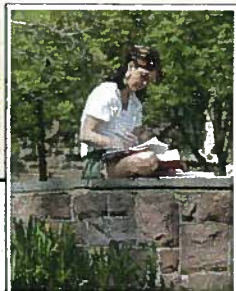
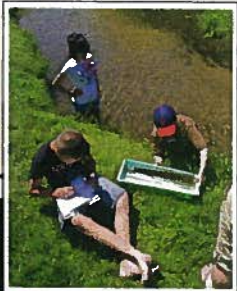


New East Bridgewater High School

Model School Proposal



Site Analysis

September 13, 2010

Site Design Goals and Evaluation Criteria

The Town of East Bridgewater has an exciting and rare opportunity to reshape the entire academic campus for grades 7 through 12. The possibilities that exist on an academic campus go well beyond the functional task of determining whether a building will physically "Fit" on the site, and the goals established for such a campus should ultimately provide the evaluation criteria for any site being considered. The site design goals for the new East Bridgewater High School include:

- Creating a safe place for students, teachers, and community members.
- Creating a center for academic excellence, fully utilizing the educational, social, and fitness opportunities available within the outdoor environment.
- Creating an "Entry Approach" to the new East Bridgewater High School which allows visitors a pleasing view of the new high school facility as they enter the newly developed campus.
- Alleviating any congestion which might be caused by campus and through traffic on the site.
- Avoid creating any off-site impacts to traffic or adjacent residential neighborhoods.
- Developing flexible auto and bus circulation pathways on site such that traffic patterns can be adjusted, if desired.

- Maintaining and expanding playfield opportunities.
- Separating auto and bus traffic in order to avoid any potential conflicts.
- Create a central boulevard which extends throughout the campus and serves as an organizing and beautifying element for the campus by directing vehicular traffic and simultaneously directing pedestrian movement and creating visual views to the building and landscape features.
- Providing handicapped access to all functions on site.
- Implementing strategies that will give pedestrians a clearly defined priority over all other traffic.
- Providing sufficient parking in locations that are convenient to the facilities being visited.
- Providing logical relations between activities and building locations. For example, locating outdoor playfields in close proximity to indoor fitness and physical education program areas and locating outdoor classrooms in close proximity to indoor academic areas.



- Creating axes, courtyards, and vistas which will direct traffic, encourage interrelationships, and create pleasure, particularly integrating all areas of the campus to the surrounding town environment.
- The integrity of architectural style on campus and the surrounding town should be protected by 1) use of compatible materials, 2) retention of human scale in building mass, and 3) careful attention to siting to preserve interaction with surrounding green space.
- A comprehensive landscape plan will be implemented to enhance and underscore the variety of constructed and natural spaces on the campus.
- Create visual and physical connections to existing town green space and features.
- Configure building to take advantage of cooling summer breezes while simultaneously diminishing the undesirable effects of winter winds.
- Maximize natural day-lighting through ideal solar orientation.
- Utilize the natural topography to create educational spaces such as outdoor terraces, amphitheaters, and outdoor classrooms.

- Does the site have adequate access to utilities such as water and gas?
- Does the use and development of the site result in other extraordinary costs to the Town?
- Does the timeline (schedule) for development of the site result in potential delays or extended permitting criteria which may delay the project?

In addition to these goals, there are also some very basic technical, functional, financial, and scheduling criteria which must be reviewed in order to determine if a particular site is practical for the construction of a new school. These include items such as:

- Does the site have sufficient acreage to support the building and proposed site amenities?
- Do the subsurface soils conditions provide sufficient bearing capacity for a proposed new building?
- Is this site located within a flood plain or other environmentally threatening zone?
- Is the development of the site restricted by natural environmental features such as wetlands, rivers, streams, ledge (subsurface rock), or protected environmental resources?
- Do the natural characteristics of the site increase the cost of its development?

Site Design

New East Bridgewater High School Site Analysis

Site Descriptions and Analysis

Leland Farm Site

The Leland Farms site includes approximately 90 acres of land owned by the Town of East Bridgewater. The site consists primarily of undeveloped farm land which contains brooks, rivers, streams, and wetlands. It is the kind of property which many towns across the Commonwealth are attempting to preserve for use by future generations, as the available natural resources are quickly being depleted by residential and commercial development. We understand that this property was purchased by the Town in order to insure that it was not converted into residential development, and such that it could possibly serve the Town as a site for development of a public building such as a school. Regardless of whether it is selected as a school site or not, the Leland Farms site will remain a highly desirable natural resource for the Town; one that many Towns would very much like to have and preserve.

