUILDABLE AREA



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS UTILITY INFRASTRUCTURE AND PAVING PACKAGE PLAN - SITE NORTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



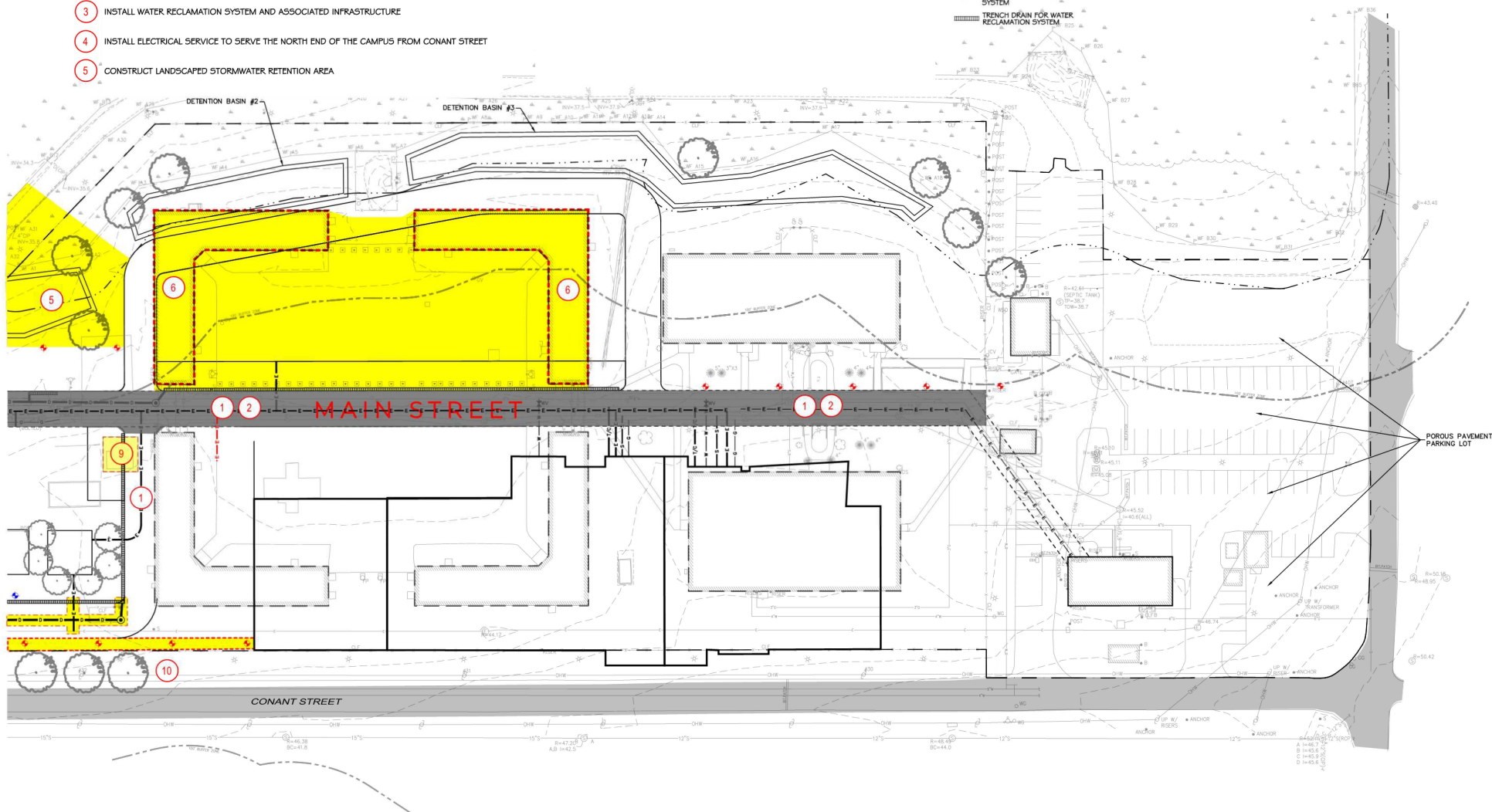
KEYED NOTES

- 1 EXTEND UNDERGROUND UTILITIES:
 - WATER SUPPLY ALONG MAIN STREET
 - FIRE WATER SUPPLY LOOP, WITH HYDRANTS
 - ELECTRICAL SERVICE, WITH CONNECTIONS TO EACH FUTURE BUILDING / PROP SITE
 - NATURAL GAS SERVICE
 - STORMWATER DRAINAGE PIPING
- 2 FULLY CONSTRUCT MAIN STREET, WITH NEW GATE AT ACCESS TO CONANT STREET
- 3 INSTALL WATER RECLAMATION SYSTEM AND ASSOCIATED INFRASTRUCTURE
- 4 INSTALL ELECTRICAL SERVICE TO SERVE THE NORTH END OF THE CAMPUS FROM CONANT STREET
- 5 CONSTRUCT LANDSCAPED STORMWATER RETENTION AREA

- 6 DEMOLISH BUILDINGS #5 AND 6 TO ACCOMMODATE CONSTRUCTION OF UTILITIES AND MAIN STREET, AND PREPARE SITE FOR FUTURE TECH RESCUE AREA. STRIP AND REMOVE ALL EXISTING SITE PAVING AND ABOVE-GRADE FEATURES. PROVIDE NEW TEMPORARY ASPHALT BINDER COURSE THROUGHOUT ALL EXISTING PAVED AREAS AND FOOTPRINTS OF DEMOLISHED BUILDINGS.
- 7 FULLY CONSTRUCT PARKING AREA, WITH INFRASTRUCTURE FOR LIGHTING, EV CHARGING, STORMWATER RETENTION AND ACCOMMODATIONS FOR FUTURE INSTALLATION OF SOLAR CANOPY REMOVE GRAVEL PARKING AREA AND RESTORE WETLANDS
- 8 REPLACE TEMPORARY PAVING AT SRB PROP WITH PERMANENT SURFACE, PROVIDE DRAINAGE CONNECTION TO WATER RECLAMATION SYSTEM
- 9 RELOCATE ROOF PROP

LEGEND

- WORK AREA
- ALTERNATE WORK AREA
- BUILDING DEMOLITION
- 1 KEYED NOTE - SEE NOTES AT LEFT
- NEW SITE LIGHTING POLE LOCATION
- NEW TRAINING HYDRANT LOCATION - CONNECTED TO WATER RECLAMATION SYSTEM
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS UTILITY INFRASTRUCTURE & PAVING PACKAGE PLAN - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



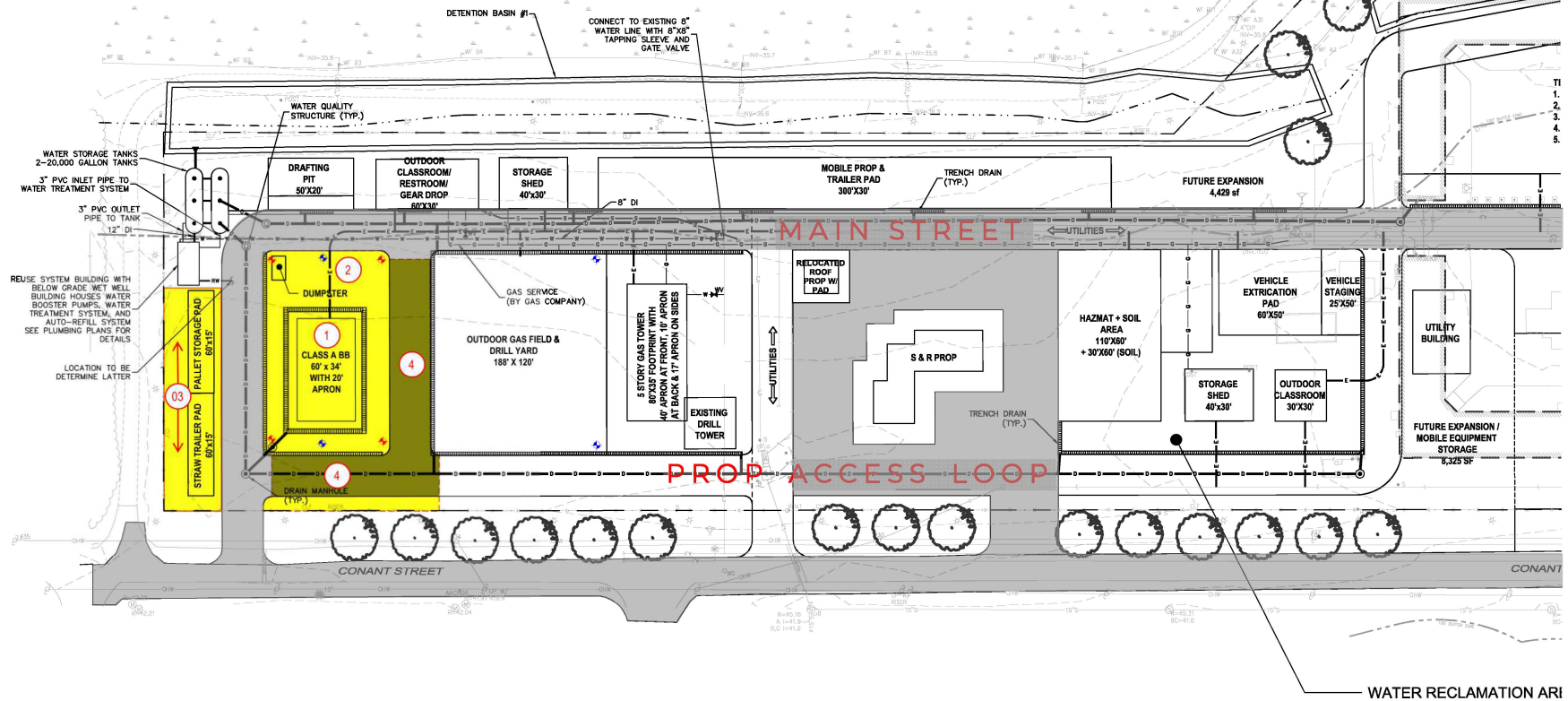
KEYED NOTES

- 01 INSTALL NEW BURN BUILDING INCLUDING FOUNDATIONS AND SUPERSTRUCTURE.
- 02 INSTALL NEW CONCRETE APRON PAVING AROUND BURN BUILDING, INCLUDING TRENCH DRAINS AROUND BURN BUILDING STRUCTURE CONNECTED TO WATER FILTRATION / TREATMENT SYSTEM FOR REMOVAL OF CONTAMINANTS AND UNDERGROUND ELECTRICAL SERVICE TO BUILDING AND SITE LIGHTING POLES FOR PROP ILLUMINATION.
- 03 INSTALL NEW CONCRETE PAD AREA FOR HAY AND WOOD PALLET STORAGE AT NORTH END OF SITE AND ADJACENT LANDSCAPING.
- 04 FULLY CONSTRUCT PROP ACCESS ROADS AROUND BUILDING AREA WITH CONNECTIONS TO MAIN STREET

