

PUBLIC SAFETY BUILDING FEASIBILITY AND SITE LOCATION STUDY

ASHLAND, MASSACHUSETTS
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HKT architects inc.

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ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

In April 2017, HKT Architects was selected by the Town of Ashland to prepare a feasibility and site location study and space needs assessment for the Ashland police and fire departments. The mandate for the project was to work with the Town Manager, Assistant Town Manager and police and fire departments to review existing data, including a previous study from 2008, and to make recommendations regarding the following issues:

- Were there any issues or concerns that were not addressed by the 2008 Fire and Police Station Space Needs Assessment and Location Study that should be reviewed by the Town?
- What are the current and future space needs of Ashland's police and fire departments?
- What is the feasibility of each of two potential sites identified by the Town for a new public safety facility based on land use, constructability, access, traffic, future growth, environmental impacts, availability and other factors?
- Are each of the proposed sites adequate in size to meet the projected space needs?
- What would be the cost for a new facility to meet the departments' needs on each of these sites?

It should be noted that the goal of this study was not to propose a final design for a public safety facility. The scope of the study was limited to determining whether any land acquired could meet the needs of a future public safety facility, providing enough room to meet building and site programmatic needs while providing safe circulation for public and emergency vehicle traffic. To that end, several "test fit" diagrams were developed to assess whether the proposed program would fit on each of the sites. Diagrams providing the best fit while meeting stated goals were then selected so that estimated probable project costs could be developed based on construction on a particular site. These schemes are not meant to be floor plans representative of final designs, but they do set the stage for the ensuing design work necessary for a new facility.

Methodology

HKT Architects met with Police Chief Craig Davis and Fire Chief Scott Boothby (now retired) in June 2017 to define their departments' needs in terms of a space program and to tour the existing police and fire stations. Discussions with the Chiefs focused on developing an understanding of the departments' current operations, anticipated future growth and potential for synergies that would facilitate the sharing of spaces. Based on the programming sessions and questionnaires completed by the Chiefs, a draft program was developed, reviewed and some adjustments later made to develop the final ideal public safety facility space program.

While the program was being developed, civil/site engineers from Pare Corporation assessed the

feasibility of two potential sites identified by the Town: a parcel comprised of 12 + 16 Union Street/1 East Union Street and 0 MBTA Access Road. Assessments were based on on-site observations and review of available plans and reports, Massachusetts Geographic Information System (MassGIS), LIDAR data and tax assessor's data. Land value was considered based on tax assessment records and current market value of vacant land in Ashland. While initial assessments indicated there did not appear to be any constraints that would make either site unfeasible for a public safety facility, challenges at each site were noted.

From initial observations, the topography at Union Street would clearly pose a challenge to development. While the site is relatively flat along Union Street at approximately elevation 185', grades rise steeply to the northeast corner where they reach a high point at elevation 235'. Regrading and construction of retaining walls would likely be necessary to allow safe circulation of emergency vehicles through the site. On-site observations at Union Street also indicated the possibility the site has more extensive wetlands than documented in MassGIS or on drawings provided by the site's Owner. Wetlands delineation by a wetlands scientist is recommended to fully understand the potential impact of this constraint. Lastly, zoning at Union Street currently prohibits commercial and municipal operations from midnight to 6:00 AM and would need to be revised through a vote at Town Meeting to permit 24 hour public safety operations.

The proposed MBTA Access Road site is an 11 acre portion of a 123.22 acre lot featuring capped Superfund site. Development of another project in the area required blasting to remove ledge. At that time, concerns were raised by the community that blasting might disturb the cap resulting in environmental issues. Without information on the subsurface conditions at the proposed site, it is not possible to know if these issues might arise during development of the proposed site.

The potential impact of traffic and geographic location on emergency response times posed the greatest concern on locating a public safety facility on the MBTA Access Road site. During on-site observations, Pare noted heavy traffic along West Union Street at the intersection with MBTA Access Road as well as commuter traffic accessing the rail station at the end of MBTA Access Road. Concern was raised that traffic congestion might impact emergency response vehicles movement from the site onto MBTA Access Road and again onto West Union Street. Additionally, the route emergency vehicles would need to take from the station to MBTA Access Road, exiting onto West Union Street and then accessing a railroad crossing point, could impact emergency response times to the northern part of Town.

Data collected through programming and site assessment was then compared to findings from the 2008 Feasibility Study. HKT's findings confirmed those of the 2008 Study, namely that the existing facilities were obsolete and that the Town would be better served by a single consolidated public safety facility of approximately 45,000 square feet on an approximately four acre centrally located site.

Consolidation of the police and fire departments into a shared public safety facility in a central location would resolve the current and future space needs of each department. Furthermore, both departments advocated for combining facilities to take advantage of savings in operations and building efficiencies. Building a single combined facility can reduce overall construction costs as the two departments can share a number of building systems and spaces that would otherwise need to be duplicated in separate facilities. These include:

- Building Systems
    - HVAC equipment
    - Emergency generator
    - Fire protection / fire alarm systems
- Communication Systems
    - Telephone
    - Computer servers
- Security Systems
    - Door access control systems
    - Interior and exterior security cameras
- Program Spaces
    - Training / Emergency Operations Center
    - Work-out / Fitness Facility
    - Lobby / Reception Space
    - Public toilet rooms
    - Circulation – elevator and egress stairs
- Site Development
    - Visitor parking
    - Site improvements – walkways, fencing, flagpoles, site lighting, etc.
    - Utilities entering the site – transformer / electricity, water, sewer, gas

In addition to the cost savings of sharing systems and spaces, because the two departments work closely together, sharing the same facility has a number of benefits from an operational standpoint. Some examples include:

- Dispatch – When emergency E911 calls come in and emergency situations arise, police and fire personnel are able to coordinate quickly and ensure a prompt response.
- Communication – Personnel can walk back and forth between departments to meet rather than scheduling time to travel and meet at another location.
- Public Access
    - Townspeople can find the help they need simply with a single facility.

    - The police department is continuously occupied 24 hours a day/7 days a week. The fire department is not continuously occupied when firefighters are responding to a call. If a member of the public comes looking for the fire department when they are on a call, someone from the police department is always available to help them.
- First Aid / Medical – Occasionally a member of the public or a detainee will arrive at the police station needing some medical assistance. With a shared facility, the fire department can quickly respond.
- Tools and Equipment Repairs – In a shared facility, the departments are able to share some maintenance tools and equipment. For example, police cruisers are able to put air in their tires from compressed air lines in the fire department's apparatus bays.
- Extended Operations – During extended operations, such as a snowstorm, the departments are able to work together and coordinate more easily from a shared facility and they are able to share resources, such as food, for personnel working extended shifts.

With programmatic needs defined, HKT next developed conceptual "test fit" block diagrams on the proposed sites on Union Street and MBTA Access Road. The purpose of these diagrams was to demonstrate whether the ideal space program previously developed would fit on the sites, how spaces might be organized to meet the departments' operational needs given existing site constraints and whether the proposed sites were of adequate size to meet the Town's needs. Test fits also helped to highlight additional challenges to the sites in terms of topography, natural resources and other issues.

Test fit diagrams were developed by taking the building program, grouping similar programmatic areas together into larger blocks of space and then arranging these blocks on the site according to ideal programmatic adjacency relationships. It should be noted that the test fit diagrams are not representative of building floor plans. Detailed floor plans with clear representations of all programmatic spaces and adjacency requirements would be developed working closely with the police and fire department and Town officials when the design phase moves forward.

Several diagrams were developed on each site. The large, 11 acre site at MBTA Access Road offered flexibility in placing a test fit and demonstrated that the program could easily fit on the site and all noted operational goals. Some cut and fill earthwork would be required to alter the topography to allow safe vehicle circulation in and out of the building, around the site and onto the street.

Locating test fit on Union Street in a way to meet operational goals was more complicated. The Owner of the Union Street parcel intended to give the Town an approximately two acre lot in the middle of the site for construction of the public safety facility. Since initial programming efforts revealed a site of approximately four acres would be required, it was clear that if Union Street were to work, additional land

beyond the intended gift would be required. Test fits focused on determining how to site a building to meet all operational needs while respecting the land gift by minimizing impact on the Owner's remaining land. In addition, consideration was given to minimizing the impact on two wetlands locations documented by the site's Owner. In particular, one area of wetlands was noted along the Union Street frontage, just to the southwest of the area proposed to be gifted to the Town. Given the street frontage requirements for emergency vehicles leaving the public safety building, namely fire trucks exiting apparatus bays, it was logical to avoid the wetlands along Union Street by extending the proposed site to the northeast, stretching toward the Waverly Street / East Union Street intersection to allow the building to run parallel to the street. The topography at this corner features some of the steepest grades on the entire site. Care was given to develop a concept that would allow operational adjacencies within the building, both horizontally within a floor and vertically between floors, while also allowing safe and efficient vehicular circulation around the building and site. HKT worked closely with Pare to develop a conceptual grading plan that tested and verified grading scenarios and provided a basis for estimating the cost of grading and site retainage that would be required.

With data gathered from site investigations and test fit diagrams, HKT and the Town then worked together to develop a site evaluation matrix. Site evaluation criteria were developed with associated point values to assess the suitability of site characteristics such as location, accessibility, site features, environmental issues, site development issues and availability. Sub-categories within each main category provided detailed criteria on which each site could be evaluated. A point scale of 100 points was divided among the sub-categories, weighted based on known complexities of the site, operational requirements of the departments and Town goals and values. Each site was then judged and point values assigned to each category.

The numerical ranking of the sites demonstrated in an objective fashion the preferred site for the future public safety facility was Union Street. Union Street rose to the top for a few reasons. First, the location of the site was viewed as considerably better than MBTA Access Road as Union Street has better access to road crossing the railroad tracks and bodies of water which allows emergency responders to access all Town extents faster. MBTA Access Road, by contrast, required longer access routes to a railroad crossing point potentially impacting emergency response times. Second, visibility of a public safety facility on Union Street, which is centrally located and well-travelled, was viewed as being better than visibility on MBTA Access Road. Finally, Union Street was being offered as a gift to the Town making acquisition simpler.

Cost Analysis

HKT developed estimated probable total project costs for a new public safety facility on each site. Cost estimator, TCi, reviewed project documentation including the space needs analysis, site assessments,

test fits and design narratives to estimate the cost of construction (hard costs). Administrative costs (soft costs) such as architectural and engineering fees, project management fees, communications/radio equipment and furnishings, among others, were assumed as a percentage of hard construction costs based on costs from similar built projects. The intent of this estimate was to gain a better understanding of what a public safety facility of a scale based upon the ideal program might cost the Town of Ashland.

In developing the preliminary draft cost estimates the design team lacked adequate data on subsurface conditions to accurately estimate the cost of potential poor soils or ledge removal. Estimates from TCi identified a range of possible added cost, but noted that without geotechnical investigations, scope and cost for ground improvements could not be determined. TCi noted that should poor soils or ledge be encountered on the site, the added cost for blasting, soil replacement or ground improvements could be in the $500,000 to $1,000,000 range. Given the history of other construction projects in Town which encountered high costs for blasting and rock and ledge removal, the Town decided it was prudent to undertake some geotechnical investigations on the preferred Union Street site. Pare oversaw a limited subsurface investigation program including observation of eight test pits performed in November 2017. Results of the subsurface investigations led to identification of potential geotechnical issues that could impact development of the site including fill containing construction debris that would need to be removed from the site, glacial deposits featuring large boulders that might impact footings and require removal and ledge that might require blasting or hammering for removal. Based on the geotechnical findings, Pare was able to develop an opinion of probable cost for rock removal. Total project costs were updated based on Pare's findings.

While Pare was on-site, several areas of flagged wetlands were observed. Pare noted that the flagged wetlands on the southwestern side of the site were more extensive than those previously identified by the Owner of the site on drawings shared with the Town. It was recommended that the extent of wetlands be confirmed by the Owner's wetlands scientist and that options for wetland replication be discussed with the site's Owner.

With Union Street identified as the preferred site and deemed to be a feasible location for a future public safety facility, the Town leadership then entered into negotiations with the current land owner for site acquisition terms.

Conclusion

After analyzing the options on the two potential sites, the Town and the Design Team agreed that the Union Street site was clearly the most desirable location for the future Ashland Public Safety Building. This preference is due in a large part to the site's central location in Town and its close proximity to the Fountain Street bridge which crosses over the railroad tracks dividing the Town and affecting emergency

response times when emergency vehicles must otherwise wait at railroad crossings for trains to pass. The site would not be feasible though, unless additional area could be acquired beyond the two acres offered by the Owner to the Town.

Based on the study findings, the Town entered into negotiations with the Owner to acquire more land. Throughout negotiations, HKT worked closely with Town leadership to discuss with the Owner's engineers requirements and goals for siting a public safety building on this site, review several site plans proposed by the Owner, and assist the Town leadership in developing counter offers for consideration. The result was a successful negotiation with the Owner for the Town to be gifted a nearly four acre site on the northern portion of the parcel with frontage along Union Street. Town leaders can now take the next steps to move the project forward with a request for funding at a Special Town Meeting in autumn of 2018.

SPACE NEEDS ASSESSMENT

The following pages represent the initial space program for the Ashland Public Safety Facility. The programming process began with a set of questionnaires that were completed by the police and fire departments and which outlined general information about the departments including current and anticipated future staffing levels and vehicle and equipment inventories. After responses were gathered, HKT Architects interviewed Police Chief Craig Davis and Fire Chief Scott Boothby and toured the existing police and fire stations. Our goal of these meetings was to focus on how staff of the departments perform various functions rather than asking for a compilation of spaces that they thought they would need. Discussions focused on each department's current and future needs as well as the potential for shared use spaces and spaces that might be used by other groups in Town. Existing spaces were observed during site visits for adequacy of space available and how that space was configured to meet operational needs.

Following the initial programming meetings, HKT analyzed the data collected and compared projected space needs with those of police and fire stations we have designed in similar towns and with industry best practices, including standards published by the National Fire Protection Association (NFPA) and The Commission on Accreditation for Law Enforcement Agencies (CALEA). The space needs were then illustrated with room data sheets which describe the quantitative and qualitative aspects of each room. Tabulations of required program spaces were developed by first adding the net square footage (NSF), defined as the area required to do an activity measured exclusive of surrounding walls, of each functional space. Net square footage was then converted to gross square footage (GSF). Gross square footage measures the entire building area to the exterior face of exterior walls and includes all net square footage, plus all circulation spaces (corridors) and the thickness of interior and exterior walls. Since floor plans have not been developed during early programming phases and there is no way to measure these circulations spaces and walls, conversion of net square footage to gross square footage is done by applying grossing factors. In the case of public safety facilities, where the building is typically carved into many smaller rooms with surrounding walls, a gross area factor of 15% of net square footage typically captures the area required for interior and exterior walls. Similarly, circulation area factors of 25% of net square footage typically captures the extensive circulation and corridor spaces required to connect the smaller discrete rooms in a public safety facility. Exceptions to these percentages do occur in areas of the building with large open spaces, such as apparatus bays, and in those cases the grossing factor percentages were adjusted accordingly.

Drafts of the programming documents were shared with the departments to obtain their feedback and various revisions were made.

The final space program demonstrates the need for a 43,992 gross square foot facility. A summary of the program is below:

	Gross Square Footage
Police Department Spaces	14,648 GSF
Fire Department Spaces	22,332 GSF
Shared Spaces	7,022 GSF
Total	43,992 GSF

It should be emphasized that the space needs program assumes a combined police and fire facility will be built. Consolidating the police and fire departments in a shared facility benefits the Town by reducing construction costs as overall building area is reduced with the efficiencies of shared spaces that would otherwise be duplicated in separate facilities. In a combined public safety facility, the departments can share building systems (HVAC equipment, emergency generator, fire protection and fire alarm systems), communication systems (telephone, computer servers) and security systems (door access control, interior and exterior security cameras). Departments can also share some program spaces/rooms including a Training Room / Emergency Operations Center (EOC), a Fitness Room, lobby/reception space, public toilet rooms and circulation spaces (elevator and stairs). Site development costs can also be reduced in a shared facility as the departments share visitor parking, site improvements (walkways, fencing, flagpoles, site lighting) and the cost of utilities entering the site (transformer / electricity, water, sewer, gas). If separate police and fire stations were to be built, many of these systems and spaces would need to be duplicated in each facility thus increasing the overall program square footage and construction cost.

There are also a number of operational benefits to a shared public safety facility. Coordination and communication between the departments, especially when emergency E911 calls come in or during extended operations such as a snowstorm, can be optimized in a shared facility. Public access is improved as police personnel are available 24 hours a day / 7 days a week in a public safety facility and are available to help the public even when firefighters might be out of the building responding to a call. First aid calls to assist a detainee in the police station can be responded to quickly by the fire department in a shared facility. In a shared facility, the departments are able to share some vehicle maintenance tools and equipment.

Parking needs were also analyzed as part of the space needs assessment. Parking counts took into account various factors including personal vehicles of staff, visitors and call firefighters as well as department owned vehicles. The resulting count factors in the anticipated vehicles on site during a shift change when personal vehicles from both the arriving and departing shift are on site along with departmental vehicles staff may drive while on shift. Providing adequate parking during a shift change is critical. Shift changes are when building occupancy is at its highest. At these times, personnel from the

departing shift must meet personnel from the arriving shift to brief them on any ongoing matters. The count also factors in when call firefighters might be on site for an emergency call or training during a shift change. The following table summarizes the needs:

	Parking Spaces
Visitor Spaces	10
Police Department Spaces	52
Fire Department Spaces	26
Dispatch/Communications Spaces	5
Total	93

The program tabulation sheets in the Appendices illustrate the departments' proposed ideal building program. Room data sheets with details of each room's space needs can also be found in the Appendices.

SITE ASSESSMENTS

Civil/site engineers at Pare Corporation assessed two sites identified by the Town as possible locations for the future Ashland Public Safety Facility: a combined site at 12 + 16 Union Street/1 East Union Street and 0 MBTA Access Road. Both sites were selected by the Town due to their central location within Town and close proximity to an ideal location which minimizes response times throughout the Town as noted in the 2008 Fire and Police Station Space Needs Assessment and Location Study. The assessments that follow in the Appendices are based on Pare's on-site observations and existing public data. Reports for both sites note there do not appear to be any constraints that would exclude either site from being considered a feasible location for the Public Safety Facility. However, challenges to development were identified at both sites.

Union Street

The property on Union Street is comprised of three separate lots for a total of 12.09 acres. The current Owner of the property had offered to gift an approximate two acre portion of this lot to the Town for the purpose of constructing a new public safety facility. The availability of the site and willingness of the Owner to work with the Town to make this a potential home for the public safety facility made this site particularly attractive to the Town. Findings of the space needs analysis indicated that a lot of approximately four acres would be required to meet the Town's needs though. As a result, Pare was charged with assessing the entire 12.09 acres to aid the Town in negotiating for the acquisition of additional land area. In addition to site observations and public data, drawings of a proposed subdivision of the lot were made available by the Owner.

Wetlands and topography pose the greatest challenges to development at Union Street. Wetlands in the northeast corner of the parcel are documented in MassGIS and on drawings provided by the Owner. Discrepancies were observed though in regards to additional wetlands noted on drawings provided by the Owner in comparison to site observations made by Pare. Wetlands delineation by a wetlands scientist will be required to understand the exact limits of the wetlands prior to proceeding with development plans.

The topography of the site pitches down from a high point at elevation 235 at the northeast corner of the site to elevation 185 at Union Street. While the site is relatively flat along Union Street, some steep slopes will require regrading and possible construction of retaining walls to create a buildable area and facilitate safe and efficient emergency vehicle circulation throughout the site. Placement of the building in a location on site where vehicles can exit safely and efficiently onto Union Street and still circulate around the site given the topography, will be key.

The Union Street site, as part of the Wildwood Mixed Use Special District, is currently subject to paragraph 8.6.12 Nuisance Standards, of the Town of Ashland zoning regulations. This paragraph prohibits commercial and municipal uses from 24 hour operation within the district. Limited hours of operation are allowed only between 6:00 AM to midnight to minimize the impact of noise from traffic and late-night activities on neighboring residents. Zoning regulations would need to be amended through a vote at Town Meeting to allow 24 hour operation of a future public safety facility on this site.

MBTA Access Road

At MBTA Access Road, the Town identified an approximately 11 acre area in the southeast quadrant of the larger 123.22 acre lot for study. To the northwest on the same lot, there is a capped Superfund site. Through discussions with Town personnel, HKT learned that the residential development located on MBTA Access Road and under construction at the time of Pare's investigations, had been strongly opposed by the community due to its close proximity to the Superfund site and potential to disturb the cap during blasting of ledge on site.

Traffic at and geographic location of MBTA Access Road were, however, issues of concern for the Town. Pare noted heavy daytime traffic along West Union Street at the intersection of MBTA Access Road at the time of their site observation. Commuter traffic accessing the rail station at the end of MBTA Access Road posed potential additional congestion that might impact emergency response vehicles exiting the site and MBTA Access Road. In terms of location, while emergency response times from the station to remote areas of the Town could be met from this location, the longer travel time required to leave MBTA Access Road, exit onto Union Street and make one's way to a railroad crossing into the northern part of Town raised concerns.

Land Value

A preliminary land value assessment was conducted following site assessments. Valuations focused first on tax assessor's records of sales history and assessed values. A comparison of values between both sites suggests peculiarities that provide little room for comparison. The Union Street property, while assessed at $1.2M in 2017, sold for nearly 250% of the current assessed value at $3.1M back in 2015. As the historic sale price was well above market values, it does not provide a good data point for analysis. Looking at the assessed value per acre, Union Street at $102,663/acre is valued at over 760% of MBTA Access Road $13,481/acre. With few vacant commercial parcels on the market for comparisons sake, it was recommended that the Town consult with a commercial real estate professional to obtain advice on property values prior to finalizing any terms with the current property Owners.

REVIEW OF 2008 FIRE AND POLICE STATION SPACE NEEDS ASSESSMENT AND LOCATION STUDY

HKT was asked to review the findings of a previous space needs assessment and location study for a public safety facility in Ashland. The report dated April 2008 was written by MMA Consulting Group Inc. The pages that follow summarize the findings and their relevancy to the current project.

The previous study, now a decade old, noted inadequacies and obsolescence of the existing stations which still ring true today. The Fire Department currently operates out of two stations: Fire Station 1, Central Station, at 151 Main Street and Fire Station 2, Headquarters, at 70 Cedar Street. The Central Station was built first in 1927. Like many stations in the Commonwealth of that era, the building is too small to meet the needs of a modern day fire department. Apparatus bays are narrow and small for existing, modern apparatus. Office and storage space is limited. The building, located in a low-lying area, is prone to flooding on the lower level. The building's location near the commuter rail tracks can affect response times in an emergency when a train is crossing Main Street and emergency vehicles must wait to pass.

The Fire Headquarters was built in 1988 by a private developer and gifted to the Town. While the station is generally in fair condition, the spaces do not support the operations of the department. Office spaces are undersized, storage is lacking and the second floor is not handicapped accessible.

The Police Department also currently operates out of two buildings. The Police Station, located at 137 Main Street, was built in 1978. Office space is so limited in the existing building that the Town is currently renting additional office space at a storefront location on Main Street for the administrative staff, including the Police Chief, and the Emergency Operations Center. Separation of the department leadership from the officers and staff is less than ideal. Department leadership should always be in close proximity to subordinates to provide adequate supervision and leadership to the staff.

In the police station, space deficiencies impacting police operations are evident throughout. The booking area is small and unsafe, opening onto a general corridor with little security. Evidence and general storage are limited. Similar to the Central Fire Station, the Police Station's proximity to the commuter rail crossing can also affect police response times in an emergency.

Replacement of existing facilities with a single consolidated public safety facility at a central location will greatly improve operations for both departments.

The 2008 Study suggested a site of three to five acres and a building of 40,000 to 55,000 square feet could meet the needs of both departments. While a detailed breakdown of how these requirements were developed was lacking in the report, the general findings are in line with the current space needs assessment by HKT.

The 2008 Study estimated the construction costs of a new facility at $300/square foot. When this cost was escalated to current dollars to reflect rising construction costs in the intervening years, the resultant cost per square foot was in line with those suggested by Tortora Consulting Inc. for this study. More detail on cost comparison is available in the Cost Analysis section of this report.

CONCEPTUAL DESIGN – TEST FIT OPTIONS

Preliminary conceptual building and site diagrams were developed in response to the space needs identified during programming sessions with the police and fire departments. The purpose of these diagrams was to “test fit” the program on each of the two proposed sites to determine if the sites would be adequate in size for the ideal program. Test fits would also help alert the design team of any challenges that the sites might pose in terms of topography, impact on natural resources and traffic, among other issues. In developing the diagrams, the design team set several goals relating to the facility operation:

- Keep the main public entrance, Dispatch/Communications and detention areas on the same floor level to facilitate dispatch personnel workflows while greeting visitors and performing required detention cell checks.
- Provide good access to a main road for emergency vehicles to exit the site quickly and safely, minimizing response times.
- Provide drive-through apparatus bays whenever possible to allow easy circulation of fire apparatus parked in tandem within the building, allowing vehicles to exit/enter the station through front and back doors.
- Separate emergency response vehicles, staff and public parking for the safety as emergency response vehicles quickly exit the site.
- Conceal the sally port entrance from public view for safety and security of detainees and police officers.

HKT has studied and designed public safety facilities throughout New England for decades. While many public safety facilities feature similar programmatic elements, each communities operations are unique. It is critical for a design team to understand the individuality of a given community in order to design a public safety building that will meet its needs.

Using our experience in designing public safety facilities and our understanding of the unique needs and goals of the Town of Ashland’s police and fire departments, HKT approached the test fits by first grouping similar programmatic areas together into larger blocks of space which could be arranged on the site according to ideal adjacency relationships. Two diagrams were developed to demonstrate the proposed ideal program on the MBTA Access Road site. The concepts were similar, with the building sited with good visibility close to the main road. The primary differences between the two test fit options was in the handling of the apparatus bays. In Test Fit #1, drive-through apparatus bays were provided. With the entrances into the staff and public parking areas, three curb cuts would be required along MBTA Access Road. In Test Fit #2, the apparatus bays were instead rotated 90 degrees so apparatus would exit onto a drive shared with staff vehicles, thereby eliminating the need for one curb cut along MBTA Access Road.

The exercise demonstrated that the program would fit easily on the site meeting the above stated goals. Some cut and fill would be required to regrade the site to allow vehicle circulation in and out of drive through apparatus bays and the sally port. While both schemes would meet the needs of the departments, Test Fit #1 was chosen by the Town as the preferred option to proceed with developing estimated probable costs since the scheme achieved the goal of drive-through apparatus bays.

Test fits on the Union Street site were more complicated due to the size of the parcel the Owner intended to give to the Town and to the wetlands believed to be on the site. Four diagrams were developed to test the program on the Union Street site. In Test Fit #1, the block diagram from MBTA Access Road Test Fit #1 was placed on the Union Street site as a starting point since that diagram met all the Town's programmatic goals. The building footprint almost completely filled the width of the parcel being offered to the Town and required partially filling some wetlands on the site. Since the footprint filled the width of the site, there was no opportunity to create a drive leading to the back of the site for parking and access into drive-through apparatus bays or a private sally port entrance. For these reasons, Test Fit #1 on Union Street was immediately eliminated.

Because of the challenges proposed in the first test fit, the design team began exploring options for expanding the parcel size beyond what was proposed by the site's Owner. In Test Fit #2 on Union Street, the same diagram from MBTA Access Road Test Fit #1 was used, but rotated on the Union Street site with the apparatus bays deep into the site. Parking for public and staff was located in a lot immediately off Union Street with the main public entrance facing the street. It was assumed that the proposed lot lines perpendicular to Union Street would be extended back the depth of the site giving the Town more land to build the facility. There were a number of issues with this option though, most notably that emergency vehicles would have to drive through public and staff parking areas to exit the site. In addition, if drive-through apparatus bays were desired, they would need to exit through an adjacent parcel, presenting issues of security and liability. Parking capacity was also less than that required by the building program. Test Fit #2 was determined to be unfeasible and demonstrated that additional street frontage would be required to safely separate public, staff and emergency vehicles.

Test Fit #3 was developed to demonstrate what would be possible if the Town developed a public safety facility with adequate frontage along Union Street for the building to run parallel with the street and without impacting the wetlands along Union Street. To do so, it was assumed the Town would acquire the parcel being offered by the site's Owner, as well as some surrounding land as required. This option provided a good separation between public, staff and emergency vehicles as well as drive-through apparatus bays and a concealed sally port. Some parking was shown in the wetlands, however it was believed that reconfiguration of the parking area would be possible to not impact the wetlands. The greatest challenge to Test Fit #3 was with topography. The existing site, while relatively flat along Union

Street, rises considerably to the northeast. Sections through the site made it clear that the floor elevation of the apparatus bays would be several feet lower than the lowest floor level of the administration building.

Test Fit #4 was developed as a possible solution to the issues of Test Fit #2. Using the same land area proposed in Test Fit #2, this solution attempts to solve the issues of safe separation of public, staff and emergency vehicles. Rather than running parallel to Union Street, the building footprint was rotated to extend into the depth of the site with only the apparatus bays fronting the street. Drive-through apparatus bays are not possible in this scheme. The major drawback to this scheme was wayfinding for the public. Public and staff would drive down a long access drive to the main public entrance concealed at the rear of the site. In addition, grading challenges similar to those in the previous test fit were assumed.

After review of the options at Union Street, the Town selected Test Fit #3 as the preferred option for cost development. While the area required by this option exceeded the two acres proposed by the site's Owner, the test fits had clearly demonstrated that an area closer to four acres would be required. The Town agreed to discuss possibilities of acquiring additional land from the Owner.

HKT took a closer look at the grading requirements of Union Street Test Fit #3, working with Pare to develop an option that would conceptually address the complex topography on this portion of the site. The final scheme developed assumed the building would be three levels. The main public entrance where the Dispatchers would greet the public would be the highest floor level at approximately elevation 208.0'. Fire and police administration would share this floor level. The floor elevation of the apparatus bays, determined based on existing grades where fire apparatus would exit onto Union Street, would be at elevation 192.0'. Between these two floor levels, the first floor of the building where fire department living quarters and police department operations/staff support would be located, would be at elevation 194.0'. A conceptual site grading plan was developed by Pare to assist in estimating cost for the grading and site retainage required by this option.

The Test Fits of both sites are included in the Appendices, including annotations provided to the Town to describe the schemes and their pros and cons.

SITE EVALUATION MATRIX

HKT and the Town worked together to develop a site evaluation matrix as an objective tool to analyze and compare the sites at Union Street and MBTA Access Road. Based on data gathered from the site investigations and test fit diagrams, HKT outlined a list of six key site criteria for consideration including location, accessibility, site features, environmental, site development and availability. Within each main category, several sub-categories were created with detailed criteria for each site to be evaluated on.

Next, a point scale of 100 points was then divided among the sub-categories. Point values were not assigned equally to each sub-category. Categories were instead weighted based on the known complexities of the site, operational requirements of the departments and Town and community goals and values. For example, sub-category 1.1 Geographic Location was more heavily weighted at 10 available points than sub-category 4.4 Existing Tree Cover at two available points. This was a logical result of the fact that the fire department must be located on a site that meets emergency response times throughout the Town and is critical to operations while the cost of clearing trees is a site complication that can be managed relatively easily. Given the known characteristics of each site, HKT developed a list of comments for each sub-category, describing what site factors would generate a high, medium or low point value, to help guide the group in assigning points impartially.

Finally, HKT met with the Town to rank the sites. Together, the group reviewed the criteria and discussed the known data on each site before assigning a point value in each sub-category. The sites were judged in an objective fashion with HKT commenting on technical aspects for consideration while the Town provided insight into impact on their operations and community values.

The final results of the exercise demonstrated that the preferred site for the future public safety facility was at Union Street which received a ranking of 79 out of 100. While the Union Street site ranked only five points higher than MBTA Access Road in total, it ranked considerably higher in the category of Location. Of 32 available points in Location, the Union Street site received 30 points compared to 18 points for MBTA Access Road. This was due to two important factors. First, Union Street had considerably better and faster access to roads crossing the railroad tracks and bodies of water to allow faster access to all Town extents. Access to a railroad crossing from MBTA Access Road was more remote resulting in a lower ranking. Second, visibility and accessibility of a public safety facility on a well-travelled, centrally located Union Street site was deemed superior than visibility on MBTA Access Road which is less well-travelled. Union Street ranked lower than MBTA Access Road in one key sub-category: 3.1 Adequate Site Size. The low ranking in this sub-category highlights the fact that the preliminary two acres offered to the Town are not an adequate size to accommodate the public safety facility program. If

the future public safety facility is to be located at this Union Street site, additional acreage would be required.

GEOTECHNICAL ANALYSIS

Preliminary cost estimates developed by TCi noted that the scope and cost for ground improvements, including blasting and rock removal, could not be determined as the design team lacked data on subsurface conditions. Without data to develop an estimate, TCi could only advise the risk of potential added cost and suggest a possible cost range somewhere between $500,000 and $1,000,000. At the same time, the Town indicated to the design team that there had been a history of other construction projects in Town with high costs for blasting and rock and ledge removal. In particular, the Ashland High School construction project at 65 East Union Street, adjacent to the proposed Union Street site, had required blasting which add significant cost to the project. The risk of unanticipated added costs for ground improvements to a future public safety project, particularly on Union Street, appeared to be high.

The Town asked HKT and Pare to undertake some geotechnical investigations on the preferred Union Street site in an attempt to better define the cost of ground improvements, reduce the uncertainty of the potential $500,000 range noted above, and reduce the risk of added cost due to the unknown conditions. To this end, Pare oversaw a limited subsurface investigation program in November 2017. The program included site observations of eight test pits performed by Northern Drill Service, visual classification of excavated soils, classification of the size of boulders excavated and measurement of groundwater encountered.

The detailed results of the geotechnical investigations are found in the report in the Appendices. Results of the subsurface investigations identified several potential issues that could impact the cost of site development, most notably the suspected risk of potential impact of large boulders and bedrock on excavation was confirmed. Based on the proposed test fit at Union Street, Pare used the results of the subsurface investigations, including the depth of test pits, to develop an opinion of probable cost of $1,550,700 for removal or rock and ledge on the site. These costs were then added to the total project cost developed by TCi and HKT, to better define the probable project cost at Union Street.

COST ANALYSIS

The goals for this study included the development of an estimated total project cost budget for development of a public safety facility on each of the two proposed sites. Those two budgets could then be used by the Town to discuss what next steps should be taken. Total project cost is a combination of the cost for construction (hard costs) and administrative costs borne directly by the Owner (soft costs). As previously explained, one test fit option on each site was selected for cost development. Below is an explanation of how these costs were arrived at.

Hard Costs

Hard construction costs were estimated by an independent professional cost estimator, TCi Tortora Consulting. Included in the hard cost figures is a design and estimating contingency added to cover the cost of items that cannot be foreseen at this time without a more defined design. Currently the design and estimating contingency is carried at 15% of the construction cost. Typically this contingency is reduced as a project progresses. A 10% contingency is typical at the completion of schematic design and drops to 5% at the completion of design development. Finally, these costs are escalated based to the anticipated mid-point in construction. This adjustment takes into account higher costs as material and labor costs rise between the time the estimate is done to the time the contractor would be buying out the job. In determining the mid-point of construction, it was assumed that funding for design and construction would be sought at a special Town Meeting in Fall 2017/Winter 2018. Design would begin immediately thereafter, lasting eight to nine months. The project would then be bid in November 2018 and construction would begin in January 2019. It should be noted that since negotiations for a site took longer than expected, this timeline is no longer accurate. It is likely that design will begin after a Town Meeting in Fall of 2018, requiring additional escalation at about 4% to be added to the estimated hard construction cost figure.

As part of the exercise of reviewing and confirming the findings of the 2008 Fire and Police Station Space Needs Assessment and Location Study, hard construction costs developed by TCi were compared to the square foot cost quoted in the 2008 study. In order to make a valid comparison between the figures, the 2008 square foot cost first had to be escalated to assume construction start in 2019. Escalation from 2008 to 2017 was based on real historical figures while escalation from 2017 to 2019 was assumed at 3.8% per year, a reasonable average escalation factor for this area of the state. The Estimate Probable Cost summary in the Appendices demonstrates that the escalated 2008 study figures are in line with the current estimate.

The probable cost for removal of rock and ledge developed by Pare following geotechnical investigations on the Union Street site as well as an estimate for the cost of traffic signalization at each of the sites were

added to the figures from the TCi estimate to determine total estimated hard construction costs for each site.

Soft Costs

Soft costs include a variety of administrative costs typical of a project such as this. Architectural and engineering fees and owner's project management fees are typically estimated as a percentage of the construction cost. Other costs can vary from project to project including costs associated with permitting, legal fees, commissioning, communications, printing of bid documents, advertisement of the project, testing during construction, a clerk of the works and furniture, fixtures and equipment, among others. As detailed information on the soft costs for this project are not known at this early stage, soft costs were instead assumed at 25% of hard construction costs, a figure in line with other similar public safety projects in Massachusetts.

Owner's Contingency

The Owner's contingency is carried as a line item to cover changes that are initiated at the Owner's option or latent conditions such as unforeseen circumstances. Examples of unforeseen circumstances might be additional hazardous waste removal or boulder removal. This contingency can also cover changes that the Owner chooses to initiate. Upgrading to a better grade of equipment or deciding to change a spatial arrangement during construction are but two examples.