The Leland Farms site is accessible by Belmont Street to the north, and North Central Street to the south. Residential properties currently surround the site. The site consists of undeveloped farm and woodlands with athletic fields located at the north end of the property.



Site Design

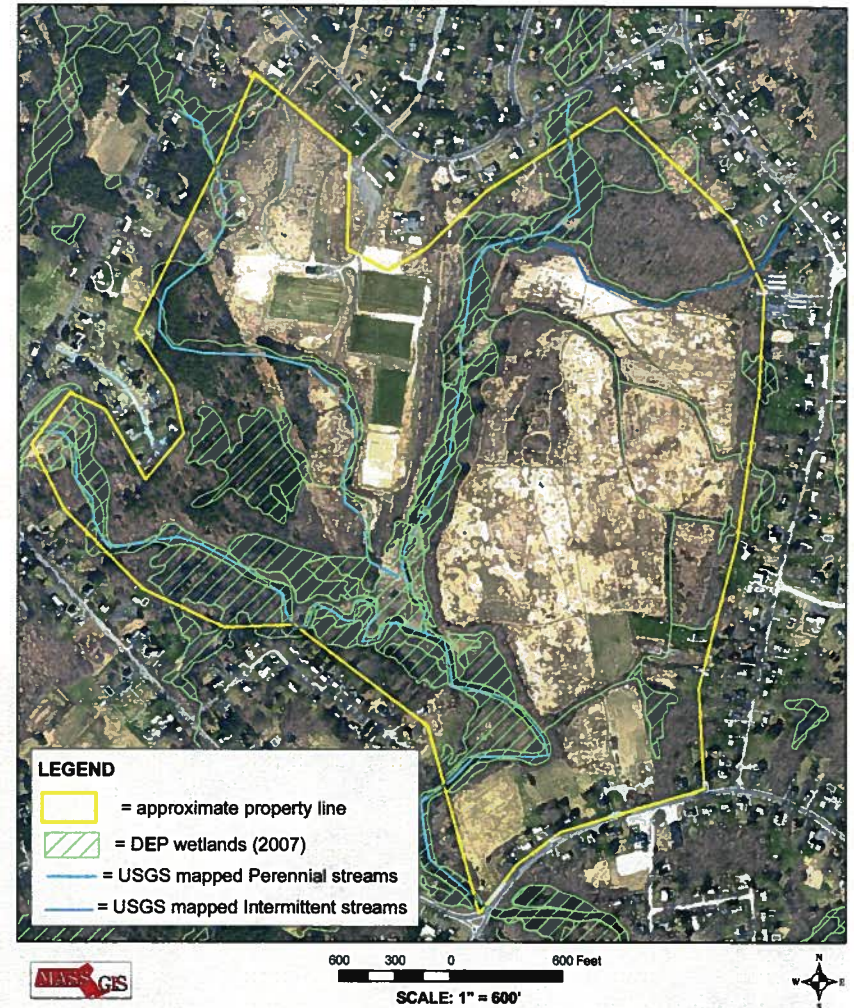
New East Bridgewater High School Site Analysis

The existing contours on site range from elevation 50 around the Beaver Brook, to elevation 80 along the east section of the site. The elevation height at Belmont Street is approximately 70. Beaver Brook divides the site into an eastern section and a western section.

When considering the site for large-scale development, it has many constraints. The site contains approximately twice as much total acreage as the existing high school site; however, this area is greatly reduced when the resource areas, buffers, and electrical easement are removed from the buildable area total. In addition to Beaver Brook and the associated 100 foot buffer area, there are bordering vegetated wetlands, the Matfield River with the associated 200 foot buffer, and an additional perennial stream located within the property. All jurisdictional resource areas will require buffer zones and other local setbacks dictated by the *East Bridgewater Conservation Commission Bylaws*. The total site area is ultimately reduced from approximately 90 acres, to two pockets of developable area totaling roughly 35-40 acres. This total developable area is similar in size to the existing high school site developable area of roughly 35-40 acres; however, the Leland Farms site is split by natural resources into two separate parcels. Beaver Brook divides the site into a western and eastern section that make up the two pockets of developable land. The division of the site into two areas would require that major site amenities, like the fields, would be located on the other side of the Beaver Brook from the school and require a wetland crossing. The separation of these amenities would make them remote to the school and would not provide a campus feeling. Not only do the resource areas limit the developable land, they also restrict access to the site at three of the four potential access points. All but one access point, the existing access to the site, would require a resource area crossing that would trigger significant permitting submittals. These submittals and their approval (assuming they are approved) would require significant additional time.