LEGEND

- WORK AREA
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION
- FIRE HYDRANT CONNECTED TO WATER RECLAMATION SYSTEM
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM

WETLANDS - NOT BUILDABLE AREA



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS CLASS A BURN BUILDING PACKAGE PLAN - SITE NORTH

SCALE: 1" = 30'-0"

30 15 0 30 60

SEPTEMBER 1, 2021



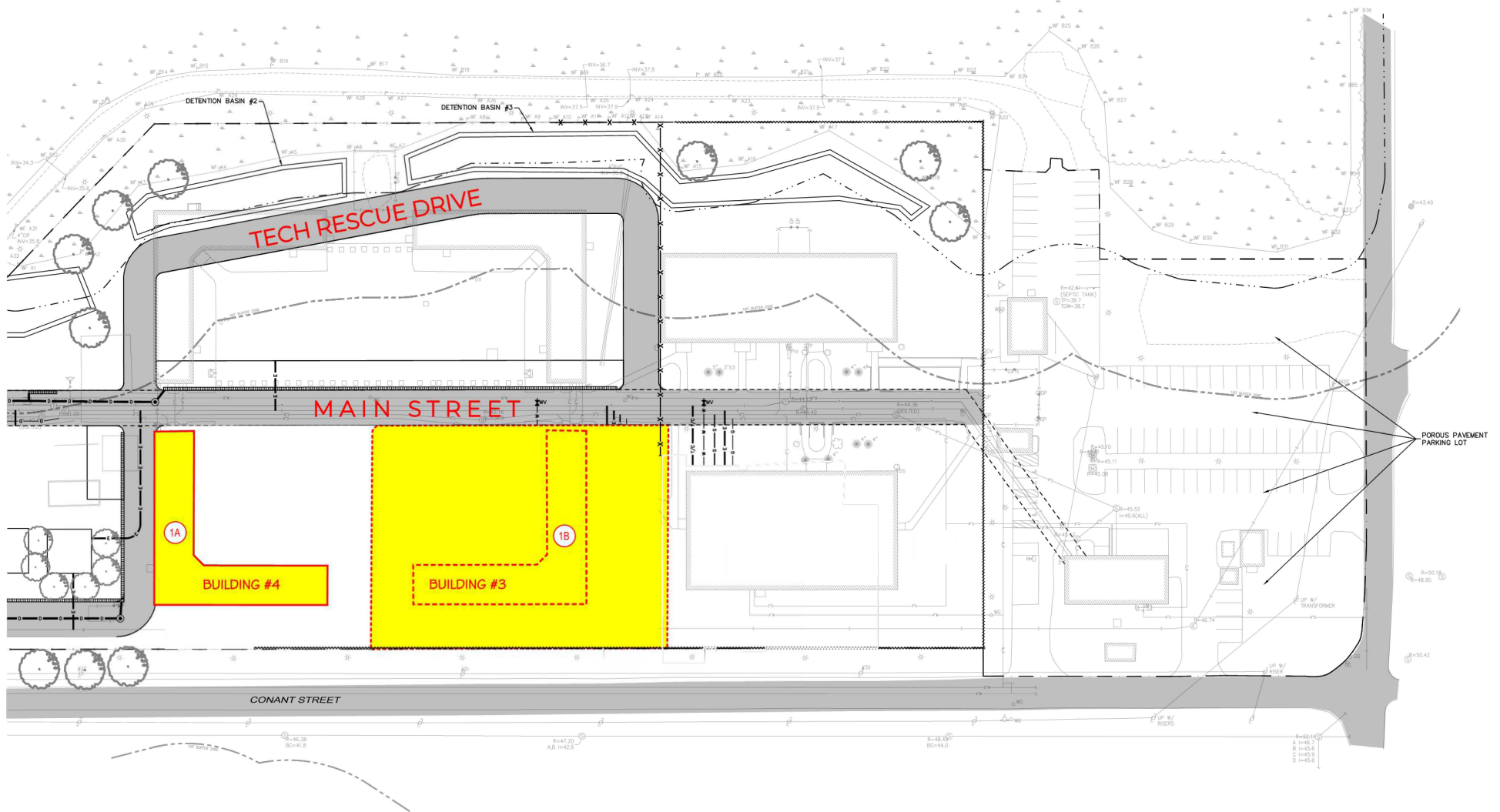
KEYED NOTES - PHASED CONSTRUCTION

APPARATUS BAY - CRIB BUILDING PHASE 1:

- 1A RENOVATE EXISTING BUILDING #4 TO CREATE TRAINING CLASSROOMS & OFFICES.
- 1B DEMOLISH BUILDING #3 TO CLEAR FOOTPRINT FOR NEW FIRE STATION.

LEGEND

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE PLAN - APPARATUS BAY - CRIB BUILDING PHASE 1 - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



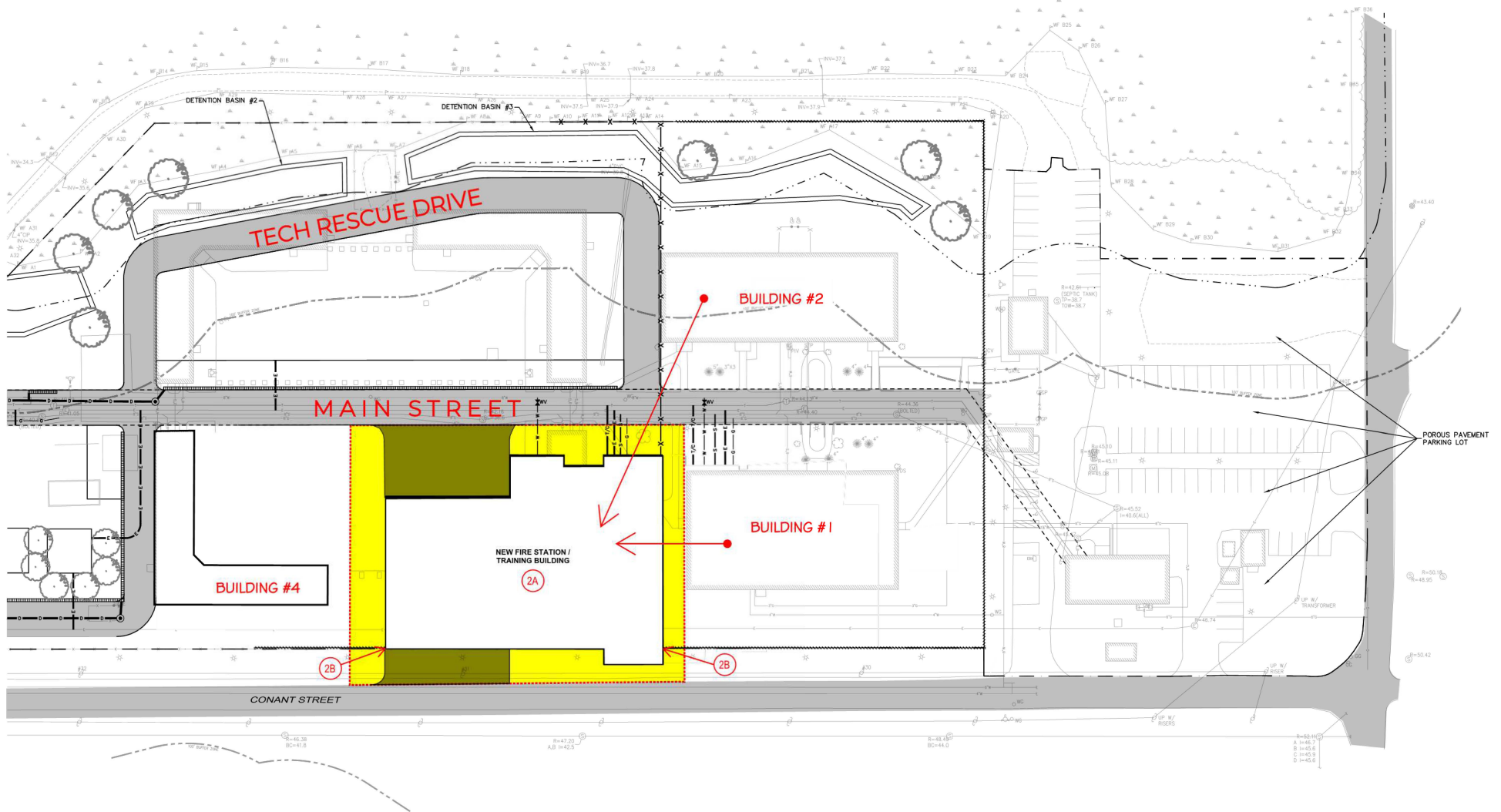
KEYED NOTES - PHASED CONSTRUCTION

LEGEND

APPARATUS BAY - CRIB BUILDING PHASE TWO:

- (2A) CONSTRUCT NEW APPARATUS BAY, CRIB STORAGE, AND SUPPORT SPACES WITH ASSOCIATED APRONS AT FRONT AND REAR;
- (2B) MODIFY EXISTING PERIMETER FENCING AT CONANT STREET TO FIT AND MEET NEW BUILDINGS.