Total Project Costs

The combination of hard and soft costs yields total project costs. Total project costs for the two sites are outlined below:

	Union Street	MBTA Access Road
Estimated Total Probable Project Costs	$30,880,394	$27,628,338

One potential variable to this budget is if there should be a significant change in the economy (such as a major rise in fuel costs) which could affect the base cost and the escalation contingency. Another variable is timing as a delay to the project would also affect the total cost. It is important to keep monitoring costs as the project moves forward into the coming design phases to make certain that factors such as "scope creep" do not distort the original size and intent of this study.

CONCLUSION

The current Ashland Police and Fire Stations no longer meet the needs of the departments. While the Town has made every effort to maintain these facilities, the buildings and systems are obsolete and do not support the work of modern police and fire departments. The Central Fire Station #1, built over 90 years ago, is too small to function as a fire headquarters and the building site is not large enough to allow for building expansion. Apparatus bays are undersized for modern fire apparatus, and it is likely that as the fleet is replaced, the station will not be able to accommodate new apparatus which is larger than the existing fleet.

Headquarters Fire Station #2 is now 30 years old. Offices and storage spaces are undersized to meet the needs of the department. Currently, the Fire Chief's office is located off the firefighter living quarters on the second floor, which is not handicapped accessible. It should be noted that the emergency response times do not dictate the need for two fire stations in Town. The fire department operates out of two stations solely due to space limitations at each of the current facilities. Centralizing the department in a single appropriately sized facility would better suit the needs of the department and would facilitate more efficient operations.

The Ashland Police Station was built 40 years ago. The facility lacks many spaces typical in a modern police station. Evidence storage space is limited. Technological changes affecting dispatch operations are difficult to accomplish in the existing limited footprint and will continue to challenge the department moving forward. Officers lack adequate storage space for modern gear and equipment. Officer and suspect safety is hindered by inadequate detention processing facilities. As with the fire department, the police department operations are fractured, with several administrative functions being housed in rented storefront space downtown, a block away from the police station. The police station does not serve the Ashland Police Department's current and projected needs. For those who have studied the current building, there is little disagreement that a new facility is required.

A consolidated public safety facility could resolve the current and future space needs of each department, improve department coordination and cooperation and save the Town the added cost of building separate facilities on separate sites. As previously explained, in a consolidated public safety facility, the police and fire departments can share a number of building systems and spaces that would otherwise need to be duplicated in separate facilities. These include:

- Building Systems
    - HVAC equipment
    - Emergency generator
    - Fire protection / fire alarm systems

- Communication Systems
    - Telephone
    - Computer servers
- Security Systems
    - Door access control systems
    - Interior and exterior security cameras
- Program Spaces
    - Training / Emergency Operations Center
    - Work-out / Fitness Facility
    - Lobby / Reception Space
    - Public toilet rooms
    - Circulation – elevator and egress stairs
- Site Development
    - Visitor parking
    - Site improvements – walkways, fencing, flagpoles, site lighting, etc.
    - Utilities entering the site – transformer / electricity, water, sewer, gas

Because the two departments work closely together, sharing the same facility could benefit the departments operations as well. Some examples of operational benefits include:

- Dispatch – When emergency E911 calls come in and emergency situations arise, police and fire personnel are able to coordinate quickly and ensure a prompt response.
- Communication – Personnel can walk back and forth between departments to meet rather than scheduling time to travel and meet at another location.
- Public Access
    - Townspeople can find the help they need simply with a single facility.
    - The police department is continuously occupied 24 hours a day/7 days a week. The fire department is not continuously occupied when firefighters are responding to a call. If a member of the public comes looking for the fire department when they are on a call, someone from the police department is always available to help them.
- First Aid / Medical – Occasionally a member of the public or a detainee will arrive at the police station needing some medical assistance. With a shared facility, the fire department can quickly respond.
- Tools and Equipment Repairs – In a shared facility, the departments are able to share some maintenance tools and equipment. For example, police cruisers are able to put air in their tires from compressed air lines in the fire department's apparatus bays.
- Extended Operations – During extended operations, such as a snowstorm, the departments are able to work together and coordinate more easily from a shared facility and they are able to share

resources, such as food, for personnel working extended shifts.

Examination of the two sites proposed for the public safety facility indicates that both sites are feasible options. However, the ease of access to all areas of Town afforded by the Union Street location, with quick access to the Fountain Street bridge over the existing railroad tracks that divide the Town, makes it the clear preferred choice for the new facility.

This study has laid the groundwork for a new public safety facility for Ashland by confirming previous assessments of the inadequacy of the existing stations, defining the departments' current and future space needs, determining the preferred location for the future facility on Union Street and developing an estimated probable total project cost. Many questions remain to be answered though such as:

- What would the new public safety facility look like? What would be the best building systems for the facility?
- Can the Town acquire a lot of adequate size at the preferred Union Street location?
- How can the wetlands requirements be addressed given the facility and parking requirements on this small site?
- Will the citizens of Ashland support the cost of the project?

HKT has continued to work with the Town as they have negotiated with the Owner for additional land on Union Street. As of the writing of this report, the Town has entered into an agreement to acquire a gift of approximately four acres of land at Union Street from the existing land Owner. With an agreement in place, the Town may proceed with a request for project funding at a special Town Meeting in the autumn of 2018. We look forward to working with you as the project moves forward.

APPENDICES

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PROGRAMMING QUESTIONNAIRE – POLICE DEPARTMENT

Please provide as much information as possible for each section of the following questionnaire. You may not have an answer for every question but please do your best. The information will be used during the Feasibility Study programming effort for your department. Thank you for participating.

Name: Ed Burman

Department/Division/Group: Police

Phone number and email address: 508-532-7988 eburman@ashlandpd.org

Date of Completion 05/22/2017

General Information

Function: Please describe the primary function of your department in as much detail as is possible.

Operation: Please provide information on the following: visitors to your offices, hours of operation, security concerns.

Visitors and Interaction with Community: 24 hours, we also need a community room

Public Business Hours: 24 Hours

Staff Hours: 24 Hours

Security/Safety Concerns: We need monitoring exterior and interior and door access system. Video inside and out. Higher level access areas, Records,evidence, communications center etc

Issues such as noise, fumes, indoor temperature, natural daylight:

Shared spaces and access by Community: Community room and rest rooms for the public

Emergency Events: Please describe any special requirements or needs during emergency events (*Water, fuel or communication needs, outside assistance, changes to parking or queuing*).

Generator. Building must be able to run on an extended period of time without electricity. Internet access and radio communication must have failover available

Other Information: Please provide additional information that you believe would provide a more complete picture of your needs with a focus on intangible ideas (*such as, we want visitors to the building to feel safe and secure immediately because …*).

Staffing Requirements

Staffing: Please provide an organizational chart for your department. Please include current staffing and possible projected staffing until the year 2037.

Position	Staffing Projections				FTE	PTE	Comments
	2017	2022	2027	2037			
Example: Chief	*1*	*1*	*1*	*1*	*X*		*Private office*
Staff: Title	*1*	*2*	*2*	*3*	*x*		*Workstation*
Chief	1	1	1	1	X		Private Office
Lt's	2	3	3	3	X		Private Office
Admin Sgt	1	1	1	1	X		Private Office
Sgt's	6	7	8	8	X		Shared Office
Officers	19	25	30	35	X		
Records Clerk	1	1	2	2	X		Private Office
Secretary	1	1	1	1	x		Private Office
Communication supervisor	1	1	1	1	x		Private Office
Detectives	2	2	3	4	x		2 Shared Offices
Detective Supervisor	0	1	1	1	X		Private office
Mental Health Clinician	1	1	1	1	X		Private Office
Prosecutors Office	1	1	1	1	1		Shared

Parking: Personal vehicles, Town owned vehicles + equipment

Vehicles: Please provide as detailed of a list as you can. Parking counts are required by zoning and this list will help us confirm needs and special issues particularly as it relates to police equipment. Please provide overall sizes (*Small = 8' x 10', Medium = 8' x 20' – typical car, Large = 12' x 30', X-large = 12' x 40' or larger*). Please note if vehicle must be stored indoors or in an uncovered parking lot and other unique feature. Please address shift changes.

Vehicle Type	Vehicle Projections				Size				Comments
	2017	2022	2027	2037	S	M	L	XL	
Example: Personal vehicle	*4*	*4*	*5*	*5*		*X*			*Parking lot*
Ex: Cruiser	*4*	*6*	*8*	*10*		*x*			*Parking Lot*
Cruiser	19	25	25	25		X			Parking lot
Sign Boards	4	4	4	4			X		
Shift in/out	10	15	15	20		X			Personal Cars

Space Requirements

Existing Space: Please provide a list of key spaces used by your department. If you have an idea of how large that space is or any distinguishing features please note that.

Space	Size (L x W)	Count	Comments
Example: Office	*10 x 12*	*4*	*Needs to be close to lobby*
Example: Conference Rm	*14 x 18*	*2*	*Needs to have screen, projector*
Example: Lobby	*?*	*1*	*Shared by 3 departments, seating, toilets*
Lobby		1	
Dispatch		1	
Records		1	
Roll Call Room		1	
Locker Rooms M & F		2	
Interview Room (PVT)		1	
Evidence		1	
Detectives		1	
Computer Room		1	Must have AC
Licensing Room		1	
Community/Training Room			
Conference Room		2	
Armorers Office		1	
Juvenile Detention Room			
Cells Male		4	
Cells Female		2	
Storage Rooms		4	
Sally Port for Three cars		1	
Secure storage for vehicles		1	
Equipment room for E911 equipment and radio equipment		1	Must have AC
Fire Arms Range		1	
Fitness Center		1	
Kitchen Area		1	
Kitchen Area with community room		1	
Dispatch Locker Room		1	

Office or Workstation Requirements

Individual Needs: Please list any specific individual need for staff in your department.

Think about their work: *do they have multiple private conversations during the day, how long are they at their desk each day (only in the morning or they share space with another individual on another shift), could they work at a share work surface assigned for just that day*.

Note furniture or equipment they may need: *work surface with computer hookup only, work surface with file drawers, access to large work surface for collating or laying out projects, visual privacy for work surface as they deal with sensitive paperwork or screen work, quick access to printers and copiers etc*.

Office (private) or Workstation (open)	Preferred Size (L x W)	Individual Needs for files, copiers etc.	Comments
Example: Private Office	*10 x 12*	*Lateral files, bookcase, whiteboard*	
Example: Workstations	*6 x 8*	*Files and drawers*	*X' height of partition; several stations shared at shift changes*

Storage Requirements

Storage Needs: Please list any specific storage needs for your department. Consider items currently stored on site and those that are stored elsewhere in Town. Consider whether current storage locations create any issues for access. Please list specific items stored. Please note if these items need special security (*assume all doors can be locked*).

Material - Item	Size or weight	Security Needs Secure (S) Unsecured (US)	Comments
Example: Office Supplies	*Currently stored in 2 8 x 8 rooms*	*S*	*Would like to be near admin office*

Police Department Specific Programming

Police Vehicles: In the vehicle portion of this questionnaire you have listed your vehicles and equipment, both existing and projected. What other issues should we understand about these vehicles: *do you perform light maintenance in-house, how is your sally port organized*?

Dispatch and Communications: Describe current situation and preferred placement of this function?

Currently there is separate police and fire dispatch. With the new building it will be a combined police and fire dispatch center

Describe archived and secure storage needs: How many years of records do you maintain?

Other issues:

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PROGRAMMING QUESTIONNAIRE – FIRE DEPARTMENT

Please provide as much information as possible for each section of the following questionnaire. You may not have an answer for every question but please do your best. The information will be used during the Feasibility Study programming effort for the Fire Department. Thank you for participating.

Name: Scott Boothby

Department/Division/Group: Fire Dept

Phone number and email address: 508-532-7993 sboothby@ashlandfire.com

Date of Completion May 15, 2017

General Information

Function: Please describe the primary function of your department in as much detail as is possible.

The Fire department in Ashland provides fire and EMS. It's basically an all hazards department.

Operation: Please provide information on the following: visitors to your offices, hours of operation, security concerns.

Visitors and Interaction with Community: 24 Hrs

Public Business Hours: 24 Hrs

Staff Hours: 24 Hrs

Security/Safety Concerns: security is need for our building. Security camera's needed.

Issues such as noise, fumes, indoor temperature, natural daylight: Natural daylight is best. Plymovent needed for all vehicles in the bay.

Shared spaces and access by Community: access by the community will be limited to the function room and dispatch area.

Emergency Events: Please describe any special requirements or needs during emergency events (*Water, fuel or communication needs, outside assistance, changes to parking or queuing*). All emergency events are off site.

Other Information: Please provide additional information that you believe would provide a more complete picture of your needs with a focus on intangible ideas (*such as, we want to provide an open atmosphere but our equipment….*).

Staffing Requirements

Staffing: Please provide an organizational chart for your department, division or group. Please include current staffing and possible projected staffing until the year 2037.

Position	Staffing Projections				FTE	PTE	Comments
	2017	2022	2027	2037			
Example: Chief	*1*	*1*	*1*	*1*	*X*		*Private office*
Staff: Title	*1*	*2*	*2*	*3*	*x*		*Workstation*
Chief	1	1	1	1	X		Private Office
Deputy Chief	0	1	1	1	X		Private Office
Captain	1	1	1	1	X		Private Office
Lieutenant	4	4	4	4	X		Private Office
Training Officer	1	1	1	1	X		Private Office
Vehicle Maintenance	1	1	1	1	X		Private Office
EMS Officer	0	1	1	1	X		Private Office
Executive Assistant	1	1	1	1	X		Private Office
Firefighters	16	18	20	24	X		
Dispatchers	4	4	4	4	X		
Call Firefighters	6	6	6	6		X	

Parking: Personal vehicles, Town owned vehicles + equipment

Vehicles: Please provide as detailed of a list as you can. Parking counts are required by zoning and this list will help us confirm needs and special issues particularly as it relates to fire equipment. Please provide overall sizes (*Small = 8' x 10', Medium = 8' x 20' – typical car, Large = 12' x 30', X-large = 12' x 40' or larger*). Please note if vehicle must be stored indoors or in an uncovered parking lot and other unique feature. Please consider shift changes.

Vehicle Type	Vehicle Projections				Size				Comments
	2017	2022	2027	2037	S	M	L	XL	
Example: Sedan	*3*	*3*	*5*	*6*	*X*				*Parking lot*
Ex: Fire Truck	*4*	*4*	*5*	*5*				*x*	*Indoors*
Fire Engine	3	3	4	4				X	Indoors
Ladder Truck	1	1	1	1				X	Indoors
Rescue Truck	1	1	1	1				X	Indoors
Ambulance	2	2	3	3			X		Indoors
SUV	3	4	4	4		X			Indoors
Brush Truck	2	2	2	2				X	Indoors
Dive Truck	1	1	1	1			X		Indoors
Tech Trailer	1	1	1	1				X	Indoors
Shelter Trailer	1	1	1	1				X	Indoors
Staff Vehicles	5	7	8	8					Parking Lot

Existing Space Requirements

Existing Space: Please provide a list of key spaces used by your department. If you have an idea of how large that space is or any distinguishing features please note that.

Space	Size (L x W)	Count	Comments
Example: Office	*10 x 12*	*8*	*Needs to be close to lobby*
Example: Conference Rm	*14 x 18*	*2*	*Needs to have screen, projector*
Example: Lobby	*?*	*1*	*Shared by 3 departments, seating, toilets*
Office	?	8	All offices on the same floor
Training Room	?	1	Allowing access to the public
Dispatch Area	?	1	Front of building
Bunk Room	?	6-7	
Kitchen	?	1	
Day Room	?	1	
SCBA Room	?	1	
EMS Supply Room	?	1	
Plans Review Room	?	1	
Gear Storage Room	?	1	
Vehicle Maint Room	?	1	
Exercise Room	?	1	
Washer/Dryer Room	?	1	
Equipment Storage RM	?	1	
Lobby Area	?	1	
Small Meeting Room	?	1	Ability to review plans/meet with residents or business owners

Office or Workstation Requirements

Individual Needs: Please list any specific individual need for staff in your department.

Think about their work: *do they have multiple private conversations during the day, how long are they at their desk each day (only in the morning or they share space with another individual on another shift), could they work at a share work surface assigned for just that day*.

Note furniture or equipment they may need: *work surface with computer hookup only, work surface with file drawers, access to large work surface for collating or laying out projects, visual privacy for work surface as they deal with sensitive paperwork or screen work, quick access to printers and copiers etc*.

Office (private) or Workstation (open)	Preferred Size (L x W)	Individual Needs for files, copiers etc.	Comments
Example: Private Office	*10 x 12*	*Lateral files, bookcase, whiteboard*	
Example: Workstations	*6 x 8*	*Files and drawers*	*X' height of partition; several stations shared at shift changes*
Private Office		Files, Drawers	For (8) Offices
Dispatch Area		Files, Drawers	
Plans Review W/S		Bookcases, copier	

Storage Requirements

Storage Needs: Please list any specific storage needs for your department. Consider items currently stored on site and any that are stored elsewhere in Town. Consider whether current storage locations create any issues for access. Please list specific items stored. Please note if these items need special security (*assume all doors can be locked*).

Material - Item	Size or weight	Security Needs Secure (S) Unsecured (US)	Comments
Example: Office Supplies	*Currently stored in 2 8 x 8 rooms*	*S*	*Would like to be near admin office*
SCBA Bottles		Secured	
Records		Secured	
Plans		Secured	
Fire Equipment		Secured	
EMS supplies		Secured	

Fire Department Specific Programming

Fire Vehicles: In the vehicle portion of this questionnaire you have listed your vehicles and equipment, both existing and projected. What other issues should we understand about these vehicles: *do you perform light maintenance in-house, what is the preferred layout of first response equipment*?

We perform light maintenance on all vehicles.

Dispatch and Communications: Describe current situation and preferred placement of this function?

Front of the building. Combined Dispatch

Describe archived and secure storage needs: How many years of records do you maintain?

We maintain some records for ever and some for 7 years.

Other issues:

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PROGRAM TABULATION – SUMMARY

Public Safety Building Feasibility and Location Study
Ashland, MA

		Total SF	Notes:
PUBLIC SAFETY BUILDING			
	Total Police Department	**14,648**	
	Total Fire Department	**22,322**	
	Total Shared Spaces	**7,022**	
	GRAND TOTAL PUBLIC SAFETY BUILDING	**43,992**	
PARKING			
	Total Staff Parking Police Department	52	at shift change - current and future
	Total Staff Parking Fire Department	26	at shift change - current and future
	Total Staff Parking Dispatch/Communications	5	at shift change - current and future
	Total Visitor Parking	10	
	GRAND TOTAL PARKING PUBLIC SAFETY BUILDING	**93**	

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PROGRAM TABULATION + ROOM DATA SHEETS – SHARED SPACES

Public Safety Building Feasibility and Location Study
Ashland, MA

	Space	Occupants	Visitors	Proposed SF	Total SF	Notes:
PUBLIC - SHARED						
	Entry Vestible - Lobby	0	2	**512**		
	Public Toilet 1 set of 2	0	0	**128**		
	Training / Emergency Operations Center	0	40	**816**		
	Training Storage	0	0	**80**		
	SUBTOTAL				**1,536**	
	Gross area adjustment 15%				**230**	
	Circulation adjustment at 25%				**442**	
	TOTAL				**2,208**	
COMMUNICATIONS - SHARED						
	Dispatch	2	0	**396**		
	Communications Supervisor	1	0	**100**		
	SUBTOTAL				**496**	
	Gross area adjustment 15%				**74**	
	Circulation adjustment at 25%				**143**	
	TOTAL				**713**	
STAFF SUPPORT - SHARED						
	Fitness	0	7	**750**		
	SUBTOTAL				**750**	
	Gross area adjustment 15%				**113**	
	Circulation adjustment at 25%				**216**	
	TOTAL				**1,078**	
BUILDING SUPPORT - SHARED						
	Server / E911 Room	0	0	**200**		
	Mechanical Room	0	0	**400**		
	Main Electrical Room	0	0	**120**		
	Plumbing / Fire Protection Room	0	0	**168**		
	Emergency Electrical Room	0	0	**100**		
	Janitor's Closet	0	0	**40**		
	Stairs	0	0	**800**		
	Elevator and Machine Room	0	0	**275**		
	SUBTOTAL				**2,103**	
	Gross area adjustment 15%				**315**	
	Circulation adjustment at 25%				**605**	
	TOTAL				**3,023**	
	GRAND TOTAL - SHARED				**7,022**	
	Parking					
	Current Staff (Dispatch)			5		# of cars at shift change
	Visitors			10		
	Total Parking Shared/Public			**15**		

ROOM OR SPACE

Description:		**Entry Vestible - Lobby**
Group:		Public - Shared
Quantitative Criteria:	1	512 Square feet
Functional Description:	1	Wayfinding, notices and pamphlet informaiton
	2	Possibly on two levels
	3	Countertop
	4	Alcove for permitting meetings with Fire Administration Assistant
Qualitative Description:	1	Welcoming, open area, control point
	2	Accessible, but not direct acces to work areas
Locational Criteria:	1	Wayfinding obvious to visitor
	2	Adjacent to elevator and stair
	3	Adjacent to Dispatch, Records Clerk, Training Room, public toilets
Technical Criteria:		
Walls:		GWB with bullet resistant panels at Dispatch and Records Clerk
Floors:		Porcelain Tile
Ceiling:		Acoustic Tile & GWB
Windows:		Desirable
Security:		Standard Entry Lock
Equipment:		Computer kiosk
Other:		Drinking fountain / bottle filling station
Furnishings:	1	Built in seating
	2	Display for pamphlets and brochures
	3	Surface for filling out forms with accessible area
	4	Bulletin Board
	5	Service Window
	6	Display cabinet for Fire and Police memorabilia
	7	(2) Medication disposal drop-off box
	8	Table and chairs for burn permitting meetings.
Notes:		Upper lobby required if two level building used and public has access to both levels. Area for toy and coat drive donation drop-off. Computer kiosk for filling out forms/burn permits applications/etc. Area for residents to sit for blood pressure checks.

ROOM OR SPACE

Description:		**Public Toilet 1 set of 2**
Group:		Public - Shared
Quantitative Criteria:	1	128 Square feet (per set)
Functional Description:	1	Men's and Women's Toilet
	2	Fully accessible
Qualitative Description:	1	Toilet area
Locational Criteria:	1	Adjacent to Lobby
Technical Criteria:		
Walls:		GWB/Ceramic Tile
Floors:		Ceramic Tile
Ceiling:		GWB or acoustic tile
Windows:		None
Security:		Standard Toilet Room Lock
Equipment:		None
Other:		
Furnishings:	1	Mirror
	2	Soap dispensor
	3	Towel dispensor/trash receptacle
	4	Feminine dispensor and receptacle
	5	Toilet paper dispenser
	6	Coat hook
	7	Shelving
	8	Baby changing station
Notes:		

ROOM OR SPACE

Description:		**Training / Emergency Operations Center**
Group:		Public - Shared
Quantitative Criteria:	1	816 Square feet
Functional Description:	1	Used for training or classroom teaching - 40 at tables and chairs
	2	Used for large staff meetings; available for community functions/meetings
	3	EOC location
	4	Boston Marathon operations
Qualitative Description:	1	Comfortable environment for lecturing or training
	2	Multi-media
	3	Good acoustics
	4	Multiple lighting levels
	5	Tiered seating preferred with large level area at front of room for demonstrations
Locational Criteria:	1	Access to both Police and Fire Departments
	2	Access to main lobby desirable
	3	Storage for chairs and tables adjacent
	4	Storage for AV equipment nearby
Technical Criteria:		
Walls:		GWB
Floors:		Carpet
Ceiling:		Acoustical Tile
Windows:		Preferred
Security:		Standard Office Lock
Equipment:		Smartboard or wall mounted monitor with computer hook up; phone bank, monitors (MEMA, WebEOC, Google Maps)
Other:		
Furnishings:	1	Folding training tables
	2	Stackable seating for 40 people
	3	Lecturn
	4	Whiteboard / Tackboard
	5	Blackout shades
Notes:		Can be used by community or as EOC Can ideally be secured from the public during emergency event

ROOM OR SPACE

Description:		**Training Storage**
Group:		Public - Shared
Quantitative Criteria:	1	80
		Square feet
Functional Description:	1	Storage for chairs and tables
	2	Storage for cots
Qualitative Description:	1	Closet for storage
Locational Criteria:	1	Adjacent to Training / EOC
Technical Criteria:		
Walls:		GWB
Floors:		Carpet
Ceiling:		Acoustical Tile
Windows:		None
Security:		Standard Storage Lock
Equipment:		
Other:		
Furnishings:	1	
Notes:		

ROOM OR SPACE

Description:		**Dispatch**
Group:		Communications - Shared
Quantitative Criteria:	1	396 Square feet
Functional Description:	1	Receive and dispatch calls
	2	Receive and dispatch E911 calls
	3	Main "greeter" for the station
Qualitative Description:	1	Secure area
Locational Criteria:	1	Adjacent to lobby
	2	Close proximity to detention area
	3	Dedicated unisex staff toilet
	4	Adjacent to Communications Supervisor
	5	Adjacent to Server / E911 Room
Technical Criteria:		
Walls:		GWB; Insulate for noise control; bullet resistant panels at lobby walls
Floors:		Resilient; possibly raised access floor for wiring to run below
Ceiling:		Acoustic Tile
Windows:		Not required; any windows to be bullet resistant
Security:		Standard Office Lock
Equipment:		Radios; computers; data/phone; fax; printer; shredder; kitchenette with microwave, coffee maker, toaster/oven, sink, undercounter refrigerator; CATV; CCTV; 8 monitors per dispatch station
Other:		Plumbing for kitchen sink; bullet resistant transaction window
Furnishings:	1	Files
	2	Shelving for equipment (radios, spare batteries, etc.)
	3	Worksurfaces
	3	Whiteboard
	4	Tackboard for maps
	5	Chairs (2) - reclining and comfortable
	6	(12) 12"x12" personal lockers
Notes:		Interface wall with lobby should have bullet resistant window with transaction counter with speaker and pass-thru. Size for two full-time dispatchers.

ROOM OR SPACE

Description:		**Communications Supervisor**
Group:		Communications - Shared
Quantitative Criteria:	1	100
		Square feet
Functional Description:	1	Deskwork
	2	Meetings with 1 person
Qualitative Description:	1	Private Office
Locational Criteria:	1	Adjacent to Dispatch
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Preferred
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 1 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Fitness**
Group:		Staff Support - Shared
Quantitative Criteria:	1	750 Square feet
Functional Description:	1	Exercise room
Qualitative Description:	1	Good ventilation
	2	Easy to maintain/clean
	3	Comfortable relaxed environment
Locational Criteria:	1	Centrally located
	2	Easy access for both police and fire departments
Technical Criteria:		
Walls:		GWB; 8' high mirrors on one wll
Floors:		Rubber athletic flooring
Ceiling:		Acoustic Tile
Windows:		Preferred
Security:		Standard Office Lock
Equipment:		CATV
Other:		
Furnishings:	1	Treadmill
	2	Stairmaster
	3	Exercise Bicycle
	4	Free Weights
	5	Universal
Notes:		Not contractually required for either department Include floor space for stretching

ROOM OR SPACE

Description:		**Server / E911 Room**
Group:		Building Support - Shared
Quantitative Criteria:	1	200 Square feet
Functional Description:	1	Room for all Police and Fire servers
	2	Card access and cell check head end location
	3	E911 head end location
Qualitative Description:	1	Secure, dry, well lit
Locational Criteria:	1	Central location or as required
	2	Close proximity to Dispatch preferred
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Resilient
Ceiling:		Exposed to structure
Windows:		None
Security:		Standard office lock with limited access
Equipment:		CCTV, telephone, security, E911, card access, server racks, switches, E911 UPS power, Police and Fire Department UPS power, telephone head end
Other:		
Furnishings:	1	Racks
Notes:		Provide backboards for all wall mounted equipment

ROOM OR SPACE

Description:		**Mechanical Room**
Group:		Building Support - Shared
Quantitative Criteria:	1	400 Square feet
Functional Description:	1	Room for mechancial equipment
Qualitative Description:	1	Service type room
Locational Criteria:	1	Central in building
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Not required
Security:		Standard storage lock
Equipment:		Mechanical Equipment
Other:		
Furnishings:	1	None
Notes:		Double door

ROOM OR SPACE

Description:		**Main Electrical Room**
Group:		Building Support - Shared
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Room for electrical service and panels
Qualitative Description:	1	Service type room
Locational Criteria:	1	Central in building
	2	Close to emergency generator
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Concrete with hardener or sealer
Ceiling:		GWB
Windows:		Not required
Security:		Standard storage lock
Equipment:		Electrical equipment
Other:		
Furnishings:	1	None
Notes:		

ROOM OR SPACE

Description:		**Plumbing / Fire Protection Room**
Group:		Building Support - Shared
Quantitative Criteria:	1	168 Square feet
Functional Description:	1	Room for plumbing and fire protection services and panels
Qualitative Description:	1	Service type room
Locational Criteria:	1	Central in building
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Not required
Security:		Standard storage lock
Equipment:		Fire protection sevice (dry and wet) check valve assembly, domestic water meter and reduced backflow preventer, water heater and expansion tank protection, tempered water control panel and mixing valves
Other:		
Furnishings:	1	None
Notes:		

ROOM OR SPACE

Description:		**Emergency Electrical Room**
Group:		Building Support - Shared
Quantitative Criteria:	1	100 Square feet
Functional Description:	1	Emergency electric panels
Qualitative Description:	1	Service type room
Locational Criteria:	1	Central in building
	2	Close to emergency generator
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Concrete with hardener or sealer
Ceiling:		GWB
Windows:		Not required
Security:		Standard storage lock
Equipment:		Electrical equipment
Other:		
Furnishings:	1	None
Notes:		

ROOM OR SPACE

Description:		**Janitor's Closet**
Group:		Building Support - Shared
Quantitative Criteria:	1	40 Square feet
	2	1 required per floor (see notes) at 20 SF each
Functional Description:	1	House janitorial supplies
Qualitative Description:	1	Durable materials
Locational Criteria:	1	One required per level
Technical Criteria:		
Walls:		Moisture Resistant GWB
Floors:		Ceramic Tile, resinous, linoleum
Ceiling:		GWB
Windows:		None
Security:		Standard Lock
Equipment:		None
Other:		
Furnishings:	1	Janitors sink or mop sink
	2	Rack for mops, brooms etc.
	3	Shelving
Notes:		Per Code, one Janitor's closet required per floor. If the building is a 2-story shared facility, assume 2 shared Janitor's closets for shared spaces and 1 Janitor in FD to be used by FD staff for cleaning living quarters.

ROOM OR SPACE

Description:		**Stairs**
Group:		Building Support - Shared
Quantitative Criteria:	1	800 Square feet
	2	Assumes two stairs connecting two floors
Functional Description:	1	Vertical circulation
Qualitative Description:	1	Well lit
Locational Criteria:	1	Ideally centrally located to be shared by departments
Technical Criteria:		
Walls:		GWB
Floors:		Raised rubber tile
Ceiling:		GWB
Windows:		Not required
Security:		Dependant on final plan layout
Equipment:		
Other:		
Furnishings:	1	
Notes:		

ROOM OR SPACE

Description:		**Elevator and Machine Room**
Group:		Building Support - Shared
Quantitative Criteria:	1	275 Square feet
Functional Description:	1	Vertical circulation
Qualitative Description:	1	
Locational Criteria:	1	Accessible to the lobby
Technical Criteria:		
Walls:		Standard
Floors:		Porcelain Tile in elevator; resilient in machine room
Ceiling:		Standard
Windows:		NA
Security:		Dependant on final plan layout
Equipment:		Hydraulic elevator
Other:		
Furnishings:	1	
Notes:		

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PROGRAM TABULATION + ROOM DATA SHEETS – POLICE DEPARTMENT

Public Safety Building Feasibility and Location Study
Ashland, MA

	Space	Occupants	Visitors	Proposed SF	Total SF	Notes:
ADMINISTRATION - POLICE						
	Police Chief	1	4	**210**		
	Deputy Police Chief - Future	1	2	**144**		
	Administrative Assistant	1	0	**120**		
	Lieutenant - Administrative	1	2	**144**		
	Lieutenant - Operational	1	2	**144**		
	Detectives	3	1	**200**		
	Detective Sergeant - Future	1	1	**120**		
	Interrogation Room	0	5	**120**		
	Administrative Sergeant	1	1	**120**		
	Community Services	1	2	**280**		
	Records Clerk	2	0	**200**		
	Records / Archive Document Storage	0	0	**240**		
	Conference Room	0	14	**325**		
	Office Supplies / Copy	0	0	**100**		
	Staff Toilet - 1 set of 2			**128**		
	SUBTOTAL				**2,595**	
	Gross area adjustment 15%				**389**	
	Circulation adjustment at 25%				**746**	
	TOTAL				**3,730**	
OPERATIONS - POLICE						
	Sergeants	8	0	**385**		
	Traffic / Safety	2	2	**200**		
	Roll Call Room	0	10	**300**		
	Report Writing	0	4	**160**		
	Patrol Storage	0	0	**150**		
	K9 Storage	0	0	**80**		
	Evidence	0	0	**400**		
	Evidence Prep Area	0	0	**64**		
	Bulk Evidence	0	0	**160**		
	Armory	0	0	**100**		
	Firing Range	0	0	**1,080**		
	SUBTOTAL				**3,079**	
	Gross area adjustment 15%				**462**	
	Circulation adjustment at 25%				**885**	
	TOTAL				**4,426**	
STAFF SUPPORT - POLICE						
	Lunch Room	0	6	**240**		
	Toilet / Shower / Locker Room Female	0	0	**320**		
	Toilet / Shower / Locker Room Male	0	0	**1,284**		
	SUBTOTAL				**1,844**	
	Gross area adjustment 15%				**277**	
	Circulation adjustment at 25%				**530**	
	TOTAL				**2,651**	

	Space	Occupants	Visitors	Proposed SF	Total SF	Notes:
DETENTION - POLICE						
	Sally Port / Vehicle Bays	0	0	1,620		
	Motor Vehicle Related Supplies	0	0	60		
	Booking	0	2	300		
	Booking Holding	0	1	72		
	Detainee Shower / Decon	0	1	50		
	Detention Janitor	0	0	30		
	Detention Cells	6	0	420		
	Interrogation Room	0	4	120		
	SUBTOTAL				**2,672**	
	Gross area adjustment 15%				**401**	
	Circulation adjustment at 25%				**768**	
	TOTAL				**3,841**	
	GRAND TOTAL - POLICE				**14,648**	
	Parking					
	Current Staff (Officers + Civilian)			22		# of cars at shift change
	Additional Future Staff			5		# of cars at shift change
	Cruisers (Current and Future)			25		Ideally some cruisers in carport with solar panels on top.
	Total Parking Police Dept			**52**		

ROOM OR SPACE

Description:		**Police Chief**
Group:		Administration - Police
Quantitative Criteria:	1	210
		Square feet
Functional Description:	1	Deskwork
	2	Small meetings - up to 4 people
Qualitative Description:	1	Private Office
Locational Criteria:	1	Adjacent to Administrative Assistant
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 4 guest chairs
	3	Bookshelves
	4	File cabinets
	5	36" round meeting table
Notes:		Small closet within room
		Acoustically private

ROOM OR SPACE

Description:		**Deputy Police Chief - Future**
Group:		Administration - Police
Quantitative Criteria:	1	144 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Near Police Chief
	2	Near Administrative Assistant
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 2 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		Acoustically private

ROOM OR SPACE

Description:		**Administrative Assistant**
Group:		Administration - Police
Quantitative Criteria:	1	120
		Square feet
Functional Description:	1	Deskwork
	2	Gateway to the Chief
Qualitative Description:	1	Private Office
Locational Criteria:	1	Adjacent to Police Chief
	2	Possibly pass through Admin Assistant to access Police Chief's office
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office
	3	Adjustable shelving on standards
	4	File cabinets
	5	Tackboard
Notes:		

ROOM OR SPACE

Description:		**Lieutenant - Administrative**
Group:		Administration - Police
Quantitative Criteria:	1	144 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Near Police Chief
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 2 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Lieutenant - Operational**
Group:		Administration - Police
Quantitative Criteria:	1	144 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Near Police Chief
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 2 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Detectives**
Group:		Administration - Police
Quantitative Criteria:	1	200 Square feet
Functional Description:	1	Deskwork
	2	Secure file and storage space
Qualitative Description:	1	Shared Office for 2
	2	In Station work area for School Resource Officer
Locational Criteria:	1	Adjacent to Administrative Lieutenant
	2	Close proximity to Interrogation Room
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	2 Desks with return
	2	1 Desk
	2	Seating - 3 office and 1 guest chair
	3	Adjustable shelving on standards
	4	3 lateral files - 42"
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Detective Sergeant - Future**
Group:		Administration - Police
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Adjacent to Detectives
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 1 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Interrogation Room**
Group:		Administration - Police
Quantitative Criteria:	1	120
		Square feet
Functional Description:	1	Interviewing witnesses and suspects
	2	Small meeting room
Qualitative Description:	1	Private enclosed conference area
Locational Criteria:	1	Adjacent to AV Surveillance
Technical Criteria:		
Walls:		GWB, one way glass mirror to AV Surveillance
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		One way glass mirror to AV Surveillance; Video / audio monitoring
Other:		
Furnishings:	1	Conference table
	2	Seating for 4-5 people
Notes:		

ROOM OR SPACE

Description:		**Administrative Sergeant**
Group:		Administration - Police
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Central to administrative offices
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 1 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Community Services**
Group:		Administration - Police
Quantitative Criteria:	1	280
		Square feet
Functional Description:	1	Deskwork
	2	Meetings with officers as required for stress debriefs
Qualitative Description:	1	Private Office
Locational Criteria:	1	Central to administrative offices
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer
Other:		
Furnishings:	1	4 Desks with return
	2	Seating - 4 office and 4 guest
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		Acoustically private
		Department consultant and others

ROOM OR SPACE

Description:		**Records Clerk**
Group:		Administration - Police
Quantitative Criteria:	1	200 Square feet
Functional Description:	1	Deskwork
	2	Interaction with public for records searches
Qualitative Description:	1	Shared Office (1 current and 1 future)
Locational Criteria:	1	Adjacent to Lobby
	2	Adjacent to Dispatch
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer
Other:		Bullet resistant transaction window
Furnishings:	1	2 Desks with returns
	2	Seating - 2 office
	3	Adjustable shelving on standards
	4	File cabinets - (4-6) 42" lateral files
	5	Tackboard
Notes:		

ROOM OR SPACE

Description:		**Records / Archive Document Storage**
Group:		Administration - Police
Quantitative Criteria:	1	240 Square feet
Functional Description:	1	Secure storage for records
Qualitative Description:	1	Dry, well lit and secure
Locational Criteria:	1	Adjacent to Records Clerk
	2	Near administrative staff
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Resilient
Ceiling:		Acoustic Tile
Windows:		None
Security:		Standard Storage Lock
Equipment:		Computer
Other:		
Furnishings:	1	High density file storage
	2	Countertop or table
	3	Seating - 1 office chair
Notes:		Some records must be kept 10-25 years or for life.