After review of the MASSGIS, the Leland Farm site appears to have two potential vernal pools as defined by the Natural Heritage and Endangered Species Program (NHESP). If these areas are determined to be in fact vernal pools, there will be associated buffer zones that will impact the proposed development.

According to the Flood Insurance Rate Maps for East Bridgewater available through FEMA (Federal Emergency Management Agency), this site is located mostly in Zone C with some areas of the site near the Beaver Brook and the Matfield River in Zone A. These areas are more restrictive and more prone to flooding than the zones identified on the existing high school site.



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PARE Project No. 10191.00

SEPTEMBER 2010

ANNOTATED AERIAL PHOTOGRAPH

Leland Farm Site
EAST BRIDGEWATER, MA

Information regarding rare species was obtained from the MASSGIS Rare Species and Priority Habitat data layer showing data recorded through Natural and Endangered species Program in the State Registry. Review of this information indicates there are no areas of rare species or priority habitats on-site or within the immediate area of the site.

Although the Leland Farm site for the proposed EBHS offers an expanse of land, impacts to the adjacent residential neighborhoods would be significant and a considerable amount of existing open space within the Town would be depleted. Daily traffic on the roadways surrounding the site would increase, as would the percentage of heavy vehicles due to buses picking up and dropping off at the school. The impacts would not be limited to the duration of the school day, as the fields and potential auditorium space would be used on nights and weekends for special events. Potential improvements to the existing roadway infrastructure surrounding the site, such as turning lanes at the site entrances, would have a significant impact given the existing roadway widths. In addition, the residential nature of the neighborhood could result in a large number of students walking to school and sidewalks on the streets adjacent to the school may be required. Possible roadway widening and sidewalk installation may result in right-of-way impacts and easements, both of which would increase the overall construction cost. The construction of the new school on this property would also require the relocation of the existing East Bridgewater Youth Soccer fields.

The Leland Farms property does have some utilities onsite but those utilities are to serve the existing concession building. Constructing a new school on the property would require new utilities to be brought on site. Since the majority of the site is undeveloped farm and woodlands, the development of the site would likely require significant storm water storage and treatment to allow storm water to be discharged to the existing resource areas. This would require significantly more storm water design, infrastructure and permitting costs in comparison to the existing EBHS site. A new wastewater treatment facility would need to be built on the site to accommodate a new school. A report prepared by Weston-Sampson in 2005 indicates wastewater disposal capacity to be less than 30,000 gallons per day.

At the Leland Farms site, there does not appear to be any fill material on site (i.e. all soils appear original to the site). A report prepared by Sterling Associates indicated high groundwater approximately 2.5 feet below existing grade in one test pit. This raises particular concern regarding high levels of underground water potentially existing across the site. This condition typically requires special foundations and footings, as well as dewatering of the site during construction. Both of these activities can add significant cost to a project. The soil bearing capacities were estimated to be 4000 psf and soils were reported to

have high silt content.

Roadways and Parking Lots - Leland Farm Site

The site can be accessed from North Central Street and Belmont Street. Located along both access roads are primarily residential areas. There are bituminous asphalt sidewalks on the North side of North Central Street at the site access point. There are no sidewalks on Belmont Street at the site access point. The existing roadway into the site from Belmont Street consists of processed gravel and provides access to a concession stand and parking located on site.

Sewer: Leland Farm Site

There appears to be an existing septic system on-site for the concession stand operations. The new school will require a new on-site wastewater treatment facility complying with local and state regulations.

Water: Leland Farm Site

There is an existing 16" ductile iron water service in North Central Street.

Drainage: Leland Farm Site

There does not appear to be any closed drainage on the site. A majority of the existing drainage from the site discharges to the adjacent resource areas.

Gas: Leland Farm Site

Columbia Gas of Massachusetts (formerly Bay State Gas) is the supplier of gas to the Town of East Bridgewater. Based on information from the East Bridgewater Department of Public Works there is a gas service provided by Columbia Gas in Belmont Street and North Central Street.

Electric: Leland Farm Site

Electric service is available on North Central Street and Belmont Street. The existing concession stand is serviced by overhead power from Belmont Street.