- (01) KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE PLAN - APPARATUS BAY - CRIB BUILDING PHASE 2 - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



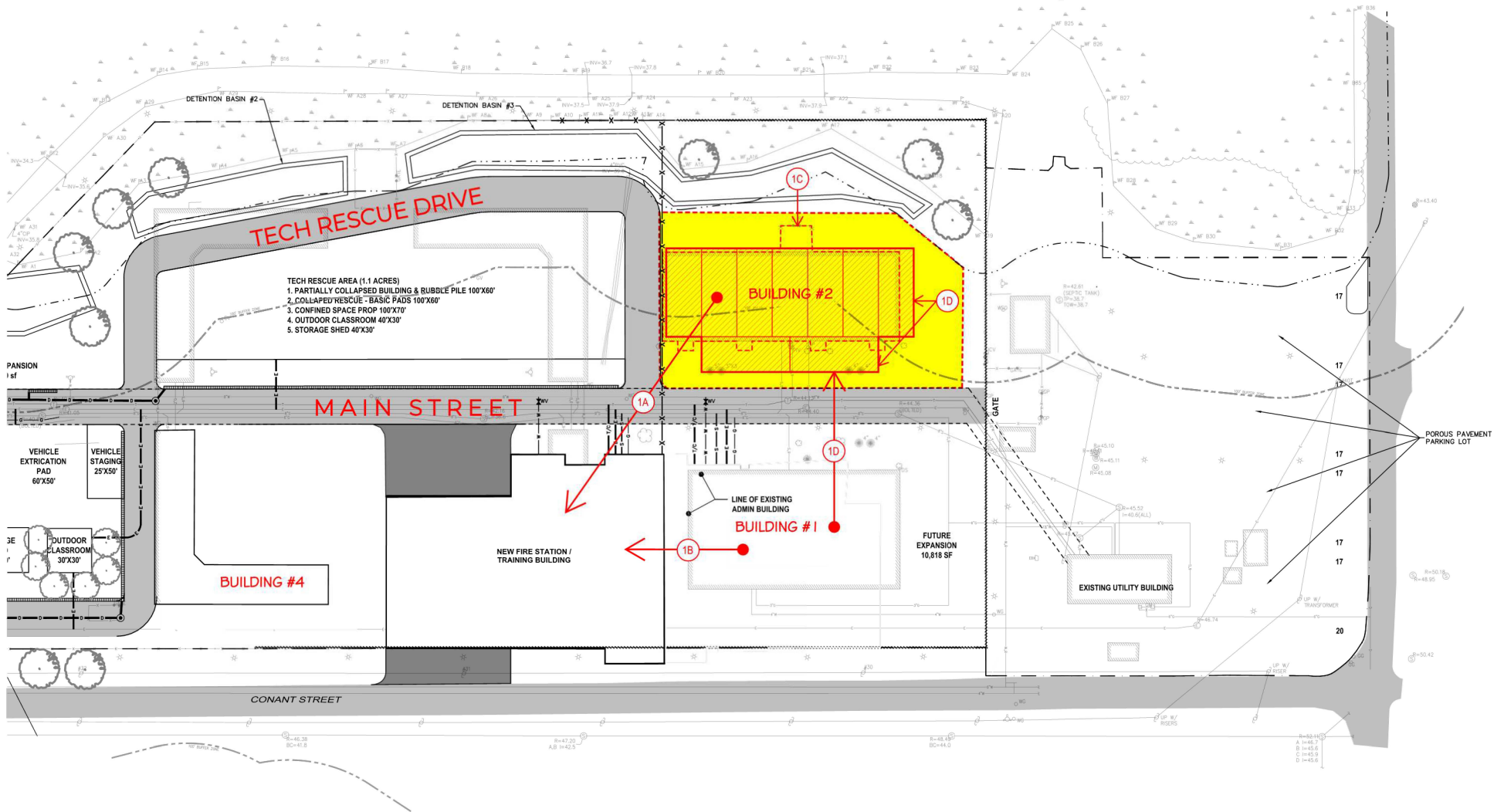
LEGEND

ADMINISTRATION - DORM BUILDING PHASE ONE:

- (1A) RELOCATE CRIB AND TOG STORAGE FUNCTIONS FROM BUILDING #2 TO NEW APPARATUS BAY BUILDING.
- (1B) RELOCATE STUDENT LOCKER & SHOWER FUNCTIONS FROM BUILDING #1 TO NEW APPARATUS BAY BUILDING.
- (1C) DEMOLISH BUILDING #2 QUONSET HUT
- (1D) CONSTRUCT APPROXIMATELY 11,500 S.F. OF LEASED MODULARS ON FOOTPRINT OF BUILDING @2. MOVE REMAINING ADMIN BUILDING FUNCTIONS INTO MODULAR UNITS.

WORK AREA

01 KEYED NOTE - SEE NOTES AT LEFT

 SITE LIGHTING POLE LOCATION

**DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS
BUILDINGS PACKAGE ADMINISTRATION - DORMITORY BUILDING PHASE 1 - SITE SOUTH**

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



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MANAGEMENT &
MAINTENANCE



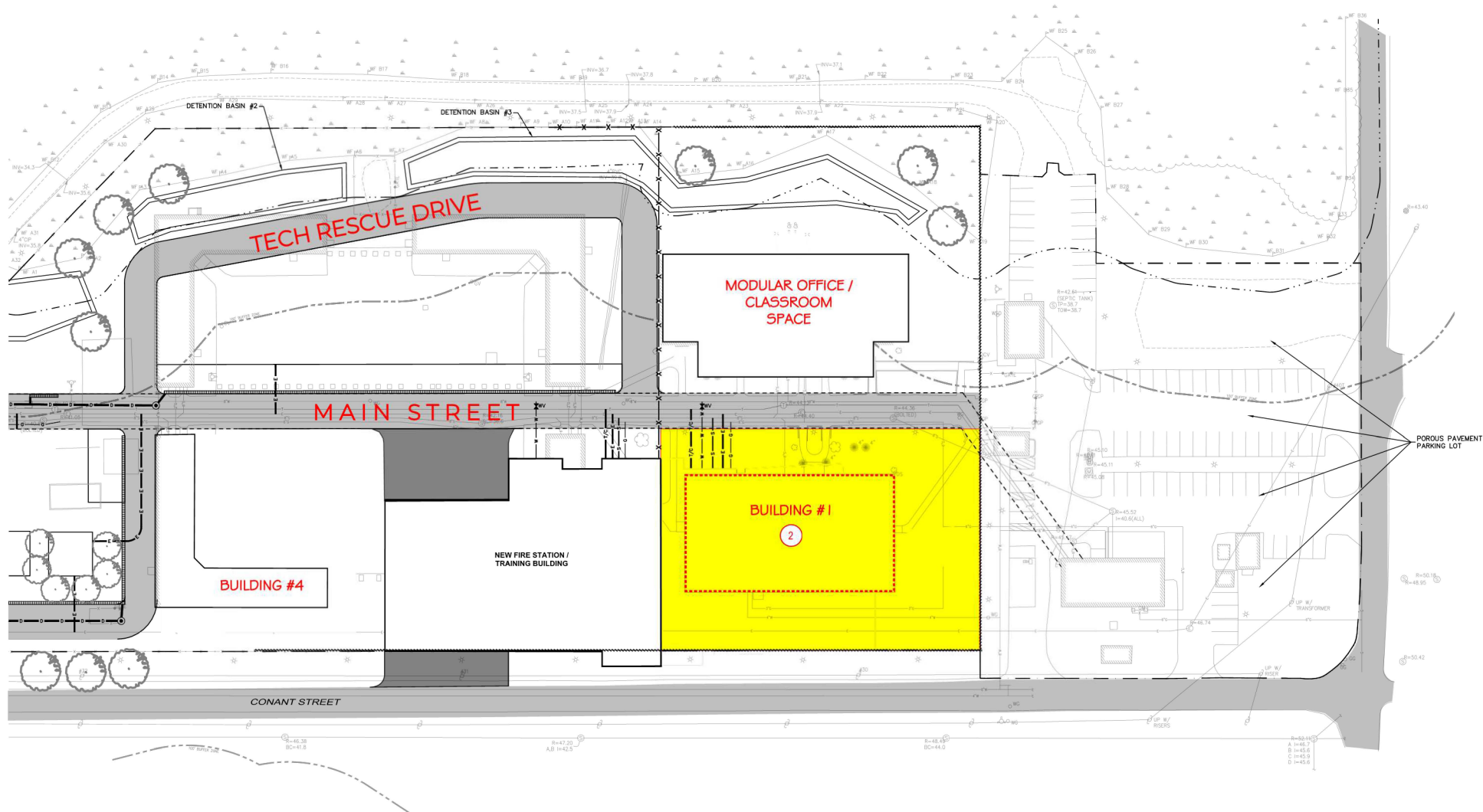
KEYED NOTES - PHASED CONSTRUCTION

LEGEND

ADMINISTRATION - DORM BUILDING - PHASE TWO

2 DEMOLISH ADMINISTRATION BUILDING #1.

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE - ADMINISTRATION - DORMITORY BUILDING PHASE 2 - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