ROOM OR SPACE

Description:		**Conference Room**
Group:		Administration - Police
Quantitative Criteria:	1	325 Square feet
Functional Description:	1	Meetings for 12-14 people
Qualitative Description:	1	Private meeting space
Locational Criteria:	1	Central to administrative offices
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Monitor with computer hook-up
Other:		
Furnishings:	1	Conference table 4'-6" x 16'
	2	Seating for 14
	3	Credenza
	4	Whiteboard
Notes:		Acoustically private

ROOM OR SPACE

Description:		**Office Supplies / Copy**
Group:		Administration - Police
Quantitative Criteria:	1	100
		Square feet
Functional Description:	1	Storage of office supplies
	2	Shared copier
Qualitative Description:	1	Storage room
Locational Criteria:	1	Central to Administrative Offices
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		None
Security:		None
Equipment:		Copier, fax machine
Other:		
Furnishings:	1	Worksurface
	2	Adjustable shelving on standards
Notes:		

ROOM OR SPACE

Description:		**Staff Toilet - 1 set of 2**
Group:		Administration - Police
Quantitative Criteria:	1	128
		Square feet
Functional Description:	1	Men's and Women's Toilet
	2	Fully accessible
Qualitative Description:	1	Toilet area
Locational Criteria:	1	Central to Administrative Offices
Technical Criteria:		
Walls:		GWB / ceramic tile wainscot
Floors:		Ceramic tile
Ceiling:		GWB or Acoustic Tile
Windows:		None
Security:		Standard Toilet Room Lock
Equipment:		None
Other:		Plumbing and HVAC for standard toilet environment
Furnishings:	1	Mirror
	2	Soap dispenser
	3	Towel dispenser/trash receptacle
	4	Feminine dispenser and receptacle
	5	Toilet paper dispenser
	6	Coat hook
	7	Shelving
Notes:		

ROOM OR SPACE

Description:		**Sergeants**
Group:		Operations - Police
Quantitative Criteria:	1	385 Square feet
Functional Description:	1	Deskwork
	2	Secure file and storage space
Qualitative Description:	1	Shared Office for 6 current (8 future)
Locational Criteria:	1	Connection to Communications Center/Dispatch
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Bench style workstations for 8
	2	Seating - 8 office
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		One sergeant per shift. Some shifts overlap, but there is never more than one person in the office at a time.

ROOM OR SPACE

Description:		**Traffic / Safety**
Group:		Operations - Police
Quantitative Criteria:	1	200
		Square feet
Functional Description:	1	Deskwork
	2	Secure file and storage space
Qualitative Description:	1	Shared Office for 2
	2	Storage space for supplies
Locational Criteria:	1	Close proximity to Roll Call
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	2 Desks with return
	2	Seating - 2 office and 2 guest chairs
	3	Adjustable shelving on standards
	4	Closet or storage cabinets for supplies
	5	Lateral files
	6	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Roll Call Room**
Group:		Operations - Police
Quantitative Criteria:	1	300 Square feet
Functional Description:	1	Meet for roll call at each shift change
Qualitative Description:	1	Enclosed meeting space
Locational Criteria:	1	Adjacent to Locker Rooms
	2	Close proximity to exit to parking
	3	Adjacent to Sergeants
	4	Adjacent to Report Writing
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		CATV, Smartboard
Other:		Mail slots inside or just outside the room
Furnishings:	1	5-6 Training tables - 18" x 5'-0"
	2	Seating for 10
	3	Lecturn
Notes:		

ROOM OR SPACE

Description:		**Report Writing**
Group:		Operations - Police
Quantitative Criteria:	1	160 Square feet
Functional Description:	1	Deskwork and/or on-line training for 4 people
Qualitative Description:	1	Shared space for writing reports
	2	Shared space for on-line training
Locational Criteria:	1	Near Roll Call
	2	Close proximity to Dispatch
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Preferred
Security:		None
Equipment:		Computers, CATV
Other:		
Furnishings:	1	Bench style worksurface for 4
	2	Seating - 4 office
Notes:		

ROOM OR SPACE

Description:		**Patrol Storage**
Group:		Operations - Police
Quantitative Criteria:	1	150 Square feet
Functional Description:	1	Stroage of patrol officers' supplies (medical supplies, gloves, citations, crime scene tape, etc.)
Qualitative Description:	1	Storage room
Locational Criteria:	1	Adjacent to Roll Call
	2	Adjacent to Locker Rooms
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		None
Security:		Standard Office Lock
Equipment:		Radio Chargers
Other:		
Furnishings:	1	Adjustable shelving on standards
	2	Whiteboard / Tackboard
Notes:		Provide additional storage/charging space for tasers, body cameras (future) and car cameras.

ROOM OR SPACE

Description:		**K9 Storage**
Group:		Operations - Police
Quantitative Criteria:	1	80 Square feet
Functional Description:	1	Strorage of K9 related equipment and supplies
Qualitative Description:	1	Storage room
Locational Criteria:	1	Adjacent to Roll Call
	2	Adjacent to Locker Rooms
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		None
Security:		Standard Office Lock
Equipment:		
Other:		
Furnishings:	1	Adjustable shelving on standards
	2	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Evidence**
Group:		Operations - Police
Quantitative Criteria:	1	400 Square feet
Functional Description:	1	Deskwork - processing evidence
	2	Secure transfer of evidence
	3	Storage of evidence
Qualitative Description:	1	Secure storage / workroom
Locational Criteria:	1	Easily accessible to Patrol Officers, Detectives and Sergeants
	2	Adjacent to Evidence Prep Area
Technical Criteria:		
Walls:		CMU
Floors:		Resilient
Ceiling:		GWB
Windows:		None
Security:		Restricted access storage lock
Equipment:		CATV, computer, pass-thru evidence lockers including refrigerated locker, (2) full-size refrigerators, bar code scanner
Other:		
Furnishings:	1	Desk or built-in worksurface
	2	Chair
	3	Shelving - high density storage
	4	Safe
	5	Rifle locker
	6	Whiteboard / Tackboard
Notes:		Seals on doors and proper ventilation required due to possible evidence fumes (marijuana, etc).

ROOM OR SPACE

Description:		**Evidence Prep Area**
Group:		Operations - Police
Quantitative Criteria:	1	64 Square feet
Functional Description:	1	Preparation of evidence prior to secure transfer
Qualitative Description:	1	Workroom
Locational Criteria:	1	Easily accessible to Patrol Officers, Detectives and Sergeants
	2	Adjacent to Evidence Room
Technical Criteria:		
Walls:		GWB
Floors:		Resilient
Ceiling:		Acoustical Tile
Windows:		None
Security:		None
Equipment:		Bar code printer
Other:		
Furnishings:	1	Desk or built-in worksurface
	2	Storage shelving for evidence bags and boxes
	3	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Bulk Evidence**
Group:		Operations - Police
Quantitative Criteria:	1	160 Square feet
Functional Description:	1	Secure storage of large evidence
Qualitative Description:	1	Secure storage
Locational Criteria:	1	Adjacent to Vehicle Bays
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous or concrete with hardener / sealer
Ceiling:		Exposed to structure
Windows:		None
Security:		Restricted access storage lock
Equipment:		Bar code scanner
Other:		
Furnishings:		
Notes:		Additional exterior storage pen for seized extra large bulk evidence (lawnmowers, motorcycles, etc.)

ROOM OR SPACE

Description:		**Armory**
Group:		Operations - Police
Quantitative Criteria:	1	100 Square feet
Functional Description:	1	Secure storage of guns and ammunition
	2	Secure area for cleaning and maintaining weapons
Qualitative Description:	1	Secure storage / workroom
Locational Criteria:	1	Adjacent to Firing Range
Technical Criteria:		
Walls:		GWB to underside of deck
Floors:		Resilient
Ceiling:		GWB
Windows:		None
Security:		Standard storage lock
Equipment:		
Other:		Pressurize room and provide adequate ventilation for cleaning solvents; sink
Furnishings:	1	Stainless steel workbench
	2	Weapons lockers
	3	Shelving
	4	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Firing Range**
Group:		Operations - Police
Quantitative Criteria:	1	1080 Square feet
Functional Description:	1	Two firing lanes for target practice, training and certification
Qualitative Description:	1	Secure firing range
Locational Criteria:	1	Adjacent to Armory
Technical Criteria:		
Walls:		Double wall construction: core-filled CMU with 2 layers of GWB on metal studs with acoustical insulation on outside face
Floors:		Epoxy resinous
Ceiling:		Steel plate with acoustical foam; steel faced plywood baffles
Windows:		None
Security:		Standard storage lock
Equipment:		Target system, bullet trap
Other:		Dedicated HVAC system; exhaust pre-filtering and monitoring for lead contamination; 100% outside air exhausts
Furnishings:	1	Shooting booths
	2	Preparation and scoring tables
Notes:		Acoustic engineer should be consulted to develop strategies for noise mitigation and noise transmission.

ROOM OR SPACE

Description:		**Lunch Room**
Group:		Staff Support - Police
Quantitative Criteria:	1	240 Square feet
Functional Description:	1	Informal staff dining
Qualitative Description:	1	Easily cleanable materials
Locational Criteria:	1	Centrally located
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Resilient
Ceiling:		Acoustic Tile
Windows:		Required
Security:		
Equipment:		CATV, refrigerator, microwave, sink, toaster oven, coffee maker, water cooler, wall and base cabinets
Other:		
Furnishings:	1	3' x 8' lunch table
	2	Seating for 6
Notes:		

ROOM OR SPACE

Description:		**Toilet / Shower / Locker Room Female**
Group:		Staff Support - Police
Quantitative Criteria:	1	320 Square feet
Functional Description:	1	Toilet / Shower / Lavatory / Locker
	2	Drying area for wet garments
Qualitative Description:	1	Multiple occupant space
	2	Secure
	3	Good ventilation
	4	Durable materials
Locational Criteria:	1	Adjacent to Roll Call
Technical Criteria:		
Walls:		GWB with epoxy paint; Ceramic tile wainscot
Floors:		Ceramic tile
Ceiling:		Acoustic Tile and GWB
Windows:		None
Security:		Standard toilet room lock
Equipment:		Speakers for radio monitoring
Other:		
Furnishings:	1	Mirrors
	2	Soap dispensers
	3	Towel dispenser/trash receptacle
	4	Toilet paper dispensers
	5	Showers with bench seats
	6	Clothing hooks
	7	Feminine napkin disposal
	8	6 Lockers - 24"D x 36"W with slope tops, double doors, outlets, radio chargers, boot storage, drawer below and integral bench
Notes:		

ROOM OR SPACE

Description:		**Toilet / Shower / Locker Room Male**
Group:		Staff Support - Police
Quantitative Criteria:	1	1284 Square feet
Functional Description:	1	Toilet / Shower / Lavatory / Locker
	2	Drying area for wet garments
Qualitative Description:	1	Multiple occupant space
	2	Secure
	3	Good ventilation
	4	Durable materials
Locational Criteria:	1	Adjacent to Roll Call
Technical Criteria:		
Walls:		GWB with epoxy paint; Ceramic tile wainscot
Floors:		Ceramic tile
Ceiling:		Acoustic Tile and GWB
Windows:		None
Security:		Standard toilet room lock
Equipment:		Speakers for radio monitoring
Other:		
Furnishings:	1	Mirrors
	2	Soap dispensers
	3	Towel dispenser/trash receptacle
	4	Toilet paper dispensers
	5	Showers with bench seats
	6	Clothing hooks
	8	25 Lockers - 24"D x 36"W with slope tops, double doors, outlets, radio chargers, boot storage, drawer below and integral bench
	9	10 Lockers - 24"D x 18"W with slope tops for Auxillary Officers
Notes:		

ROOM OR SPACE

Description:		**Sally Port / Vehicle Bays**
Group:		Detention - Police
Quantitative Criteria:	1	1620 Square feet
Functional Description:	1	Three bays; 18' x 30'
	2	Secure internal lcoation for transfering detainees to lock-up
	3	Secure vehicle impound / evidence area
	4	Parking bay for Department's ATV and motorcycle
Qualitative Description:	1	Durable materials easy to clean and maintain
	2	Good air quality
Locational Criteria:	1	Direct access to Booking
	2	Direct access to Bulk Evidence
	3	Good access to exterior
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous or concrete with non-slip surface
Ceiling:		Exposed to structure
Windows:		None
Security:		Locked; overhead doors to have multiple systems for closing down doors; interlocked with man-doors
Equipment:		Overhead door controls; wire mesh partition with lockable gate separating bays.
Other:		Hose bibb; eyewash; emergency CO monitor and vent system
Furnishings:	1	Pistol locker
	2	Hanging rack for brooms, shovels within ATV/motorcycle bay
Notes:		

ROOM OR SPACE

Description:		**Motor Vehicle Related Supplies**
Group:		Detention - Police
Quantitative Criteria:	1	60 Square feet
Functional Description:	1	Storage of motor vehicle related supplies
	2	Storage of tools and parts
	3	Storage of washer fluid
Qualitative Description:	1	Secure storage
Locational Criteria:	1	Adjacent to the Sally Port or Maintenance area in Fire Department Apparatus Bays
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		None
Security:		Standard storage lock
Equipment:		
Other:		
Furnishings:	1	Adjustable shelving on standards
Notes:		

ROOM OR SPACE

Description:		**Booking**
Group:		Detention - Police
Quantitative Criteria:	1	300 Square feet
Functional Description:	1	Processing of detainees
	2	Fingerprinting
	3	Photographing mug shots
	4	Breathylizer testing
Qualitative Description:	1	Good Lighting
	2	Durable, easy to clean materials
	3	Secure
Locational Criteria:	1	Adjacent to Sally Port
	2	Adjacent to detention cells
	3	Adjacent to Holding
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous
Ceiling:		GWB
Windows:		None
Security:		Standard Detention Locks
Equipment:		Computer, CCTV, breathylizer, digital fingerprint desktop device, camera, base cabinets with locks and heavy duty hardware including integral pulls, storage lockers for detainees, pass-thru window to Holding
Other:		Handwash sink
Furnishings:	1	Steel bench with handcuff rail
	2	Handcuff rails
Notes:		

ROOM OR SPACE

Description:		**Booking Holding**
Group:		Detention - Police
Quantitative Criteria:	1	72
		Square feet
Functional Description:	1	Secure holding of detainees during processing
	2	Secure holding of detainees prior to processing
Qualitative Description:	1	Good Lighting
	2	Durable, easy to clean materials
	3	Secure
Locational Criteria:	1	Adjacent to Sally Port
	2	Adjacent to Booking
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous
Ceiling:		GWB
Windows:		None
Security:		Standard Detention Locks
Equipment:		
Other:		
Furnishings:	1	Steel bench with handcuff rail
Notes:		

ROOM OR SPACE

Description:		**Detainee Shower / Decon**
Group:		Detention - Police
Quantitative Criteria:	1	50
		Square feet
Functional Description:	1	Shower facility for detainees
Qualitative Description:	1	Durable, easy to clean materials
	2	Secure
	3	Suicide resistant
	4	Sight / sound separation between males, females
Locational Criteria:	1	Adjacent to Booking
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous, pitch to floor drain
Ceiling:		GWB
Windows:		None
Security:		Standard Detention Locks
Equipment:		Penal shower fixture
Other:		
Furnishings:		
Notes:		

ROOM OR SPACE

Description:		**Detention Janitor**
Group:		Detention - Police
Quantitative Criteria:	1	30
		Square feet
Functional Description:	1	Cleaning supplies for detention area
	2	Storage for detention area (bedding, jumpsuits, cuffs, leg irons, toilet paper, cleaning supplies, etc.)
Qualitative Description:	1	Durable, easy to clean materials
	2	Secure
Locational Criteria:	1	Accessed outside of detention area
	2	Close proximity to detention area
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous
Ceiling:		GWB
Windows:		None
Security:		Standard Detention Locks
Equipment:		Mop sink
Other:		
Furnishings:	1	Mop hooks with shelf
	2	Wall hooks for cuffs and leg irons
	3	Adjustable shelving on standards
Notes:		

ROOM OR SPACE

Description:		**Detention Cells**
Group:		Detention - Police
Quantitative Criteria:	1	420 Square feet
	2	Three sets of (2) cells at 70 square feet each
Functional Description:	1	Single occupancy lock-up for detainees
Qualitative Description:	1	Durable, easy to clean materials
	2	Secure
	3	Suicide resistant
	4	Sight / sound separation between males, females
Locational Criteria:	1	Adjacent to Booking
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous; pitch to floor drain outside cell
Ceiling:		Steel plate
Windows:		None
Security:		Standard cell doors/locks
Equipment:		Penal fixtures (one HC accessible in each grouping); suicide resistant grilles/registers; video / audio monitoring; cell check outside
Other:		
Furnishings:	1	Steel bench with skirt to floor
Notes:		

ROOM OR SPACE

Description:		**Interrogation Room**
Group:		Detention - Police
Quantitative Criteria:	1	120
		Square feet
Functional Description:	1	Interviewing detainees
	2	Small meeting room
Qualitative Description:	1	Private enclosed conference area
Locational Criteria:	1	Adjacent to detention cells
Technical Criteria:		
Walls:		CMU
Floors:		Epoxy resinous
Ceiling:		Steel plate
Windows:		None
Security:		Standard Office Lock
Equipment:		Video / audio monitoring
Other:		
Furnishings:	1	Conference table
	2	Seating for 4 people
	3	Storage cabinet for fire arms permitting
Notes:		

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PROGRAM TABULATION + ROOM DATA SHEETS – FIRE DEPARTMENT

Public Safety Building Feasibility and Location Study
Ashland, MA

	Space	Occupants	Visitors	Proposed SF	Total SF	Notes:
ADMINISTRATION - FIRE						
	Fire Chief	1	4	**210**		
	Deputy Fire Chief - Future	1	2	**144**		
	Administrative Assistant	1	0	**120**		
	Captain	1	2	**120**		
	Training Officer - Future	1	2	**120**		
	Lieutenants	4	1	**240**		
	EMS Officer - Future	1	1	**120**		
	Plan Review	0	4	**144**		
	Office Supplies / Copy	0	0	**100**		
	Archive Document Storage	0	0	**120**		
	Coat Closet	0	0	**13**		
	Staff Toilet 1 set of 2	0	0	**128**		
	SUBTOTAL				**1,579**	
	Gross area adjustment 15%				**237**	
	Circulation adjustment at 25%				**454**	
	TOTAL				**2,270**	
STAFF SUPPORT - FIRE						
	Dorm Rooms	6	0	**840**		six single occupancy rooms
	LT's Dorm Room	1	0	**140**		
	Study Room	0	1	**100**		
	Toilet / Shower Room Male	0	0	**340**		
	Toilet / Shower Room Female	0	0	**200**		
	Kitchen	0	10	**352**		
	Day Room	0	5	**352**		
	Report Writing / On-Line Training	0	4	**160**		
	Janitor's Closet	0	0	**36**		
	SUBTOTAL				**2,520**	
	Gross area adjustment 15%				**378**	
	Circulation adjustment at 25%				**725**	
	TOTAL				**3,623**	
OPERATIONS - FIRE						
	Apparatus Bays			**12,760**		
	Hose Storage			**120**		
	Gear Storage			**500**		
	Laundry			**156**		
	Maintenance Workshop			**180**		
	Traffic Light Workshop			**150**		
	Medical Cleaning / Decontamination			**120**		
	SCBA Fill Room			**108**		
	Air Compressor			**40**		
	Oxygen Storage			**32**		
	Haz Mat Supply Storage			**120**		
	Medical Supply Storage			**150**		

	Space	Occupants	Visitors	Proposed SF	Total SF	Notes:
	Bulk Storage			**216**		
	SUBTOTAL				**14,652**	
	Gross area adjustment 15% (*)				**1,560**	* 10% for Apparatus Bays
	Circulation adjustment at 10% (**)				**218**	** 0% for Apparatus Bays
	TOTAL				**16,429**	
	GRAND TOTAL - FIRE				**22,322**	
	Parking					
	Current Staff (Firefighters + Civilian)			13		# of cars at shift change
	Additional Future Staff (Firefigthers + Civilian)			7		# of cars at shift change
	Call Firefighters (Typical Call)			6		6 maximum call
	Total Parking Fire Dept			**26**		

ROOM OR SPACE

Description:		**Fire Chief**
Group:		Administration - Fire
Quantitative Criteria:	1	210
		Square feet
Functional Description:	1	Deskwork
	2	Small meetings - up to 4 people
Qualitative Description:	1	Private Office
Locational Criteria:	1	Adjacent to Administrative Assistant
	2	Not off the lobby
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 4 guest chairs
	3	Bookshelves
	4	File cabinets
	5	36" round meeting table
Notes:		Small closet within room
		Acoustically private

ROOM OR SPACE

Description:		**Deputy Fire Chief - Future**
Group:		Administration - Fire
Quantitative Criteria:	1	144 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Near Fire Chief
	2	Near Administrative Assistant
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 2 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		Acoustically private

ROOM OR SPACE

Description:		**Administrative Assistant**
Group:		Administration - Fire
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Deskwork
	2	Gateway to the Chief
	3	Meets with public regarding permitting
Qualitative Description:	1	Private Office
Locational Criteria:	1	Adjacent to Fire Chief
	2	Possibly pass through Admin Assistant to access Fire Chief's office
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office
	3	Adjustable shelving on standards
	4	File cabinets
	5	Tackboard
Notes:		

ROOM OR SPACE

Description:		**Captain**
Group:		Administration - Fire
Quantitative Criteria:	1	120
		Square feet
Functional Description:	1	Deskwork
	2	Small Meetings - Fire Prevention
Qualitative Description:	1	Private Office
Locational Criteria:	1	Central access to administrative offices
	2	Close to Plan Room
Technical Criteria:		
Walls:		GWB, office standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV, CCTV, speaker
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 2 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Training Officer - Future**
Group:		Administration - Fire
Quantitative Criteria:	1	120
		Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Close to Fire Chief
	2	Close to Deputy Fire Chief
Technical Criteria:		
Walls:		GWB, office standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV, CCTV, speaker
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 2 guest chairs
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Lieutenants**
Group:		Administration - Fire
Quantitative Criteria:	1	240 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Shared Office for 4
Locational Criteria:	1	Close to Day Room and Apparatus Bays
Technical Criteria:		
Walls:		GWB, office standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV, CCTV, speaker, radio chargers
Other:		
Furnishings:	1	4 Desks with returns
	2	Seating - 4 office with 1 guest chair
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		Include shelving for radio chargers, spare batteries, etc. Includes space for Vehicle Maintenance Officer

ROOM OR SPACE

Description:		**EMS Officer - Future**
Group:		Administration - Fire
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Deskwork
Qualitative Description:	1	Private Office
Locational Criteria:	1	Close to Lieutenants
Technical Criteria:		
Walls:		GWB, office standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Computer, CATV, CCTV, speaker
Other:		
Furnishings:	1	Desk with return
	2	Seating - 1 office with 1 guest chair
	3	Adjustable shelving on standards
	4	File cabinets
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Plan Review**
Group:		Administration - Fire
Quantitative Criteria:	1	144
		Square feet
Functional Description:	1	Storage for building plans
Qualitative Description:	1	Storage building plans
	2	Plan review
Locational Criteria:	1	Near Captain
Technical Criteria:		
Walls:		GWB, office standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		NA
Security:		Standard Storage Lock
Equipment:		
Other:		
Furnishings:	1	Flat file cabinets
	2	Upright mobile roll files
	3	Rectangular table for plan review
	4	Guest seating for 4
	5	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Office Supplies / Copy**
Group:		Administration - Fire
Quantitative Criteria:	1	100
		Square feet
Functional Description:	1	Storage of office supplies
	2	Shared copier
Qualitative Description:	1	Storage room
Locational Criteria:	1	Central to Administrative Offices
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		None
Security:		None
Equipment:		Copier, fax machine, mailing equipment
Other:		
Furnishings:	1	Worksurface
	2	Adjustable shelving on standards
Notes:		

ROOM OR SPACE

Description:		**Archive Document Storage**
Group:		Administration - Police
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Secure storage for records
Qualitative Description:	1	Dry, well lit and secure
Locational Criteria:	1	Near administrative staff
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Resilient
Ceiling:		Acoustic Tile
Windows:		None
Security:		Standard Storage Lock
Equipment:		Computer
Other:		
Furnishings:	1	High density file storage
	2	Countertop or table
	3	Seating - 1 office chair
Notes:		Some records must be kept 10-25 years or for life.

ROOM OR SPACE

Description:		**Coat Closet**
Group:		Administration - Fire
Quantitative Criteria:	1	13 Square feet - (1) @ 2.5' x 5'
Functional Description:	1	Personal Belongings
Qualitative Description:	1	Closet for storage
Locational Criteria:	1	Central to administration staff
Technical Criteria:		
Walls:		GWB
Floors:		Carpet or resilient
Ceiling:		Acoustic Tile
Windows:		None
Security:		Standard Closet Lock
Equipment:		None
Other:		
Furnishings:	1	Coat rod with shelf above
Notes:		

ROOM OR SPACE

Description:		**Staff Toilet 1 set of 2**
Group:		Administration - Fire
Quantitative Criteria:	1	128
		Square feet (per set)
Functional Description:	1	Men's and Women's Toilet
	2	Fully accessible
Qualitative Description:	1	Toilet area
Locational Criteria:	1	General office area
Technical Criteria:		
Walls:		GWB/Ceramic Tile
Floors:		Ceramic Tile
Ceiling:		GWB or acoustic tile
Windows:		None
Security:		Standard Toilet Room Lock
Equipment:		None
Other:		
Furnishings:	1	Mirror
	2	Soap dispensor
	3	Towel dispensor/trash receptacle
	4	Feminine dispensor and receptacle
	5	Toilet paper dispenser
	6	Coat hook
	7	Shelving
Notes:		

ROOM OR SPACE

Description:		**Dorm Rooms**
Group:		Staff Support - Fire
Quantitative Criteria:	1	840 Square feet
	2	Sized for one twin bed, 1 nightstand, 4 wardrobes, 1 guest chair
Functional Description:	1	(6) single occupancy sleeping rooms
Qualitative Description:	1	Good ventilation
	2	Quiet
Locational Criteria:	1	Adjacent to locker rooms
Technical Criteria:		
Walls:		GWB
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Telephone; CATV; speaker; station alert system for light control
Other:		
Furnishings:	1	Twin bed
	2	Nightstand
	3	Guest chair
	4	Storage for linens / personnel items in wardrobe/locker
	5	Blackout shades
Notes:		(4) 30"x24" wardrobes

ROOM OR SPACE

Description:		**LT's Dorm Room**
Group:		Staff Support - Fire
Quantitative Criteria:	1	140 Square feet
	2	Sized for one twin bed, 1 nightstand, 1 desk, 4 wardrobes
Functional Description:	1	Single occupancy sleeping rooms
	2	Room for private study
Qualitative Description:	1	Good ventilation
	2	Quiet
Locational Criteria:	1	Adjacent to locker rooms
Technical Criteria:		
Walls:		GWB
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Telephone; CATV; speaker; station alert system for light control
Other:		
Furnishings:	1	Twin bed
	2	Nightstand
	3	Desk
	4	Office chair
	5	Storage for linens / personnel items in wardrobe/locker
	6	Blackout shades
Notes:		(4) 30"x24" wardrobes

ROOM OR SPACE

Description:		**Study Room**
Group:		Staff Support - Fire
Quantitative Criteria:	1	100
		Square feet
Functional Description:	1	Room for private study
Qualitative Description:	1	Good ventilation
	2	Quiet
Locational Criteria:	1	Near Dorm Rooms
Technical Criteria:		
Walls:		GWB
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Required
Security:		Standard Office Lock
Equipment:		Telephone; CATV; speaker; station alert system for light control
Other:		
Furnishings:	1	Desk
	2	Office chair
	3	Lounge chair
	4	End table
	5	Bookcases
	6	Whiteboard / Tackboard
Notes:		

ROOM OR SPACE

Description:		**Toilet / Shower Room Male**
Group:		Staff Support - Fire
Quantitative Criteria:	1	340
		Square feet
Functional Description:	1	Toilet / Lavatory
	2	Showers with dressing area
	3	Lockers for Call Firefighters
Qualitative Description:	1	Multiple occupant space
	2	Secure
	3	Good ventilation
	4	Durable Materials
Locational Criteria:	1	Adjacent to staff quarters
Technical Criteria:		
Walls:		GWB with epoxy paint; Ceramic Tile wainscot
Floors:		Ceramic Tile or Resinous flooring
Ceiling:		Acoustic Tile and GWB
Windows:		None
Security:		Standard Toilet Room Lock
Equipment:		Speakers for radio monitoring
Other:		
Furnishings:	1	Mirrors
	2	Soap dispensers
	3	Towel dispenser/trash receptacle
	4	Toilet paper dispensers
	5	Showers with bench seats
	6	Clothing hooks
	7	Lockers with integral benches - (12) 12"x24"
Notes:		Provide wet garment drying area

ROOM OR SPACE

Description:		**Toilet / Shower Room Female**
Group:		Staff Support - Fire
Quantitative Criteria:	1	200
		Square feet
Functional Description:	1	Toilet / Lavatory
	2	Showers with dressing area
	3	Lockers for Call Firefighters
Qualitative Description:	1	Multiple occupant space
	2	Secure
	3	Good ventilation
	4	Durable Materials
Locational Criteria:	1	Adjacent to staff quarters
Technical Criteria:		
Walls:		GWB with epoxy paint; Ceramic Tile wainscot
Floors:		Ceramic Tile or Resinous flooring
Ceiling:		Acoustic Tile and GWB
Windows:		None
Security:		Standard Toilet Room Lock
Equipment:		Speakers for radio monitoring
Other:		
Furnishings:	1	Mirrors
	2	Soap dispensers
	3	Towel dispenser/trash receptacle
	4	Toilet paper dispensers
	5	Showers with bench seats
	6	Clothing hooks
	7	Lockers with integral benches - (2) 12"x24"
	8	Feminine napkin disposal
Notes:		Provide wet garment drying area

ROOM OR SPACE

Description:		**Kitchen**
Group:		Staff Support - Fire
Quantitative Criteria:	1	352 Square feet
	2	Current needs up to 5 people at a time on shift; additional admin staff at meals
Functional Description:	1	Food storage and preparation
	2	Informal dining
Qualitative Description:	1	Commercial kitchen equipment
	2	Accessible and open
	3	Easy to maintain/clean
	4	Good ventilation
Locational Criteria:	1	Adjacent to day room
	2	Easy access to apparatus bays
Technical Criteria:		
Walls:		GWB
Floors:		Resilient slip resistant
Ceiling:		Acoustic Tile - scrubbable
Windows:		Preferred
Security:		NA
Equipment:		Refrigerators (2), commercial gas cooktop/oven (2) with hood and auto remote shut-off on apparatus floor, microwave, toaster oven, coffee maker, dishwasher, garbage disposal, 2 bowl sink
Other:		Grill outside kitchen area
Furnishings:	1	Wall and base cabinets
	2	Stools at counter
	3	Provisions for recycling and trash
	4	Food storage pantries for 4 shifts
	5	Dining table and chairs for 10
Notes:		Provide auto remote stove/oven shut-off in the apparatus bays Provide outside dining area adjacent with grill and picnic tables

ROOM OR SPACE

Description:		**Day Room**
Group:		Staff Support - Fire
Quantitative Criteria:	1	352 Square feet
	2	Current needs up to 5 people at a time on shift; 7 people on shift in future
	3	Dedicated only to "living" needs
Functional Description:	1	Watching TV/Videos; Listening to music
	2	Informal meeting
Qualitative Description:	1	Comfortable relaxed environment
	2	Natural lighting
Locational Criteria:	1	Easy access to apparatus bays
	2	Adjacent to Kitchen
Technical Criteria:		
Walls:		GWB
Floors:		Carpet or Resilient
Ceiling:		Acoustic Tile
Windows:		Required
Security:		NA
Equipment:		TV/Video equipment
Other:		
Furnishings:	1	Comfortable chairs
	2	Entertainment Center
	3	Bookshelves
	4	Side tables
Notes:		

ROOM OR SPACE

Description:		**Report Writing / On-Line Training**
Group:		Staff Support - Fire
Quantitative Criteria:	1	160 Square feet
Functional Description:	1	Deskwork and/or on-line training for 4 people
Qualitative Description:	1	Shared space for on-line training
Locational Criteria:	1	Near Day Room
Technical Criteria:		
Walls:		GWB, Office Standard
Floors:		Carpet
Ceiling:		Acoustic Tile
Windows:		Preferred
Security:		None
Equipment:		Computers, CATV
Other:		
Furnishings:	1	Bench style worksurface for 4
	2	Seating - 4 office
Notes:		

ROOM OR SPACE

Description:		**Janitor's Closet**
Group:		Staff Support - Fire
Quantitative Criteria:	1	36 Square feet
	2	1 required per floor (see notes)
Functional Description:	1	House janitorial supplies
Qualitative Description:	1	Durable materials
Locational Criteria:	1	One required per level
Technical Criteria:		
Walls:		Moisture Resistant GWB
Floors:		Ceramic Tile, resinous, linoleum
Ceiling:		GWB
Windows:		None
Security:		Standard Lock
Equipment:		None
Other:		
Furnishings:	1	Janitors sink or mop sink
	2	Rack for mops, brooms etc.
	3	Shelving
Notes:		Per Code, one Janitor's closet required per floor. If the building is a 2-story shared facility, assume 2 shared Janitor's closet for shared spaces, 1 Janitor in FD to be used by FD staff for cleaning living quarters.

ROOM OR SPACE

Description: **Apparatus Bays**
Group: Operations - Fire

Quantitative Criteria:

1. 12,760
   Square feet
2. Sized for access to all sides and tops of vehicles
3. 14 x 14 overhead doors - Glass in doors
4. Vehicles:
   a. Engine 1: 30’ 2” L x 100” W x 9’ 7” H
   b. Engine 2: 28’ 9” L x 9’ 7” W x 9’ 8” H
   c. Engine 7: 30’ 8” L x 8’ 5” W x 9’ 2” H
   d. Tower 1: 44’ 5” L x 9’ 7” W x 11’ 8” H
   e. Rescue 1: 31’ 6” x 9’ 7” W x 11’ 5” H
   f. Ambulance 1: 307” L x 100” W x 117” H
   g. Ambulance 2: 25’ 9” L x 9’ 7” W x 6’ 11” H
   h. Brush 1: 26’ L x 9’ 4” W x 9’ 10” H
   i. Brush 2: 238.2"L x 105.9" W x 80” H
   j. Dive 1: 23’ 10” L x 9’ 5” W x 10’ 3” H
   k. Boat 1: 22’ L x 7’ 2” W x 7’ 2” H
   l. Boat 2: (Slightly smaller but see above dimensions)
   m. Car 3: 238″ L x 105″ W x 81″ H
   n. Car 5: 17’ 9” L x 7’ 3” W x 6’ 10” H
   o. Car 1: Ford Expeditions, see above dimension of Car 5
   p. Car 2: Ford Expeditions, see above dimension of Car 5
   q. Tech Trailer: 27’ 2” L x 9’ W x 9’ 7” H
   r. Rehab Trailer: 30’ L x 9’ W x 9’ 7” H
5. Double Deep Bays - Drive-thru preferred

Functional Description:

1. House fire apparatus
2. House ambulance
3. House trailers, small equipment

Qualitative Description:

1. Easy access to trucks
2. Easy access to gear
3. Clear span for maximum flexibility
4. Good air quality
5. Adequate height for clearance and maintenance of vehicles
6. Natural light

Locational Criteria:

1. Excellent access from living quarters and day room
2. Adjacent to maintenance and fire equipment support areas
3. Good access to exterior

Technical Criteria:

Walls: CMU or high impact GWB
Floors: Epoxy Resin or Concrete with non slip surface
Ceiling: Exposed to structure
Windows: Required using natural light thru doors and clerestory
Security: Locked to secure equipment when firefighters are on calls; overhead doors to have multiple systems for closing down doors

Equipment:		Air and water lines; overhead door controls; Source capture system; Operable racks for lifting hoses; Rapelling connections for training
Other:		
Furnishings:	1	White Board
	2	Bulletin Board
Notes:		Total count of bays and bay depth is site dependent. Prefer drive thru capability.