Site Design

New East Bridgewater High School Site Analysis

Existing High School Site

The Existing High School Site includes approximately 50 acres. It is well located in the Town Center and adjacent to the Town Green. The site includes access from Central Street, Plymouth Street, and Route 18. The site already includes the existing High School, Central Elementary School, Town Offices, Fire Station, and numerous athletic fields. It is approximately ¼ mile from the Middle School. The close proximity of public services to the Town Center is a valuable asset. A vibrant and active town center can promote business, increase social interaction, and revitalize an entire community in many intangible ways. Research clearly indicates that sustaining a vibrant, pedestrian-friendly town center has proven to be one of the key conditions for active healthy living within a community, and national planning guidelines identify the importance of promoting the vitality and viability of the town center, and to plan for its integration into the surrounding area. Stores, eateries, cafes, playfields, performance auditoriums, fitness areas, educational facilities, and outdoor playfields all connected by pedestrian ways has proven to draw the community to a central location for shopping, eating, physical activity, and social interaction. The East Bridgewater High School project provides a rare opportunity to achieve these goals. Regardless of whether it is selected for continued use as the high school site or not, this critical piece of property in Town Center should be the focus of continued public development in order to insure a vibrant and active Town Center in East Bridgewater.



Site Design

New East Bridgewater High School Site Analysis

The existing East Bridgewater High School site is already fully developed, and is located in a section of Town with several other municipal and institutional uses. The roadway infrastructure adjacent to the site currently accommodates the daily traffic associated with the school, and would require only minimal upgrades. Given the existing roadway widths, modifications such as turning lanes and sidewalk installation could easily be accommodated. Impacts to residential neighborhoods would also be limited, as much of the land use surrounding the site is commercial. The opportunity to access the site from three separate streets (Central, Plymouth, and Bedford (Route 18) provides tremendous flexibility in developing new circulation patterns which could decrease the impact of traffic on the surrounding area. All of the public buildings in this area of Town require new sewage disposal systems, and the development of a new wastewater treatment facility for the high school could easily accommodate the surrounding public buildings including Central Elementary School, Town Hall, the COA building, and the Fire Station. The maintained proximity of the new East Bridgewater High School, Central Elementary School, and the Mitchell Middle School provide a valuable opportunity to keep all schools centrally located, allowing shared use of the fields and recreational areas by all students and making the Town Center a hub for social, educational, recreational, and business activity.

Zoning Regulations - Existing High School Site

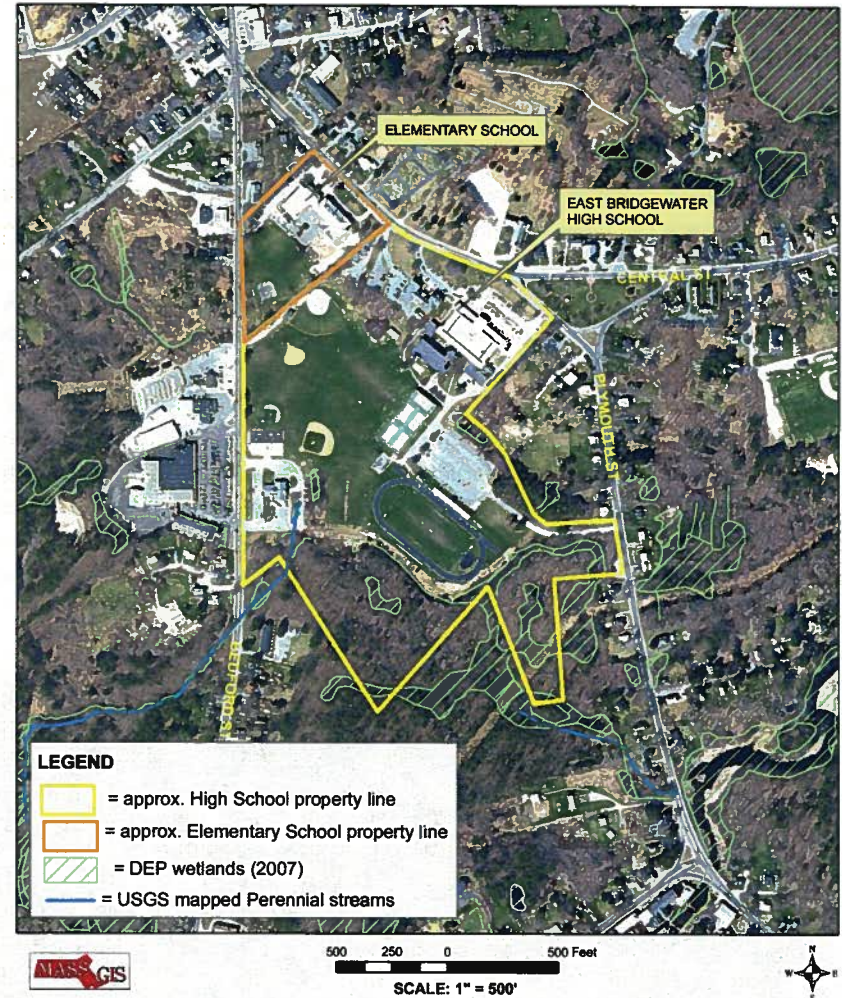
The existing site is located in the M - Municipal district, however the 'educational use' requirements would govern the design. Some of the key requirements are:

- 60 ft. minimum building setbacks
- Parking areas must be visually buffered from the street and from adjacent properties and be located 15 feet from roadways and 10 feet from all other property lines.