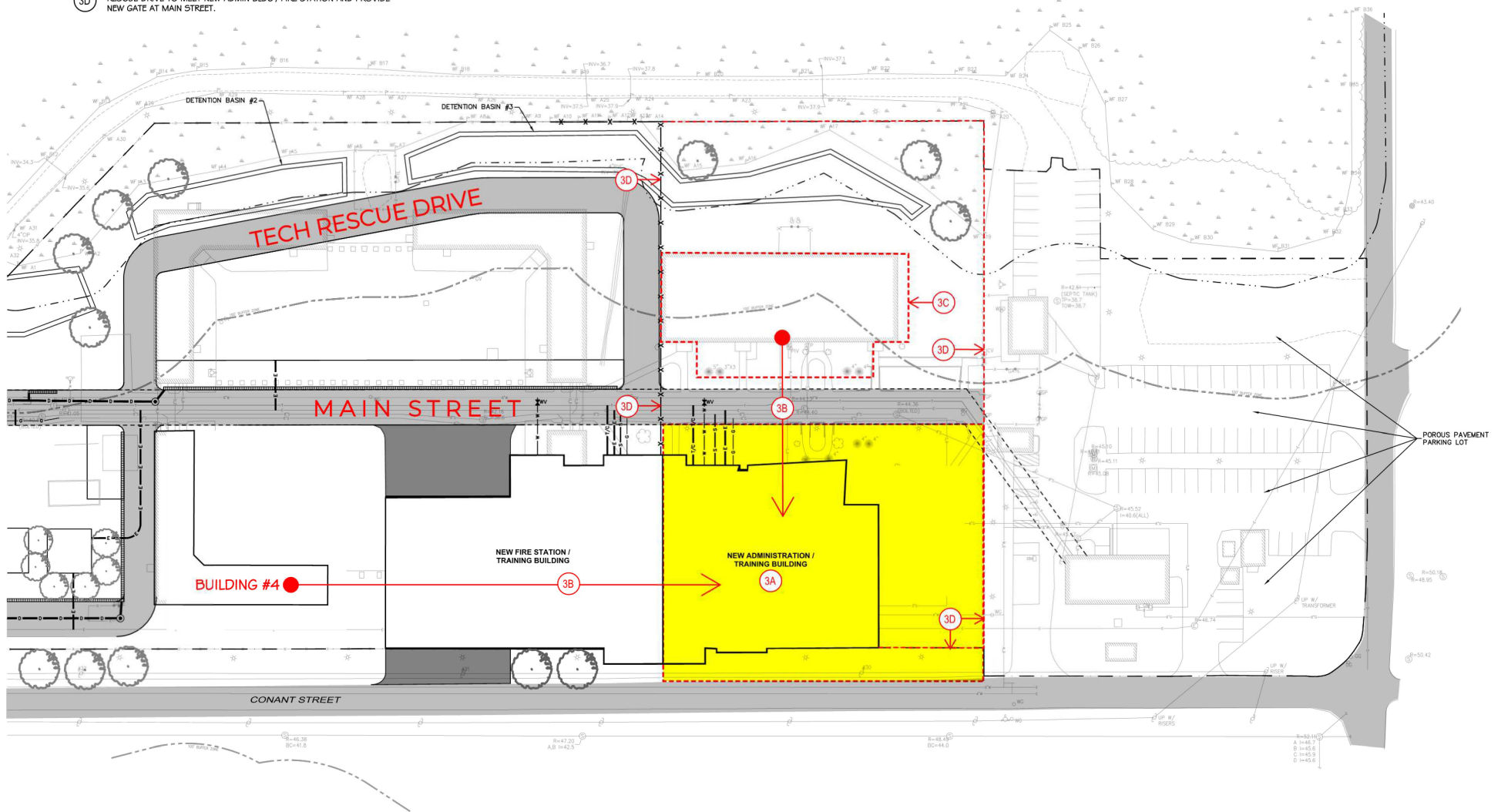
KEYED NOTES - PHASED CONSTRUCTION

LEGEND

ADMINISTRATION - DORM BUILDING - PHASE THREE

- 3A CONSTRUCT NEW ADMINISTRATION / DORM BUILDING ADJACENT TO FIRE STATION AND RELATED LANDSCAPING AROUND NEW ADMINISTRATION AND FIRE STATION BUILDINGS.
- 3B MOVE ADMINISTRATION / CLASSROOM FUNCTIONS FROM MODULAR UNITS AND BUILDING #4 INTO NEW ADMIN / DORM BUILDING.
- 3C REMOVAL OF TEMPORARY MODULAR OFFICE & CLASSROOM SPACE.
- 3D RELOCATE EXISTING SITE FENCE AT SOUTH END OF SITE TO EDGE OF TECH RESCUE DRIVE TO MEET NEW ADMIN BLDG / FIRE STATION AND PROVIDE NEW GATE AT MAIN STREET.

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE ADMINISTRATION - DORMITORY BUILDING PHASE 3 - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



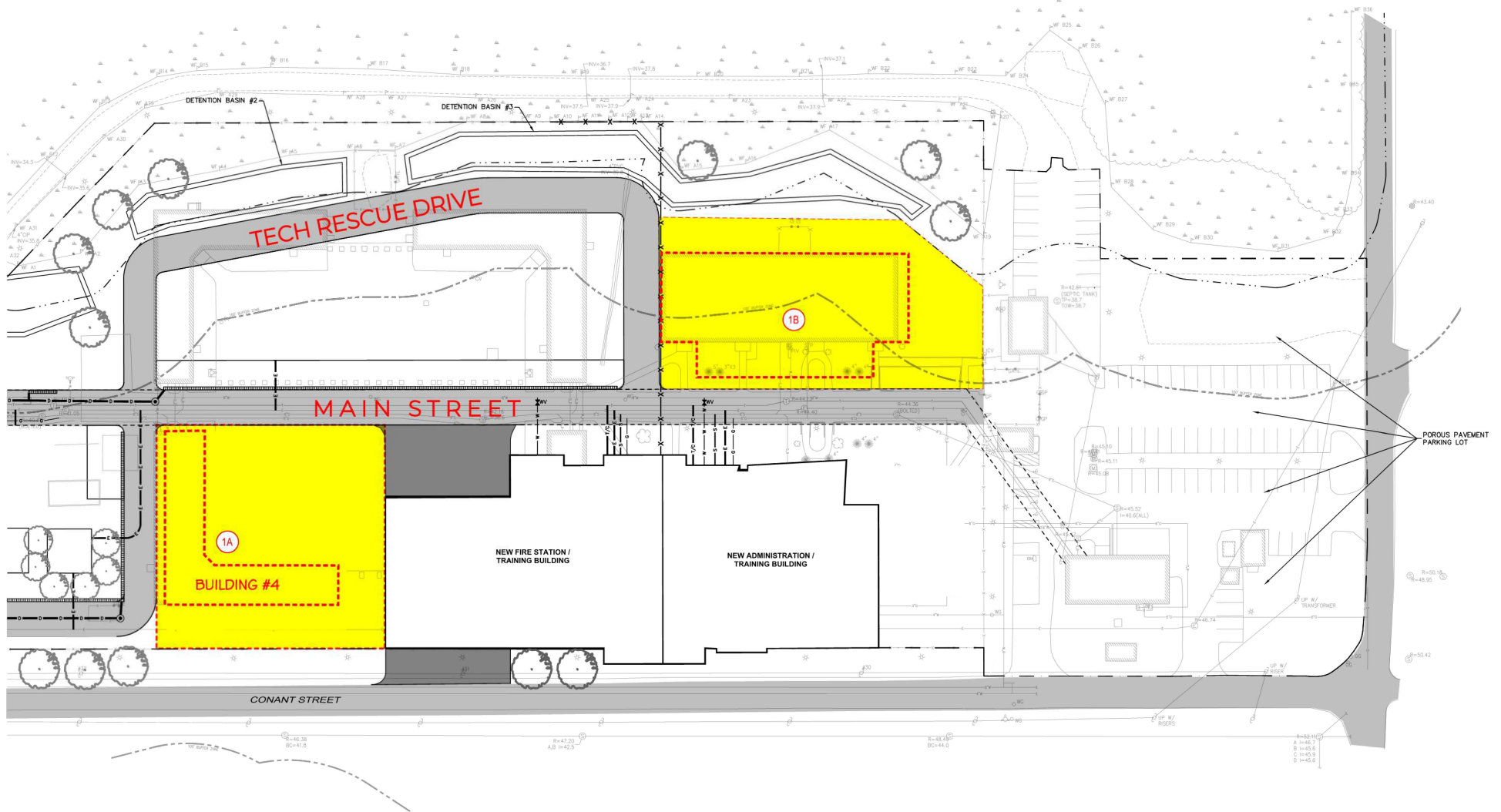
KEYED NOTES - PHASED CONSTRUCTION

LEGEND

WAREHOUSE & UTILITY BUILDINGS - PHASE ONE

- 1A DEMOLISH BUILDING #4 TO CLEAR FOOTPRINT FOR NEW STORAGE WAREHOUSE AND UTILITY BUILDINGS.
- 1B REMOVE MODULAR UNITS AND RETURN AREA TO LANDSCAPE.

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE WAREHOUSE & UTILITY BUILDINGS PHASE 1 - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



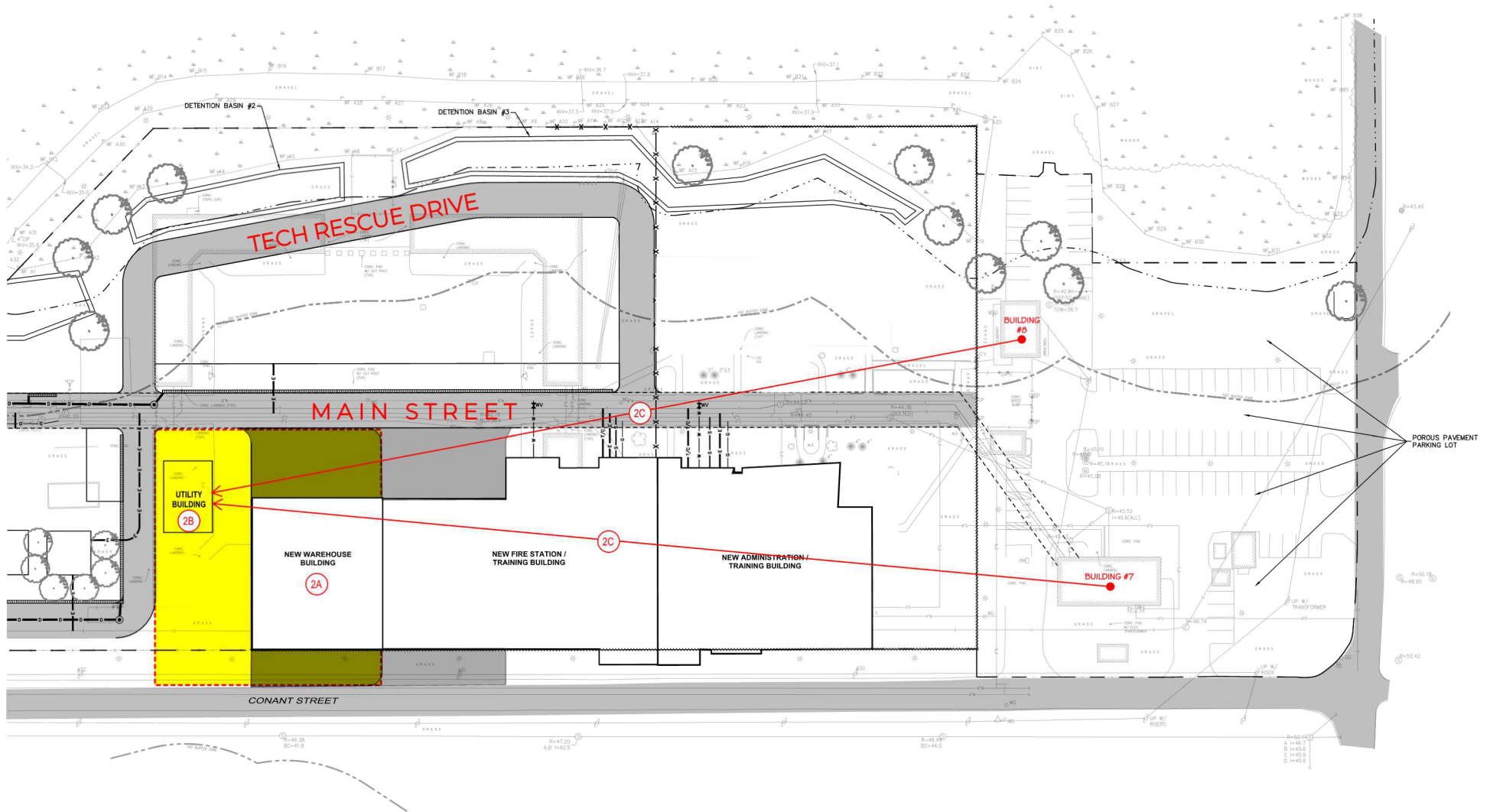
KEYED NOTES - PHASED CONSTRUCTION

WAREHOUSE & UTILITY BUILDING - PHASE TWO

- 2A CONSTRUCT NEW 9,000 S.F., HEATED STORAGE WAREHOUSE ADJACENT TO APPARATUS BAY BUILDING.
- 2B CONSTRUCT NEW 1,500 S.F. UTILITY BUILDING.
- 2C RELOCATE ELECTRICAL SERVICE ENTRY FROM BUILDING #7 AND FIRE ALARM HEAD END EQUIPMENT FROM BUILDING #3 TO NEW UTILITY BUILDING.