ROOM OR SPACE

Description:		**Hose Storage**
Group:		Operations - Fire
Quantitative Criteria:	1	120 Square feet
	2	Portable hose storage racks
Functional Description:	1	Storing Hose on racks
Qualitative Description:	1	Good Lighting
Locational Criteria:	1	Adjacent to vehicle bays
	2	Adjacent to maintenance and fire equipment support areas
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy Resinous or Concrete with non slip surface
Ceiling:		Exposed to structure
Windows:		Not required
Security:		None Required
Equipment:		None Required
Other:		
Furnishings:	1	Hose storage racks - (2) at 8'-6" x 3'-0"
Notes:		

ROOM OR SPACE

Description:		**Gear Storage**
Group:		Operations - Fire
Quantitative Criteria:	1	500 Square feet
	2	Gear Lockers
Functional Description:	1	Stores turnout gear and equipment
Qualitative Description:	1	Easy access to vehicle bays
	2	Good ventilation for drying gear/pressurized
Locational Criteria:	1	Adjacent but separate from vehicle bays
	2	Possibly function as an air lock between administration wing and apparatus bays
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		None
Security:		None
Equipment:		
Other:		
Furnishings:	1	(38) Lockers - 16 full-time and 6 call currently - 24 full-time and 6 call future plus 8?
	2	Shelving for portable radio chargers
Notes:		

ROOM OR SPACE

Description:		**Laundry**
Group:		Operations - Fire
Quantitative Criteria:	1	156 Square feet
Functional Description:	1	Room for washing and drying turnout gear
	2	Washing and drying of bed linens and clothing
Qualitative Description:	1	Easy access to apparatus bays
	2	Good ventilation for drying gear/pressurized
Locational Criteria:	1	Adjacent but separate from vehicle bays
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		None
Security:		None
Equipment:		Extractor (existing), stacking washer and dryer (existing), gear dehydrator (existing)
Other:		
Furnishings:	1	12" D adjustable shelving
	2	Countertop
Notes:		

ROOM OR SPACE

Description:		**Maintenance Workshop**
Group:		Operations - Fire
Quantitative Criteria:	1	180
		Square feet
Functional Description:	1	Storage of tools and parts - rolling tool box
	2	Minor repair work
Qualitative Description:	1	Flexible repair work environment
	2	Good lighting
Locational Criteria:	1	Adjacent to apparatus area
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Preferable
Security:		Locked
Equipment:		Bench tools
Other:		
Furnishings:	1	Workbenches
	2	Shelving on standards
	3	Locked Metal Cabinet for small part storage
	4	Ventilated Metal Cabinet for flammable storage
	5	Peg Boards
	6	Rolling tool box
Notes:		

ROOM OR SPACE

Description:		**Traffic Light Workshop**
Group:		Operations - Fire
Quantitative Criteria:	1	150 Square feet
Functional Description:	1	Storage of tools and parts - rolling tool box
	2	Maintenance of Town's traffic lights
Qualitative Description:	1	Flexible repair work environment
	2	Good lighting
Locational Criteria:	1	Adjacent to apparatus area
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Preferable
Security:		Locked
Equipment:		Bench tools
Other:		
Furnishings:	1	Workbench
	2	Shelving on standards
	3	Locked Metal Cabinet for small part storage
	4	Rolling tool box
Notes:		Provide floor space for storage of minimum of 6 traffic lights at a time.

ROOM OR SPACE

Description:		**Medical Cleaning / Decontamination**
Group:		Operations - Fire
Quantitative Criteria:	1	120 Square feet
Functional Description:	1	Cleaning of medical equipment
	2	Cleaning of other equipemnt
	3	Decontamination of personnel or gear
Qualitative Description:	1	Clear working space for equipment
	2	Wet environment
Locational Criteria:	1	Off apparatus bays
	2	Near ambulance bay
Technical Criteria:		
Walls:		CMU or impact resistant GWB, FRP or Ceramic Tile
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure or scrubbable ACT
Windows:		None required
Security:		Secured
Equipment:		None
Other:		Floor drains, water service, deep sink with built in drainboards, washdown area for backboards or other large equipment with flexible deluge shower and eye wash
Furnishings:	1	Base Cabinets
	2	Wall Cabinets
	3	Open Shelving
	4	Bench and clothes hooks
Notes:		

ROOM OR SPACE

Description:		**SCBA Fill Room**
Group:		Operations - Fire
Quantitative Criteria:	1	108 Square feet
	2	Source of clean air
Functional Description:	1	Fill area for breathing apparatus - tanks
Qualitative Description:	1	Clean
	2	Secure
Locational Criteria:	1	Adjacent to vehicle bays
	2	Adjacent to compressor area
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Not required
Security:		Secured area
Equipment:		Cascade System
Other:		Direct source of intake air to outside; tap into cascade compressor for station air
Furnishings:	1	SCBA bottle cart for 6
	2	Work bench
	3	Adjustable shelving
Notes:		

ROOM OR SPACE

Description:		**Air Compressor**
Group:		Operations - Fire
Quantitative Criteria:	1	40 Square feet
Functional Description:	1	Compressed air for air lines throughout apparatus area
Qualitative Description:	1	Noisy; isolate acoustically
Locational Criteria:	1	Adjacent to apparatus bays
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Not required
Security:		Standard storage lock
Equipment:		Compressor
Other:		
Furnishings:		
Notes:		

ROOM OR SPACE

Description:		**Oxygen Storage**
Group:		Operations - Fire
Quantitative Criteria:	1	32 Square feet
Functional Description:	1	Storage for oxygen cylinders
Qualitative Description:	1	Clean
	2	Secure
Locational Criteria:	1	Adjacent to apparatus bays
Technical Criteria:		
Walls:		CMU or high impact GWB - 2 hour rated
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		2 hour rated GWB
Windows:		Not required
Security:		Secured area
Equipment:		
Other:		
Furnishings:	1	Floor space for (6) M cylinders
	2	Cart for (20) D cylinders
Notes:		

ROOM OR SPACE

Description:		**Haz Mat Supply Storage**
Group:		Operation - Fire
Quantitative Criteria:	1	120
		Square feet
Functional Description:	1	Storage of haz mat clean up supplies
Qualitative Description:	1	Storage
Locational Criteria:	1	Adjacent to vehicle bays
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Not required
Security:		Standard storage lock
Equipment:		NA
Other:		
Furnishings:	1	24" and 18" Heavy Duty Shelving
	2	Allow room for bulk floor storage
Notes:		Double doors

ROOM OR SPACE

Description:		**Medical Supply Storage**
Group:		Operations - Fire
Quantitative Criteria:	1	150 Square feet
Functional Description:	1	Secure medical supplies
Qualitative Description:	1	Secured closet
Locational Criteria:	1	Central to apparatus bays
Technical Criteria:		
Walls:		GWB
Floors:		Resilient
Ceiling:		Acoustic Tile
Windows:		None
Security:		Standard storage lock
Equipment:		None
Other:		
Furnishings:	1	18" deep shelving on standards
	2	Storage cabinets including lockable cabinet for needle storage
Notes:		Allow adequate floor space for backboard storage

ROOM OR SPACE

Description:		**Bulk Storage**
Group:		Operations - Fire
Quantitative Criteria:	1	216
		Square feet
Functional Description:	1	Storage of equipment and supplies
	2	Storage of tires and pumps
	3	Storage of surplus turnout gear
Qualitative Description:	1	Locked Storage
Locational Criteria:	1	Adjacent to apparatus
Technical Criteria:		
Walls:		CMU or high impact GWB
Floors:		Epoxy resinous or concrete with hardener or sealer
Ceiling:		Exposed to structure
Windows:		Not required
Security:		Standard storage lock
Equipment:		NA
Furnishings:	1	Light Duty Shelving
	2	24" Heavy Duty Shelving
	3	Double door supply cabinets
	4	Locked supply cabinets for PPE equipment and accessories
Notes:		Allow adequate floor space for 4-5 tires, pumps, etc. under shelving

HKT architects inc.

SITE ASSESSMENT NARRATIVE + CONTRAINTS MAP – UNION STREET

Site Option 1: Union Street

This site evaluation was prepared for the concept design study for the Ashland Police and Fire Station. The proposed Site for the Ashland Police and Fire Station (the Station Site) is located at 15 Union Street, Ashland, Massachusetts on parcel numbers 15-076, 15-077, and 15-078 with a total area of 12.09 acres as shown on the "Town of Ashland- Assessors Tax Map 15 FY2014". The study area is bound by Union Street and residential properties to the north and west, The Ashland High School to the east, and Wildwood Cemetery to the south. The Site is currently undeveloped. The area of the study is identified on Figure 1 below.

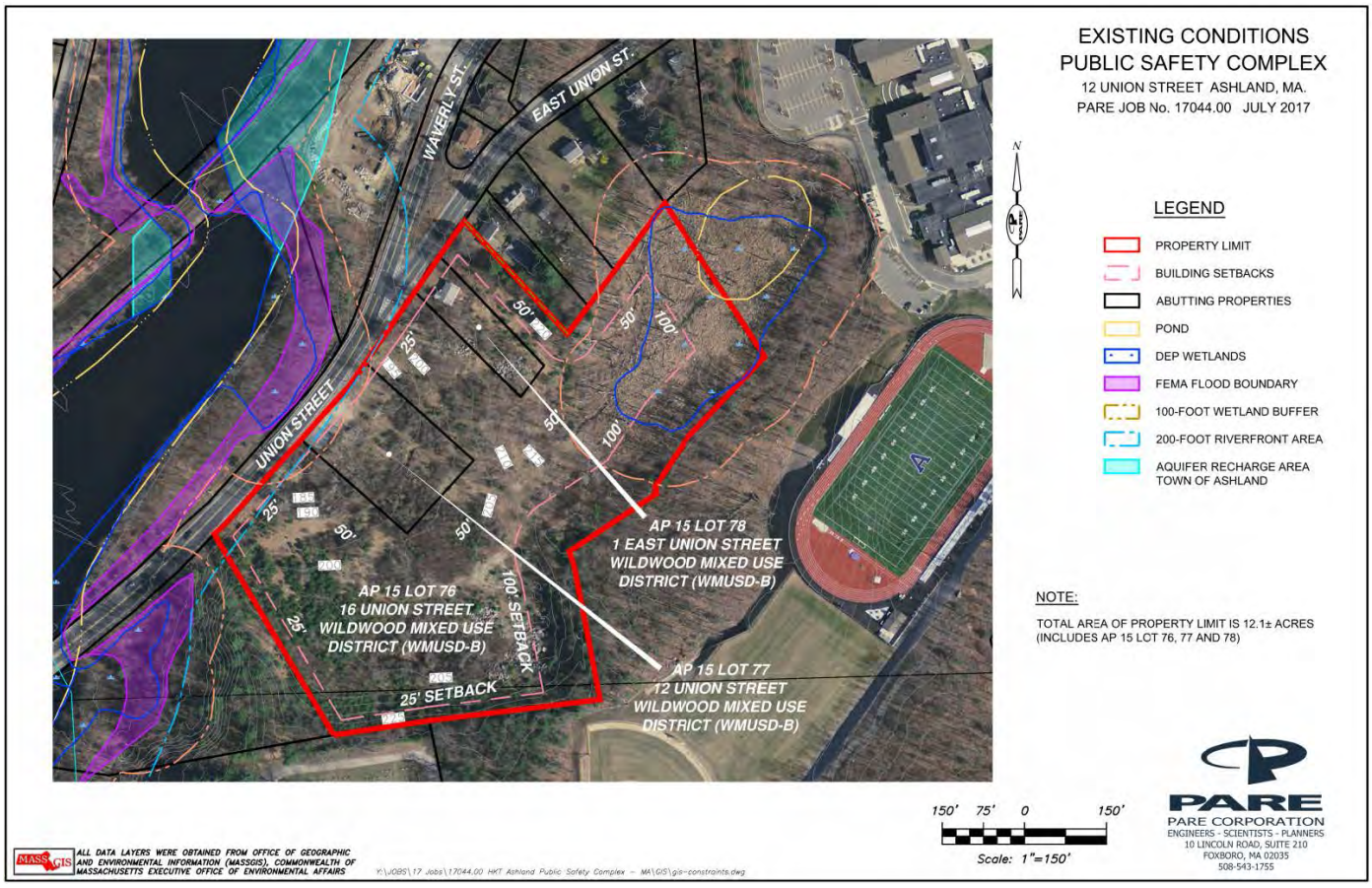


Figure 1: Existing Conditions of Study Area

The methodology for obtaining and compiling the information within this site evaluation was comprehensive of: conducting onsite observations, reviewing record plans and reports, reviewing a concept design drawing prepared by Fafard, reviewing the Massachusetts Geographic Information System (MassGIS), LIDAR data, and tax assessors data.

There do not appear to be any constraints which preclude this Site from being considered a viable location for a newly constructed Public Safety Complex.

Site Overview and Infrastructure

The three parcels total 12.09 acres; The site is located on the northwest side of the property along the south side of Union Street. The study area is currently undeveloped.


Figure 2: Union Street

Union Street is in fair condition with visible surface cracks which have been repaired with asphalt patching. Union Street has a 6" vertical granite curb on the south side of the street and no curb on the north side of the street. There is a bituminous sidewalk directly abutting the back of the granite curb on the south side of the street.

Although the Site is currently undeveloped, it appears to have been developed with a residential property in the past.

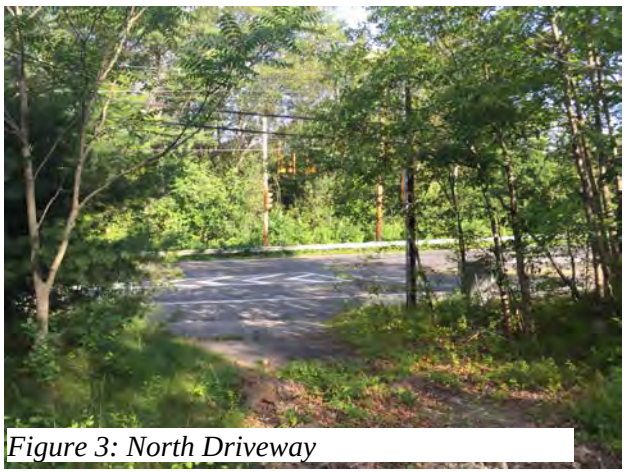


Figure 3: North Driveway

The Site has frontage along the south side of Union Street. At the intersection of East Union Street and Waverly Street, there is a paved driveway extending approximately 10 feet into the site. The driveway is in poor condition with deep cracks and potholes. The driveway is located south of the intersection of Waverly Street and East Union Street. There are existing traffic controls at this intersection including traffic lights and striping.

The driveway leads to a small tree clearing. There is a stone foundation wall on the north side of the driveway in extremely poor to critical condition. The foundation wall is constructed of large boulders and a concrete material. Some stones have dislodged from the wall. Erosion is evident on the south side of the wall. At the south side of the tree clearing, stone steps were observed. The steps are in poor condition and are overgrown. A 4' chain link fence was also observed at the south side of the clearing. The chain link fence is in poor condition and is rusted and overgrown.


Figure 4: Existing Foundation Wall

West of the driveway is a thickly overgrown steep slope. There is a utility pole in the woods at the base of this slope.

West of the driveway and the steep slope, there is a clearing along Union Street. The shoulder of the

Figure 5: Stone Steps

road expands from approximately 2 feet to approximately 10 feet wide adjacent to this clearing. There is a curb cut approximately 30 feet wide at the entrance to the clearing. The sidewalk ends at the curb cut and with a transition curb ramp. A bituminous driveway extends approximately 20 feet into the site. East of the driveway, the clearing appears to be used as an unpaved, dirt lot.

An unmarked steel cover was observed at the south end of the driveway.

Utilities

Utility companies are identified according to Massachusetts DOT records.

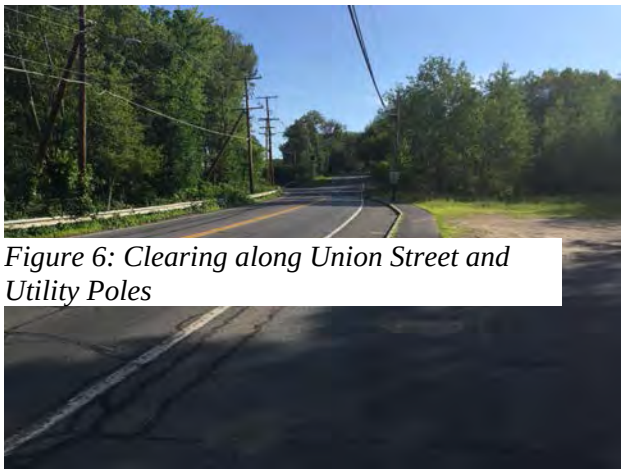


Figure 6: Clearing along Union Street and Utility Poles

NATURAL GAS

Natural Gas Service in Ashland is operated by Tennessee Gas Pipeline Company, Spectra Energy Transmission, LLC, and Eversource Gas. Gas markings were observed on Union Street along the property, indicating that there is a gas main in Union Street.

Any work associated with a modified gas service will require a work order, appropriate design, and review of the service demand through the utility company.

ELECTRIC

Electric service in Ashland is operated by Eversource Electric. There are utility poles located along the south side of Union Street.

New construction on the Site will require a work order and design of power supply by Eversource Electric. A pad mounted transformer may be required if the service demand exceeds the current provisions.

TELECOMM

Telephone service in Ashland is operated by Verizon. Cable and internet service in Ashland is operated by Comcast and Lightower.

SANITARY SEWER

The sanitary sewer waste collection system in Ashland is operated by MWRA and the Ashland Department of Public Works. It is unknown whether there is an existing sewer service to the Site.

WATER SERVICE

Water supply in Ashland is operated by the Ashland Department of Public Works. It is unknown whether there is an existing water service to the Site. New connections will need to be coordinated with the Ashland DPW and a flow test is necessary to determine the available fire flow volume and pressure.

STORMWATER MANAGEMENT

Stormwater catch basins were observed on Union Street indicating that there is a municipal stormwater main within Union Street. There are no drainage features on the site. Surface runoff from the site appears to drain toward Union Street.

Runoff from the developed Site will require treatment and mitigation in accordance with the Massachusetts Stormwater Handbook and the Ashland Stormwater Bylaws.

NATURAL ENVIRONMENT

TOPOGRAPHY

The topography of the Site generally pitches down to the southwest toward Union Street, from elevation 235 at the northeast corner of the Site to 185 on Union Street. The Site is relatively flat along Union Street, ranging between elevation 190 and 185 at the southwest limit of the property. There are some steep slopes on site, especially at the southeast property limit. Regrading will be necessary to create a buildable area, and retaining walls may be incorporated into the design.

SOILS

NRCS soils maps show that the majority of the Site including the south half and west half of the Site, is Narragansett silt loam, hydrologic soil group A. This soil type constitutes well drained soils with 18-35-inches to a restrictive layer. The north east corner of the site, in the wetlands and the wetland buffer zone are two isolated soil groups, Ridgbury fine sandy loam, hydrologic soil group D and Swansea muck, hydrologic soil group B/D. These soils constitute frequent ponding and low permeability due to a high ground water table. Historic aerials show a slight decrease in the size of the wetlands in 1987, indicating that they may have been partially filled. We would recommend a full geotechnical program including test pits and borings for the purpose of building foundations and future Site improvements.

REGULATED AREAS

Available MassGIS Data, on site observations, and survey data were reviewed for applicable regulatory constraints that may affect future development of the site. The following summarizes the review of the available databases:

WETLANDS

WebGIS data layers show a DEP wetland on the north side of the Site. The Concept Design Drawing shows the size and location of the wetland on the north side of the Site and also identified two smaller isolated wetlands, one adjacent to Union Street and the other in the southeast corner of the Site. The wetlands have an associated 100-foot regulatory wetland buffer.

FLOOD HAZARD ZONES

According to the FEMA Flood Insurance Rate Maps, the Site is entirely outside the Zone AE 0.02% annual chance of flood. WebGIS data layers shows a FEMA flood boundary west of Union Street. Union Street is 10' above the flood zone.

WATER RESOURCE PROTECTION AREAS

WebGIS data layers show a river west of the Site with wetlands along the shore line. The river has a 200-foot riverfront area, and the shoreline wetland has a 100- foot wetland buffer which overlap the south west side of the Site. According to WebGIS data layers , there are no vernal pools or potential vernal pools, aquifers, surface water protection zones, surface waters, or wellhead protection areas on the Site.

PRIORITY HABITATS AND ENDANGERED SPECIES

Based on available MassGIS data maps, there are no known Natural Heritage and Endangered Species Program (NHESP) mapped habitat on, or adjacent to the Site.

HISTORICAL AREAS

There are no items on site listed on the Massachusetts Cultural Resource Information System (MACRIS) as a historically significant. The Site is not listed as a historic landmark by the Ashland Historic Society or on the National Register of Historic Places (NRHP).

ZONING

The Site is located in the Wildwood Mixed Use Special District B as shown on the "Town of Ashland-Zoning & Tax Parcel FY 2014" map 15. The Site is not located within an overlay district. Site dimensional constrains are defined in the following table:
Section 8.6 Overlay and Special District Regulations: Wildwood Mixed Use Special District

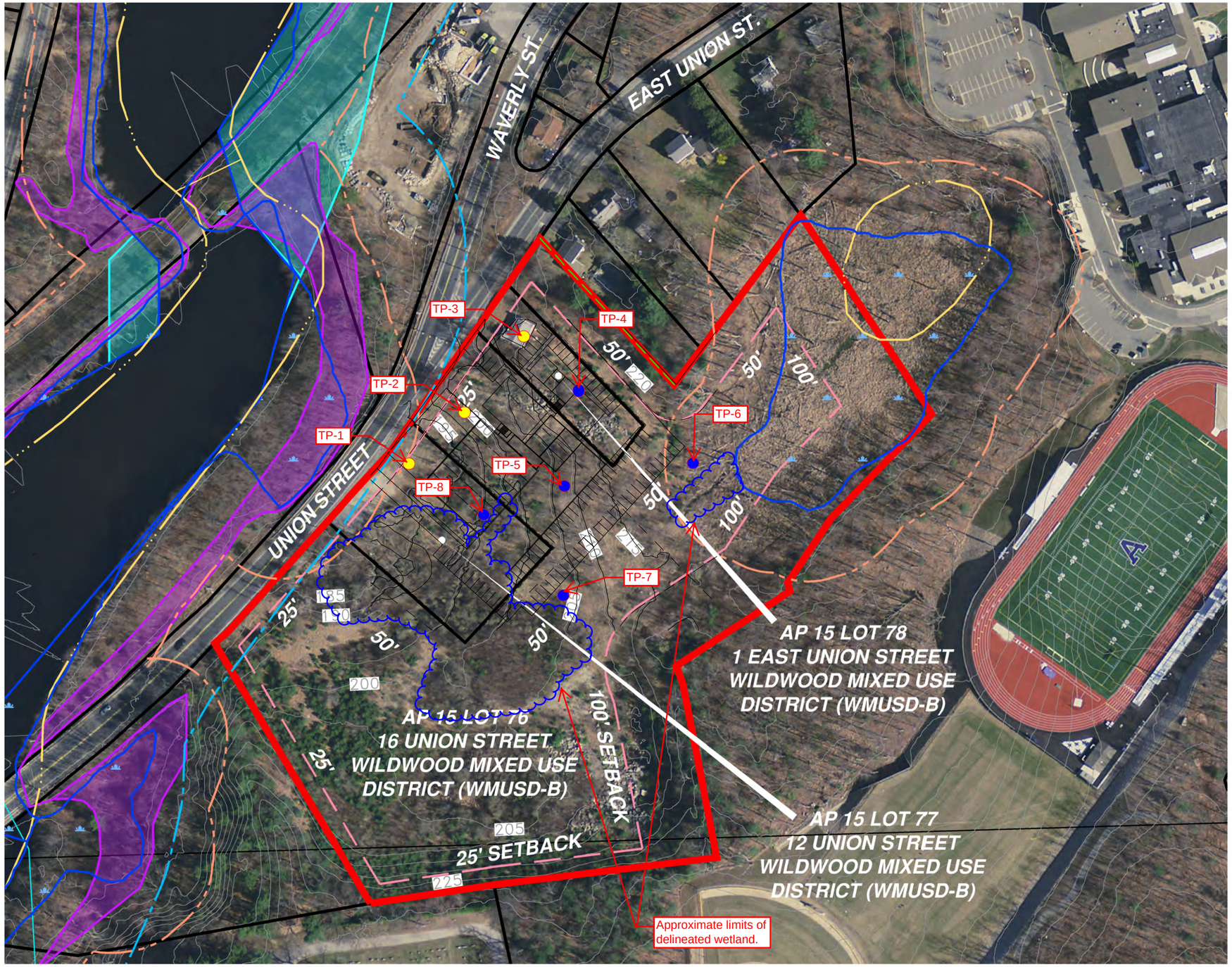
Min. Area	Min. Frontage	Min. Front Yard (ft.)	Min. Side Yard (ft.)	Min. Rear Yard (ft.)	Maximum Building Height
40,000sf	150ft	25	25*	25	5 stories

*Multiple buildings shall not be closer than 25-feet. Municipal uses abutting residential uses shall have a 50-foot buffer.
The southern and eastern perimeter of the Wildwood Mixed Use Special District shall have a 100-foot buffer zone.

The Public Safety building is an allowed use as shown in section 8.6.4 (4) Table of Uses.

FIGURE 2: EXISTING CONDITIONS AND TEST PIT LOCATION PLAN

12 UNION STREET ASHLAND, MA.
PARE JOB No. 17044.00 JULY 2017



N

LEGEND

- PROPERTY LIMIT
- BUILDING SETBACKS
- ABUTTING PROPERTIES
- POND
- DEP WETLANDS
- FEMA FLOOD BOUNDARY
- 100-FOOT WETLAND BUFFER
- 200-FOOT RIVERFRONT AREA
- AQUIFER RECHARGE AREA TOWN OF ASHLAND

NOTE:

TOTAL AREA OF PROPERTY LIMIT IS 12.1± ACRES
(INCLUDES AP 15 LOT 76, 77 AND 78)

150' 75' 0 150'

Scale: 1"=150'

PARE
PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
10 LINCOLN ROAD, SUITE 210
FOXBORO, MA 02035
508-543-1755

MASS GIS ALL DATA LAYERS WERE OBTAINED FROM OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

Y:\JOBS\17 Jobs\17044.00 HKT Ashland Public Safety Complex – MA\GIS\gis-constraints.dwg

HKT architects inc.

SITE ASSESSMENT NARRATIVE + CONTRAINTS MAP – MBTA ACCESS ROAD

Site Option 2: MBTA Access Road

This site evaluation was prepared for the concept design study of the Ashland Police and Fire Station. The proposed Site for the Ashland Police and Fire Station (the Station Site) is located at 0 MBTA Access Road, Ashland, Massachusetts on parcel number 13-138, with a total area of 123.22 acres owned by Mengunko Transit District LLCas shown on the "Town of Ashland- Assessors Tax Map 13 FY2014". The study area is an 11 acre section of the parcel bound by a commercial property to the east, the MBTA access road to the south, and the remainder of the parcel to the west and north. The Site is currently undeveloped. The area of the study is identified on Figure 1 below.

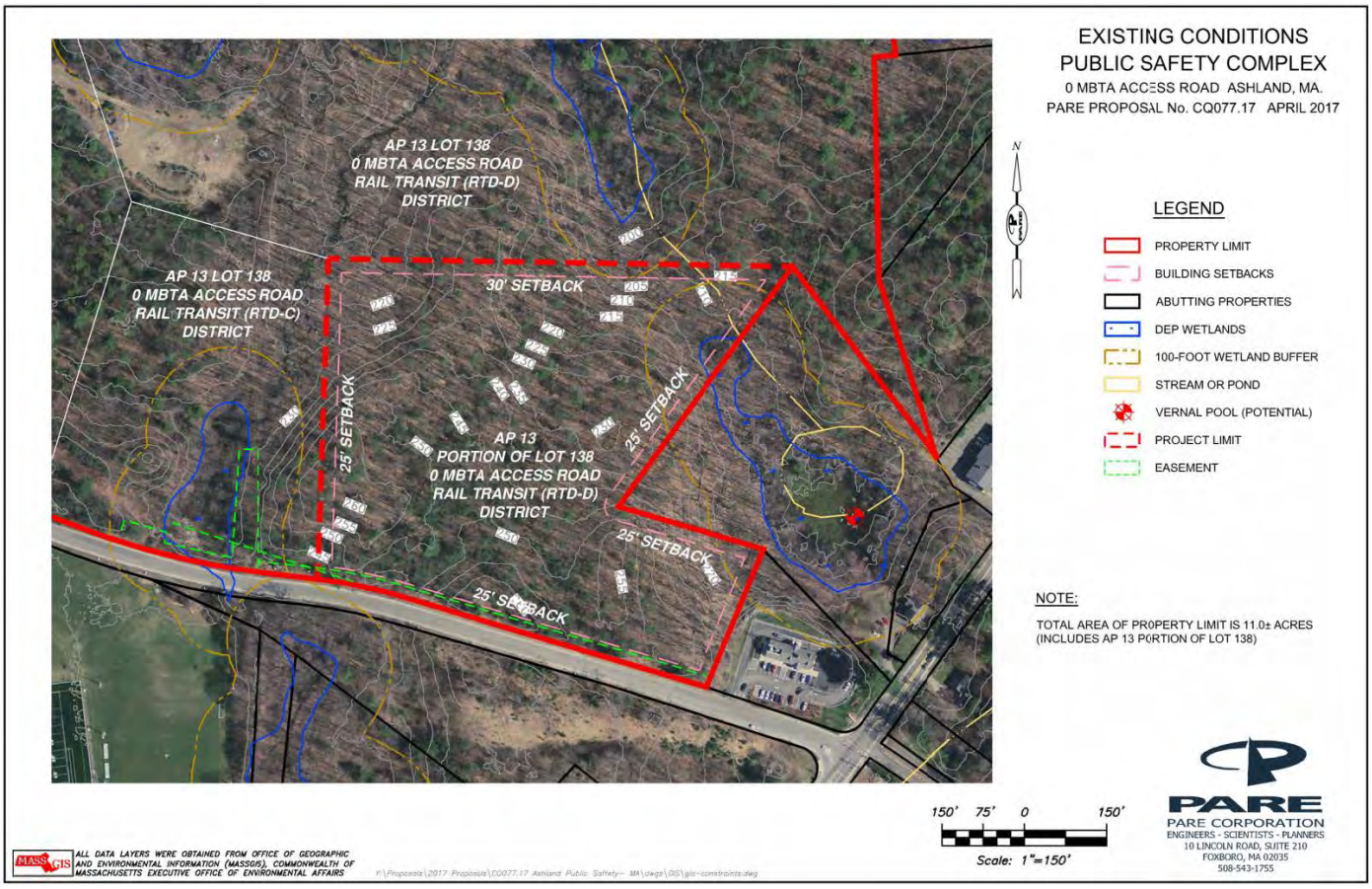


Figure 1: Existing Conditions of Study Area

The methodology for obtaining and compiling the information within this site evaluation was comprised of: conducting onsite observations, reviewing record plans and reports, reviewing the Massachusetts Geographic Information System (MassGIS), LIDAR data and tax assessors data.

There do not appear to be any constraints which preclude this site from being considered a viable location for a newly constructed Public Safety Complex.

Site Overview and Infrastructure

The Station Site parcel is 123.22 acres and is currently undeveloped. The portion of the Parcel included in the study area is 11.10 acres (the Site). The Site is located north of MBTA Access Road, on the southwest corner of the property. There is a Superfund site on the northwest corner of the property (north of the Site) which has been capped. West of the property, on the south side of the MBTA access road, there is a residential development under construction. It is understood from conversations with Amy Dunlap that the community strongly opposed the development due to its close proximity to the Superfund site and the potential to disturb the cap.

Figure 2: MBTA Access Road

MBTA Access Road is currently under construction for road widening and utility improvements in anticipation of the residential development. Upon final pavement, the road may be subject to a road moratorium.

MBTA Access Road had a bituminous berm curb along the north side. There is no curb on the south side of the street. The road does not have a sidewalk or other pedestrian access.

Figure 3: MBTA Access Road

The Site is currently undeveloped. The property is accessible via the entire southern property line which has frontage along MBTA Access Road. There are currently no curb cuts or driveways onto the Site. The property is entirely wooded.

There are existing traffic controls at the intersection of MBTA access road and West Union Street including traffic lights and striping. West Union Street had heavy daytime traffic at the time of the site observation which appeared to be caused by the commercial property at the intersection and school traffic.

Utilities

Utility companies are identified according to Massachusetts DOT records.

NATURAL GAS

Natural Gas Service in Ashland is operated by Tennessee Gas Pipeline Company, Spectra Energy Transmission, LLC, and Eversource Gas. A gas main is proposed in the MBTA Access Road as part of the new development.

Any work associated with a modified gas service will require a work order, appropriate design, and review of the service demand through the utility company.

ELECTRIC/ TELECOMM

Electric service in Ashland is operated by Eversource Electric. Telephone service in Ashland is operated by Verizon. Cable and internet service in Ashland is operated by Comcast and Lightower. There is a utility pole at the intersection of MBTA Access Road and West Union Street from which the electric service goes underground to power the light poles along MBTA Access Road. An electric, telephone, cable concrete encased conduit is proposed in the MBTA Access Road as part of the new development.

New construction on the Site will require a work order and design of power supply by Eversource Electric. A pad mounted transformer may be required if the service demand exceeds the current provisions.

SANITARY SEWER

The sanitary sewer waste collection system in Ashland is operated by MWRA and the Ashland Department of Public Works.

A combined sewer gravity and force main is proposed in the MBTA Access Road as part of the new development. The new 8" SDR-35 gravity sewer service extends from west Union Street to approximately 400-feet along the east frontage of the Site to Sewer Manhole 7. It is set approximately five (5) feet below grade. From the manhole, the sewer transitions to a force main for the rest of the frontage along the site.

No existing services are known to the Site. Depending on the finish floor elevation of the future Station, the sanitary service may require a pump system to connect to the main.

WATER SERVICE

Water supply in Ashland is operated by the Ashland Department of Public Works. A 12" water main is proposed in the MBTA Access Road as part of the new development.

New connections will need to be coordinated with the Ashland DPW and a flow test is necessary to determine the available fire flow volume and pressure.

STORMWATER MANAGEMENT

Stormwater catch basins were observed on MBTA Access Road, indicating that there is a municipal stormwater main in MBTA Access Road. Stormwater runoff from the majority of the site appears to drain north and east off site. A small portion of the site along MBTA Access Road drains toward the road to the municipal system.

Runoff from the developed Site will require treatment and mitigation in accordance with the Massachusetts Stormwater Handbook and the Ashland Stormwater Bylaws.

NATURAL ENVIRONMENT

TOPOGRAPHY

Based on available LIDAR data, the topography of the Site generally pitches down to the northeast, from elevation 260 at the southern property limit to 205 at the northeast corner. There are some steep slopes on the Site, especially at the east and northwest property limit. Based on site observations, the slopes near MBTA access road are steeper than they appear on LIDAR maps. Regrading will be necessary to create a buildable area, and retaining walls may be incorporated into the design.

SOILS

NRCS soils maps show that the majority of the Site is Narragansett silt loam, hydrologic soil group A. This soil type constitutes well drained soils with more than 80-inches to ground water. The southwest corner of the Site is comprised of Narragansett Hollis –Rock outcrop complex, hydrologic soil group A. This soil type constitutes well drained soils with more than 80-inches to ground water, but with a 10% chance of rock outcrops. Historic aerials do not show historic wetlands or landfills on Site. We would recommend a full geotechnical program including test pits and borings for the purpose of building foundations and future Site improvements.

REGULATED AREAS

Available MassGIS Data, on Site observations, and survey data were reviewed for applicable regulatory constraints that may affect future development of the Site. The following summarizes the review of the available databases:

WETLANDS

WebGIS data layers show DEP wetlands north, west and east of the Site and on approximately 0.06 acres on the northeast side of the Site. The wetlands have an associated 100-foot regulatory wetland buffer which overlaps the northeast corner of the Site.

FLOOD HAZARD ZONES

According to the FEMA Flood Insurance Rate Maps, the Site is entirely outside the Zone AE 0.02% annual chance of flooding.

WATER RESOURCE PROTECTION AREAS

WebGIS data layers show a potential vernal pool located in the wetlands east of the Site. Both certified and potential vernal pools, as required by local regulations, require a 25-foot No Disturb Zone, and 100-foot Buffer Zone. No alterations including, but not limited to grading, landscaping, mowing, clearing, filling, excavating, vehicle operations, paving, buildings, or accessory structures shall be permitted within the 25-foot No Disturb Zone. No activity which may harm the resource is permitted within the 100-foot Buffer Zone. According to WebGIS data layers, there are no certified vernal pools, aquifers, surface water protection zones, surface waters, or wellhead protection zones.