Parking - Existing High School Site

Currently the school has approximately 90 parking spaces in the immediate vicinity of the existing high school with a parking lot near the athletic fields that holds approximately 170 vehicles.

Proposed parking spaces shall be 10'x19' and provide a minimum access drive of 24' in width. Based on zoning guidelines all parking will not be located within 10 feet of the property lines and not within 15' of a public street. All ADA requirements would be met when laying out the number of parking spaces and access to the buildings.



500 250 0 500 Feet

SCALE: 1" = 500'



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PARE Project No. 10191.00

SEPTEMBER 2010

ANNOTATED AERIAL PHOTOGRAPH

HIGH SCHOOL AND ELEMENTARY SCHOOL SITE
EAST BRIDGEWATER, MA

Topography - Existing High School Site

The steepest grade changes on site are located around the existing school. The entrance from Central Street is at elevation 96 and grades drop gradually to the back of the school, which is at elevation 60. The front (toward Central Street) and rear entrances to the existing school are at different elevations; with the front entrance at approximately elevation 90 and the rear entrance approximately at elevation 60. South of the school athletic fields are generally flat but overall land slopes down towards Bedford Street and the woodlands south of the Site.

Wetlands - Existing High School Site

The existing East Bridgewater High School site has some perimeter wetlands along the south portion of the site. However, the developed condition of the site allows more flexibility in these areas and any proposed new development can be limited in areas near wetlands and buffers to avoid significant permitting efforts.

Review of the MASSGIS potential and certified vernal pools layers indicates the site contains an area near the wetlands on the south side of the site identified as a Potential Vernal Pool as defined by the Natural Heritage and Endangered Species Program (NHESP). This area will need to be reviewed by a wetlands scientist to confirm the presence or non-presence of a vernal pool. If there is a vernal pool on-site the associated buffer zones will contain strict regulations and impact the proposed developable area.

According to the Flood Insurance Rate Map Index for East Bridgewater available through FEMA (Federal Emergency Management Agency), the existing School Site is located mostly in Zone X and a small area on the south side of the site is located in Zone A. It is important to note that these flood zone designations make the site less restrictive than the Leland Farms site.

Rare Species & Cultural Resources - Existing High School Site

Information regarding rare species was obtained from the MASSGIS Rare Species and Priority Habitat data layer showing data recorded through Natural and Endangered Species Program in the State Registry. Review of this information indicates there are no areas of rare species or priority habitats on-site or within the immediate area of the site.

Roadways and Parking Lots - Existing High School Site

The existing East Bridgewater High School can be accessed from Bedford Street, Central Street, and Plymouth Street. Bedford Street is a major local roadway with various commercial properties and some residential property. Located along Central Street are public buildings, houses of worship, open parks and residential property. Plymouth Street is a local roadway with residential property on both sides of the street. There are concrete sidewalks on both sides of North Central Street, on the West side of Bedford Street and the West side of Plymouth Street where the existing High School entrance is located.

Sewer: Existing High School Site

Sanitary waste from the school is treated by an on-site septic system. The current septic system was constructed in 1975 during the building expansion project. The current system includes a 36,000 square foot sub-surface sand filter system, sewage dosing counter, chlorine neutralization system, and a 10,000 gallon septic tank. The existing system also treats waste from the Central Elementary School. Numerous problems have been reported for the existing septic system including back-ups, pump failures, sink holes, and sub-surface piping failures. The entire system needs to be replaced with a wastewater treatment plant servicing surrounding public buildings, regardless of whether the high school remains on site or not. If the site is selected for the new high school, a new on-site septic system complying with local and state regulations can be installed. The new system would also address sewage discharges from the Central Elementary School, Town Hall, COA building, and Fire Station. Soils in front of the existing school were identified as optimal for sewage treatment in a study conducted by Weston Sampson during a wastewater discharge study conducted by the Town. Any work in this area will need to be sensitive to the adjacent uses and service to all buildings will be maintained. An alternative to this would be discharging clean water to the nearby Middle School site.

Water: Existing High School Site

The existing school is supplied with water through a 16" transite water main in Plymouth Street. Water hydrants are located throughout the site and water service is also available at Bedford Street in a 12" ductile iron pipe that was recently installed last year.