LEGEND

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE WAREHOUSE & UTILITY BUILDING - PHASE 2 - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



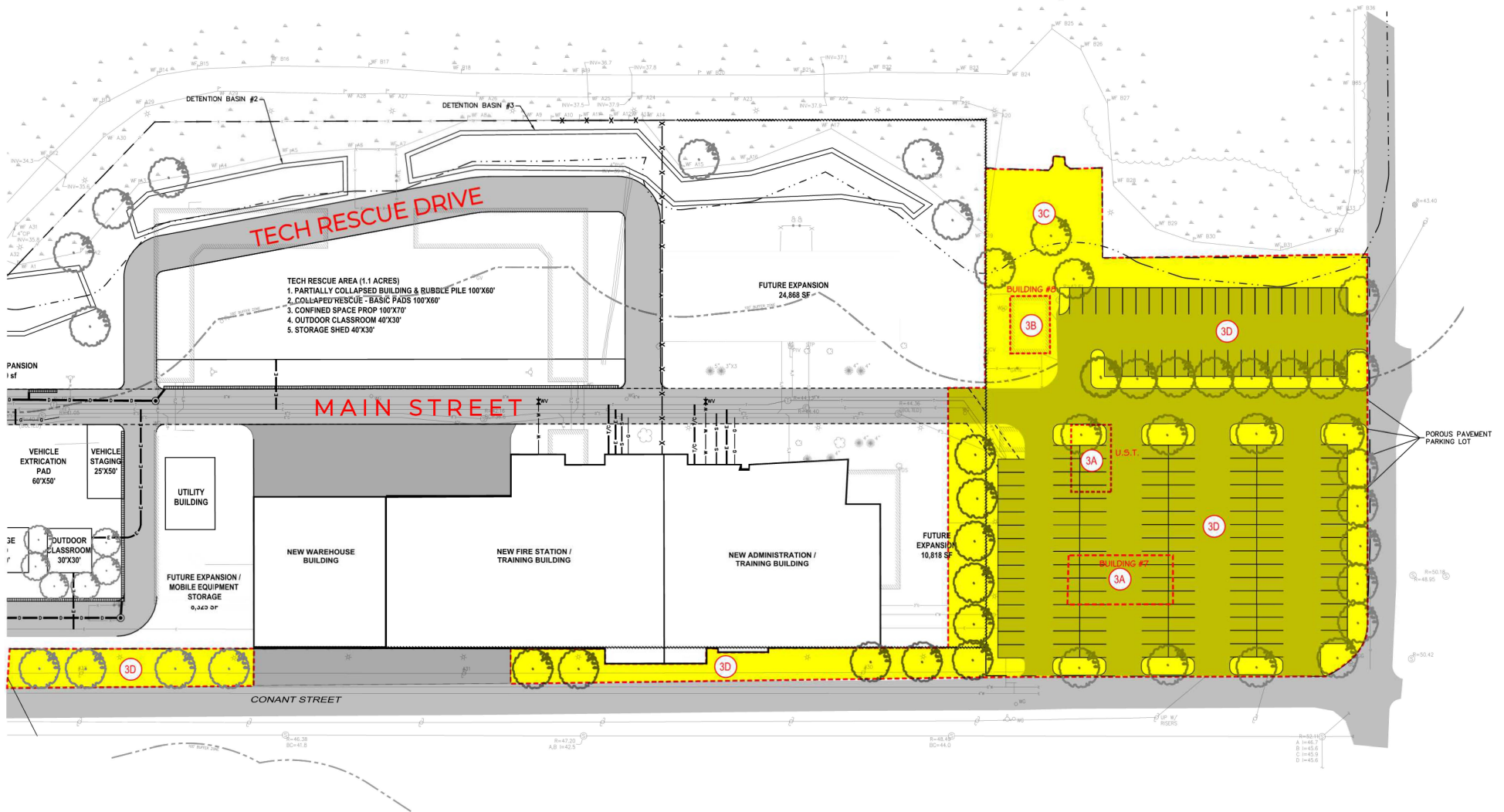
KEYED NOTES - PHASED CONSTRUCTION

LEGEND

WAREHOUSE & UTILITY BUILDING - PHASE THREE

- 3A DEMOLISH EXISTING UTILITY BUILDING #7 AND REMOVE UNDERGROUND STORAGE TANK AT PARKING LOT.
- 3B DEMOLISH EXISTING GATEHOUSE #8.
- 3C VACATE GRAVEL PARKING AREA IN WETLANDS BOUNDARY AND RESTORE WETLANDS.
- 3D CONSTRUCT NEW PARKING LOT AND RELATED LANDSCAPING, AND ALL LANDSCAPING ALONG CONANT STREET OUTSIDE OF PERIMETER FENCE.

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS BUILDINGS PACKAGE WAREHOUSE & UTILITY BUILDING - PHASE 3 - SITE SOUTH

SCALE: 1" = 30'-0"

30 15 0 30 60

SEPTEMBER 1, 2021



1. CONSTRUCT NEW OUTDOOR CLASSROOM INCLUDING HEATED RESTROOMS AND GEAR DROP SPACE WITH FOUNDATIONS, SLAB ON GRADE FLOOR, CANOPY ROOF OVER CONCRETE PAD ON GRADE, AND CONNECTIONS TO WATER, SANITARY, AND ELECTRICAL SERVICES.
2. INSTALL NEW UNHEATED STORAGE BUILDING WITH FOUNDATIONS, SLAB ON GRADE FLOOR AND ELECTRICAL SERVICE.
3. INSTALL NEW CONCRETE PAD FOR MOBILE PROP AND TRAILER AREA.

WORK AREA

1 KEYED NOTE - SEE NOTES AT LEFT

 SITE LIGHTING POLE LOCATION

 TRENCH DRAIN FOR WATER RECLAMATION SYSTEM (PART OF INFRASTRUCTURE PKG)

[illegible]

**DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS
PROP SUPPORT PACKAGE PLAN - SITE NORTH**

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE



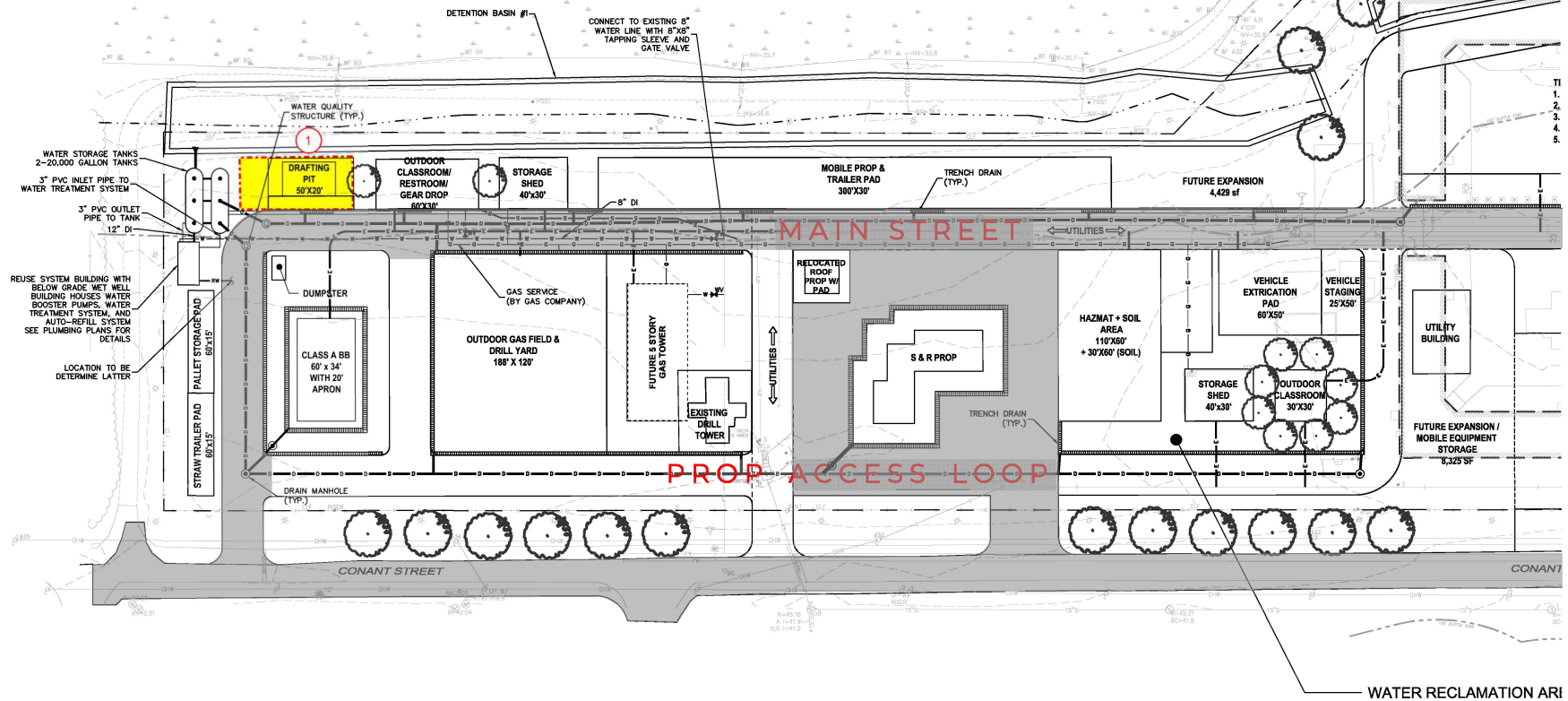
KEYED NOTES

- 1 INSTALL A 36,000 GALLON DRAFTING PIT AND CONCRETE APRON, WITH CONNECTIONS TO WATER RECLAMATION SYSTEM.