PRIORITY HABITATS AND ENDANGERED SPECIES

Based on available MassGIS data maps, there are no known Natural Heritage and Endangered Species Program (NHESP) mapped habitat on, or adjacent to the Site.

HISTORICAL AREAS

There are no items on Site listed on the Massachusetts Cultural Resource Information System (MACRIS) as a historically significant. The Site is not listed as a historic landmark by the Ashland Historic Society or on the National Register of Historic Places (NRHP).

ZONING

The Site is located in the Rail Transit District A as shown on the "Town of Ashland- Zoning & Tax Parcel FY 2014" map 19. The Site is not located within an overlay district. Site dimensional constrains are defined in the following table:
Section 8.4.6 Overlay and Special District Regulations: Rail Transit District

Min. Area	Min. Frontage	Min. Front Yard (ft.)	Min. Side Yard (ft.)	Min. Rear Yard (ft.)	Maximum Building Height	Minimum Open Space
30,000sf	150ft	25*	25	30	30 feet	30%

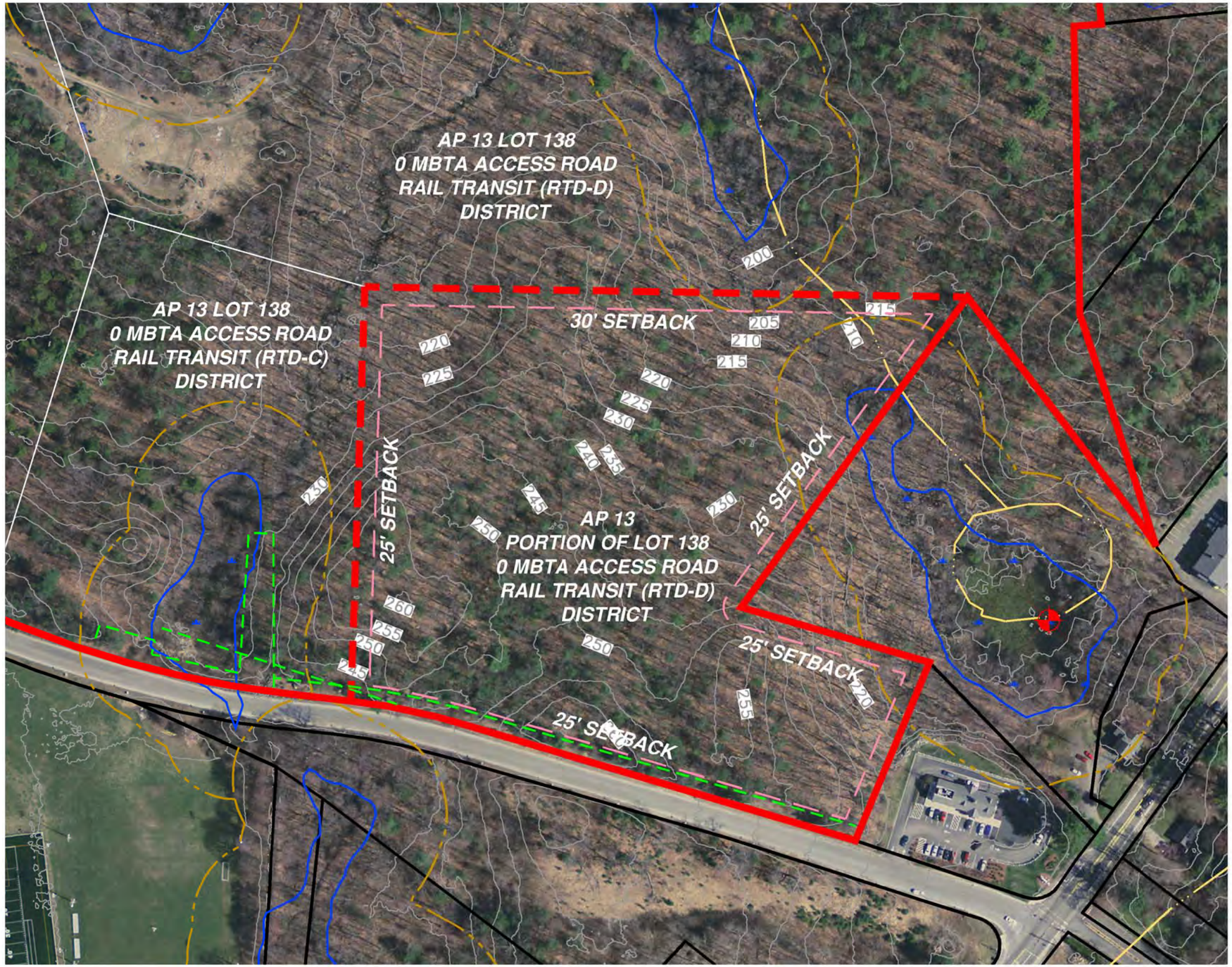
*parking shall be setback a minimum of 10-feet from the right-of-way
**Multiple buildings shall not be closer than 20-feet

The Public Safety building is an allowed use as shown in section 8.4.4 (i) Permitted Light Industry Component Use in the Table of Uses.

There is an easement along the southern property boundary. We would recommend coordination with local utility companies, and the MBTA to confirm restrictions within the easement.

EXISTING CONDITIONS
PUBLIC SAFETY COMPLEX

0 MBTA ACCESS ROAD ASHLAND, MA.
PARE PROPOSAL No. CQ077.17 APRIL 2017



N

LEGEND

- PROPERTY LIMIT
- BUILDING SETBACKS
- ABUTTING PROPERTIES
- DEP WETLANDS
- 100-FOOT WETLAND BUFFER
- STREAM OR POND
- VERNAL POOL (POTENTIAL)
- PROJECT LIMIT
- EASEMENT

NOTE:

TOTAL AREA OF PROPERTY LIMIT IS 11.0± ACRES
(INCLUDES AP 13 PORTION OF LOT 138)

150' 75' 0 150'

Scale: 1"=150'

PARE
PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
10 LINCOLN ROAD, SUITE 210
FOXBORO, MA 02035
508-543-1755

HKT
architects inc.

LAND VALUE ASSESSMENT

Land Value

12 + 16 Union / 1 East Union Street – 12.09 acres

	Year	Value	Value/Acre
Sales History	2015	$3,100,000	$256,410
Assessment	2017	$1,241,200	$102,663

0 MBTA Access Road – 123.22 acres

	Year	Value	Value/Acre
Sales History	2002	$100	Not applicable
Assessment	2017	$1,661,100	$13,481

Estimated Site Area Requirements

Assumptions:

- Approximately 41,000 square foot building
- Two story administration building
- Drive-thru Apparatus Bays
- Parking of 90+ vehicles
- Site features including
    - Dumpster
    - Emergency generator / transformer
    - Communications tower
    - Caged impound area
    - Outdoor grill/dining area
- Setbacks as indicated in Pare reports

Estimated buildable site area required to accommodate the above is approximately 4.0 acres.

HKT architects inc.

TEST FIT OPTIONS – UNION STREET

TEST FIT #1 - UNION STREET
SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

As a starting point, we took the block diagram from the MBTA Test Fit #1 and tried putting it on the Union Street site. You can see the width of the building almost completely fills the width of the parcel being offered to the Town, and there is development in the wetlands. We abandoned this option immediately and moved on to another.

FOR ALL UNION STREET TEST FITS, WE USED WETLANDS DELINEATION PROVIDED BY OWNER'S DRAWING, WHICH DIFFERS FROM GIS INFORMATION. WE ASSUME WETLAND FLAGGING DONE BY THE OWNER IS MORE ACCURATE THAN GIS DATA. OWNER'S DRAWING ONLY INDICATES A 25' WETLANDS BUFFER.

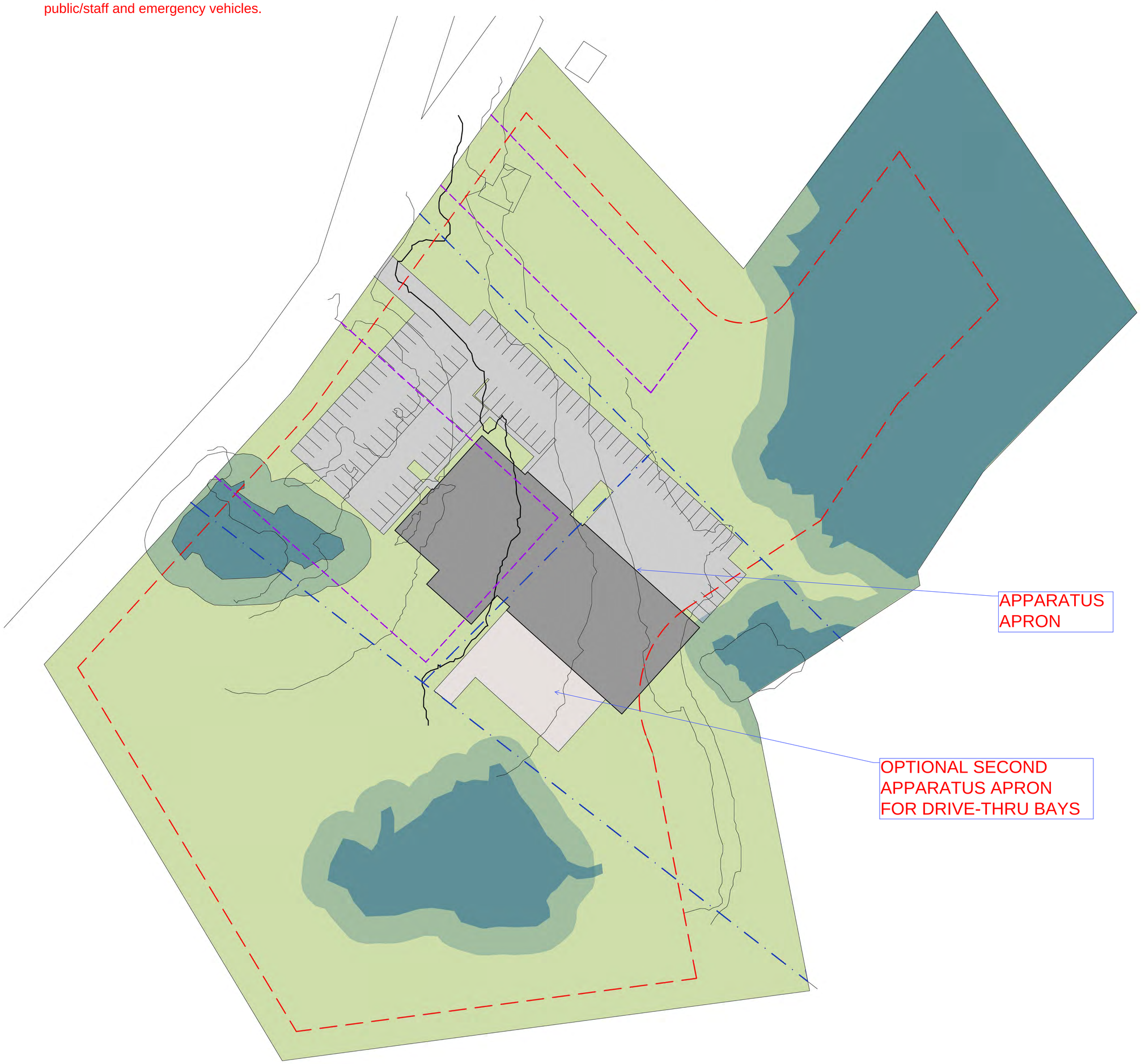
PURPLE LINES INDICATE EXISTING LOT LINES

BLUE LINES INDICATE PROPOSED LOT LINES IN OWNER'S DRAWING.

TEST FIT #2 - UNION STREET
SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

We took the block diagram from the MBTA Test Fit #1 and rotated it on the Union Street site. Additional land would need to be purchased beyond the lot being gifted to the Town. The main issue with this option is access for emergency vehicles which must drive through public and staff parking areas to exit the site. Additionally, if drive-thru apparatus bays were desired, they would need to exit through an adjacent parcel, which presents issues for control of the access points and liability. To fit 90+ parking spaces, the building extends beyond the rear setback. Reducing parking by eliminating one row of parking and one access drive could resolve the development beyond the rear setback.

We felt this option was not feasible and demonstrated that additional street frontage would be necessary to safely separate public/staff and emergency vehicles.



TEST FIT #3 - UNION STREET

SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

THIS OPTION REQUIRES PURCHASING THE ADJACENT LOT WHERE THE OWNER IS PROPOSING ANOTHER BUILDING. THERE IS A COOD SEPARATION OF EMERGNECY/STAFF/PUBLIC PARKING. THE SALLY PORT IS CONCEALED BEHIND THE BUILDING. THERE ARE POTENTIALLY DRIVE THRU APPARATUS BAYS, IF GRADING CAN BE RESOLVED. THERE IS SOME PARKING IN THE WETLANDS.

THERE ARE SOME GRADING ISSUES (SEE SECTION THAT FOLLOWS).

PUBLIC PARKING

STAFF PARKING

UNION STREET

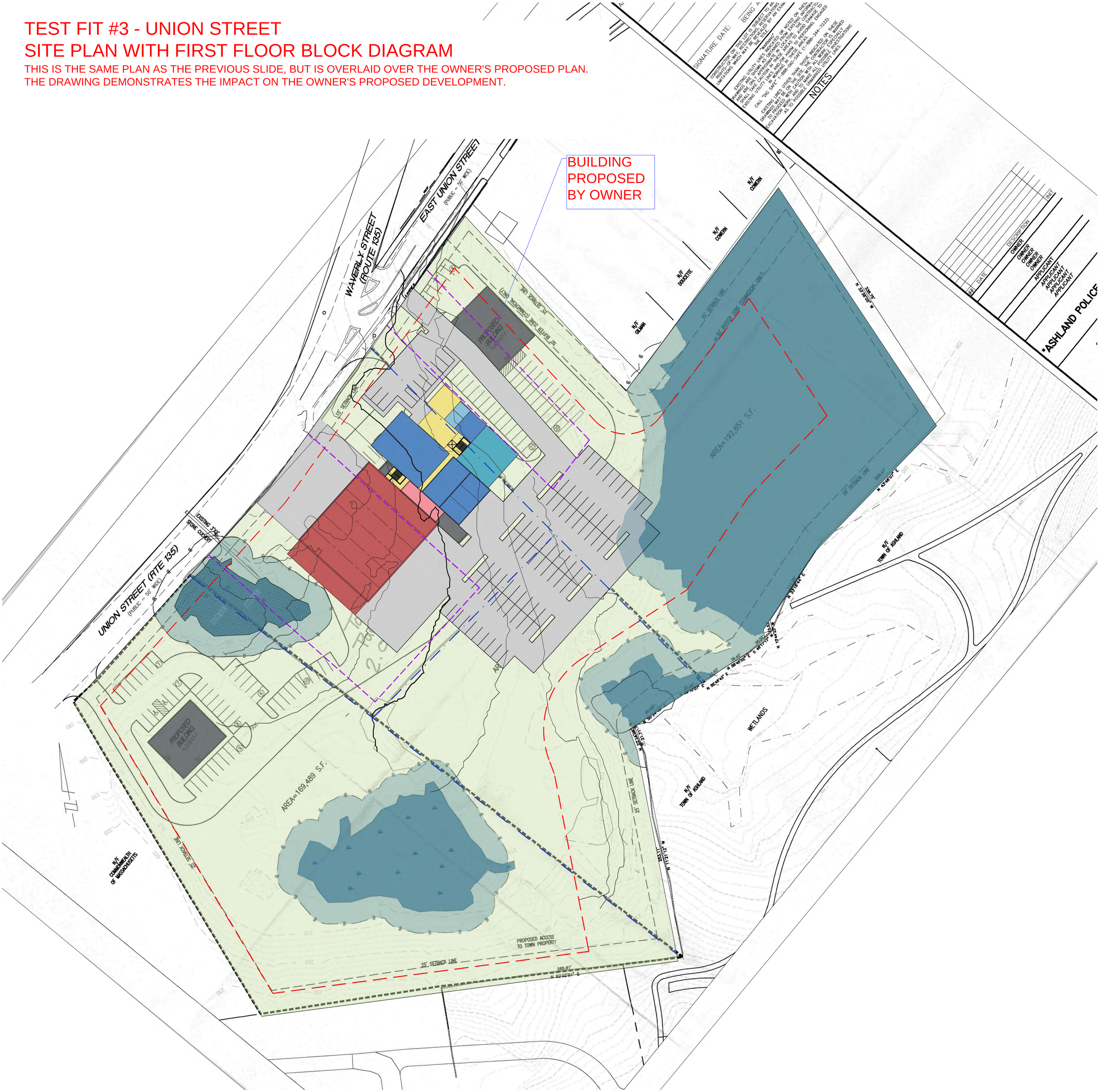
AP 15 LOT 78
1 EAST UNION STREET
WILDWOOD MIXED USE DISTRICT (WMUSD-B)

AP 15 LOT 77
12 UNION STREET
WILDWOOD MIXED USE DISTRICT (WMUSD-B)

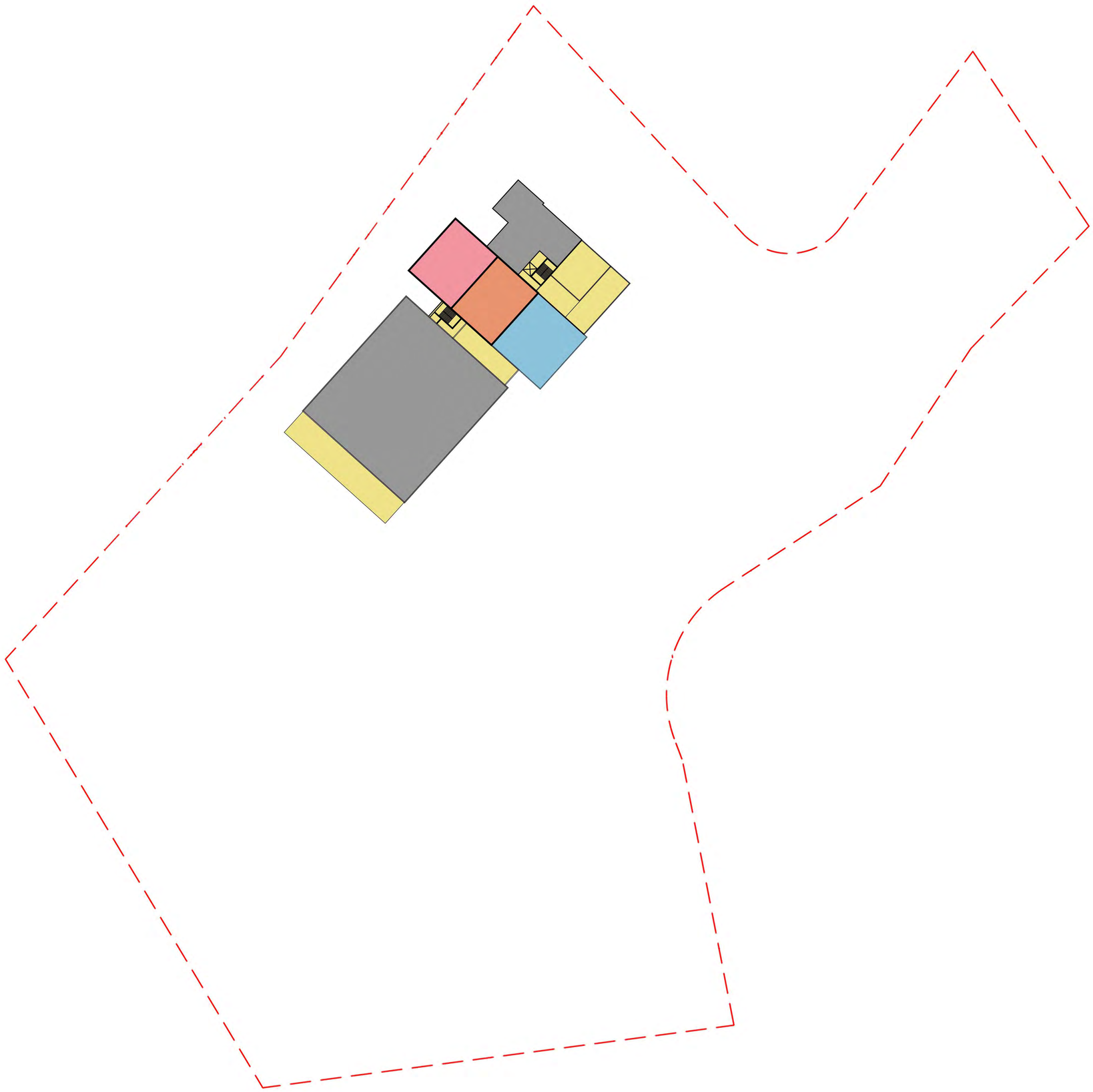
TEST FIT #3 - UNION STREET
SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

THIS IS THE SAME PLAN AS THE PREVIOUS SLIDE, BUT IS OVERLAID OVER THE OWNER'S PROPOSED PLAN.
THE DRAWING DEMONSTRATES THE IMPACT ON THE OWNER'S PROPOSED DEVELOPMENT.

BUILDING PROPOSED BY OWNER



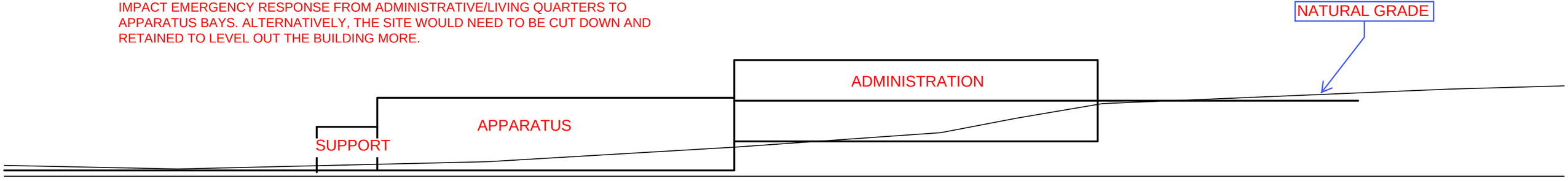
TEST FIT #3 - UNION STREET
SECOND FLOOR BLOCK DIAGRAM



TEST FIT #3 - UNION STREET

MASSING SECTION

THE SECTION DEMONSTRATES CHALLENGES WITH THE GRADES AT UNION STREET. APPARATUS FLOOR IS SEVERAL FEET LOWER THAN THE ADMINISTRATION BUILDING FLOOR. VERTICAL CIRCULATION WITHIN THE BUILDING COULD BE A CHALLENGE AND IMPACT EMERGENCY RESPONSE FROM ADMINISTRATIVE/LIVING QUARTERS TO APPARATUS BAYS. ALTERNATIVELY, THE SITE WOULD NEED TO BE CUT DOWN AND RETAINED TO LEVEL OUT THE BUILDING MORE.



SECTION TAKEN ALONG UNION STREET

TEST FIT #4 - UNION STREET

SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

THE BUILDING IS ROTATED TO FIT WITHIN THE PARCEL OFFERED TO THE TOWN AND THE PARCEL BEHIND. APPARATUS EXIT DIRECTLY ONTO UNION STREET. DRIVE-THRU BAYS ARE NOT POSSIBLE. PUBLIC AND STAFF MUST DRIVE DOWN A LONG ACCESS DRIVE TO THE MAIN PUBLIC ENTRANCE AT THE REAR OF THE SITE. THE SALLY PORT IS CONCEALED FROM THE STREET, BUT VISIBLE TO THE ADJACENT DEVELOPMENT. PARKING IS WITHIN THE WETLANDS AND BOUNDARY.

THERE ARE SOME GRADING ISSUES (SEE SECTION THAT FOLLOWS).

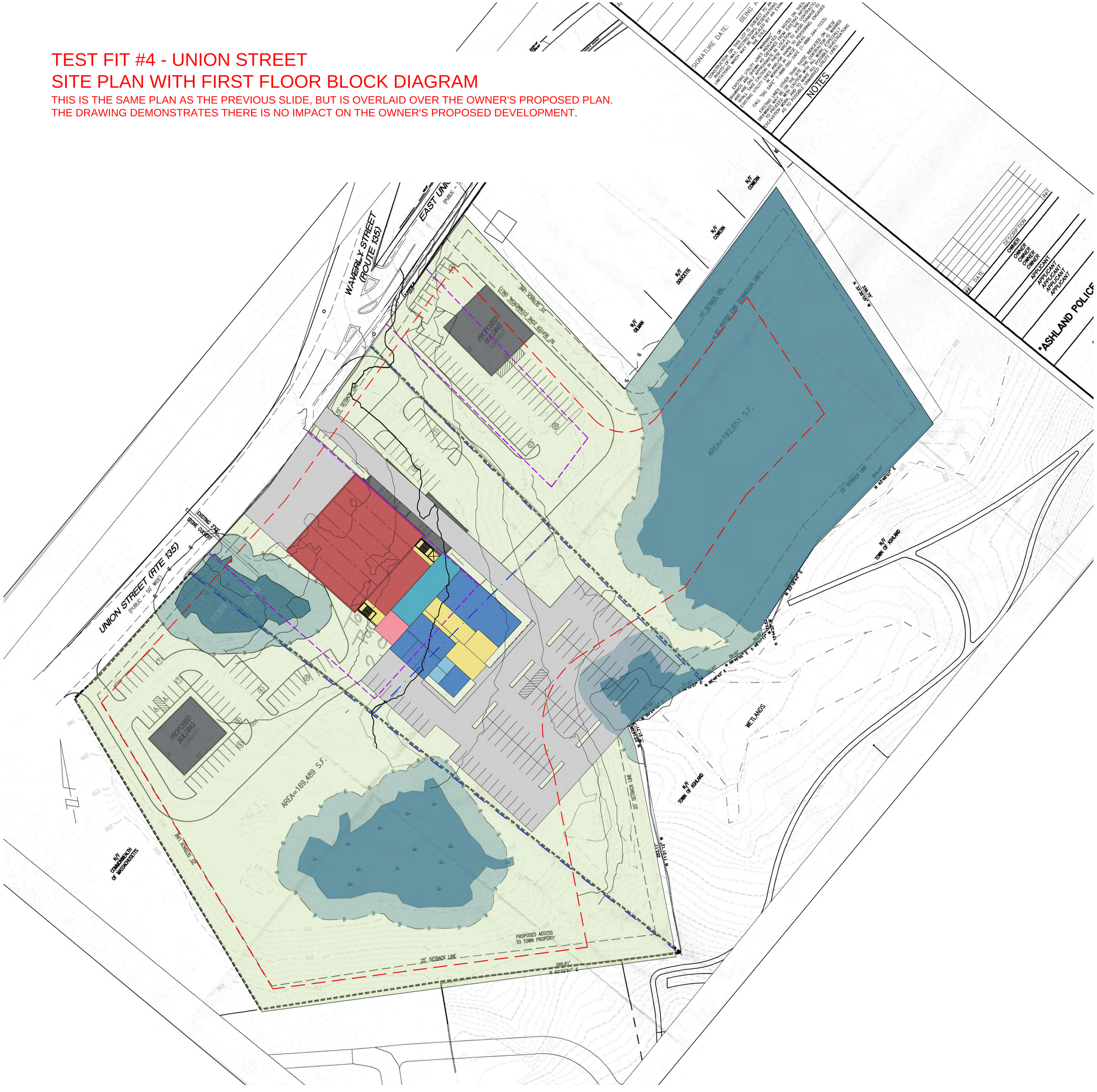
UNION STREET

AP 15 LOT 78
1 EAST UNION STREET
WILDWOOD MIXED USE DISTRICT (WMUSD-B)

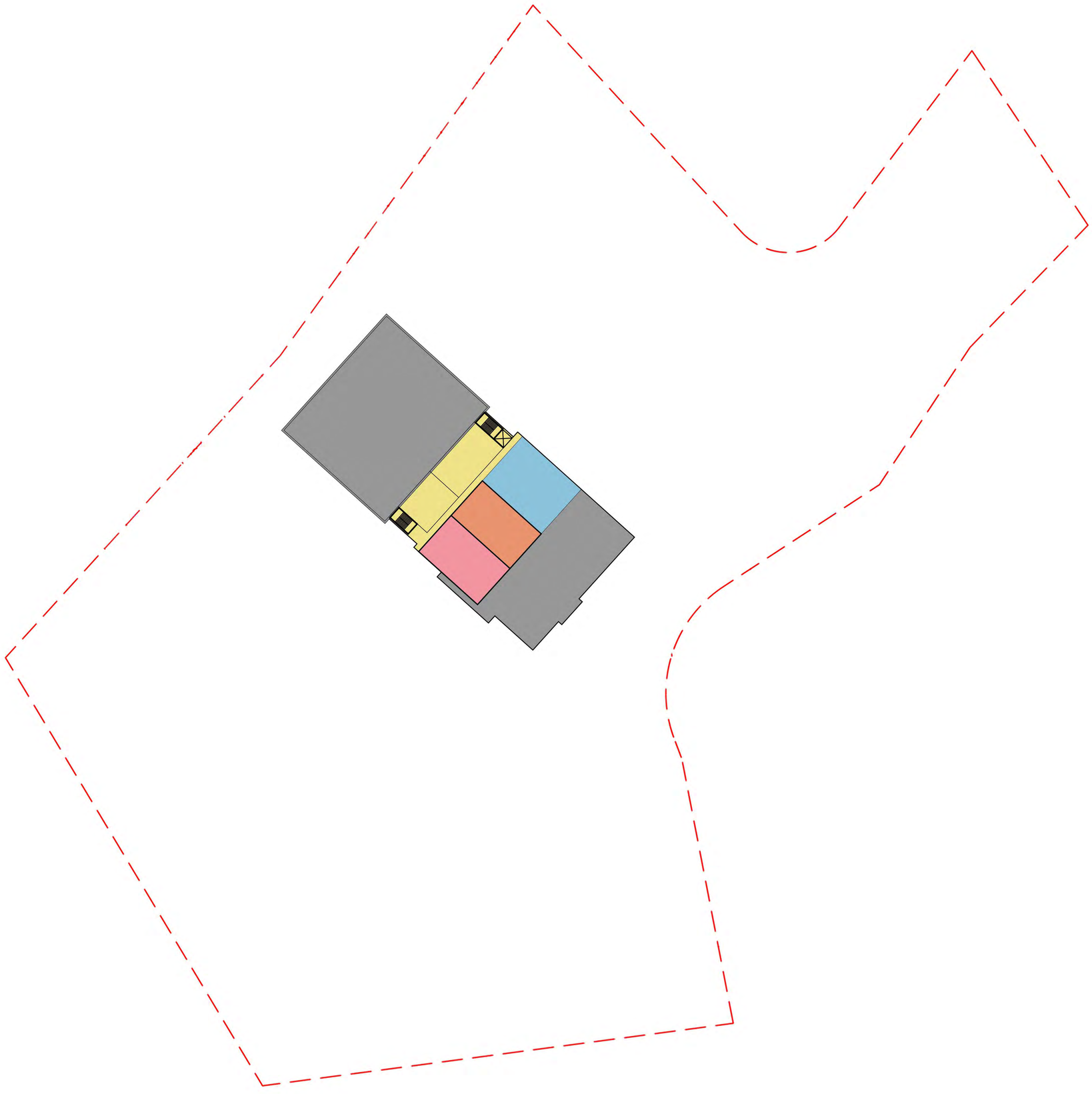
AP 15 LOT 77
12 UNION STREET
WILDWOOD MIXED USE DISTRICT (WMUSD-B)

TEST FIT #4 - UNION STREET
SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

THIS IS THE SAME PLAN AS THE PREVIOUS SLIDE, BUT IS OVERLAID OVER THE OWNER'S PROPOSED PLAN.
THE DRAWING DEMONSTRATES THERE IS NO IMPACT ON THE OWNER'S PROPOSED DEVELOPMENT.