Drainage: Existing High School Site

Portions of the developed site are collected in catch basins and discharged through closed drainage to

Central Street. Most of the site is not furnished with closed drainage and drains overland to the south side of the site.

Gas: Existing High School Site

Columbia Gas of Massachusetts (formerly Bay State Gas) is the supplier of gas to the Town of East Bridgewater. The existing school is supplied by a connection to Plymouth Street. The on-site gas main enters the site at the entrance to Plymouth Street, runs under the parking lot and enters the west side of the existing school. Gas service is also available on Bedford Street.

Electric: Existing High School Site

Electric supply is above ground to a utility pole off of Central Street. Electric is then underground to the existing building. Electric service is available on Plymouth Street, Central Street, and Bedford Street.

Other Factors: Existing High School Site

In prior feasibility studies it was suggested that a proposed new school could be constructed in the area of the existing playfields. This suggestion drew some criticism from residents who have witnessed standing water on these playfields and suggested that flooding may be a problem in this area. A review of the site by three separate architecture/engineering firms resulted in all three firms selecting this area as an appropriate location for a new school building. A review of this area revealed that there are currently no provisions for drainage on these fields, making it impossible for water to drain (Currently) from the soils in this area. This problem is easily solved. The development of this area for a new school would include a new storm water management and drainage system which could easily remove all water from this area. Additionally, proposed modifications to the site would include raising the finished grade elevation in this area significantly above its current condition.





The site obviously includes the existing high school building. The building's poor condition, outdated systems, lack of handicap accessibility, and the existence of hazardous materials such as asbestos and lead make it a very poor candidate for re-use. Additionally, its continued existence in the Town Center without the investment of significant financial resources could be detrimental to the overall aesthetics of the Town Center. If the Existing High School Site is selected as the site for a new high school, the abatement and demolition of the existing high school building can be included as part of the cost of the project. If another site is selected, the Town will need to make tough practical and financial decisions regarding the existing high school site and associated building.

The site can be a significant resource. In its current organization; roadways, sidewalks, parking lots, and fields are not efficiently organized. If the site is selected as the continued home of East Bridgewater High School, the entire campus can be re-planned and re-organized to make better, more efficient use of parking, roadways, and play areas. This can make the entire campus a tremendous asset to the Town and the greater community.

There has been some concern expressed regarding the construction of a new school on a site which will be occupied by students, faculty, and staff. This is a legitimate concern, as the safety of the site occupants is of utmost importance. A review of the available site area indicates that there is sufficient space to conduct a successful construction operation without compromising the safety or education of students, faculty, and staff. Numerous similar projects have been successfully completed across the Commonwealth, and if the existing high school site is selected all necessary precautions will be taken to insure a safe and educationally sound learning environment during construction.



LEGEND

-  = approximate property line
-  = DEP wetlands (2007)
-  = USGS mapped Perennial streams
-  = USGS mapped Intermittent streams



610 305 0 610 Feet

SCALE: 1" = 150'