LEGEND

- WORK AREA
- 1 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM (PART OF INFRASTRUCTURE PKG)

WETLANDS - NOT BUILDABLE AREA



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS DRAFTING PIT PACKAGE PLAN - SITE NORTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



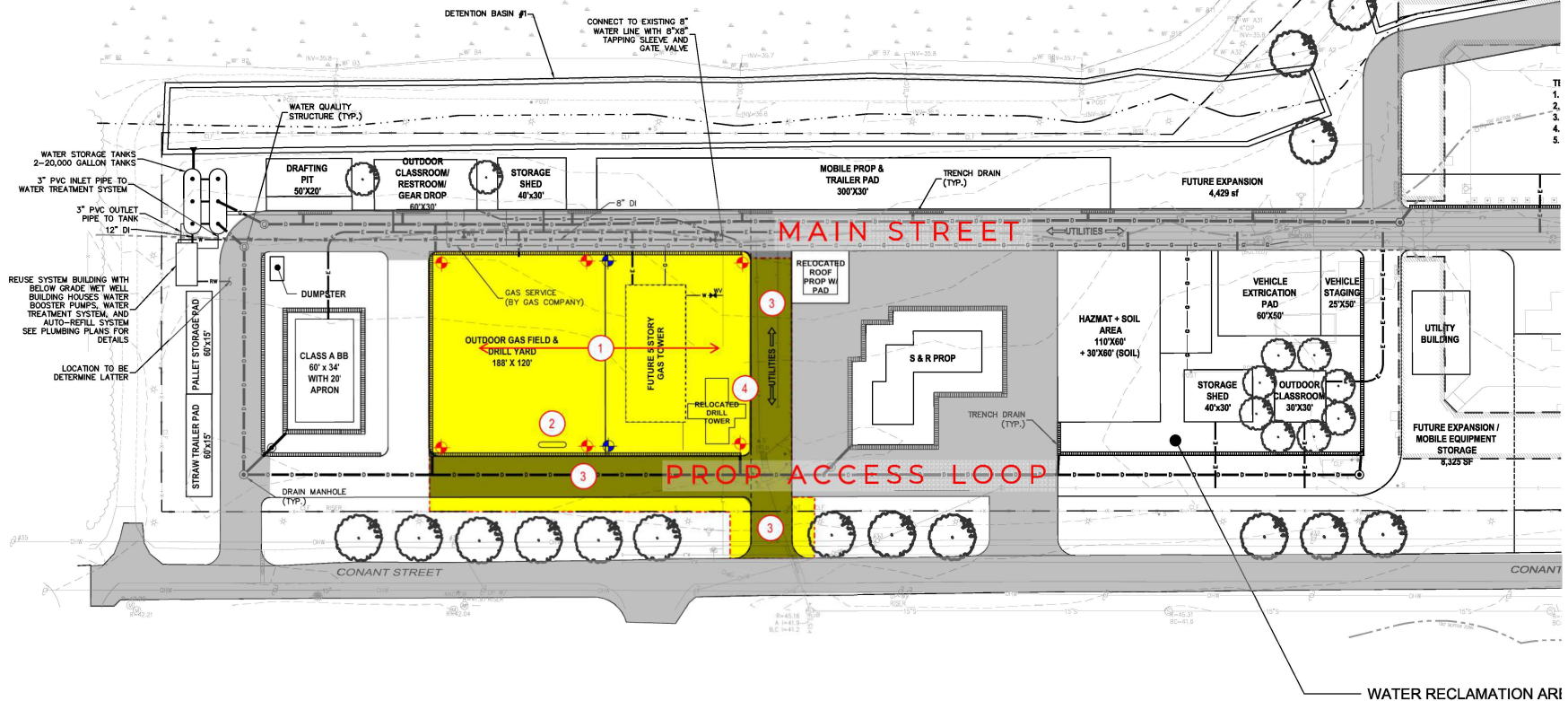
KEYED NOTES

- 1 INSTALL CONCRETE PAD FOR GAS FIELD / DRILL YARD AND FIVE-STORY TOWER SITES, ALONG WITH CONNECTIONS TO WATER, GAS AND ELECTRICAL SERVICE, DRAINAGE SERVICE LINES TO THE WATER RECLAMATION SYSTEM, AND INSTALLATION OF SITE LIGHTING. INSTALL GAS PROPS ON PAD.
- 2 INSTALL NEW ABOVE GROUND 1,000 GALLON PROPANE TANK, WITH UNDERGROUND CONNECTIONS TO APPLICABLE LOCATIONS IN THE GAS FIELD AND THE FOOTPRINT OF THE FUTURE GAS TOWER.
- 3 FULLY CONSTRUCT PROP ACCESS LOOP ROAD AROUND THE BUILDING PROP WITH CONNECTIONS TO MAIN STREET AND CONANT STREET WITH A NEW GATE IN PERIMETER FENCING; INCLUDING TRENCH DRAINS AND CONNECTIONS TO WATER RECLAMATION SYSTEM
- 4 RELOCATE EXISTING DRILL TOWER STRUCTURE TO NEW PAD.

LEGEND

- WORK AREA
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION
- FIRE HYDRANT FED FROM WATER RECLAMATION SYSTEM - PART OF UTILITIES INFRASTRUCTURE PACKAGE
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM

WETLANDS - NOT BUILDABLE AREA



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS GAS PROP FIELD AND DRILL YARD PACKAGE PLAN - SITE NORTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



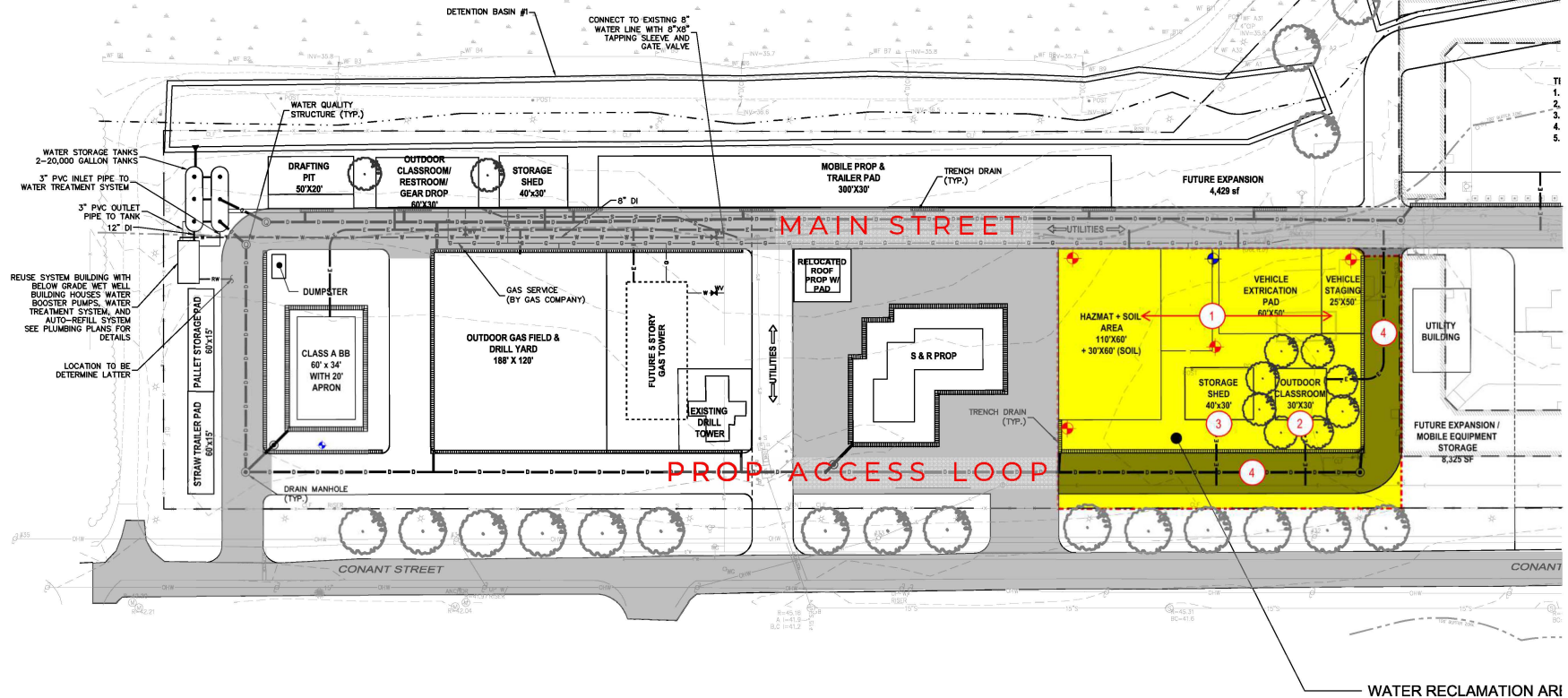
KEYED NOTES

- 1 INSTALL CONCRETE PAD AT AREA OF VEHICLE EXTRICATION PAD, VEHICLE STAGING AREA, HAZMAT AREA, AND OUTDOOR CLASSROOM WITH UNDERGROUND ELECTRICAL SERVICE TO SITE LIGHTING FIXTURES FOR ILLUMINATION OF PROP AREAS.
- 2 CONSTRUCT NEW OUTDOOR CLASSROOM STRUCTURE WITH CONCRETE PAD ON GRADE AND ELECTRIC UTILITIES AND RELATED LANDSCAPING
- 3 CONSTRUCT NEW UNHEATED STORAGE BUILDING WITH FOUNDATIONS, SLAB-ON-GRADE FLOOR, AND ELECTRICAL SERVICE.
- 4 COMPLETELY CONSTRUCT PROP ACCESS ROAD AROUND PROP AREA WITH CURBING AND TRENCH OR AREA DRAINS CONNECTED TO WATER RECLAMATION SYSTEM.