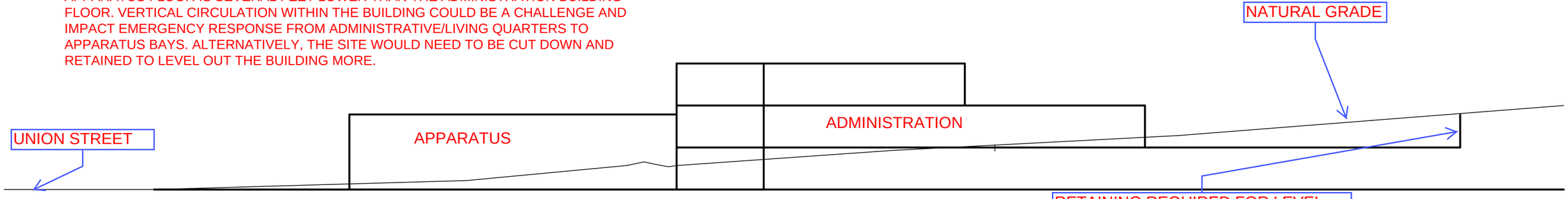
TEST FIT #4 - UNION STREET
SECOND FLOOR BLOCK DIAGRAM



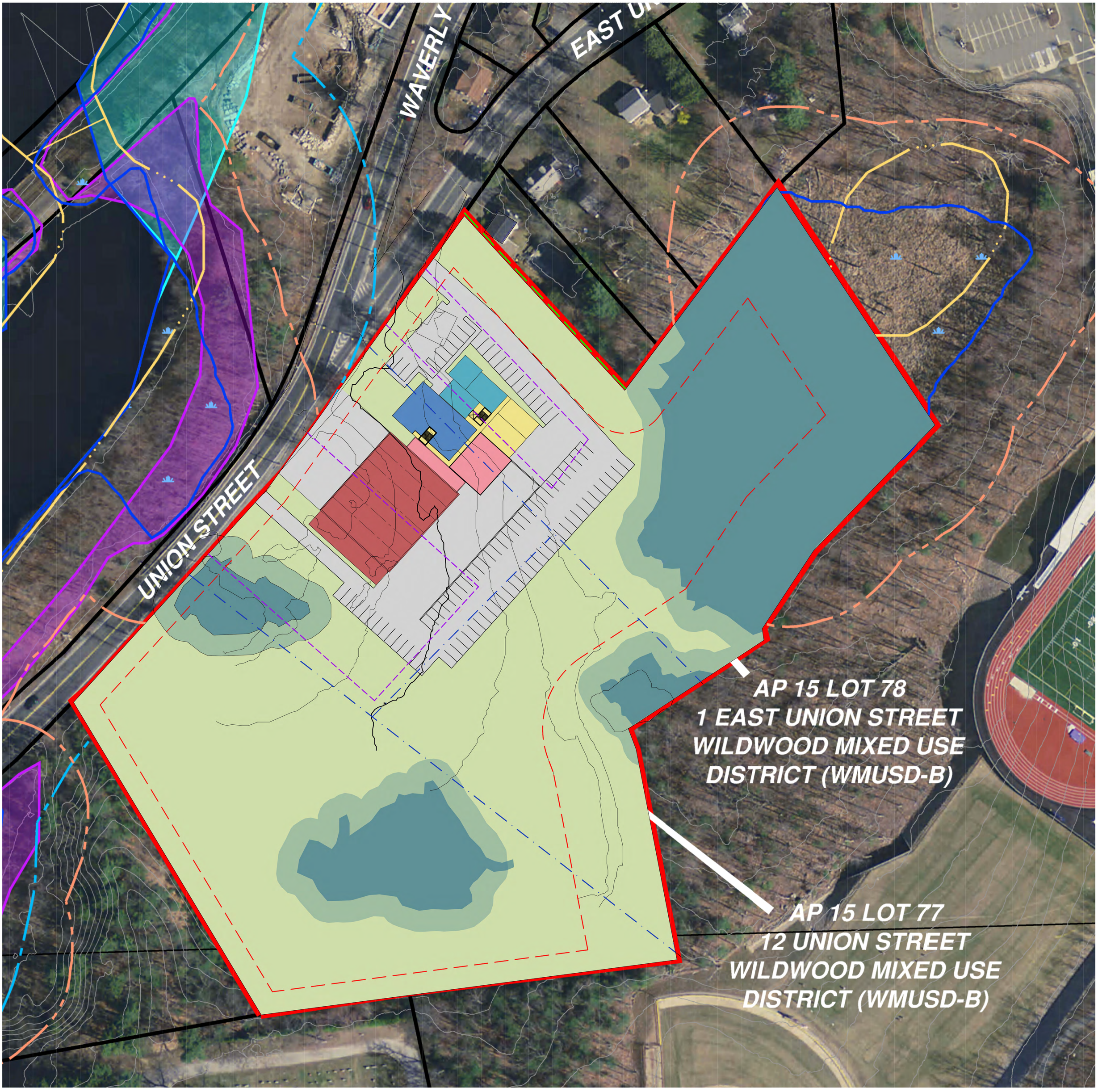
TEST FIT #4 - UNION STREET

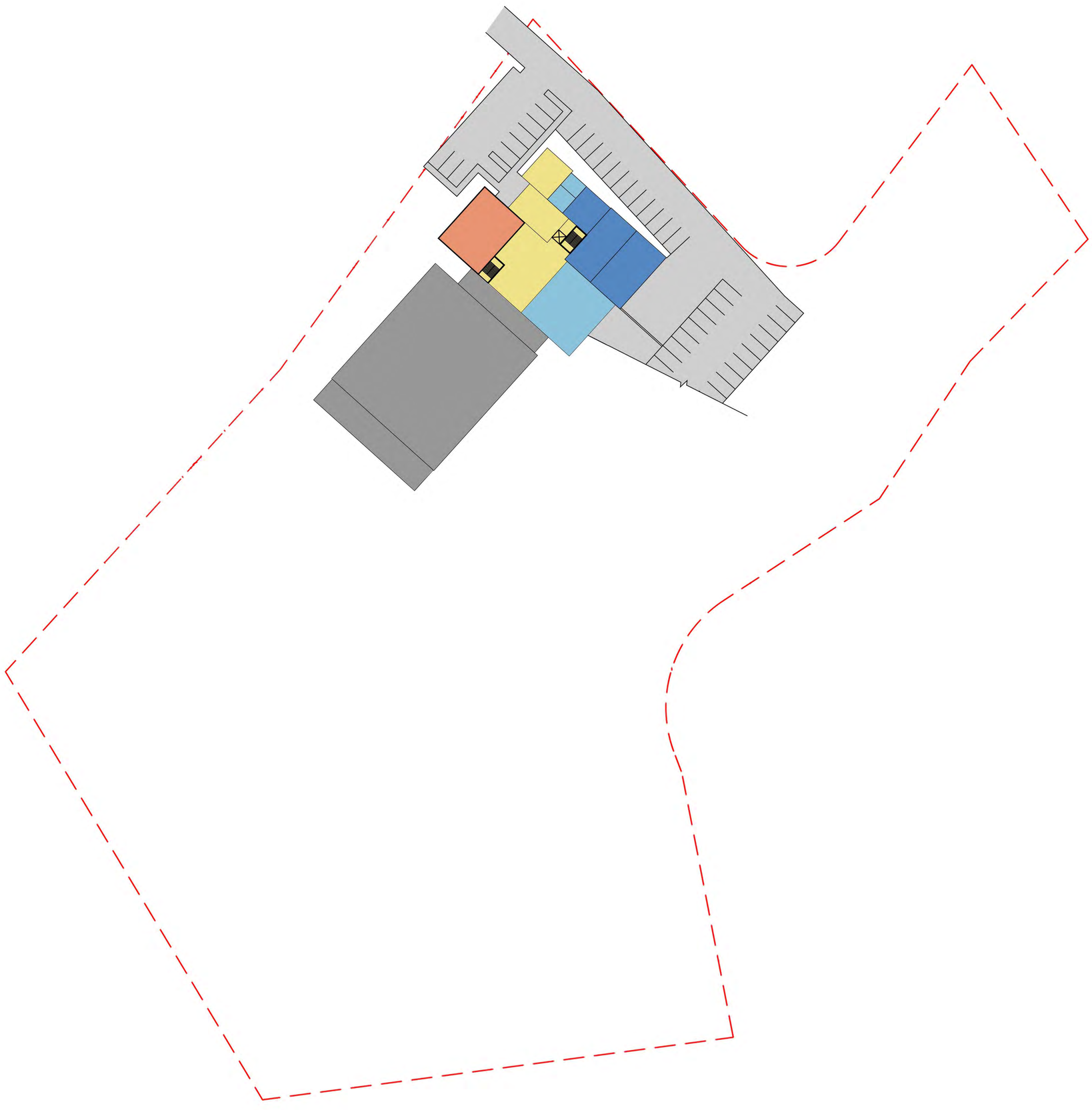
MASSING SECTION

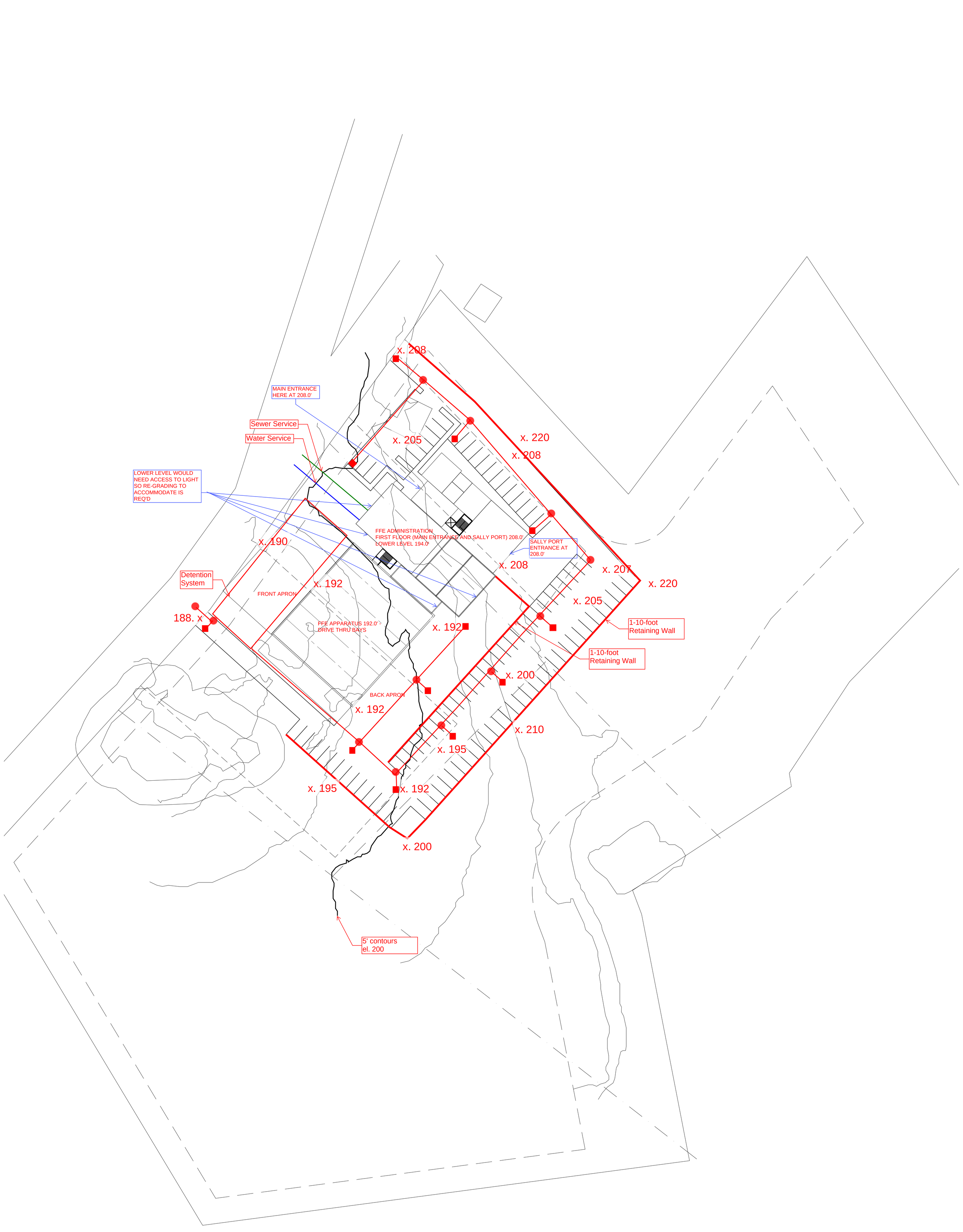
THE SECTION DEMONSTRATES CHALLENGES WITH THE GRADES AT UNION STREET. APPARATUS FLOOR IS SEVERAL FEET LOWER THAN THE ADMINISTRATION BUILDING FLOOR. VERTICAL CIRCULATION WITHIN THE BUILDING COULD BE A CHALLENGE AND IMPACT EMERGENCY RESPONSE FROM ADMINISTRATIVE/LIVING QUARTERS TO APPARATUS BAYS. ALTERNATIVELY, THE SITE WOULD NEED TO BE CUT DOWN AND RETAINED TO LEVEL OUT THE BUILDING MORE.



SECTION TAKEN THRU SITE


WAVERLY
EAST UN
UNION STREET
AP 15 LOT 78
1 EAST UNION STREET
WILDWOOD MIXED USE
DISTRICT (WMUSD-B)
AP 15 LOT 77
12 UNION STREET
WILDWOOD MIXED USE
DISTRICT (WMUSD-B)




x. 208
MAIN ENTRANCE
HERE AT 208.0'
Sewer Service
Water Service
x. 205
x. 220
x. 208
LOWER LEVEL WOULD
NEED ACCESS TO LIGHT
SO RE-GRADING TO
ACCOMMODATE IS
REQ'D
FFE ADMINISTRATION
FIRST FLOOR (MAIN ENTRANCE AND SALLY PORT) 208.0'
LOWER LEVEL 194.0'
SALLY PORT
ENTRANCE AT
208.0'
x. 190
x. 208
x. 207
x. 220
Detention
System
x. 192
FRONT APRON
x. 205
188. x
FFE APPARATUS 192.0'
DRIVE THRU BAYS
x. 192
1-10-foot
Retaining Wall
1-10-foot
Retaining Wall
x. 200
BACK APRON
x. 192
x. 210
x. 195
x. 195
x. 192
x. 200
5' contours
el. 200

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TEST FIT OPTIONS – MBTA ACCESS ROAD

3 LOT 138
ACCESS ROAD
ANSIT (RTD-C)
STRICT

TEST FIT #1 - MBTA ACCESS ROAD
SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

OPTION FITS ON SITE WITH SOME CUT/FILL REQUIRED. GOOD ACCESS TO ROAD FOR EMERGENCY VEHICLES. DRIVE-THRU APPARATUS BAYS ARE POSSIBLE. SITE IS LARGE ENOUGH TO ACCOMMODATE SEPARATION OF EMERGENCY/STAFF/PUBLIC PARKING. SALLY PORT CONCEALED BEHIND BUILDING. DEVELOPMENT DOES NOT AFFECT WETLANDS.

POLICE STAFF SUPPORT

SALLY PORT/ DETENTION

FIRE DAY ROOM/ REPORT WRITING/

90+ PARKING SPACES - POSSILBLE GATE SEPARATION FOR STAFF/ PUBLIC

FIRE SUPPORT

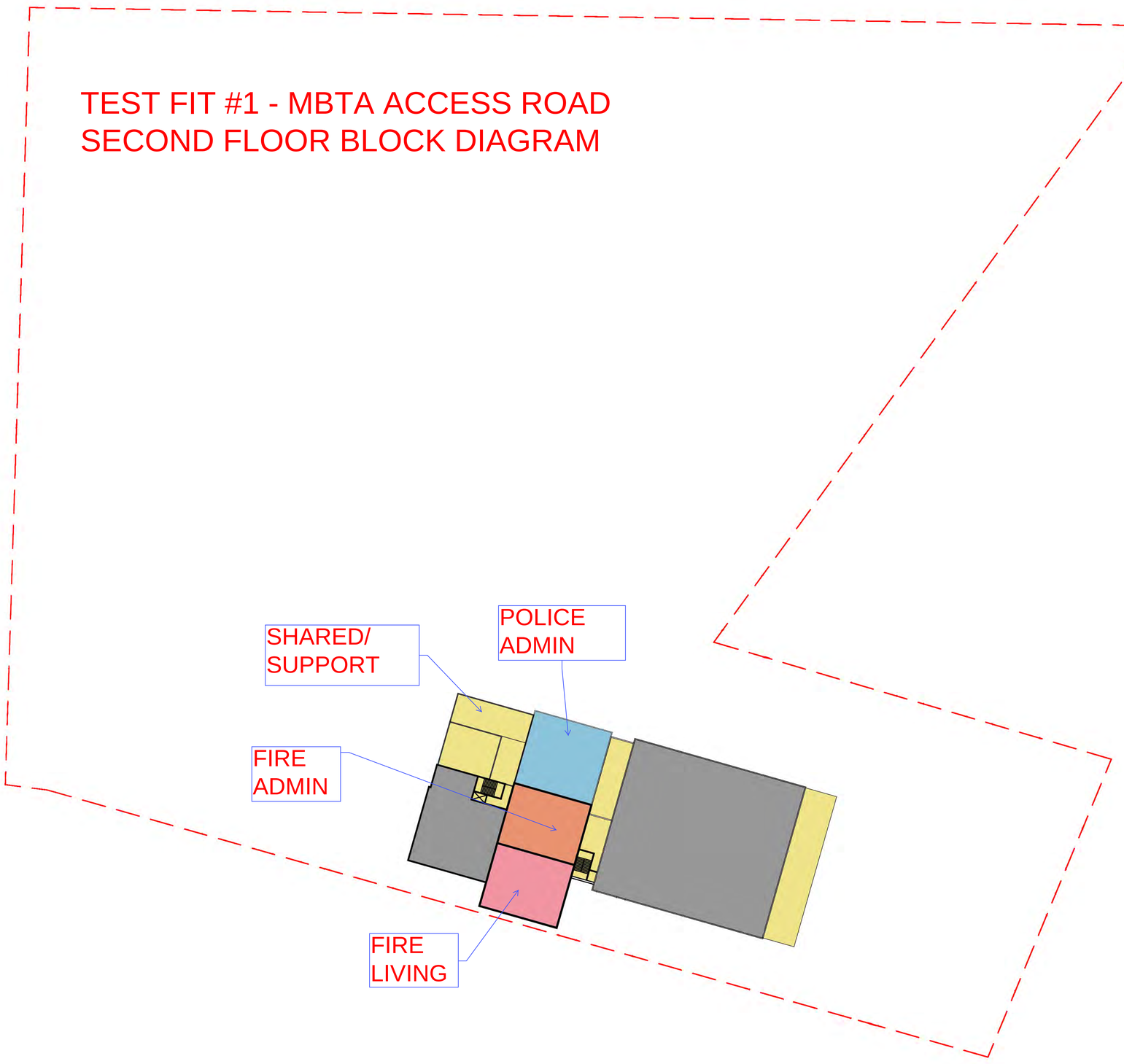
FD STAFF/ CALL PARKING

SHARED/ SUPPORT

POLICE OPERATIONS

DRIVE-THRU APPARATUS

TEST FIT #1 - MBTA ACCESS ROAD
SECOND FLOOR BLOCK DIAGRAM



3 LOT 138
ACCESS ROAD
ANSIT (RTD-C)
STRICT

TEST FIT #2 - MBTA ACCESS ROAD
SITE PLAN WITH FIRST FLOOR BLOCK DIAGRAM

OPTION FITS ON SITE WITH SOME CUT/FILL REQUIRED. GOOD ACCESS TO ROAD FOR EMERGENCY VEHICLES. THIS OPTION SHOWS APPARATUS WITH ACCESS OUT THE SIDE OF THE BUILDING (NO DRIVE-THRU). SITE IS LARGE ENOUGH TO ACCOMMODATE SEPARATION OF EMERGENCY/STAFF/PUBLIC PARKING. SALLY PORT CONCEALED BEHIND BUILDING. DEVELOPMENT DOES NOT AFFECT WETLANDS.

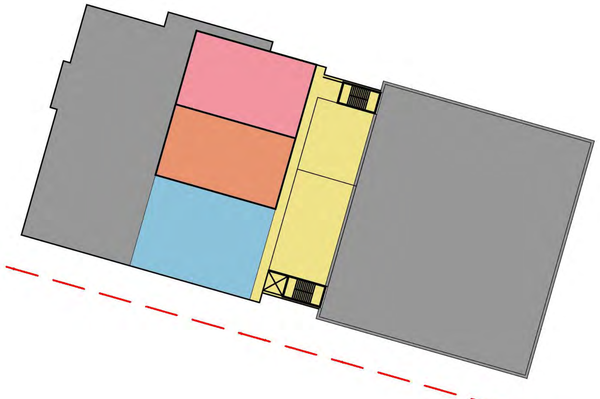
90+ PARKING SPACES - POSSILBLE GATE SEPARATION FOR STAFF/ PUBLIC

STAFF/ CALL PARKING

200

230

TEST FIT #2 - MBTA ACCESS ROAD
SECOND FLOOR BLOCK DIAGRAM



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SITE EVAULATION MATRIX

CATEGORY	15 Union Street	0 MBTA Access Road	Total Points Available	COMMENTS
1. LOCATION	**30**	**18**	**32**	
1.1 Geographic location	10	4	10	Response Times met with easiest crossing of RR; Response Times Met but requires longer travel to cross RR
1.2 Neighborhood	2	2	2	Minimal impact on residential neighborhood and community; Moderate impact; Significant impact
1.3 Current Use	4	4	4	Currently undeveloped; Currently undeveloped but site planned for other use; Currently planned for other use
1.4 Zoning By-laws	2	3	3	Allowed - complies with use, dimensional requirements and performance standards; Use allowed with moderate approval; Use allowed but will be difficult or costly to win approval
1.5 Public Facade/Screening	2	3	3	No private owner abutters and/or nothing special required; Close abutters with adequate area for screening; Abutters with inadequate area for screening
1.6 Community Visibility	10	2	10	Site is clearly visible to community and easily assessible, particularly in an emergency; Site is visible to community but not easily accessible; Site is neither clearly visible from public roads nor easily accessible
2. ACCESSIBILITY	**6**	**6**	**10**	
2.1 Site Access	3	3	5	Ease of access through existing entry points and roadways; Some impact on entry or roadway; Significant impact including limited emergency access
2.2 Traffic	3	3	5	No impact on traffic patterns; Some impact; Significant impact
3. SITE FEATURES	**14**	**20**	**20**	
3.1 Adequate site size	6	12	12	Optimum size - allows for expansion; Good size but no expansion capability; Undersized for full program
3.2 Operations - ease of use	8	8	8	Staff and Visitors use of site: Site easily split bewteen emergency vehicles and visitors; Site requires some overlap of uses; Site uses overlap negatively
4. ENVIRONMENTAL	**10**	**13**	**15**	
4.1 Wetlands	3	5	5	No wetlands or all work will occur outside of ConCom jurisdiction; Indirect impact (work in buffer zones); Direct impact on existing wetlands, flood plains, endangered species
4.2 Stormwater Management	2	3	3	Reasonable cost for stormwater management; Moderate costs; Excesssive costs
4.3 Conservation/DEP Permitting	5	5	5	No work within designated vernal pool and/or rare species habitat; Normal permitting process with vernal pool and/or rare species habitat nearby/on site; Work within vernal pool and/or rare species habitat
4.4 Existing Tree Cover	0	0	2	No major reduction; Minimum to moderate clearing; Major clearing
5. SITE DEVELOPMENT	**15**	**14**	**18**	
5.1 Utilities	3	3	3	Availability of all utilities on site; Utilities in road but need to be brought on site; Some/all utilities need to be brought to site
5.2 Topography	1	2	3	Appropriate for buildings, parking - full access; Some slope revisions to meet needs; Significant slope revisions to meet needs
5.3 Soils	3	3	3	Adequate for bearing capacity; Non-standard foundations required
5.4 Hazardous Materials	3	3	3	Free of known contaminants; Testing required; Site history of contaminants
5.5 Costs of Development	2	3	3	Reasonable costs for development: Cut/fill, clearing; Minimal costs; Moderate costs; Excessive costs
5.6 Risk to Cost of Development	3	0	3	If ledge is found and blasting is required or if unsuitable soils are found, what is potential impact on costs?Typical costs for similar sites; Excessive costs for increased protections for development near Superfund site
6. AVAILABILITY	**4**	**3**	**5**	
6.3 Acquisition	4	3	5	Cost, availability, time schedule, eminent domain: Reasonable costs, available for sale at this time; Costs high but available to meet schedule; Cost high with eminent domain
TOTAL	**79**	**74**	**100**	

HKT architects inc.

GEOTECHNICAL RECONNAISSANCE LETTER

Engineers | Scientists | Planners

PARECORP.COM

PARE CORPORATION

December 4, 2017

Ms. Janet Slemenda
HKT Architects, Inc.
35 Medford Street
Somerville, MA 02143

RE: **Geotechnical Reconnaissance Letter**
Ashland Public Safety Complex
12 Union Street
Ashland, MA
(Pare Project No. 17044.01)

Dear Ms. Slemenda:

This Geotechnical Reconnaissance Letter was prepared by Pare Corporation (Pare) for the feasibility study to determine the suitability of the site at 12 Union Street, Ashland, Massachusetts, for the proposed development of the Ashland Public Safety Complex. In accordance with our approved scope of services, a limited subsurface investigation program was undertaken to provide a general description of the existing subsurface conditions, development effort, and future studies required to complete foundation and site design.

This letter report has been prepared in general accordance with our proposal and is subject to the geotechnical limitations presented in Appendix B.

The scope of this evaluation did not include an evaluation of the site for the presence of contamination or other environmental concerns, as those tasks are outside the scope of this geotechnical reconnaissance letter.

EXISTING CONDITIONS

Pare understands that the proposed development includes an approximate 15,000 sq. ft. apparatus garage, an approximate 14,2000 sq. ft., multi-story structure, and parking for approximately 90 vehicles. Parking is proposed to be located around the perimeter of the development, with the parking lots sloped along natural grades to reduce the overall cut volumes at the site. Retaining walls are anticipated to meet proposed grades. High strength concrete and or pavements are anticipated to accommodate emergency vehicle parking and transport. Overall the site is projected to be a cut site.

Geology

Surficial

The USGS surficial geology map of this area indicates that the site is underlain by both low-level (western side) and high-level (eastern side) deposits formed in glacial lakes. These deposits are described by the USGS as follows:

> The majority of surficial material in the quadrangle are the water-laid ice-contact, deltaic, and associated deposits that were laid down in and (or) graded to various levels or stages of glacial Lakes Charles and Sudbury or to smaller higher level glacial lakes…As the ice front retreated northward, younger deposits were laid down in or graded to successively younger stages – lower levels – of Lakes Charles and Sudbury.

> The deposits consist of mixtures of gravel sand, and silt ice-channel fillings, kame terraces, kames, kame deltas and some outwash. Textures vary widely but generally coarse gravels overlie finer textured sands, in addition, the sands and Silts are better sorted and more distinctly layered than gravels. The gravels commonly have large clasts that are subrounded to rounded. Most of the clasts are granitic, ranging in composition from granite to granodiorite; lesser amounts of siliceous gneiss quartzite metamorphosed volcanic rock of intermediate to mafic composition, and gabbro are also present. The deltaic deposits most commonly have south dipping topset beds of slit, sand, pebbly sand, and minor amounts of gravel; these are overlain by gently south dipping topset beds of coarse pebbly to cobbly gravel. The distribution of materials m the area underlain by lake deposits is m places heterogeneous, because of the coalescing and overlapping of deltas and the numerous ice front positions from which the sands and gravels issued.

Bedrock

The USGS bedrock geology map of Massachusetts indicates that the site is underlain by the Milford Granite formed during the Lower Paleozoic to Precambrian Era. Milford Granite is described by the USGS as follows:

> Pinkish-gray, light-pinkish-gray to medium-gray, fine- to coarse-grained rock ranging from granite to granodiorite; …quartz monzonite; mostly equiangular, but large parts are porphyritic containing feldspar phenocrysts, also has xenomorphic granular and granitic textures; cataclastic textures, blastomylonitic and mylonitic varieties, are common along faults; primary foliation is generally poorly defined, and some of the rocks appear massive; locally contains inclusions of metavolcanic and metasedimentary rocks and a few small highly altered mafic dikes; weathers to pale-yellowish-brown to moderate-yellowish brown; principal minerals are quartz, perthite and microcline, oligoclase, albite, biotite, and muscovite; accessory minerals are magnetite, apatite, garnet, fluorite, sphene, and zircon; secondary mineral include sericite, epidote, chlorite, and calcite; microcline is present as large blocky phenocrysts and as small fragments between larger grains; oligoclase twin lamellae are bent near faults, and quartz is commonly strained; rocks generally highly altered along faults; potassium-feldspar phenocrysts more abundant than those of oligoclase.

SUBSURFACE INVESTIGATION

A preliminary, feasibility-level subsurface investigation program, consisting of eight test pits (B17-1 through B17-8), were performed on November 2, 2017 by Northern Drill Service, Inc. of Northborough, Massachusetts and observed by Pare personnel. Please refer to Appendix A for the test pit logs and to Figure 2: Existing Conditions and Test Pit Location Plan for the approximate test pit locations.

Test Pits

Pare personnel provided field observation and coordination for the subsurface exploration program. Field personnel observed the excavation conditions, visually identified the excavated soils, classified the size of excavated boulders, and took groundwater measurements as encountered. Test pits were excavated using a Komatsu PC 120 hydraulic excavator and backfilled using spoils from the excavation.

During the test pits, excavated subsurface soils were visually classified using the Burmister Classification System. This system describes soil composition based upon percentage of soil particle size by weight in the sample with the major soil particle size listed first following other soil components described as “trace” indicating 0-10% by weight, “little” indicating 10-20% by weight, “some” indicating 20-25% by weight, or “and” indicating 35-50% by weight. Additionally, Pare discussed the level of difficulty of advancing the excavation with the operator based on previous experience. While this is a subjective scale, the operator reported over 30 years experience of excavator operations.

Subsurface Profile

In general, the subsurface profile consisted of a layer TOPSOIL or FILL overlying various layers of GLACIAL DEPOSITS, overlying potential BEDROCK. The subsurface profiles are described further in the following sections.

Stratum 1 – TOPSOIL

TOPSOIL was encountered in all test pits except for TP-1. TOPSOIL was generally described as LOAM or fine to coarse SAND with "and" to "trace" amounts of Gravel, "little" to "trace" amounts of silt, and "trace" to "little" amounts of organics and roots. In general excavation effort through the top soil was reported as easy. Thickness of the TOPSOIL ranged from 0.25 feet to 3 feet thick.

Stratum 2 – FILL

FILL was encountered at the surface in TP-1 and below the TOPSOIL in TP-2, TP-3, TP-6, and TP-7. FILL was generally described as fine to coarse SAND with "and" to "some" amounts of Gravel, "and" to "little" amounts of boulders and/or cobbles, and "trace" amounts of silt and roots. In general excavation effort through the FILL was reported as difficult, with moderate effort in TP-3.

There were significant amounts of construction debris in the top 6 feet of TP-1. Debris included: guard rail, railroad rails, brick, concrete masonry units, granite curbing, reinforced concrete, and other miscellaneous debris. Debris ranged in size from 6 to 60 inches. Within TP-3, debris within the FILL was generally smaller than 8 inches and consisted of crushed brick, concrete, plastic, and wood. TP-3 was completed in the bowl of a former house foundation. Thickness of the FILL ranged from 1.5 feet to 6 feet thick.

Stratum 3 – GLACIAL DEPOSITS

Underlying the FILL and/or TOPSOIL, GLACIAL DEPOSITS were encountered. The GLACIAL DEPOSITS generally consisted of fine to coarse SAND and GRAVEL, with trace amounts of silt, and "and" to "little" amounts of boulders and cobbles. In general excavation effort through the GLACIAL DEPOSITS was reported as difficult. Thickness of the GLACIAL DEPOSITS ranged from 2 feet to 9.5 feet thick (note in test pits 1 and 2 the thickness of the deposit is unknown as potential BEDROCK was not encountered at the bottom of the test pit).

Boulders and cobbles encountered within the GLACIAL DEPOSITS stratum generally appeared to be granite, similar in description to the mapped parent bedrock material. Boulders ranged in size from 6 to 48 inches in diameter, and in many cases, were nested.

In one test pit, TP-7, a 1 foot thick layer of organic silt was encountered 3.5 to 4.5 feet below ground surface.

Stratum 4 – BEDROCK

While the presence of BEDROCK could not be directly confirmed, potential BEDROCK was encountered in TP-3, TP-4, TP-5, TP-6, TP-7, and TP-8. A description of the BEDROCK could not be obtained as the potential BEDROCK surface could not be properly cleaned for observation.

It should be noted that the depth to and thickness of the various strata may vary away from the test pit locations. Please refer to the test pit logs in Appendix A for a more detailed description of the soil conditions encountered.

Groundwater

Based on observations during the subsurface exploration program, groundwater was encountered at approximately between 3.5 and 9.5 feet below the ground surface. Note that test pits TP-6, TP-7, and TP-8 were completed within 20 feet of marked wetlands. Groundwater was not encountered within test pits TP-2 and TP-4. Ground water levels were determined by observing groundwater seeping from the side walls of the excavation. Note that in all test pits, except for TP-2 and TP-5, there were indications of seasonal high groundwater (i.e. orange staining and/or mottled soils) above the observed groundwater. Holes were generally left open for 15 minutes after achieving the reported depth to allow for the flowing of water into the hole. Depending on the permeability of the soil, this may not have been enough time for water to enter the excavation from surrounding soils at the prevailing groundwater elevation or to enter the excavation at all. Therefore, the reporting of groundwater presence and depth in this preliminary study should only be used for general reference purposes.

It should be noted that groundwater levels are known to fluctuate due to local and regional factors including, but not limited to, precipitation events, seasonal changes, and periods of wet or dry weather.

SITE CONSIDERATIONS

Based on the limited subsurface investigation program and observations made during the fieldwork, the following are the geotechnical issues identified that could potentially impact the development of the site as proposed:

- TOPSOIL, observed across the surface of the site, is likely not a suitable bearing stratum for footings or suitable for reuse as backfill materials in the building or roadway areas and is recommended to be removed (or used as landscaping material) and replaced with suitable material as stated herein.

- FILL, observed across the site, is likely not a suitable bearing stratum for footings in its current state. FILL containing construction debris should not be considered suitable for reuse as backfill in any location with the following exception: Construction debris containing brick or concrete could be considered suitable as common fill, IF there are no individual pieces larger than 6 inches (average diameter) AND the content of the debris does not exceed 5% (by weight) of the overall fill. The FILL could likely be modified to meet required gradations after screening of debris and boulders and confirmatory grain size analyses.

- GLACIAL DEPOSITS, observed across the site, will likely be suitable subbase bearing stratum for footings. Due to the large size of the boulders, as well as, boulder content of the soil, it is likely that a 1 foot cushion of structural fill material will need to be placed between the GLACIAL DEPOSITS and footings to avoid hard points on the footings or slabs.

- BEDROCK, observed across the site, will likely be suitable subbase bearing stratum for footings. Weathered rock should be removed to expose clean, sound rock when considering direct bearing of the footings; otherwise, a 1 foot cushion of structural fill material will need to be placed between the weathered rock and footings to avoid hard points on the footings or slabs.

- For each of the strata described above it should be noted that the thicknesses and extents are likely to vary across the site.

- Throughout the site there are large stockpiles of both concrete construction debris and boulders. Debris and boulder size ranges from 1 foot diameter to over 6 feet in diameter. Boulders could be repurposed as landscaping or site features; however, it is likely that large construction debris will need to be disposed

of off-site. Boulders and concrete debris could likely be crushed and blended with other on-site soils to create a suitable material for use as backfill (would require confirmatory grain size analyses).

- The excavator operator reported very difficult digging conditions through the GLACIAL DEPOSITS. This was in part due to the large amount and size of the boulders; however, in many instances the operator reported a tight soil matrix within the sand and gravel layers.

- It is likely that most excavation of overburden soils could be completed with excavators. Hammering of larger boulders should be anticipated.

- Based on a review of the Geological Bedrock Maps available, the BEDROCK underlying the site is expected to be a very hard, sound granite-like rock. Blasting and hammering of the rock are expected to be required. Local blasting requirements will need to be verified.

- Based on historic aerial photography, it appears that the site was primarily clear of vegetation as recently as 2005. Several residential houses were also located along Union Street in the 1970's; however, they appear to have been demolished by the 1990's. Currently the site is densely wooded with small to medium diameter trees (2 to 8 inches). Current vegetation would make accessing the site with a vehicle very difficult without prior clearing.

- At the location of 1 East Union Street, it appears that a house was demolished between May 2016 and April 2017. It appears that the house was removed in its entirety; however, debris was used as backfill. There are still several stone masonry walls on the property.

- While Pare was on-site, several areas of flagged wetlands were observed (flagging of wetlands was completed by others). Note that the flagged wetlands on the southwestern side of the site did not appear on previous site plans provided to Pare. The approximate limits of the flagged wetlands are included on Figure 2. The following should be considered.

    - TP-6 was completed approximately 20 feet away from a wetland area. Based on the most recent proposed plan, there is to be a retaining wall near this location. Consideration will have to be given to hydraulic loads on the wall and seepage of the wetland through, or below, the wall into the proposed parking area.
    - TP-7 and TP-8 were completed in close proximity to wetlands. The proposed plans currently show development within the delineated wetland areas. It is likely that significant improvements will need to be completed on the subsurface soils prior to the soils being ready to receive structural loads, including the removal of the presumed layer of organic silt noted in TP-7. Wetland replication will likely need to be completed to offset the proposed disturbance to the environmental resource.

- As the site is a "cut" site, cost and schedule estimates for excavation and site development should consider the following:

    - Difficult digging conditions through the FILL, GLACIAL DEPOSITS, and weathered rock.
    - Relatively shallow BEDROCK potentially encountered throughout the site.
    - The expected difficulty of excavating, blasting, or hammering the BEDROCK.
    - Disposal of FILL with construction debris should consider the potential for disposal of contaminated materials.
    - Improving soils currently within wetland areas to received structural loads.
    - Permitting and creating wetland replication areas.

- Means to prevent the draining of wetlands adjacent to cut areas.

RECOMMENDED FUTURE STUDIES

The following additional studies are recommended to facilitate the final design and estimates of cost for developing the site.

Soil Borings: A geotechnical boring program should be implemented to collect additional information on soil type, thicknesses, and strength; rock depth, type and strength; and groundwater level. The boring program should include standard penetration testing and sampling continuously for the first 10 feet of soil and at 5-foot intervals thereafter. Additional consideration should be given to further continuous sampling in areas of proposed cuts deeper than 10 feet. At least two, 10 foot rock cores should be completed within the proposed building footprint. Additional rock cores should be completed in areas where the elevation of the rock is above proposed final grades to determine the effort required for removal. Borings should be completed within the building area at intervals not to exceed 100 feet. Borings in parking lots should not exceed 150 feet.

As the site is densely wooded and there are areas of steep slopes and soft surface soils a track mounted drill rig will need to be used to complete the borings. It is likely that a day of clearing will need to be included to clear pathways to the boring locations. Due to the size and quantity of boulders in the overburden soils drilling progress should be expected to be slow.

Monitoring Wells: As part of the soil boring program, monitoring wells should be installed in proposed "cut" areas adjacent to wetlands, in the footprint of proposed basements, and in proposed "cut" areas where groundwater is encountered above the proposed ground surface elevation. Readings at monitoring wells should be completed on a regular (i.e. monthly) basis over the course of a year to determine the effects of precipitation events and seasonal variation on the water table.

Bedrock Probes: Due to the likely difficulty of advancing borings through the cobble and boulder laden soils, bedrock probes should be completed in areas where cuts are proposed, to accurately map the potential bedrock surface required to be demolished and removed. Bedrock probes could be completed with a track-mounted air hammer to quickly advance the hole through the overburden to bedrock.

Due to the likely slow progression of soil borings through the overburden, bedrock probes should be completed prior to the soil borings so that the soil boring program can be tailored to the bedrock profile.

Environmental Testing: Fill soils should be tested for environmental contaminants during the subsurface exploration program. If contaminants are found a more extensive testing program would likely be required to map the extents of the contamination. Testing of the other soil layers and the groundwater would also likely be required to determine if the contaminant(s) were being transported.

We trust that this report addresses your geotechnical needs for this project. Please contact us at (508) 543-1755 if you have any questions or comments.