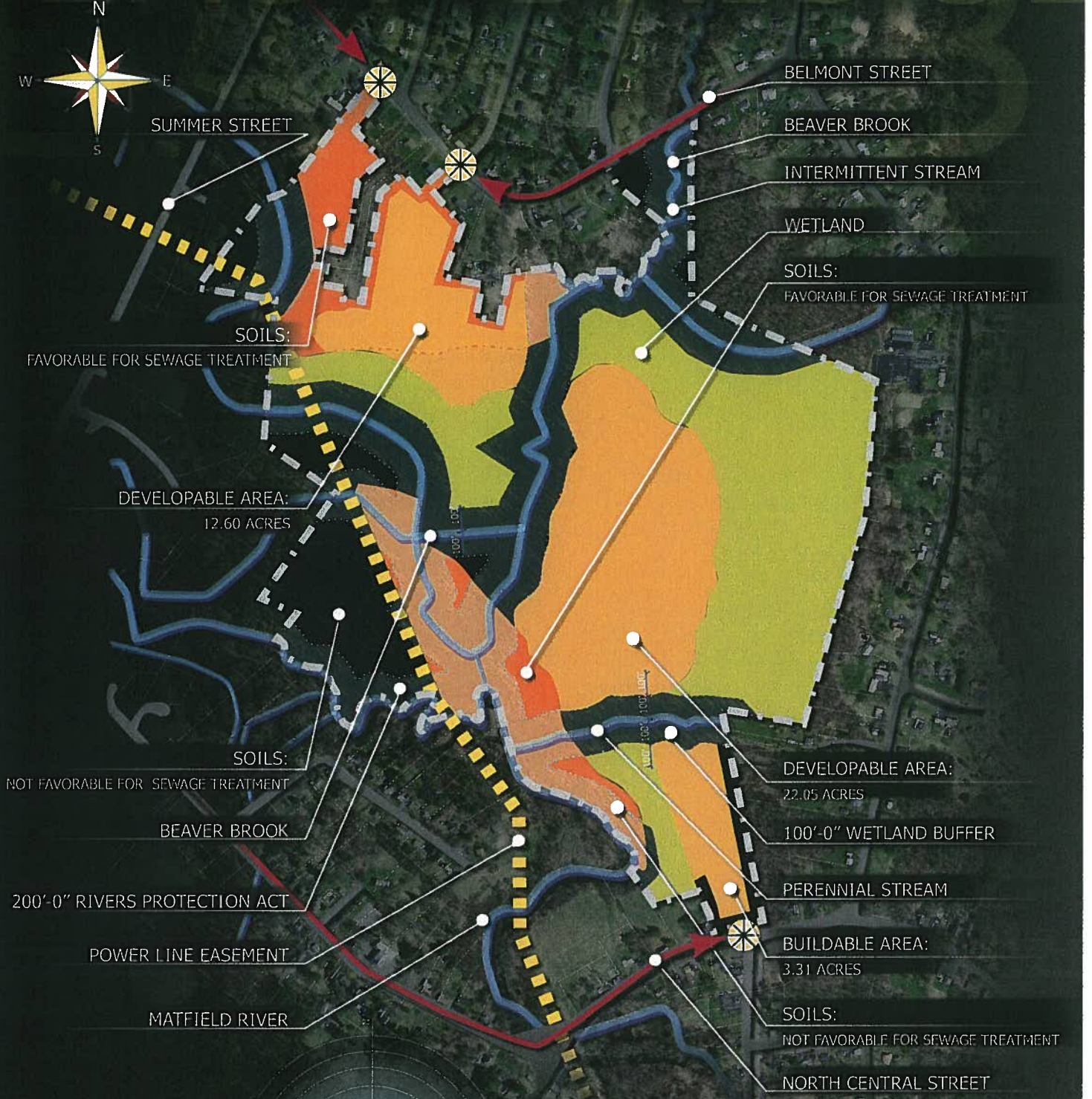
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ANNOTATED AERIAL PHOTOGRAPH