LEGEND

- WORK AREA
- 1 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION
- FIRE HYDRANT CONNECTED TO WATER RECLAMATION SYSTEM
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM

WETLANDS - NOT BUILDABLE AREA



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS HAZMAT OPERATIONS / VEHICLE EXTRICATION PACKAGE PLAN - SITE NORTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021

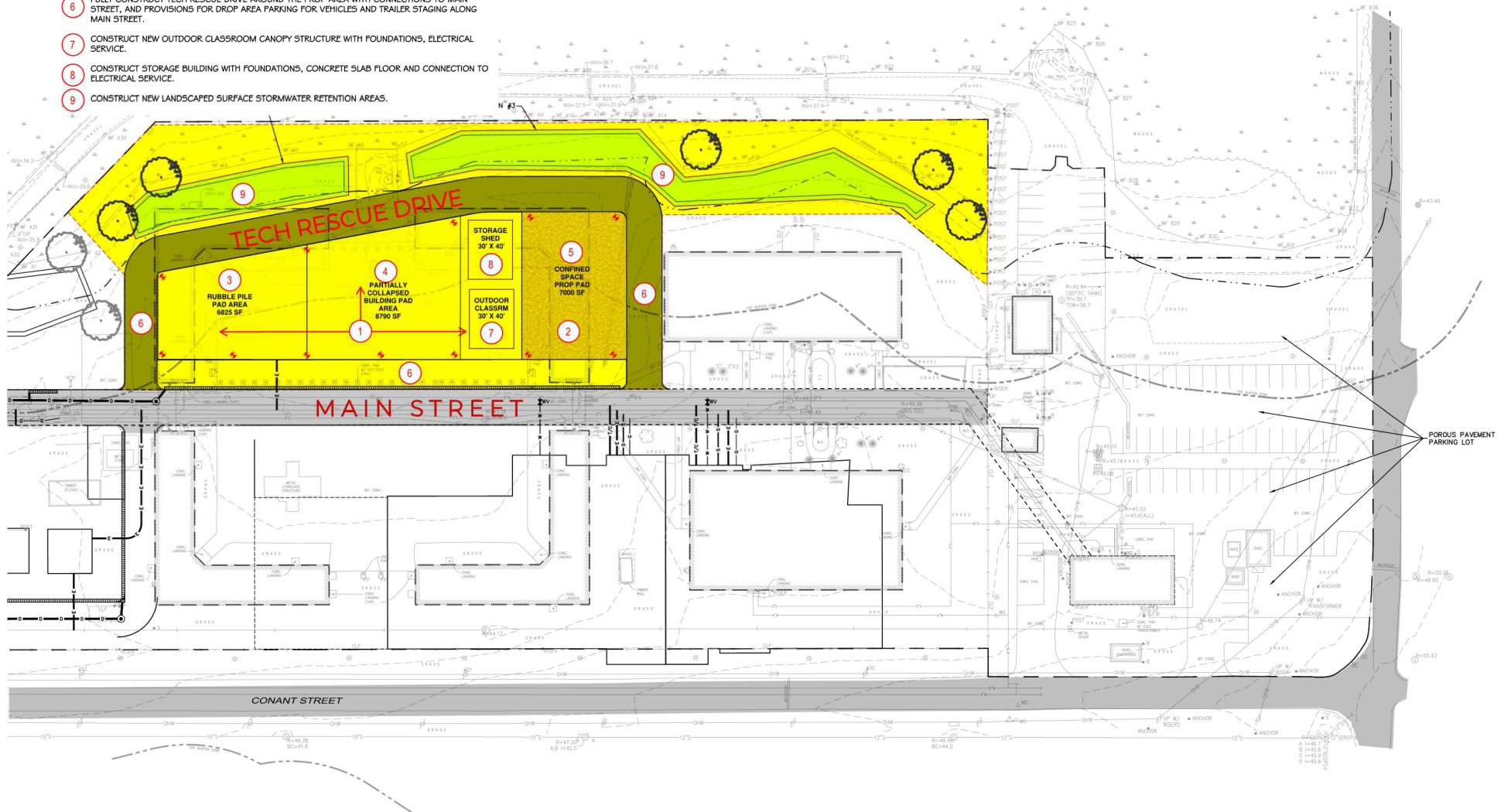


KEYED NOTES

- 1 INSTALL NEW CONCRETE PAD WITH APPLICABLE UNDERGROUND CONNECTIONS TO ELECTRICAL SERVICE FOR EACH PAD AREA AND INSTALLATION OF SITE LIGHTING.
- 2 INSTALL NEW ENGINEERED FILL "PAD" WITH UNDERGROUND CONNECTIONS TO ELECTRICAL SERVICE FOR PAD AREA AND INSTALLATION OF SITE LIGHTING.
- 3 CONSTRUCT NEW RUBBLE PILE PROP ON CONCRETE PAD.
- 4 CONSTRUCT NEW PARTIALLY COLLAPSED BUILDING PROP ON CONCRETE PAD.
- 5 CONSTRUCT CONFINED SPACE PROP WITH MANHOLES AND CULVERT PIPING ON GRADE.
- 6 FULLY CONSTRUCT TECH RESCUE DRIVE AROUND THE PROP AREA WITH CONNECTIONS TO MAIN STREET, AND PROVISIONS FOR DROP AREA PARKING FOR VEHICLES AND TRAILER STAGING ALONG MAIN STREET.
- 7 CONSTRUCT NEW OUTDOOR CLASSROOM CANOPY STRUCTURE WITH FOUNDATIONS, ELECTRICAL SERVICE.
- 8 CONSTRUCT STORAGE BUILDING WITH FOUNDATIONS, CONCRETE SLAB FLOOR AND CONNECTION TO ELECTRICAL SERVICE.
- 9 CONSTRUCT NEW LANDSCAPED SURFACE STORMWATER RETENTION AREAS.

LEGEND

- WORK AREA
- BUILDING DEMOLITION
- 01 KEYED NOTE - SEE NOTES AT LEFT
- SITE LIGHTING POLE LOCATION
- TRENCH DRAIN FOR WATER RECLAMATION SYSTEM (PART OF INFRASTRUCTURE PKG)



DEPARTMENT OF FIRE SERVICES - SOUTHEAST CAMPUS TECHNICAL RESCUE PACKAGE PLAN - SITE SOUTH

SCALE: 1" = 30'-0"



SEPTEMBER 1, 2021



DIVISION OF
CAPITAL ASSET
MANAGEMENT &
MAINTENANCE



1. CONSTRUCT NEW GAS TOWER AND FOUNDATION WITH SLAB-ON-GRADE FLOOR, WITH CONNECTIONS TO WATER, PROPANE, NATURAL GAS, AND ELECTRICAL SERVICE; REMOVE CONCRETE SITE PAVING TO FIT STRUCTURE AND FOUNDATION.
2. DEMOLISH EXISTING TRAINING TOWER.

WORK AREA

1 KEYED NOTE - SEE NOTES AT LEFT

 SITE LIGHTING POLE LOCATION

 TRENCH DRAIN FOR WATER RECLAMATION SYSTEM (PART OF INFRASTRUCTURE PKG)



SEPTEMBER 1, 2021



APPENDIX III - COST ESTIMATE



PM&C LLC

20 Downer Ave, Suite 5
Hingham, MA 02043
(T) 781-740-8007

Masterplan Estimate

Department of Fire Services

Bridgewater, MA

Prepared for:

Dore & Whittier

November 15, 2021



Department of Fire Services
Bridgewater, MA

15-Nov-21

Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
UTILITY/PAVING INFRASTRUCTURE PACKAGE			
ECC INFRASTRUCTURE PACKAGE			\$4,815,932
BUILDINGS PACKAGE			
ECC BUILDINGS PACKAGE			\$53,420,685
PROPS STORAGE PACKAGE			
ECC PROPS STORAGE PACKAGE			\$2,004,472
TECH RESCUE PACKAGE			
ECC TECH RESCUE PACKAGE			\$5,434,578
BURN BUILDING PACKAGE			
ECC BURN BUILDING PACKAGE			\$4,421,652
DRAFTING PIT PACKAGE			
ECC DRAFTING PIT PACKAGE			\$355,758



Department of Fire Services
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MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
GAS TOWER PACKAGE			
GAS TOWER PACKAGE			\$8,439,168
GAS FIELD DRILL YARD PACKAGE			
GAS FIELD DRILL YARD PACKAGE			\$2,479,730
HAZMAT OPERATIONS PACKAGE			
HAZMAT OPERATIONS PACKAGE			\$1,486,184



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MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
UTILITY/PAVING INFRASTRUCTURE PACKAGE			
UTILITY + PAVING PACKAGE			
Site Prep + Demo			\$327,566
Water Reclamation			\$660,340
Roadways			\$368,366
Utilities			\$1,926,118
Other site improvements			\$253,958
DEMO TRAINING BUILDINGS (2)	11,178	\$8.00	\$89,424
SUB-TOTAL			\$3,625,772
DESIGN AND PRICING CONTINGENCY	12%		\$435,093
ESCALATION - One Year Only	3.50%		\$126,902
SUB-TOTAL			\$4,187,767
GENERAL CONDITIONS	6.00%		\$251,266
GENERAL REQUIREMENTS	2.00%		\$83,755
BONDS	1.00%		\$41,878
INSURANCE	2.00%		\$83,755
PERMIT			NIC
SUB-TOTAL			\$4,648,421
OVERHEAD AND FEE	4.00%		\$167,511
ECC INFRASTRUCTURE PACKAGE			\$4,815,932