Sincerely,

PARE CORPORATION

David Caouette
Project Engineer

J. Matthew Bellisle, P.E.
Principal/Project Reviewer

Attachments:

- Figure 1: Site Locus Plan
- Figure 2: Existing Conditions & Test Pit Location Plan
- Appendix A: Test Pit Logs
- Appendix B: Geotechnical Limitations

FIGURES

USGS TOPOGRAPHIC MAP FROM OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

PARE CORPORATION

PROPOSED PUBLIC SAFETY COMPLEX
12 UNION STREET
ASHLAND, MA

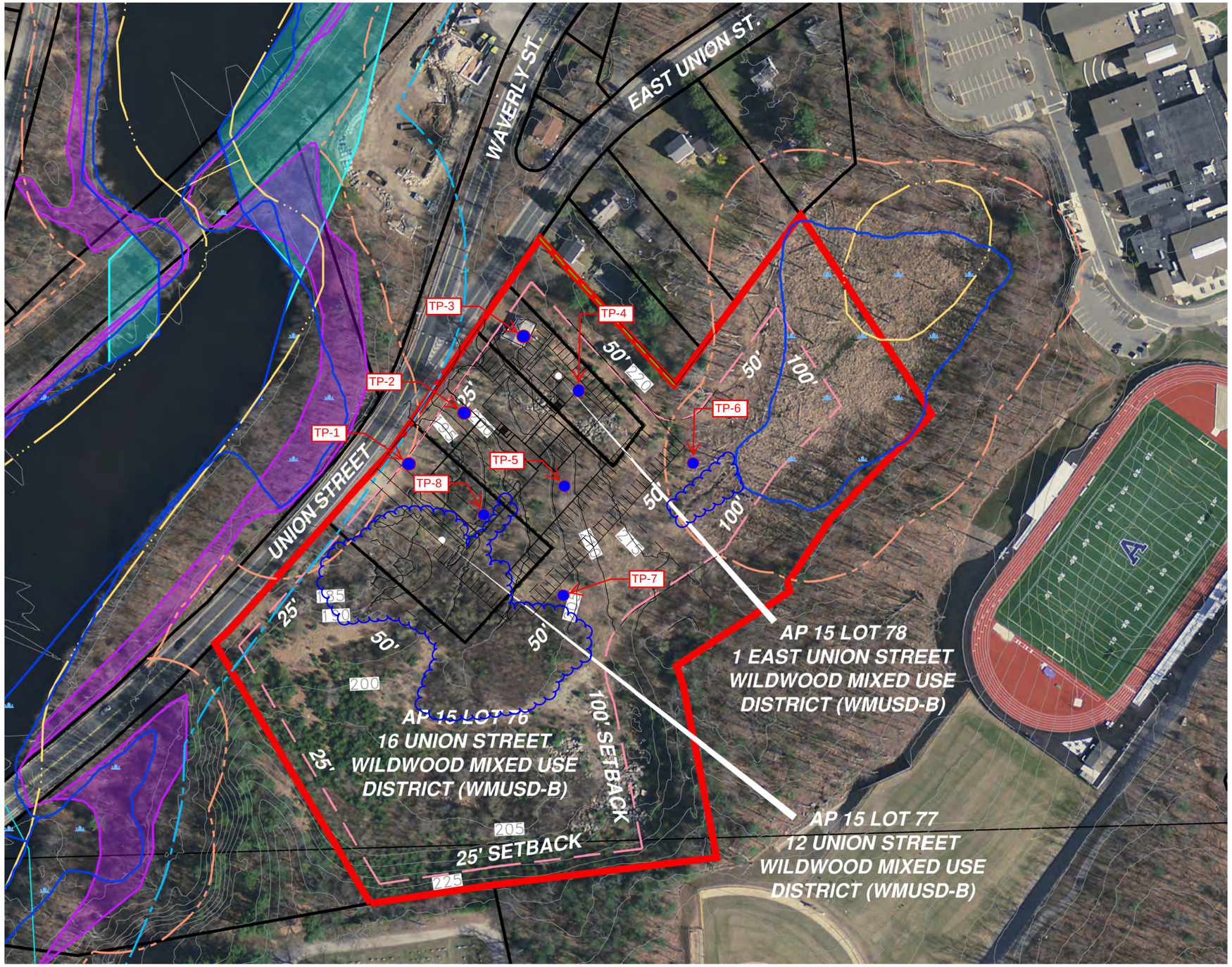
TOWN OFASHLAND

LOCUS PLAN

NOVEMBER 2017 FIGURE 1

FIGURE 2: EXISTING CONDITIONS AND TEST PIT LOCATION PLAN

12 UNION STREET ASHLAND, MA.
PARE JOB No. 17044.00 JULY 2017



N

LEGEND

- PROPERTY LIMIT
- BUILDING SETBACKS
- ABUTTING PROPERTIES
- POND
- DEP WETLANDS
- FEMA FLOOD BOUNDARY
- 100-FOOT WETLAND BUFFER
- 200-FOOT RIVERFRONT AREA
- AQUIFER RECHARGE AREA TOWN OF ASHLAND
- APPROXIMATE LOCATION OF TEST PIT
- APPROXIMATE LIMITS OF WETLAND FLAGS INSTALLED BY OTHERS

NOTE:

TOTAL AREA OF PROPERTY LIMIT IS 12.1± ACRES
(INCLUDES AP 15 LOT 76, 77 AND 78)

150' 75' 0 150'

Scale: 1"=150'

PARE
PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
10 LINCOLN ROAD, SUITE 210
FOXBORO, MA 02035
508-543-1755

MASS GIS ALL DATA LAYERS WERE OBTAINED FROM OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

Y:\JOBS\17 Jobs\17044.00 HKT Ashland Public Safety Complex – MA\GIS\gis-constraints.dwg

APPENDIX A:
Test Pit Logs

Pare Corporation
10 Lincoln Road, Suite 210
Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

TEST PIT NUMBER TP17-1

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 188 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION 9.00 ft / Elev 179.00 ft
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	D	A-C	1			Dry, brown DEBRIS (concrete, metal, rr rail, brick, CMU), some fine to coarse sand, some fine to coarse gravel, some boulders, trace silt. (FILL)	
5	6	D	A&B	2	¥		Moist, tan, fine to coarse SAND and fine to coarse GRAVEL, some boulders, trace silt. (GLACIAL DEPOSITS)	
10							Bottom of test pit at 12.0 feet.	
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE	8	E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"	11	M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP				V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM		
					F-C	FINE TO COARSE	PERCENT BY WEIGHT	
		VOLUME = CU.YDS			NE	NOT ENCOUNTERED		

REMARKS:
1. 4-6" Topsoil.
2. Black layer at 6' depth before native soils, orange color tinge to safe, 6-7' depth then tan.

Pare Corporation
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Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

TEST PIT NUMBER TP17-2

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 199 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION ---
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	E	A				Dry, black/orange/brown, fine to coarse SAND, some little coarse gravel, some boulder, trace silt, trace roots/grass. (TOPSOIL)	
	1	D	A-C				Dry, brown/tan COBBLES and BOULDERS, some fine to coarse sand, some fine to coarse gravel, trace silt, trace roots. (FILL)	
	3	D	A-C	1, 2	NE		Dry, dark brown BOULDERS and COBBLES, some fine to coarse sand, some gravel, trace silt, trace brick, trace plastic, trace roots. (FILL)	
5								
	7	D	A-C	3, 4			Dry, brown BOULDERS and COBBLES, some fine to coarse sand, little gravel, trace silt, trace roots. (GLACIAL DEPOSITS)	
10							Bottom of test pit at 10.0 feet.	
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE	5.5	E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"	10	M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP	VOLUME = CU.YDS			V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM		
					F-C	FINE TO COARSE	PERCENT BY WEIGHT	
					NE	NOT ENCOUNTERED		

REMARKS:
1. Large tree trunk at 4-6'.
2. At 7' several "C" boulders.
3. Granite stone.
4. 12' deep on hillside.

Pare Corporation
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Foxboro, MA 02035
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F: 508-543-1881

TEST PIT NUMBER TP17-3

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 205 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION 9.50 ft / Elev 195.50 ft
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	E	-				Dry, fine to coarse SAND and GRAVEL, trace silt, trace grass/roots. (TOPSOIL)	
	0.5	M	A				Dry, gray, fine to coarse SAND and GRAVEL and DEBRIS (8' minus brick, concrete, plastic, wood). (FILL)	
	2	M-D	A-B	1, 2			Dry, moist, tan/brown, fine to coarse SAND, some gravel, little cobble/boulders, trace silt. (GLACIAL DEPOSITS)	
5								
10				3	¥			
							Bottom of test pit at 10.0 feet.	
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE	7	E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"	12	M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP	VOLUME = CU.YDS			V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM	PERCENT BY WEIGHT	
					F-C	FINE TO COARSE		
					NE	NOT ENCOUNTERED		

REMARKS:
1. At 5' down, orange layer sand (1.5' thick).
2. Large boulder northwest side pit (36"+).
3. Potential bedrock at 10'.

Pare Corporation
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Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

TEST PIT NUMBER TP17-4

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 217 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION ---
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	E	-				Dry, fine to coarse SAND, little silt, little organics, trace roots. (TOPSOIL)	
	0.25	D	A-C				Dry, tan/light brown BOULDERS and COBBLES, some fine to coarse sand, some fine to coarse gravel. (GLACIAL DEPOSITS)	
5	5	D	A-B	1, 2	NE		Moist, orange/tan COBBLES and fine to coarse SAND and fine to coarse GRAVEL, trace silt. (GLACIAL DEPOSITS)	
				3			Bottom of test pit at 8.0 feet.	
10								
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE	8	E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"	15	M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP	VOLUME = CU.YDS			V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM	PERCENT BY WEIGHT	
					F-C	FINE TO COARSE		
					NE	NOT ENCOUNTERED		

REMARKS:
1. Orange soil at 5' deep.
2. Partial bedrock at 8' deep.
3. Mottled hard packed soil and silt clumps.

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Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

TEST PIT NUMBER TP17-5

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 208 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
▽ **AT TIME OF EXCAVATION** 8.00 ft / Elev 200.00 ft
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	M	A				Dry, black/dark brown, fine to coarse SAND and GRAVEL, some boulders/cobbles, trace silt, trace roots (up to 1.5" thick). (TOPSOIL)	
	3	M	A				Moist, tan/gray, fine to coarse SAND and GRAVEL, some cobbles, some boulders, trace silt. (GLACIAL DEPOSITS)	
5	8	D	A	1	¥		Wet, fine to coarse SAND, some gravel, trace silt, trace cobbles/boulders, trace weathered rock. (GLACIAL DEPOSITS)	
10							Bottom of test pit at 11.0 feet.	
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE	6 / 13	E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"	VOLUME = CU.YDS	M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP				V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM		
					F-C	FINE TO COARSE	PERCENT BY WEIGHT	
					NE	NOT ENCOUNTERED		

REMARKS:
1. Wet side walls and very weathered rock at 8' deep.

Pare Corporation
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Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

TEST PIT NUMBER TP17-6

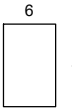
CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 218 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION 7.00 ft / Elev 211.00 ft
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	E	A				Dry, dark brown/black, some fine to coarse SAND, some gravel, little boulders/cobbles, trace roots (up to 2" dia.). (TOPSOIL)	
	2.5	M-D	A	1, 2			Moist, gray/tan, fine to coarse SAND and fine to coarse GRAVEL, trace silt, little cobbles. (FILL)	
5	6	D	A	2	¥		Wet, maroon, fine to coarse SAND and coarse GRAVEL, some cobbles, some boulders, trace silt. (GLACIAL DEPOSITS)	
				3			Bottom of test pit at 8.0 feet.	
10								
15								

BOULDER CLASS

DESTINATION	SIZE
A	6" TO 18"
B	18" TO 36"
C	36" & UP

TEST PIT PLAN



VOLUME = CU.YDS

EXCAVATION EFFORT

E	EASY
M	MODERATE
D	DIFFICULT

ABBREVIATIONS

F	FINE
M	MEDIUM
C	COARSE
V	VERY
F-M	FINE TO MEDIUM
F-C	FINE TO COARSE
NE	NOT ENCOUNTERED

BURMISTER CLASSIFICATION

TRACE	0 -10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%

PERCENT BY WEIGHT

REMARKS:
1. Tire and trace plastic at 2'.
2. Mottled soils 1-3' deep. Orange staining at 4'.
3. Potential bedrock at 8'.

Pare Corporation
10 Lincoln Road, Suite 210
Foxboro, MA 02035
T: 508-543-1755
F: 508-543-1881

TEST PIT NUMBER TP17-7

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 203 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION 7.00 ft / Elev 196.00 ft
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	E	-				Loam, little fine to coarse SAND, little gravel, little silt. (TOPSOIL)	
	0.5	D	A&B				Dry, brown, fine to coarse SAND and GRAVEL and BOULDERS/COBBLES, trace silt. (FILL)	
	3.5	E	-				Moist, black, organic SILT, little fine sand, trace roots. (SILT)	
5	4.5	D	A	1	¥		Wet, orange/blue/gray, fine to coarse SAND and GRAVEL, some cobbles, some boulders, trace silt. (GLACIAL DEPOSITS)	
10				2			Bottom of test pit at 10.0 feet.	
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE		E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"		M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP				V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM		
		VOLUME = CU.YDS			F-C	FINE TO COARSE	PERCENT BY WEIGHT	
					NE	NOT ENCOUNTERED		

REMARKS:
1. 1' gray, 1' orange and then blue gray soils.
2. Potential weathered rock at 10'.

Pare Corporation
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Foxboro, MA 02035
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F: 508-543-1881

TEST PIT NUMBER TP17-8

CLIENT HKT Architects, Inc.
PROJECT NAME Ashland Public Safety Complex
PROJECT NUMBER 17044.01
PROJECT LOCATION Ashland, MA
DATE STARTED 11/02/17 **COMPLETED** 11/02/17
GROUND ELEVATION 195 ft
EXCAVATION CONTRACTOR Northern Drill Service, Inc.
GROUND WATER LEVELS:
EXCAVATION METHOD Komatsu PC 120, 8 Ton, 12' Reach
AT TIME OF EXCAVATION 3.50 ft / Elev 191.50 ft
LOGGED BY D. Caouette **CHECKED BY**
AT END OF EXCAVATION ---
BORING LOCATION SEE FIGURE 2

DEPTH (ft)	DEPTH (FT)	EXCAVATION EFFORT	BOULDERS CNT/CLASS	REMARKS	GROUNDWATER ELEVATION	GRAPHIC LOG	SAMPLE DESCRIPTION	PID READING
0	0	E	-				Moist, brown/black LOAM. (TOPSOIL)	
	1	M	A				Moist, brown, fine to coarse SAND and GRAVEL, some cobbles, little boulders, trace silt. (GLACIAL DEPOSITS)	
	3	M-D	A		¥		Wet, orange, fine to medium SAND, some gravel, some boulders. (GLACIAL DEPOSITS)	
5	4.5	D	A				Wet, brown, fine to coarse SAND and GRAVEL, little boulders, little cobbles, trace silt. (GLACIAL DEPOSITS)	
10							Bottom of test pit at 9.5 feet.	
15								

BOULDER CLASS		TEST PIT PLAN	EXCAVATION EFFORT		ABBREVIATIONS		BURMISTER CLASSIFICATION	
DESTINATION	SIZE		E	EASY	F	FINE	TRACE	0 -10%
A	6" TO 18"		M	MODERATE	M	MEDIUM	LITTLE	10 - 20%
B	18" TO 36"		D	DIFFICULT	C	COARSE	SOME	20 - 35%
C	36" & UP				V	VERY	AND	35 - 50%
					F-M	FINE TO MEDIUM		
		VOLUME = CU.YDS			F-C	FINE TO COARSE	PERCENT BY WEIGHT	
					NE	NOT ENCOUNTERED		

REMARKS:
1. Potential bedrock at 9.5'.
2. Orange soils at 3' deep.

APPENDIX B:
Geotechnical Limitations

GEOTECHNICAL LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, Pare Corporation (Pare) should be asked to reevaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in the subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the test pit logs.

3. Water level readings have been made in the test pits at the times and under the conditions stated on the test pit logs. These data have been reviewed and interpretations have been made in the text of this report. However, fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors occurring since the time the measurements were made.

Review

4. In the event that any changes in the nature or location of the proposed structure are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are verified in writing by Pare. Pare should also be provided with the opportunity for a general review of the final design and specifications in order that the earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

Construction

5. Pare should be retained to provide soil engineering services during construction of the excavation and foundation phases of work in order to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those indicated prior to the start of construction.

Use of Report

6. This report has been prepared for the exclusive use of HKT Architects for specific application to the Ashland Public Safety Complex at the proposed location near 12 Union Street, Ashland, Massachuestts in accordance with generally accepted engineering practices. No other warranty, expressed or implied, is made.

7. This engineering report has been prepared for this project by Pare. This report is for design purposes only and is not necessarily sufficient to prepare an accurate bid. Contractors wishing a copy of this report may secure it with the understanding that its scope is limited to design considerations only.

HKT architects inc.

OPINION OF PROBABLE COST – ROCK REMOVAL AT UNION STREET SITE

PROJECT : Ashland Public Safety	
SUBJECT: Opinion of Probable Cost - Rock Removal	PROJECT NUMBER: 17044.00
COMPUTATIONS BY: LM	DATE: 12/21/17
CHECK BY:	DATE:

Opinion of Probable Cost - Rock Removal at Union St Site

Item	Quantity	Unit	Unit Price	Total	Source	Notes
Rock Removal						
Pre-blast Survey	1	LS	$15,000	$15,000	(See below)	
Vibration Monitoring	1	LS	$10,000	$10,000	(See below)	
Boulder Removal	7,664	CY	$55	$421,600	(See below)	*unit cost lowered for high quantities
Open Ledge Blasting	16,986	CY	$65	$1,104,100	(See below)	*unit cost lowered for high quantities
Subtotal				**$1,550,700**		

Records of cost data

Mass Weighted Average Unit Prices		
Item 121.0 Class A (Open):	$ 100.00	CY
Item 144.0 Class B (Trench)	$ 133.65	CY
Abington Public Schools (contractor's bid, 2015):		
Boulder removal	$ 55.00	CY
Ledge removal (open & trench)	$ 165.00	CY
Quincy Public School (contractor's estimate 2016)		
Preblast survey	15,000	LS
Vibration monitoring	10,000	LS
Ledge removal bulk blasting, open	$ 85.00	CY
Ledge removal bulk blasting, trench	$ 125.00	CY
Ledge removal, hoe ramming, trench	$ 165.00	CY
Westborough, MA - State Project (contractor's bid)		
Trench removal (2017)	$ 75.00	CY
Hydraulic hammering, ledge (2016)	$ 580.00	CY
Boulder removal (2016)	$ 250.00	CY

Quantity Estimate Note

*Over the approximately 2.7 acre footprint of the schematic site layout, the depth of excavation into ledge is an average of 4' over the site

HKT
architects inc.

ESTIMATED PROBABLE COSTS

Ashland Public Safety Building - Estimated Total Probable Costs

	Union Street - Public Safety		Union Street - Fire Only		Unnamed Site - Police Only		Comments
Estimated Hard Construction Costs	**43,992 SF**		**28,890 SF**		**21,670 SF**		
Estimated Hard Construction Costs	$22,329,072	$507.48 GSF	$14,661,097	$507.48 GSF	$10,997,092	$507.48 GSF	Assumes January 2019 construction start. Assumes cost/GSF of TCI Union Street Public Safety estimate.
Estimated Probable Costs for Rock Removal	$1,550,700		$1,550,700		Unknown		Pare's opinion of probable cost based on geotech investigations at Union St only
Estimated Cost of Traffic Signalization	$105,000		$105,000		$105,000		Assumes full signalization at Union Street and unnamed site. Assumes pre-emption will be required at adjacent signaled intersection. If other Town intersections do not have pre-emption, assume each emergency vehicle will require pre-emption equipment at approximately $3,000/vehicle (assumed to be paid for out of a Town operating budget and vehicle pre-emption equipment is not carried in the construction cost estimate).
Subtotal	**$23,984,772**		**$16,316,797**		**$11,102,092**		
Estimated Soft Construction Costs - 25%	**$5,996,193**		**$4,079,199**		**$2,775,523**		Assumed at 25% of Estimated Hard Construction Costs. Examples of soft costs include architectural/engineering fees, Owner's Project Manager fees, clerk of the works, printing, legal, communications/radio equipment, furniture, fixtures and equipment, utility company backcharges. Site acquisition costs are excluded.
Site Acquisition Costs	Unknown		Unknown		Unknown		
Subtotal Hard and Soft Construction Costs	**$29,980,965**		**$20,395,997**		**$13,877,615**		
Owner's Contingency - 3%	$899,429		$611,880		$416,328		
Total Estimated Probable Project Costs	**$30,880,394**		**$21,007,876**		**$14,293,943**		

Conceptual Cost Estimates

Public Safety Building Feasibility and Location Study

Union Street Site / MBTA Site

Ashland, Ma

Prepared by:

TCi Construction Cost Estimating

165 Middlesex Turnpike Suite 106

Bedford, Ma 01730

www.tortoraconsulting.com

Prepared for:

HKT

September 15, 2017

Public Safety Building Feasibility and Location Study

Union Street Site / MBTA Site

TCi Construction Cost Estimating

Conceptual Cost Estimates

September 15, 2017

MAIN COST SUMMARY	Estimated Construction Costs	Building GSF	$/GSF
Union Street Site	$22,329,072	44,000	$507.48
MBTA Site	$21,403,903	44,000	$486.45

Note: Costs above do not include sitework scope associated with poor soils or ledge removals. If this occurs, added cost for ledge blasting, soil replacement or ground improvements could be in the $500k to $1 million range. Until a full geo-tech report is completd including borings and test pits, we cannot identify a specific scope and cost.

This cost estimate was produced from September 5, 2017 concept documents and narratives provided by HKT. 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 contractor's overhead and profit and design contingency. Cost escalation assumed to mid point of construction schedule. Construction start is assumed January 2019.

Bidding conditions are expected to be public bidding utilizing chapter 149 filed sub bidding and DCAM qualified general contractors.

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

Land acquisition, feasibility, and financing costs
Items identified in the design as Not In Contract (NIC)
Items identified in the design as by others
Utility company back charges, including work required off-site
Work to City streets and sidewalks, (except as noted in this estimate)
Construction or occupancy phasing or off hours' work, (except as noted in this estimate)
Contaminated or unsuitable soils removal or replacement
Rock excavation and or special foundations
Building demolition or hazardous material abatement
Building Permit

Conceptual Cost Estimates

Recommendations For Cost Control

TCI recommends that the Owner and Architect carefully review this document, including line item descriptions, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. Request for modifications of any apparent errors or omissions to this document must be made to TCI with in ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that TCI using bid documents produce a final update estimate, to determine overall costs changes which have occurred since the preparation of the estimate. The final update estimate will address changes and additions to the document, as well as addenda issued during bidding process. TCI cannot reconcile bid results to an estimate not produced from bid documents.

Statement Of Probable Cost

TCI has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. The opinion of construction is made on the basis of the experience, qualifications, and best judgment of the professional estimator familiar with the industry. TCI does not guarantee that bids will not vary form this estimate.

TCI staff of professional cost estimators has prepared this estimate in accordance with generally accepted principles and practices.

Acceptance of Report

With acceptance of this report, the holder shall indemnify and hold harmless Tortora Consulting from and against all claims, damages, losses and expenses, including but not limited to attorney fees and court costs arising out of or as a result of the performance of this work, including third party claims.

Conceptual Cost Estimates

CONSTRUCTION COST SUMMARY COMPARISON

BUILDING SYSTEM		*44,000 sf* Union Street Site		*44,000 sf* MBTA Site	
A10	FOUNDATIONS AND SLABS	$936,253	$21.28	$838,094	$19.05
B10	SUPERSTRUCTURE	$1,329,539	$30.22	$1,274,059	$28.96
B20	EXTERIOR CLOSURE	$2,723,532	$61.90	$2,406,419	$54.69
B30	ROOFING	$790,082	$17.96	$887,798	$20.18
C10	INTERIOR CONSTRUCTION	$1,954,150	$44.41	$1,954,150	$44.41
C20	STAIRCASES	$83,750	$1.90	$67,000	$1.52
C30	INTERIOR FINISHES	$816,767	$18.56	$820,555	$18.65
D10	CONVEYING SYSTEMS	$172,000	$3.91	$116,800	$2.65
D20	PLUMBING	$507,610	$11.54	$507,610	$11.54
D30	HVAC	$1,948,400	$44.28	$1,948,400	$44.28
D40	FIRE PROTECTION	$199,500	$4.53	$199,500	$4.53
D50	ELECTRICAL	$1,747,800	$39.72	$1,734,800	$39.43
E10	EQUIPMENT	$33,400	$0.76	$33,400	$0.76
E20	FURNISHINGS	$179,600	$4.08	$166,600	$3.79
E30	SPECIAL CONSTRUCTION	$462,150	$10.50	$462,150	$10.50
G10	SITEWORK & DEMOLITION	$1,842,612	$41.88	$1,619,602	$36.81
TOTAL DIRECT COST (Trade Costs)		***$15,727,145***	$357.44	***$15,036,937***	$341.75
GC General conditions and Requirements		$960,000		$960,000	
GC GL Insurance (1.1%)		$172,999		$165,406	
Bonds (2%)		$314,543		$300,739	
GC overhead and profit (5%)		$858,734		$823,154	
Design and Estimating contingency (15%)		$2,705,013		$2,592,935	
23 Months Escalation to midpoint (January 2019 start) (7.67%)		$1,590,638		$1,524,732	
TOTAL CONSTRUCTION COST		***$22,329,072***	$507.48	***$21,403,903***	$486.45

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
GROSS FLOOR AREA CALCULATION						
1st floor - Apparatus Bays			**16,429**			
1st floor - Sally Port			**3,840**			
Basement - Administration			**3,200**			
1st floor - Administration			**13,000**			
2nd floor - Administration			**7,531**			
TOTAL GROSS FLOOR AREA (GFA)				**44,000** ***sf***		
A10 BUILDING FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
Building Strip footings						
Formwork	**1,700**	sf	15.00	25,500		
Re-bar	**1,785**	lbs	3.00	5,355		
Concrete material	**99**	cy	155.00	15,345		
Placing concrete	**99**	cy	40.00	3,960		
Building Foundation walls						
Formwork	**13,200**	sf	15.00	198,000		
Re-bar	**9,075**	lbs	3.00	27,225		
Concrete material	**257**	cy	155.00	39,835		
Placing concrete	**257**	cy	40.00	10,280		
Dampproofing	**4,950**	sf	5.00	24,750		
Insulation to foundation walls; 2" thick	**4,950**	sf	3.00	14,850		
Form shelf	**825**	lf	8.00	6,600		
Building Foundation walls at basement						
Formwork	**4,800**	sf	15.00	72,000		
Re-bar	**2,200**	lbs	3.00	6,600		
Concrete material	**93**	cy	155.00	14,415		
Placing concrete	**93**	cy	40.00	3,720		
Waterproofing	**1,200**	sf	10.00	12,000		
Insulation to foundation walls; 2" thick	**1,200**	sf	3.00	3,600		
Building Interior column footings						
Formwork	**896**	sf	15.00	13,440		
Re-bar	**599**	lbs	3.00	1,797		
Concrete material	**35**	cy	155.00	5,425		
Placing concrete	**35**	cy	40.00	1,400		
Set anchor bolts grout plates	**28**	ea	135.00	3,780		
Building Exterior wall column footings						
Formwork	**720**	sf	15.00	10,800		
Re-bar	**1,126**	lbs	3.00	3,378		
Concrete material	**21**	cy	155.00	3,255		
Placing concrete	**21**	cy	40.00	840		
Set anchor bolts grout plates	**30**	ea	135.00	4,050		
Miscellaneous						
Form key in footing	**942**	lf	5.00	4,710		
Piers/Pilasters						
Formwork	**1,440**	sf	15.00	21,600		
Re-bar	**5,400**	lbs	3.00	16,200		
Concrete material	**19**	cy	155.00	2,945		
Placing concrete	**19**	cy	40.00	760		
SUBTOTAL					578,415	

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
A1030 LOWEST FLOOR CONSTRUCTION						
New Slab on grade, 5" thick						
Vapor barrier	**13,000**	sf	2.50	32,500		
Mesh reinforcing 15% lap	**14,950**	sf	0.60	8,970		
Concrete - 5" thick	**253**	cy	155.00	39,215		
Placing concrete	**253**	cy	18.00	4,554		
Finishing and curing concrete	**13,000**	sf	1.00	13,000		
Control joints - saw cut	**13,000**	sf	0.10	1,300		
Isolation joints at columns	**176**	lf	2.50	440		
New Slab on grade, 8" thick (apparatus / Sallyport)						
Rigid insulation	**20,269**	sf	2.50	50,673		
Vapor barrier	**20,269**	sf	0.60	12,161		
Rebar	**23,309**	sf	1.00	23,309		
Concrete - 8" thick	**544**	cy	155.00	84,320		
Placing concrete	**544**	cy	18.00	9,792		
Finishing and curing concrete	**20,269**	sf	1.00	20,269		
Control joints - saw cut	**20,269**	sf	0.10	2,027		
Isolation joints at columns	**423**	lf	2.50	1,058		
Elevator Pits						
Elevator pit walls						
formwork	**675**	sf	15.00	10,125		
reinforcement	**1,013**	lbs	3.00	3,039		
concrete material	**9**	cy	155.00	1,395		
placing concrete	**9**	cy	45.00	405		
Slab						
formwork	**185**	sf	12.00	2,220		
reinforcement	**1,388**	lbs	3.00	4,164		
concrete material in slab	**11**	cy	155.00	1,705		
placing concrete	**11**	cy	45.00	495		
Bentonite waterstops	**1**	ls	1,500.00	1,500		
Cementitous waterproofing to elevator pit	**1**	ls	4,000.00	4,000		
Miscellaneous						
Slope slabs	**20,269**	sf	0.75	15,202		
Equipment pads and curbs	**1**	ls	10,000.00	10,000		
SUBTOTAL					357,838	
TOTAL - FOUNDATIONS						***$936,253***
B10 SUPERSTRUCTURE						
B1010 FLOOR CONSTRUCTION						
Floor Structure - Steel:						
W beams, tube, columns, bracing and misc framing members	**98**	tns	4,500.00	441,000		
Floor deck - 1 1/2" deck	**16,200**	sf	3.85	62,370		
WWF reinforcement	**18,630**	sf	1.50	27,945		
Concrete Fill to metal deck; 4-1/2" thick; Normal Weight	**328**	cy	155.00	50,840		
Place and finish concrete	**16,200**	sf	1.10	17,820		
Miscellaneous						
Fire stopping floors	**1**	ls	3,500.00	3,500		
SUBTOTAL					603,475	

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B1020 ROOF CONSTRUCTION						
Admin Roof Structure - Steel:						
W beams, joist, columns, bracing and misc framing members bearing on perimter CMU exterior walls	**38**	tns	4,500.00	171,000		
Roof deck - 1 1/2'' 20 ga deck	**9,037**	sf	3.50	31,630		
Sally port Roof Structure - Steel:						
W beams, joist, columns, bracing and misc framing members bearing on perimter CMU exterior walls	**19**	tns	4,500.00	85,500		
Roof deck - 1 1/2'' 20 ga deck	**3,360**	sf	3.50	11,760		
Apparatus Roof Structure						
W beams, joist, columns, bracing and misc framing members bearing on perimter CMU exterior walls	**82**	tns	4,500.00	369,000		
Roof deck - 1 1/2'' 20 ga deck	**19,715**	sf	2.90	57,174		
SUBTOTAL					726,064	
TOTAL - SUPERSTRUCTURE						***$1,329,539***
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Admin						
4' brick veneer base	**2,080**	sf	40.00	83,200		
Fiber cement panel siding and attachments	**14,730**	sf	25.00	368,250		
4" insulation	**16,810**	sf	4.20	70,602		
Air/Vapor barrier	**16,810**	sf	6.00	100,860		
6" Lightgage metal framing	**16,810**	sf	12.00	201,720		
5/8" ext gwb Sheathing	**16,810**	sf	2.50	42,025		
5/8" int gwb	**16,810**	sf	2.20	36,982		
Paint	**15,129**	sf	1.50	22,694		
Detention						
4' brick veneer base	**800**	sf	40.00	32,000		
Fiber cement panel siding and attachments	**3,200**	sf	25.00	80,000		
4" insulation	**4,000**	sf	4.20	16,800		
Air/Vapor barrier	**4,000**	sf	6.00	24,000		
8" CMU	**4,000**	sf	35.00	140,000		
Paint interior CMU	**3,600**	sf	2.00	7,200		
Apparatus						
4' brick veneer base	**2,000**	sf	40.00	80,000		
Fiber cement panel siding and attachments	**6,400**	sf	25.00	160,000		
4" insulation	**8,400**	sf	4.20	35,280		
Air/Vapor barrier	**8,400**	sf	6.00	50,400		
8" CMU	**8,400**	sf	35.00	294,000		
Paint interior CMU	**7,560**	sf	2.00	15,120		
Miscellaneous						
Canopy ceiling supports, framing and blocking	**800**	sf	25.00	20,000		
Canopy ceiling and fascia finish	**800**	sf	48.00	38,400		
Lintels in masonry openings - labor and material	**15,280**	sf	1.00	15,280		
SUBTOTAL					1,934,813	
B2020 WINDOWS						
Window systems						
Alum windows	**6,825**	sf	80.00	546,000		
Backer rod & double sealant	**2,211**	lf	5.00	11,055		
Wood blocking at openings	**2,211**	lf	6.00	13,266		
SUBTOTAL					570,321	

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B2030 EXTERIOR DOORS						
Egress doors and frames	**8**	ea	1,500.00	12,000		
Hardware	**8**	ea	500.00	4,000		
Install	**8**	lvs	255.00	2,040		
Alum entry - double	**4**	pr	6,500.00	26,000		
12'x10'	**3**	ea	7,200.00	21,600		
14'x14'	**12**	ea	11,760.00	141,120		
Louvers	**1**	ls	5,000.00	5,000		
Backer rod & double sealant	**630**	lf	4.00	2,520		
Wood blocking at openings	**630**	lf	5.00	3,150		
Paint HM door and frame	**8**	ea	121.00	968		
SUBTOTAL					218,398	
TOTAL - EXTERIOR CLOSURE						***$2,723,532***
B30 ROOFING						
B3010 ROOF COVERINGS						
Sloped roof						
Asphalt shingles	**32,112**	sf	10.00	321,120		
7" sandwich panel	**32,112**	sf	12.00	385,344		
1/2" dens-deck protection board	**32,112**	sf	1.50	48,168		
Reinforced vapor barrier	**32,112**	sf	0.45	14,450		
Flashing & Trim						
Misc wall and roof to roof flashings	**400**	lf	22.00	8,800		
Accessories						
Roof hatch	**2**	ea	5,000.00	10,000		
Roof to roof ladder	**2**	ea	1,100.00	2,200		
SUBTOTAL					790,082	
TOTAL - ROOFING						***$790,082***
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Partitions below	**44,000**	sf	32.00	1,408,000		
Interior 8'' CMU walls						
Interior walls - rated at stairs/mech						
8" CMU walls at elevator shaft						
Interior walls - plumbing walls						
Interior walls						
Chain link partition 16'						
Chainlink door						
Sealants & caulking at partitions						
Rough blocking						
SUBTOTAL					1,408,000	

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C1020 INTERIOR DOORS						
Doors, frames and HW below	**115**	ea	1,500.00	172,500		
Door frame A - HM single						
Door frame A - HM double						
Door frame B - HM single						
Door frame C						
HM door - type F						
HM door - type G						
HM door - type N						
Wood door - type N						
Wood door - type F						
Wood door - type G						
Wood door - type FG						
90 min						
60 min						
45 min						
Hardware						
Install						
Paint HM doors and frames						
Paint HM frames						
Glazing						
Sealants & caulking						
Allowance for access doors						
SUBTOTAL					172,500	
C1030 SPECIALTIES / MILLWORK						
Millwork below	**44,000**	sf	4.00	176,000		
Kitchen cabinets and counters						
Closet pole and shelves						
Plam work surface and base cabinets and wall shelving						
Lobby built in bench						
AV Surv Plam work counters						
Mops hooks and sheliving						
Wall shelving at storage, supply, amory, evidence rooms						
Plam work surface and base cabinets						
Lobby display cabs						
White board and projection at training						
Plam base cabinets w/ solid surface top at conf						
Plam base cabinets w/ solid surface top and wall shelving at bulk stor						
Plam base cabinets w/ solid surface top and wall shelving at SCBA						
Plam base cabinets w/ solid surface top and wall shelving at laundry						
White boards						
8' mirrors at fitness walls						
Surveilance one way glass and frame						

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
Restrooms and Lockers						
Accessories below	**44,000**	sf	2.00	88,000		
Toilet partitions - HC						
Toilet partitions - regular stall						
Toilet partitions screen						
Solid surface vanities						
Soap disp						
Mirror						
Robe hook						
Grab bar						
Towel dispenser/disposal						
Napkin dispenser/disposal						
TP holder						
Shower curtain rod						
20x24 gear lockers						
24x36 Lockers/integral bench						
18x24 Lockers/integral bench						
Wood benches at gear stor						
Wood benches at showers						
Misc						
Backer panels in electrical closets	**1**	ls	3,500.00	3,500		
Window sill/aprons	**850**	lf	45.00	38,250		
Interior and Exterior Signage	**1**	ls	15,000.00	15,000		
Fire extinguisher cabinets	**16**	ea	275.00	4,400		
Misc glass and glazing	**1**	ls	7,500.00	7,500		
Int bollards	**16**	ea	500.00	8,000		
Miscellaneous metals throughout building	**44,000**	sf	0.50	22,000		
Miscellaneous sealants throughout building	**44,000**	sf	0.25	11,000		
SUBTOTAL					373,650	
TOTAL - INTERIOR CONSTRUCTION						***$1,954,150***
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
Stair 1	**2**	flt	12,500.00	25,000		
Stair 2	**3**	flt	12,500.00	37,500		
Concrete material in pan infill	**5**	flt	500.00	2,500		
SUBTOTAL					65,000	
C2020 STAIR FINISHES						
Rubber treads/risers	**5**	flts	2,250.00	11,250		
Paint to staircases	**5**	flt	1,500.00	7,500		
SUBTOTAL					18,750	
TOTAL - STAIRCASES						***$83,750***