POTENTIAL HIGH SCHOOL SITE
 EAST BRIDGEWATER, MA

EAST BRIDGEWATER PUBLIC SCHOOLS

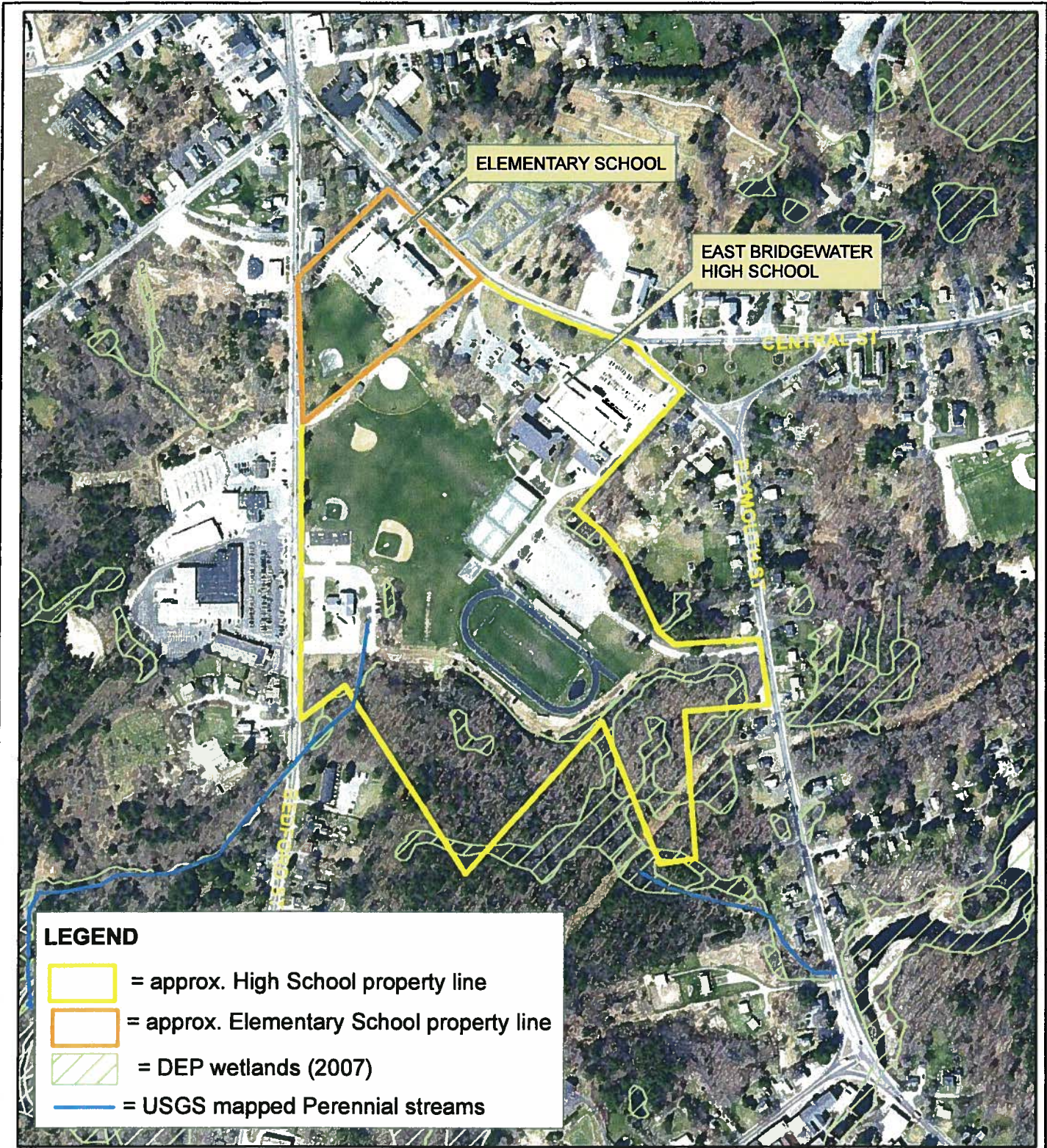
SITE ANALYSIS: LELAND FARM



Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wind Direction (Mean)	SW	SW	SW	SSE	SSE	S	SSE	SSE	SSE	SE	S	SE
Average Wind Speed (MPH)	0.4	0.7	0.6	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Peak Wind Speed (MPH)	1.0	1.8	1.6	2.0	0.7	0.4	0.4	0.4	0.4	0.4	0.8	0.8

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wind Direction (Mean)	SW	SW	SW	SSE	SSE	S	SSE	SSE	SSE	SE	S	SE
Average Wind Speed (MPH)	0.7	1.0	0.9	1.3	0.1	0.2	0.2	0.1	0.1	0.1	0.5	0.5
Peak Wind Speed (MPH)	1.0	1.8	1.6	2.0	0.7	0.4	0.4	0.4	0.4	0.4	0.8	0.8





SCALE: 1" = 500'



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ANNOTATED AERIAL PHOTOGRAPH
HIGH SCHOOL AND ELEMENTARY SCHOOL SITE
EAST BRIDGEWATER, MA

EAST BRIDGEWATER PUBLIC SCHOOLS

SCHOOL SITE



BEDFORD STREET

CENTRAL SCHOOL

AQUIFER:
MEDIUM YIELD

DEVELOPABLE AREA:
36.54 ACRES

FIRE STATION

SOILS:
UNFAVORABLE FOR SEWAGE TREATMENT

100'-0" WETLAND BUFFER

CENTRAL STREET

TOWN OFFICES

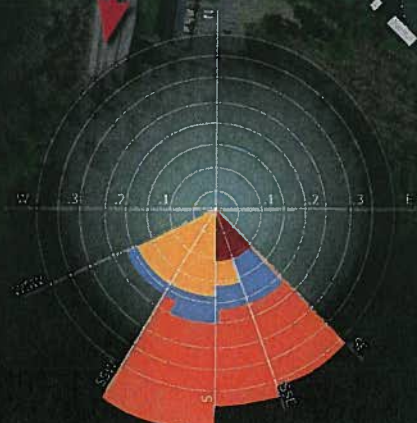
SOILS:
FAVORABLE FOR SEWAGE TREATMENT

PLYMOUTH STREET

AQUIFER:
HIGH YIELD

HIGH SCHOOL

WETLAND



Year	Climate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	Temp	31	34	41	49	58	66	72	77	80	78	70	61
	Max Temp	41	44	51	59	68	76	82	87	90	88	80	71
	Min Temp	21	24	31	39	48	56	62	67	70	68	60	51
2015	Temp	31	34	41	49	58	66	72	77	80	78	70	61
	Max Temp	41	44	51	59	68	76	82	87	90	88	80	71
	Min Temp	21	24	31	39	48	56	62	67	70	68	60	51