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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
BUILDINGS PACKAGE			
APPARATUS BAY/CRIB BUILDING			
PHASE 1			
SITEWORK COSTS			\$76,779
RENO BUILDING #4	5,589	\$150.00	\$838,350
DEMO BUILDINGS #3	5,589	\$8.00	\$44,712
PHASE 2			
SITEWORK COSTS			\$515,124
Apparatus Bays, CRIB, Support Spaces	23,666	\$550.00	\$13,016,300
<hr/>			
SUB-TOTAL			\$14,491,265
DESIGN AND PRICING CONTINGENCY	12%		\$1,738,952
ESCALATION - One Year Only	3.50%		\$507,194
<hr/>			
SUB-TOTAL			\$16,737,411
GENERAL CONDITIONS	6.00%		\$1,004,245
GENERAL REQUIREMENTS	2.00%		\$334,748
BONDS	1.00%		\$167,374
INSURANCE	2.00%		\$334,748
PERMIT			NIC
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SUB-TOTAL			\$18,578,526
OVERHEAD AND FEE	4.00%		\$669,496
<hr/>			
ECC BUILDINGS PACKAGE (Apparatus Bay/CRIB Building)			\$19,248,022
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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
BUILDINGS PACKAGE			
ADMINISTRATION/DORM BUILDING			
PHASE 1			
Relocation of CRIB and SCBA functions from Building #2 to new Apparatus Bay / CRIB building			By Owner
Relocation of Student and staff lockers from Building #1 to the new Apparatus Bay / CRIB Building			By Owner
Relocation of Administration and training functions from existing Administration Building #1 to the temp modular structure			By Owner
SITWORK COSTS			\$62,759
MODULAR OFFICE + ADMIN BUILDING	11,500	\$300.00	\$3,450,000
DEMO BUILDING #2	9,713	\$8.00	\$77,704
PHASE 2			
DEMO ADMIN BUILDING	11,355	\$8.00	\$90,840
PHASE 3			
Admin/Training Building	45,000	\$360.00	\$16,200,000
Relocation of Administration and training functions from Building #4 and modular buildings to new Administration building			By Owner
SITWORK COSTS			\$764,445
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SUB-TOTAL			\$20,645,748
DESIGN AND PRICING CONTINGENCY	12%		\$2,477,490
ESCALATION - One Year Only	3.50%		\$722,601
<hr/>			
SUB-TOTAL			\$23,845,839
GENERAL CONDITIONS	6.00%		\$1,430,750
GENERAL REQUIREMENTS	2.00%		\$476,917
BONDS	1.00%		\$238,458
INSURANCE	2.00%		\$476,917
PERMIT			NIC
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SUB-TOTAL			\$26,468,881
OVERHEAD AND FEE	4.00%		\$953,834
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ECC BUILDINGS PACKAGE - Administration/Dorm Building			\$27,422,715
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Department of Fire Services
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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

		Gross Floor Area	\$/sf	Estimated Construction Cost
BUILDINGS PACKAGE				
WAREHOUSE + UTILITY BUILDING				
PHASE 1				
DEMO BUILDING #4		5,589	\$8.00	\$44,712
SITEWORK COSTS				\$140,429
PHASE 2				
NEW UTILITY BUILDING		1,500	\$320.00	\$480,000
BACKFEED EXISTING BUILDINGS				\$250,000
WAREHOUSE BUILDING		9,000	\$320.00	\$2,880,000
SITEWORK COSTS				\$274,219
PHASE 3				
REMOVE U/G STORAGE TANK				\$40,000
DEMO BUILDING #7		2,374	\$8.00	\$18,992
DEMO BUILDING #8				\$15,000
SITEWORK COSTS				\$938,485
SUB-TOTAL				\$5,081,837
DESIGN AND PRICING CONTINGENCY	12%			\$609,820
ESCALATION - One Year Only	3.50%			\$177,864
SUB-TOTAL				\$5,869,521
GENERAL CONDITIONS	6.00%			\$352,171
GENERAL REQUIREMENTS	2.00%			\$117,390
BONDS	1.00%			\$58,695
INSURANCE	2.00%			\$117,390
PERMIT				NIC
SUB-TOTAL				\$6,515,167
OVERHEAD AND FEE	4.00%			\$234,781
ECC BUILDINGS PACKAGE				\$6,749,948



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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
PROPS STORAGE PACKAGE			
SITEWORK COSTS			\$579,108
Outdoor Classroom/Shelter/Toilet Building	1,800	\$350.00	\$630,000
Equipment Storage Outbuilding	1,200	\$250.00	\$300,000
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SUB-TOTAL			\$1,509,108
DESIGN AND PRICING CONTINGENCY	12%		\$181,093
ESCALATION - One Year Only	3.50%		\$52,819
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SUB-TOTAL			\$1,743,020
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GENERAL CONDITIONS	6.00%		\$104,581
GENERAL REQUIREMENTS	2.00%		\$34,860
BONDS	1.00%		\$17,430
INSURANCE	2.00%		\$34,860
PERMIT			NIC
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SUB-TOTAL			\$1,934,751
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OVERHEAD AND FEE	4.00%		\$69,721
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ECC PROPS STORAGE PACKAGE			\$2,004,472
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Department of Fire Services
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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
TECH RESCUE PACKAGE			
SITEWORK COSTS			\$1,651,533
Collapse Rescue - Rubble Pile and Partially Collapsed Building	6,000	\$250.00	\$1,500,000
Allowance for confined Space Prop			\$400,000
Outdoor Classroom/Shelter	1,200	\$200.00	\$240,000
Equipment Storage Outbuilding	1,200	\$250.00	\$300,000
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SUB-TOTAL			\$4,091,533
DESIGN AND PRICING CONTINGENCY	12%		\$490,984
ESCALATION - One Year Only	3.50%		\$143,204
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SUB-TOTAL			\$4,725,721
GENERAL CONDITIONS	6.00%		\$283,543
GENERAL REQUIREMENTS	2.00%		\$94,514
BONDS	1.00%		\$47,257
INSURANCE	2.00%		\$94,514
PERMIT			NIC
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SUB-TOTAL			\$5,245,549
OVERHEAD AND FEE	4.00%		\$189,029
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ECC TECH RESCUE PACKAGE			\$5,434,578
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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
BURN BUILDING PACKAGE			
SITEWORK COSTS			\$403,930
3-Story, Class A Burn Building	6,500	\$450.00	\$2,925,000
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SUB-TOTAL			\$3,328,930
DESIGN AND PRICING CONTINGENCY	12%		\$399,472
ESCALATION - One Year Only	3.50%		\$116,513
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SUB-TOTAL			\$3,844,915
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GENERAL CONDITIONS	6.00%		\$230,695
GENERAL REQUIREMENTS	2.00%		\$76,898
BONDS	1.00%		\$38,449
INSURANCE	2.00%		\$76,898
PERMIT			NIC
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SUB-TOTAL			\$4,267,855
OVERHEAD AND FEE	4.00%		\$153,797
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ECC BURN BUILDING PACKAGE			\$4,421,652
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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
DRAFTING PIT PACKAGE			
SITEWORK COSTS			\$67,840
Drafting Pit (20,000 gallon)			\$200,000
<hr/>			
SUB-TOTAL			\$267,840
DESIGN AND PRICING CONTINGENCY	12%		\$32,141
ESCALATION - One Year Only	3.50%		\$9,374
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SUB-TOTAL			\$309,355
<hr/>			
GENERAL CONDITIONS	6.00%		\$18,561
GENERAL REQUIREMENTS	2.00%		\$6,187
BONDS	1.00%		\$3,094
INSURANCE	2.00%		\$6,187
PERMIT			NIC
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SUB-TOTAL			\$343,384
OVERHEAD AND FEE	4.00%		\$12,374
<hr/>			
ECC DRAFTING PIT PACKAGE			\$355,758
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Department of Fire Services
Bridgewater, MA

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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost
GAS TOWER PACKAGE			
SITEWORK COSTS			\$305,600
5-Story Gas-Fired Training Tower	14,000	\$432.00	\$6,048,000
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SUB-TOTAL			\$6,353,600
DESIGN AND PRICING CONTINGENCY	12%		\$762,432
ESCALATION - One Year Only	3.50%		\$222,376
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SUB-TOTAL			\$7,338,408
<hr/>			
GENERAL CONDITIONS	6.00%		\$440,304
GENERAL REQUIREMENTS	2.00%		\$146,768
BONDS	1.00%		\$73,384
INSURANCE	2.00%		\$146,768
PERMIT			NIC
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SUB-TOTAL			\$8,145,632
OVERHEAD AND FEE	4.00%		\$293,536
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GAS TOWER PIT PACKAGE			\$8,439,168
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Department of Fire Services
Bridgewater, MA

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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

		Estimated Construction Cost with Props	Estimated Construction Cost without Props
GAS FIELD DRILL YARD PACKAGE			
SITework COSTS		\$666,915	\$666,915
Outdoor Gas-Fired Props		\$1,200,000	
RELOCATION OF EXISTING DRILL TOWER		By DSF/MFA	
SUB-TOTAL		\$1,866,915	\$666,915
DESIGN AND PRICING CONTINGENCY	12%	\$224,030	\$80,030
ESCALATION - One Year Only	3.50%	\$65,342	\$23,342
SUB-TOTAL		\$2,156,287	\$770,287
GENERAL CONDITIONS	6.00%	\$129,377	\$46,217
GENERAL REQUIREMENTS	2.00%	\$43,126	\$15,406
BONDS	1.00%	\$21,563	\$7,703
INSURANCE	2.00%	\$43,126	\$15,406
PERMIT		NIC	
SUB-TOTAL		\$2,393,479	\$855,019
OVERHEAD AND FEE	4.00%	\$86,251	\$34,201
GAS FIELD DRILL YARD PACKAGE		\$2,479,730	\$889,220



Department of Fire Services
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Masterplan Estimate

MAIN CONSTRUCTION COST SUMMARY

	Gross Floor Area	\$/sf	Estimated Construction Cost with Props	Estimated Construction Cost without Props
HAZMAT OPERATIONS PACKAGE				
SITework COSTS			\$638,904	\$638,904
Rail Car, Tanker Truck, Drums + Pipe Simulator Props			\$300,000	
Outdoor Classroom/Shelter	900	\$200.00	\$180,000	\$180,000
Equipment Storage Outbuilding	1,200	\$250.00	\$300,000	\$300,000
SUB-TOTAL			\$1,418,904	\$1,118,904
DESIGN AND PRICING CONTINGENCY	12%		\$170,268	\$134,268
ESCALATION - One Year Only	3.50%		\$49,662	\$39,162
SUB-TOTAL			\$1,638,834	\$1,292,334
GENERAL CONDITIONS	6.00%		\$98,330	\$77,540
GENERAL REQUIREMENTS	2.00%		\$32,777	\$25,847
BONDS	1.00%		\$16,388	\$12,923
INSURANCE	2.00%		\$32,777	\$25,847
PERMIT				NIC
SUB-TOTAL			\$1,819,106	\$1,434,491
OVERHEAD AND FEE	4.00%		\$72,764	\$51,693
HAZMAT OPERATIONS PACKAGE			\$1,891,870	\$1,486,184



Department of Fire Services
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Masterplan Estimate

This estimate includes all direct construction costs, general contractor's overhead and fee and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under Chapter 149 of the Massachusetts General Laws to pre-qualified general contractors, and pre-qualified sub-contractors, open specifications for materials and manufactures.

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:

- 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