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to GWB	**50,311**	sf	1.50	75,467		
Tile to walls	**4,500**	sf	20.00	90,000		
SUBTOTAL					165,467	
C3020 FLOOR FINISHES						
Carpet	**21,231**	sf	6.00	127,386		
VCT	**2,500**	sf	5.00	12,500		
Resinous	**20,269**	sf	15.00	304,035		
Rubber base	**6,544**	lf	2.95	19,305		
SUBTOTAL					463,226	
C3030 CEILING FINISHES						
ACT ceilings	**20,171**	sf	4.50	90,770		
Rated gwb	**3,750**	sf	8.00	30,000		
Interior gwb ceiling	**3,500**	sf	6.00	21,000		
Exposed structure	**16,579**	sf	1.00	16,579		
Soffits	**500**	lf	38.00	19,000		
Paint to GWB ceilings and soffits	**9,750**	sf	1.10	10,725		
SUBTOTAL					188,074	
TOTAL - INTERIOR FINISHES						***816,767***
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
Passenger elevator, 3 stop	**1**	ea	165,000.00	165,000		
Pit ladders	**1**	ea	1,200.00	1,200		
Rail supports and hoist beam	**1**	ls	5,000.00	5,000		
Sill angles	**32**	lf	25.00	800		
SUBTOTAL					172,000	
TOTAL - CONVEYING SYSTEMS						***$172,000***
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Equipment						
Gas, Oil, & Sand Intercepror	**1**	ea	$12,000.00	$12,000		
Water Meter	**1**	ea	$1,760.00	$1,760		
Domestic Water Heater	**1**	ea	$8,500.00	$8,500		
Main Backflow Preventor	**1**	ea	$3,200.00	$3,200		
Zone Backflow Preventor	**1**	ea	$750.00	$750		
Thermostatic Mixing Valve	**1**	ea	$1,800.00	$1,800		
Air Compressor	**1**	ea	$5,000.00	$5,000		
Circulation Pump	**1**	ea	$1,600.00	$1,600		
Fixture and Equipment Hook Ups	**8**	ea	$500.00	$4,000		

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
Plumbing Fixtures including all supply, drain and venting						
Water Closets	**18**	ea	4,250.00	$76,500		
Cell Water Closets/sink combo	**6**	ea	8,500.00	$51,000		
Urinal	**6**	ea	4,000.00	$24,000		
Lavatories - drop in	**12**	ea	2,950.00	$35,400		
Lavatories - wall hung	**8**	ea	3,850.00	$30,800		
Janitors Sinks	**8**	ea	2,800.00	$22,400		
Kitchen Sinks	**4**	ea	2,500.00	$10,000		
SS Scullery sink, pedal and hose spray	**1**	ea	5,500.00	$5,500		
Shower	**12**	ea	5,000.00	$60,000		
Emergency Eye Wash/Shower	**3**	ea	4,500.00	$13,500		
Drinking Fountains	**2**	ea	5,000.00	$10,000		
Floor Drains	**12**	ea	$2,000.00	$24,000		
Hose Bibbs	**12**	ea	$800.00	$9,600		
Misc						
Laundry room connections	**1**	ls	3,500.00	3,500		
Decon room connections	**1**	ls	3,500.00	3,500		
SCBA room connections	**1**	ls	3,500.00	3,500		
Compressed Air annd misc apparatus utilies	**1**	ls	30,000.00	30,000		
Gas	**600**	lf	68.00	40,800		
Coordination	**1**	ls	10,000.00	10,000		
Permits	**1**	ls	5,000.00	5,000		
SUBTOTAL					507,610	
TOTAL - PLUMBING						***$507,610***
D30 HVAC						
D30 HVAC, GENERALLY						
Equipment and distribution						
HVAC system	**44,000**	sf	$35.00	1,540,000		
Controls						
ATC	**44,000**	sf	$6.00	264,000		
Alarming, Scheduling, Trending & Logging	**44,000**	sf	$1.00	44,000		
Commissioning						
Start up	**44,000**	sf	$0.50	22,000		
Balancing	**44,000**	sf	$0.75	33,000		
3rd Party Assist	**44,000**	sf	$0.35	15,400		
Miscellaneous						
Coordination	**1**	ls	$15,000.00	15,000		
Crane and Rigging	**1**	ls	$15,000.00	15,000		
SUBTOTAL					1,948,400	
TOTAL - HVAC						***$1,948,400***
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
Sprinkler system piping and heads	**44,000**	sf	4.25	187,000		
Service Equipment	**1**	ls	12,500.00	12,500		
Fire pump				NIC		
SUBTOTAL					199,500	
TOTAL - FIRE PROTECTION						***$199,500***

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Power Circuitry& Equipment						
Service, main swicthboard and panels	**44,000**	sf	6.00	264,000		
Power circuitry	**44,000**	sf	5.00	220,000		
SUBTOTAL					484,000	
D5020 LIGHTING & POWER						
LED lighting, power and branch circuitry	**44,000**	sf	10.00	440,000		
SUBTOTAL					440,000	
D5030 COMMUNICATION & SECURITY SYSTEMS						
Telecommunications System						
Rough-in system	**44,000**	sf	1.25	55,000		
Fire Alarm						
Fire Alarm system	**44,000**	sf	3.85	169,400		
Special Systems						
Radio transponder system				softcosts		
Security roughin	**44,000**	sf	1.25	55,000		
PA system	**1**	ls	15,000.00	15,000		
SUBTOTAL					294,400	
D5040 OTHER ELECTRICAL SYSTEMS						
Lightning protection						
UL Master label lightning protection	**44,000**	sf	1.00	44,000		
Site						
Site power and Lighting	**1**	ls	65,000.00	65,000		
Power						
Primary elec street connection	**1**	ls	8,500.00	8,500		
Primary and secondary conduit and wire	**400**	lf	112.00	44,800		
Allow for Generator - size TBD	**1**	ls	250,000.00	250,000		
Site Lighting						
Light poles, conduit and wiring	**12**	ea	3,500.00	42,000		
Light bollard, conduit and wiring	**6**	ea	2,500.00	15,000		
Communication						
Communication conduits	**400**	lf	18.00	7,200		
Miscellaneous						
Temp services	**44,000**	sf	0.60	26,400		
Seismic restraints	**1**	ls	10,000.00	10,000		
Coring & patching	**1**	ls	6,500.00	6,500		
Fire stopping	**1**	ls	5,000.00	5,000		
Fault current & coordination study	**1**	ls	5,000.00	5,000		
SUBTOTAL					529,400	
TOTAL - ELECTRICAL						***$1,747,800***

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
E10 EQUIPMENT						
E10 EQUIPMENT, GENERALLY						
Appliances						
Under-counter refrigerator	**2**	ea	500.00	1,000		
Full-size residential refrigerator	**2**	ea	900.00	1,800		
Microwave	**2**	ea	400.00	800		
Cook top	**2**	ea	850.00	1,700		
Toaster-oven	**2**	ea	200.00	400		
Disposers	**2**	ea	250.00	500		
Commercial Stove and hood	**2**	ea	7,500.00	15,000		
Commercial refrigerator	**2**	ea	3,500.00	7,000		
Commercial dishwasher	**2**	ea	1,600.00	3,200		
Commercial microwave	**2**	ea	750.00	1,500		
Commercial Toaster-oven	**2**	ea	250.00	500		
SUBTOTAL					33,400	
TOTAL - EQUIPMENT						***$33,400***
E20 FURNISHINGS						
E2010 FIXED FURNISHINGS						
Blinds						
Window treatments	**6,825**	sf	8.00	54,600		
Casework						
Allow for casework and shelving	**1**	ls	75,000.00	75,000		
Shelving						
High density file storage	**1**	ls	50,000.00	50,000		
SUBTOTAL					179,600	
E2020 MOVABLE FURNISHINGS						
All movable furnishings to be provided and installed by owner					NIC	
SUBTOTAL						
TOTAL - FURNISHINGS						***$179,600***
E30 SPECIAL CONSTRUCTION						
E30 SPECIAL CONSTRUCTION						
Security and Detention allowance						
G2 sliding steel cell doors; 3' x 7' x 2" thick door, insulated and E frame	**6**	ea	12,000.00	72,000		
Steel built-in bench/bunk	**6**	ea	5,500.00	33,000		
Evidence and holding steel built-in bench w/ culk bars	**2**	ea	6,000.00	12,000		
Steel plate ceiling system; 3/16" steel panels with interlock	**6**	rms	6,500.00	39,000		
Suicide proof HVAC register/return	**6**	ea	500.00	3,000		
Suicide proof light fixture	**3**	ea	850.00	2,550		
Cell monitor/audio system	**1**	ls	5,000.00	5,000		
Pistol locker, wall mounted	**1**	ea	1,600.00	1,600		
Evidence drop off pass through lockers	**4**	ea	2,250.00	9,000		
Transaction window						
Transaction counter, tray & Bullet proof window unit	**1**	ls	25,000.00	25,000		
Bullet proof sheilding at lobby walls	**1**	ls	10,000.00	10,000		
Shooting Range						
Allow for shooting range	**1**	ls	250,000.00	250,000		
SUBTOTAL					462,150	
TOTAL - EQUIPMENT						***$462,150***

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
F20 BUILDING DEMOLITION						
F2010 BUILDING ELEMENTS DEMOLITION						
N/A						
TOTAL - BUILDING DEMOLITION						***$0***
G10 SITEWORK						
Site Contractor general conditions						
Field Engineering	**8**	dy	1,375.00	11,000		
Trench Plates Trench Safety	**1**	ls	3,500.00	3,500		
Site Supervision	**4**	mo	7,800.00	31,200		
Mobilization	**2**	ea	5,000.00	10,000		
Site fencing, protection, barricades	**1**	ls	15,000.00	15,000		
Site Demo and prep						
Stabilized Construction Entrance	**2**	ea	5,000.00	10,000		
Haybales/Silt Fence	**2,500**	lf	8.90	22,250		
Infiltration Filters at CB	**6**	ea	168.00	1,008		
Clear and grub	**260,000**	sf	0.25	65,000		
Earthwork						
Site Cuts to Fills	**26,963**	cy	4.50	121,334		
Export excess unsuitable	**2,696**	cy	25.00	67,400		
Import structural fill under new foundations	**2,500**	cy	38.00	95,000		
Shape & Compact Subgrade for new grades and basins	**12**	dy	3,000.00	36,000		
Ledge removal				NIC		
Unsuitable soils, ground improvements or special foundations				NIC		
Dewatering allowance	**3**	mnth	7,500.00	22,500		
Structural excavation and backfill						
Structural excavation and backfill	**44,000**	sf	2.00	88,000		
Slab Prep						
Under slab base	**1,167**	cy	45.00	52,515		
Paving and walks prep						
Bitum. Paving 12" Dense Grade	**2,463**	cy	20.00	49,260		
Conc. Walks 8" Dense Grade	**37**	cy	20.00	740		
Paving and curbing						
Heavy / light duty pavement	**5,889**	sy	35.00	206,115		
Granite curbs	**900**	lf	48.00	43,200		
HMA Berm	**1,280**	lf	20.00	25,600		
Utilities						
Storm						
Catch Basins	**10**	ea	5,500.00	55,000		
Area Drains	**4**	ea	3,500.00	14,000		
Manholes	**10**	ea	4,500.00	45,000		
12" Drain Pipe	**1,200**	lf	48.00	57,600		
Connect Drain Into Existing System	**1**	ea	1,500.00	1,500		
Stormwater Infiltration System	**7,400**	sf	25.00	185,000		
Tree Box Filters	**15**	ea	3,500.00	52,500		

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
Water						
Water Service	**100**	lf	110.00	11,000		
Fire Hydrant Assembly	**2**	ea	4,500.00	9,000		
Gate Valve	**3**	ea	1,500.00	4,500		
Gas						
Gas piping	**100**	lf	100.00	10,000		
Gas CTE on street	**1**	ls	1,500.00	1,500		
Sanitary						
Sewer Service	**100**	lf	100.00	10,000		
Dog House Manhole	**1**	ea	4,500.00	4,500		
Site Improvements						
Concrete walks	**1,500**	sf	6.00	9,000		
Aprons	**14,000**	sf	8.00	112,000		
Retaining walls	**325**	lf	250.00	81,250		
Fencing and gates	**1**	ls	75,000.00	75,000		
Misc site improvements, Signs, markings, flag poles and misc	**1**	ls	25,000.00	25,000		
Landscaping						
Loam, seed and plantings	**1**	ls	45,000.00	45,000		
Ductbanks and pole bases						
Transformer Pad	**1**	ea	5,000.00	5,000		
Generator Pad	**1**	ea	5,000.00	5,000		
E&B Elec/communication duct banks	**500**	lf	25.00	12,500		
Encase duct banks in concrete	**148**	cy	180.00	26,640		
L.Pole Base	**16**	ea	400.00	6,400		
Light bollard base	**6**	ea	350.00	2,100		
SUBTOTAL					1,842,612	
TOTAL - SITE DEVELOPMENT						***1,842,612***

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
1st floor - Apparatus Bays			**16,249**			
1st floor - Sally Port			**3,840**			
1st floor - Administration			**13,000**			
2nd floor - Administration			**10,911**			
TOTAL GROSS FLOOR AREA (GFA)				**44,000** ***sf***		
A10 BUILDING FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
Building Strip footings						
Formwork	**1,720**	sf	15.00	25,800		
Re-bar	**1,806**	lbs	3.00	5,418		
Concrete material	**100**	cy	155.00	15,500		
Placing concrete	**100**	cy	40.00	4,000		
Building Foundation walls						
Formwork	**13,760**	sf	15.00	206,400		
Re-bar	**9,460**	lbs	3.00	28,380		
Concrete material	**268**	cy	155.00	41,540		
Placing concrete	**268**	cy	40.00	10,720		
Dampproofing	**5,160**	sf	5.00	25,800		
Insulation to foundation walls; 2" thick	**5,160**	sf	3.00	15,480		
Form shelf	**860**	lf	8.00	6,880		
Building Interior column footings						
Formwork	**960**	sf	15.00	14,400		
Re-bar	**641**	lbs	3.00	1,923		
Concrete material	**37**	cy	155.00	5,735		
Placing concrete	**37**	cy	40.00	1,480		
Set anchor bolts grout plates	**30**	ea	135.00	4,050		
Building Exterior wall column footings						
Formwork	**720**	sf	15.00	10,800		
Re-bar	**1,126**	lbs	3.00	3,378		
Concrete material	**21**	cy	155.00	3,255		
Placing concrete	**21**	cy	40.00	840		
Set anchor bolts grout plates	**30**	ea	135.00	4,050		
Miscellaneous						
Form key in footing	**977**	lf	5.00	4,885		
Piers/Pilasters						
Formwork	**1,440**	sf	15.00	21,600		
Re-bar	**5,400**	lbs	3.00	16,200		
Concrete material	**19**	cy	155.00	2,945		
Placing concrete	**19**	cy	40.00	760		
SUBTOTAL					482,219	

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
A1030 LOWEST FLOOR CONSTRUCTION						
New Slab on grade, 5" thick						
Vapor barrier	**13,000**	sf	2.50	32,500		
Mesh reinforcing 15% lap	**14,950**	sf	0.60	8,970		
Concrete - 5" thick	**253**	cy	155.00	39,215		
Placing concrete	**253**	cy	18.00	4,554		
Finishing and curing concrete	**13,000**	sf	1.00	13,000		
Control joints - saw cut	**13,000**	sf	0.10	1,300		
Isolation joints at columns	**176**	lf	2.50	440		
New Slab on grade, 8" thick (apparatus / Sallyport)						
Rigid insulation	**20,089**	sf	2.50	50,223		
Vapor barrier	**20,089**	sf	0.60	12,053		
Rebar	**23,102**	sf	1.00	23,102		
Concrete - 8" thick	**539**	cy	155.00	83,545		
Placing concrete	**539**	cy	18.00	9,702		
Finishing and curing concrete	**20,089**	sf	1.00	20,089		
Control joints - saw cut	**20,089**	sf	0.10	2,009		
Isolation joints at columns	**423**	lf	2.50	1,058		
Elevator Pits						
Elevator pit walls						
formwork	**675**	sf	15.00	10,125		
reinforcement	**1,013**	lbs	3.00	3,039		
concrete material	**9**	cy	155.00	1,395		
placing concrete	**9**	cy	45.00	405		
Slab						
formwork	**185**	sf	12.00	2,220		
reinforcement	**1,388**	lbs	3.00	4,164		
concrete material in slab	**11**	cy	155.00	1,705		
placing concrete	**11**	cy	45.00	495		
Bentonite waterstops	**1**	ls	1,500.00	1,500		
Cementitous waterproofing to elevator pit	**1**	ls	4,000.00	4,000		
Miscellaneous						
Slope slabs	**20,089**	sf	0.75	15,067		
Equipment pads and curbs	**1**	ls	10,000.00	10,000		
SUBTOTAL					355,875	
TOTAL - FOUNDATIONS						***$838,094***

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B10 SUPERSTRUCTURE						
B1010 FLOOR CONSTRUCTION						
Floor Structure - Steel:						
W beams, tube, columns, bracing and misc framing members	**98**	tns	4,500.00	441,000		
Floor deck - 1 1/2'' deck	**10,911**	sf	3.85	42,007		
WWF reinforcement	**12,548**	sf	1.50	18,822		
Concrete Fill to metal deck; 4-1/2" thick; Normal Weight	**221**	cy	155.00	34,255		
Place and finish concrete	**10,911**	sf	1.10	12,002		
Miscellaneous						
Fire stopping floors	**1**	ls	3,500.00	3,500		
SUBTOTAL					551,586	
B1020 ROOF CONSTRUCTION						
Admin Roof Structure - Steel:						
W beams, joist, columns, bracing and misc framing members bearing on perimter CMU exterior walls	**55**	tns	4,500.00	247,500		
Roof deck - 1 1/2'' 20 ga deck	**13,093**	sf	3.50	45,826		
Sally port Roof Structure - Steel:						
W beams, joist, columns, bracing and misc framing members bearing on perimter CMU exterior walls	**15**	tns	4,500.00	67,500		
Roof deck - 1 1/2'' 20 ga deck	**3,600**	sf	3.50	12,600		
Apparatus Roof Structure						
W beams, joist, columns, bracing and misc framing members bearing on perimter CMU exterior walls	**65**	tns	4,500.00	292,500		
Roof deck - 1 1/2'' 20 ga deck	**19,499**	sf	2.90	56,547		
SUBTOTAL					722,473	
TOTAL - SUPERSTRUCTURE						***$1,274,059***
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Admin						
4' brick veneer base	**2,400**	sf	40.00	96,000		
Fiber cement panel siding and attachments	**10,800**	sf	25.00	270,000		
4" insulation	**13,200**	sf	4.20	55,440		
Air/Vapor barrier	**13,200**	sf	6.00	79,200		
6" Lightgage metal framing	**13,200**	sf	12.00	158,400		
5/8" ext gwb Sheathing	**13,200**	sf	2.50	33,000		
5/8" int gwb	**13,200**	sf	2.20	29,040		
Paint	**11,880**	sf	1.50	17,820		
Detention						
4' brick veneer base	**800**	sf	40.00	32,000		
Fiber cement panel siding and attachments	**3,200**	sf	25.00	80,000		
4" insulation	**4,000**	sf	4.20	16,800		
Air/Vapor barrier	**4,000**	sf	6.00	24,000		
8" CMU	**4,000**	sf	35.00	140,000		
Paint interior CMU	**3,600**	sf	2.00	7,200		
Apparatus						
4' brick veneer base	**2,000**	sf	40.00	80,000		
Fiber cement panel siding and attachments	**6,400**	sf	25.00	160,000		
4" insulation	**8,400**	sf	4.20	35,280		
Air/Vapor barrier	**8,400**	sf	6.00	50,400		
8" CMU	**8,400**	sf	35.00	294,000		
Paint interior CMU	**7,560**	sf	2.00	15,120		
Miscellaneous						
Canopy ceiling supports, framing and blocking	**800**	sf	25.00	20,000		
Canopy ceiling and fascia finish	**800**	sf	48.00	38,400		
Lintels in masonry openings - labor and material	**15,600**	sf	1.00	15,600		
SUBTOTAL					1,747,700	

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B2020 WINDOWS						
Window systems						
Alum windows	**5,200**	sf	80.00	416,000		
Backer rod & double sealant	**2,211**	lf	5.00	11,055		
Wood blocking at openings	**2,211**	lf	6.00	13,266		
SUBTOTAL					440,321	
B2030 EXTERIOR DOORS						
Egress doors and frames	**8**	ea	1,500.00	12,000		
Hardware	**8**	ea	500.00	4,000		
Install	**8**	lvs	255.00	2,040		
Alum entry - double	**4**	pr	6,500.00	26,000		
12'x10'	**3**	ea	7,200.00	21,600		
14'x14'	**12**	ea	11,760.00	141,120		
Louvers	**1**	ls	5,000.00	5,000		
Backer rod & double sealant	**630**	lf	4.00	2,520		
Wood blocking at openings	**630**	lf	5.00	3,150		
Paint HM door and frame	**8**	ea	121.00	968		
SUBTOTAL					218,398	
TOTAL - EXTERIOR CLOSURE						***$2,406,419***
B30 ROOFING						
B3010 ROOF COVERINGS						
Sloped roof						
Asphalt shingles	**36,192**	sf	10.00	361,920		
7" sandwich panel	**36,192**	sf	12.00	434,304		
1/2" dens-deck protection board	**36,192**	sf	1.50	54,288		
Reinforced vapor barrier	**36,192**	sf	0.45	16,286		
Flashing & Trim						
Misc wall and roof to roof flashings	**400**	lf	22.00	8,800		
Accessories						
Roof hatch	**2**	ea	5,000.00	10,000		
Roof to roof ladder	**2**	ea	1,100.00	2,200		
SUBTOTAL					887,798	
TOTAL - ROOFING						**$887,798**
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Partitions below	**44,000**	sf	32.00	1,408,000		
Interior 8'' CMU walls						
Interior walls - rated at stairs/mech						
8" CMU walls at elevator shaft						
Interior walls - plumbing walls						
Interior walls						
Chain link partition 16'						
Chainlink door						
Sealants & caulking at partitions						
Rough blocking						
SUBTOTAL					1,408,000	

Conceptual Cost Estimates

GFA 44,000

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C1020	**INTERIOR DOORS**						
	Doors, frames and HW below	**115**	ea	1,500.00	172,500		
	Door frame A - HM single						
	Door frame A - HM double						
	Door frame B - HM single						
	Door frame C						
	HM door - type F						
	HM door - type G						
	HM door - type N						
	Wood door - type N						
	Wood door - type F						
	Wood door - type G						
	Wood door - type FG						
	90 min						
	60 min						
	45 min						
	Hardware						
	Install						
	Paint HM doors and frames						
	Paint HM frames						
	Glazing						
	Sealants & caulking						
	Allowance for access doors						
	SUBTOTAL					172,500	
C1030	**SPECIALTIES / MILLWORK**						
	Millwork below	**44,000**	sf	4.00	176,000		
	Kitchen cabinets and counters						
	Closet pole and shelves						
	Plam work surface and base cabinets and wall shelving						
	Lobby built in bench						
	AV Surv Plam work counters						
	Mops hooks and sheliving						
	Wall shelving at storage, supply, amory, evidence rooms						
	Plam work surface and base cabinets						
	Lobby display cabs						
	White board and projection at training						
	Plam base cabinets w/ solid surface top at conf						
	Plam base cabinets w/ solid surface top and wall shelving at bulk stor						
	Plam base cabinets w/ solid surface top and wall shelving at SCBA						
	Plam base cabinets w/ solid surface top and wall shelving at laundry						
	White boards						
	8' mirrors at fitness walls						
	Surveilance one way glass and frame						

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
Restrooms and Lockers						
Accessories below	**44,000**	sf	2.00	88,000		
Toilet partitions - HC						
Toilet partitions - regular stall						
Toilet partitions screen						
Solid surface vanities						
Soap disp						
Mirror						
Robe hook						
Grab bar						
Towel dispenser/disposal						
Napkin dispenser/disposal						
TP holder						
Shower curtain rod						
20x24 gear lockers						
24x36 Lockers/integral bench						
18x24 Lockers/integral bench						
Wood benches at gear stor						
Wood benches at showers						
Misc						
Backer panels in electrical closets	**1**	ls	3,500.00	3,500		
Window sill/aprons	**850**	lf	45.00	38,250		
Interior and Exterior Signage	**1**	ls	15,000.00	15,000		
Fire extinguisher cabinets	**16**	ea	275.00	4,400		
Misc glass and glazing	**1**	ls	7,500.00	7,500		
Int bollards	**16**	ea	500.00	8,000		
Miscellaneous metals throughout building	**44,000**	sf	0.50	22,000		
Miscellaneous sealants throughout building	**44,000**	sf	0.25	11,000		
SUBTOTAL					373,650	
TOTAL - INTERIOR CONSTRUCTION						***$1,954,150***
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
Stair 1	**2**	flt	12,500.00	25,000		
Stair 2	**2**	flt	12,500.00	25,000		
Concrete material in pan infill	**4**	flt	500.00	2,000		
SUBTOTAL					52,000	
C2020 STAIR FINISHES						
Rubber treads/risers	**4**	flts	2,250.00	9,000		
Paint to staircases	**4**	flt	1,500.00	6,000		
SUBTOTAL					15,000	
TOTAL - STAIRCASES						***$67,000***
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to GWB	**53,560**	sf	1.50	80,340		
Tile to walls	**4,500**	sf	20.00	90,000		
SUBTOTAL					170,340	

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C3020 FLOOR FINISHES						
Carpet	**21,411**	sf	6.00	128,466		
VCT	**2,500**	sf	5.00	12,500		
Resinous	**20,089**	sf	15.00	301,335		
Rubber base	**6,544**	lf	2.95	19,305		
SUBTOTAL					461,606	
C3030 CEILING FINISHES						
ACT ceilings	**20,324**	sf	4.50	91,458		
Rated gwb	**3,750**	sf	8.00	30,000		
Interior gwb ceiling	**3,500**	sf	6.00	21,000		
Exposed structure	**16,426**	sf	1.00	16,426		
Soffits	**500**	lf	38.00	19,000		
Paint to GWB ceilings and soffits	**9,750**	sf	1.10	10,725		
SUBTOTAL					188,609	
TOTAL - INTERIOR FINISHES						***820,555***
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
Passenger elevator, 2 stop	**1**	ea	110,000.00	110,000		
Pit ladders	**1**	ea	1,200.00	1,200		
Rail supports and hoist beam	**1**	ls	5,000.00	5,000		
Sill angles	**24**	lf	25.00	600		
SUBTOTAL					116,800	
TOTAL - CONVEYING SYSTEMS						***$116,800***
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Equipment						
Gas, Oil, & Sand Intercepror	**1**	ea	$12,000.00	$12,000		
Water Meter	**1**	ea	$1,760.00	$1,760		
Domestic Water Heater	**1**	ea	$8,500.00	$8,500		
Main Backflow Preventor	**1**	ea	$3,200.00	$3,200		
Zone Backflow Preventor	**1**	ea	$750.00	$750		
Thermostatic Mixing Valve	**1**	ea	$1,800.00	$1,800		
Air Compressor	**1**	ea	$5,000.00	$5,000		
Circulation Pump	**1**	ea	$1,600.00	$1,600		
Fixture and Equipment Hook Ups	**8**	ea	$500.00	$4,000		
Plumbing Fixtures including all supply, drain and venting						
Water Closets	**18**	ea	4,250.00	$76,500		
Cell Water Closets/sink combo	**6**	ea	8,500.00	$51,000		
Urinal	**6**	ea	4,000.00	$24,000		
Lavatories - drop in	**12**	ea	2,950.00	$35,400		
Lavatories - wall hung	**8**	ea	3,850.00	$30,800		
Janitors Sinks	**8**	ea	2,800.00	$22,400		
Kitchen Sinks	**4**	ea	2,500.00	$10,000		
SS Scullery sink, pedal and hose spray	**1**	ea	5,500.00	$5,500		
Shower	**12**	ea	5,000.00	$60,000		
Emergency Eye Wash/Shower	**3**	ea	4,500.00	$13,500		
Drinking Fountains	**2**	ea	5,000.00	$10,000		
Floor Drains	**12**	ea	$2,000.00	$24,000		
Hose Bibbs	**12**	ea	$800.00	$9,600		

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
Misc						
Laundry room connections	**1**	ls	3,500.00	3,500		
Decon room connections	**1**	ls	3,500.00	3,500		
SCBA room connections	**1**	ls	3,500.00	3,500		
Compressed Air annd misc apparatus utilies	**1**	ls	30,000.00	30,000		
Gas	**600**	lf	68.00	40,800		
Coordination	**1**	ls	10,000.00	10,000		
Permits	**1**	ls	5,000.00	5,000		
SUBTOTAL					507,610	
TOTAL - PLUMBING						***$507,610***
D30 HVAC						
D30 HVAC, GENERALLY						
Equipment and distribution						
HVAC system	**44,000**	sf	$35.00	1,540,000		
Controls						
ATC	**44,000**	sf	$6.00	264,000		
Alarming, Scheduling, Trending & Logging	**44,000**	sf	$1.00	44,000		
Commissioning						
Start up	**44,000**	sf	$0.50	22,000		
Balancing	**44,000**	sf	$0.75	33,000		
3rd Party Assist	**44,000**	sf	$0.35	15,400		
Miscellaneous						
Coordination	**1**	ls	$15,000.00	15,000		
Crane and Rigging	**1**	ls	$15,000.00	15,000		
SUBTOTAL					1,948,400	
TOTAL - HVAC						***$1,948,400***
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
Sprinkler system piping and heads	**44,000**	sf	4.25	187,000		
Service Equipment	**1**	ls	12,500.00	12,500		
Fire pump				NIC		
SUBTOTAL					199,500	
TOTAL - FIRE PROTECTION						***$199,500***
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Power Circuitry& Equipment						
Service, main swicthboard and panels	**44,000**	sf	6.00	264,000		
Power circuitry	**44,000**	sf	5.00	220,000		
SUBTOTAL					484,000	
D5020 LIGHTING & POWER						
LED lighting, power and branch circuitry	**44,000**	sf	10.00	440,000		
SUBTOTAL					440,000	

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D5030 COMMUNICATION & SECURITY SYSTEMS						
Telecommunications System						
Rough-in system	**44,000**	sf	1.25	55,000		
Fire Alarm						
Fire Alarm system	**44,000**	sf	3.85	169,400		
Special Systems						
Radio transponder system				softcosts		
Security roughin	**44,000**	sf	1.25	55,000		
PA system	**1**	ls	15,000.00	15,000		
SUBTOTAL					294,400	
D5040 OTHER ELECTRICAL SYSTEMS						
Lightning protection						
UL Master label lightning protection	**44,000**	sf	1.00	44,000		
Site						
Site power and Lighting	**1**	ls	65,000.00	65,000		
Power						
Primary elec street connection	**1**	ls	8,500.00	8,500		
Primary and secondary conduit and wire	**300**	lf	112.00	33,600		
Allow for Generator - size TBD	**1**	ls	250,000.00	250,000		
Site Lighting						
Light poles, conduit and wiring	**12**	ea	3,500.00	42,000		
Light bollard, conduit and wiring	**6**	ea	2,500.00	15,000		
Communication						
Communication conduits	**300**	lf	18.00	5,400		
Miscellaneous						
Temp services	**44,000**	sf	0.60	26,400		
Seismic restraints	**1**	ls	10,000.00	10,000		
Coring & patching	**1**	ls	6,500.00	6,500		
Fire stopping	**1**	ls	5,000.00	5,000		
Fault current & coordination study	**1**	ls	5,000.00	5,000		
SUBTOTAL					516,400	
TOTAL - ELECTRICAL						***$1,734,800***
E10 EQUIPMENT						
E10 EQUIPMENT, GENERALLY						
Appliances						
Under-counter refrigerator	**2**	ea	500.00	1,000		
Full-size residential refrigerator	**2**	ea	900.00	1,800		
Microwave	**2**	ea	400.00	800		
Cook top	**2**	ea	850.00	1,700		
Toaster-oven	**2**	ea	200.00	400		
Disposers	**2**	ea	250.00	500		
Commercial Stove and hood	**2**	ea	7,500.00	15,000		
Commercial refrigerator	**2**	ea	3,500.00	7,000		
Commercial dishwasher	**2**	ea	1,600.00	3,200		
Commercial microwave	**2**	ea	750.00	1,500		
Commercial Toaster-oven	**2**	ea	250.00	500		
SUBTOTAL					33,400	
TOTAL - EQUIPMENT						***$33,400***

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
E20 FURNISHINGS						
E2010 FIXED FURNISHINGS						
Blinds						
Window treatments	**5,200**	sf	8.00	41,600		
Casework						
Allow for casework and shelving	**1**	ls	75,000.00	75,000		
Shelving						
High density file storage	**1**	ls	50,000.00	50,000		
SUBTOTAL					166,600	
E2020 MOVABLE FURNISHINGS						
All movable furnishings to be provided and installed by owner					NIC	
SUBTOTAL						
TOTAL - FURNISHINGS						***$166,600***
E30 SPECIAL CONSTRUCTION						
E30 SPECIAL CONSTRUCTION						
Security and Detention allowance						
G2 sliding steel cell doors; 3' x 7' x 2" thick door, insulated and E frame	**6**	ea	12,000.00	72,000		
Steel built-in bench/bunk	**6**	ea	5,500.00	33,000		
Evidence and holding steel built-in bench w/ culk bars	**2**	ea	6,000.00	12,000		
Steel plate ceiling system; 3/16" steel panels with interlock	**6**	rms	6,500.00	39,000		
Suicide proof HVAC register/return	**6**	ea	500.00	3,000		
Suicide proof light fixture	**3**	ea	850.00	2,550		
Cell monitor/audio system	**1**	ls	5,000.00	5,000		
Pistol locker, wall mounted	**1**	ea	1,600.00	1,600		
Evidence drop off pass through lockers	**4**	ea	2,250.00	9,000		
Transaction window						
Transaction counter, tray & Bullet proof window unit	**1**	ls	25,000.00	25,000		
Bullet proof sheilding at lobby walls	**1**	ls	10,000.00	10,000		
Shooting Range						
Allow for shooting range	**1**	ls	250,000.00	250,000		
SUBTOTAL					462,150	
TOTAL - EQUIPMENT						***$462,150***

Conceptual Cost Estimates

GFA 44,000

DESCRIPTION	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
F20 BUILDING DEMOLITION						
F2010 BUILDING ELEMENTS DEMOLITION						
N/A						
TOTAL - BUILDING DEMOLITION						***$0***
G10 SITEWORK						
Site Contractor general conditions						
Field Engineering	**8**	dy	1,375.00	11,000		
Trench Plates Trench Safety	**1**	ls	3,500.00	3,500		
Site Supervision	**4**	mo	7,800.00	31,200		
Mobilization	**2**	ea	5,000.00	10,000		
Site fencing, protection, barricades	**1**	ls	15,000.00	15,000		
Site Demo and prep						
Stabilized Construction Entrance	**2**	ea	5,000.00	10,000		
Haybales/Silt Fence	**2,500**	lf	8.90	22,250		
Infiltration Filters at CB	**6**	ea	168.00	1,008		
Clear and grub	**295,000**	sf	0.25	73,750		
Earthwork						
Site Cuts to Fills	**26,852**	cy	4.50	120,834		
Export excess unsuitable	**2,685**	cy	25.00	67,125		
Import structural fill under new foundations	**2,500**	cy	38.00	95,000		
Shape & Compact Subgrade for new grades and basins	**10**	dy	3,000.00	30,000		
Ledge removal				NIC		
Unsuitable soils, ground improvements or special foundations				NIC		
Dewatering allowance	**3**	mnth	7,500.00	22,500		
Structural excavation and backfill						
Structural excavation and backfill	**44,000**	sf	2.00	88,000		
Slab Prep						
Under slab base	**1,167**	cy	45.00	52,515		
Paving and walks prep						
Bitum. Paving 12" Dense Grade	**2,637**	cy	20.00	52,740		
Conc. Walks 8" Dense Grade	**41**	cy	20.00	820		
Paving and curbing						
Heavy / light duty pavement	**6,444**	sy	35.00	225,540		
Granite curbs	**850**	lf	48.00	40,800		
HMA Berm	**1,250**	lf	20.00	25,000		

Conceptual Cost Estimates GFA 44,000

DESCRIPTION	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
Utilities						
Storm						
Catch Basins	**7**	ea	5,500.00	38,500		
Area Drains	**3**	ea	3,500.00	10,500		
Manholes	**4**	ea	4,500.00	18,000		
12" Drain Pipe	**700**	lf	48.00	33,600		
Connect Drain Into Existing System	**2**	ea	1,500.00	3,000		
Stormwater Infiltration System	**4,500**	sf	25.00	112,500		
Water Quality Structure	**2**	ea	12,000.00	24,000		
Water						
Water Service	**50**	lf	110.00	5,500		
Fire Hydrant Assembly	**2**	ea	4,500.00	9,000		
Gate Valve	**3**	ea	1,500.00	4,500		
Gas						
Gas piping	**50**	lf	100.00	5,000		
Gas CTE on street	**1**	ls	1,500.00	1,500		
Sanitary						
Sewer Service	**50**	lf	100.00	5,000		
Dog House Manhole	**1**	ea	4,500.00	4,500		
Site Improvements						
Concrete walks	**1,650**	sf	6.00	9,900		
Aprons	**13,200**	sf	8.00	105,600		
Retaining walls	**220**	lf	250.00	55,000		
Fencing and gates	**1**	ls	65,000.00	65,000		
Misc site improvements, Signs, markings, flag poles and misc	**1**	ls	25,000.00	25,000		
Landscaping						
Loam, seed and plantings	**1**	ls	45,000.00	45,000		
Ductbanks and pole bases						
Transformer Pad	**1**	ea	5,000.00	5,000		
Generator Pad	**1**	ea	5,000.00	5,000		
E&B Elec/communication duct banks	**300**	lf	25.00	7,500		
Encase duct banks in concrete	**89**	cy	180.00	16,020		
L.Pole Base	**12**	ea	400.00	4,800		
Light bollard base	**6**	ea	350.00	2,100		
SUBTOTAL					1,619,602	
TOTAL - SITE DEVELOPMENT						***1,619,602***