

Date May 15, 2021
To Weston Zoning Board of Appeals
From Mark S. Bartlett, PE
Thomas C. Houston, PE, AICP
Project Proposed Residential Development, 518 and 540 South Avenue
Weston, MA, Middlesex County
Subject Peer Review of Sanitary Sewer System, Water Supply System and Site
Planning Elements, First Submission

Pursuant to our April 13, 2021 proposal, Task 1: Professional Services Corporation, PC (PSC) has reviewed the “Proposed Residential Development, 518 South Avenue, Weston, MA, Middlesex County on behalf of the Weston Zoning Board of Appeals (ZBA). This review focused on the Applicant’s most recent submittals as revised through March 19, 2021, for compliance with standard engineering practice and local bylaws and regulations. The Applicant requests waiver of certain provisions of local bylaws and regulations; however, the Zoning Board of Appeals has not determined whether the requested waivers can be granted. Further, Identifying the extent of noncompliance and the impacts caused by noncompliance will assist the Zoning Board of Appeals in reaching its Decision on waiver of strict compliance. Our prior reviews have concerned drainage and stormwater management, whereas this review addresses the proposed sanitary sewer system (not the wastewater treatment facility), the proposed water supply system and the site planning elements.

PROJECT OVERVIEW

Hanover RS Limited Partnership (Applicant) proposes a residential development that includes 200 apartment units, a clubhouse, and amenities, and a wastewater treatment facility with an associated subsurface effluent disposal system. The project Site will combine and adapt and reuse two residential lots: A 9.5 acre site that contains a single family home and former tennis court (518 South Avenue) and a 0.94 acre site that also contains a single family home (540 South Avenue). Together, these are hereinafter referred to as the Site. The proposed residential units will be within one large multi-part building that will be predominantly a 4-story structure with some 3-story and 5-story parts. In addition, there will be a 4.5 story parking



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garage connected to this residential building. The top level of parking will be covered with a proposed green roof. Other improvements include a courtyard enclosed by the residential building, some exterior patio areas, approximately 1,160 linear feet of main access road serving the building from entrance at 540 South Avenue (standard 24' wide pavement), and approximately 1,290 linear feet of emergency access road with separate connection at 518 South Avenue, and most of this way (1,165-feet) is proposed to be porous pavement with road width varying from 14' to 20'.

Main access way drainage, and the first 125-feet of the emergency access drive will be collected by standard curb and gutter system, with multiple catch basins, connecting drain lines (12" and 15" HDPE), drain manholes, and water quality treatment units that ultimately discharge to one of the three (3) subsurface infiltration systems. The internal drainage system for the parking lot is not provided (deferred to architect's drawings). The building roof drainage and green roof drainage (for the parking lot roof and a portion of the building roof) will be routed to the subsurface infiltration system 2.

In addition to the drainage systems, other underground utilities will include the following:

- A looped water main of unknown size between the water main in South Avenue and the buildings,
- A combination of gravity sewers and force main pipe (pipe sizes and materials not stated) between the building and the proposed wastewater treatment plant,
- A gravity sewer from the treatment plant to a pump chamber that will direct treated effluent to the proposed effluent disposal areas,
- A natural gas service line to the residential buildings and treatment plant building, and
- Underground electric, telephone / data cables.

The proposed Project has been submitted to the Weston Conservation Commission, and to the Weston Zoning Board of Appeals under the state's Comprehensive Permit (MGL Ch. 40B) process. In addition to Conservation Commission approval, this multi-unit apartment project would normally require a Special Permit from the Zoning Board of Appeals for the proposed multi-family use, Site Plan Approval by the Planning Board under Town of Weston Rules and Regulations for Site Plan Approval, and a Stormwater Permit from the Town's Stormwater Permit Authority (SWPA) under Weston Stormwater & Erosion Control Regulations.



Submittals Reviewed for this Assignment

- A. “Hanover Weston – Weston, MA, Site Development Plans” prepared by Tetra Tech for Hanover R.S. Limited Partnership, Comprehensive Permit Plans for a proposed project on South Street, Weston, MA, dated June 15, 2020 for NOI application, and June 21, 2020 for Comprehensive Permit application, revised plans dated October 30, 2020, and latest revised plans dated March 19, 2021. (Tetra Tech Site Plans include 18 sheets including an Existing Conditions plan by MetroWest Engineering dated April 10, 2019).

References

- A. Weston Zoning Bylaws, Section XI. Site Plan Approval, subsection F. Standards & Criteria
- B. Weston Rules and Regulations for Site Plan Approval, November 19, 1991, as authorized under Section XI of the Zoning By-Law: Section 4 – Content of the Submission, and Section 5.01 – Site Walk and Public Hearing (RRSPA)
- C. Weston Planning Board Land Subdivision Rules and Regulations, Weston, Massachusetts (PBRR), Article I. General Requirements, and Article IV. Design Standards, as applicable.

COMMENTS ON PROPOSED SEWER SYSTEM, WATER SYSTEM AND SITE PLANNING ELEMENTS

Sanitary Sewer System

There are no specific requirements stated within the Town of Weston References A, B and C (as noted above) regarding sanitary sewer systems. However, the Massachusetts Department of Environmental Protection (MADEP) has rules and regulations regarding sewers that are stated in 310 CMR 15 (Title 5). MADEP also publishes *Guidelines for the Design, Construction, Operation, and Maintenance of Small Wastewater Treatment Facilities with Land Disposal*, which would be relevant for this Project. In addition, sewer designs should generally comply with guidance provided by the New England Interstate Water Pollution Control Commission’s Guides for the Design of Wastewater Treatment Works commonly known as TR-16 (short for Technical Report #16).

The Applicant’s proposed sewer system design presented on Utility Plan Sheets C-8 and C-9 and Detail Sheet C-12 is incomplete. More information is required for PSC to provide any meaningful review of the proposed sewer and force main (pumped flow) systems.

1. The Applicant needs to submit revised Utility Plans and Detail Sheets that identify specific sewer system components, including the following:



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- a. Identifiers for gravity sewer lines including pipe material specifications, pipe diameter, pipe slope, and invert elevations at sewer manholes;
 - b. Information on the proposed sewer force mains, including depth, pipe material specifications, pipe diameter, and invert elevations at pump chambers and at intended discharge points, including any sewer force main air release valves if appropriate.
 - c. Pump chamber identifiers for the two chambers noted on the plans, and detailed information on proposed construction of pump chambers, pump system designs and pump specifications.
2. The Applicant should submit sewage flow calculations for the proposed occupancy of each building, and the minimum gravity sewer capacity to be provided on the Site.

Water Supply System

The Applicant's proposed water system is presented on Utility Plan Sheets C-8 and C-9 and Detail Sheet C-14. A cement lined ductile iron (CLDI) water main of unknown size is proposed to connect to the Town's 10-inch water main in South Avenue opposite the main driveway entrance. The proposed water line enters along the driveway to provide split domestic water and fire protection service connections on the east side of the wastewater treatment plant building and there is a proposed fire hydrant on the entrance drive that is across from the treatment plant. The water line continues south to a three valve tee connection in front of the north side the residential building where water lines head both east and west. The west branch of the line extends along the west side of the residential building leading to two proposed fire hydrants: One on the left side of the parking garage entrance, and another at the south end of the residential building in the southwest corner of the site. The east branch water line provides split domestic water and fire protection service connections to the north side of the residential building, and a proposed fire hydrant in front of the residential building. The east branch line extends past the northeast corner of the building to another proposed hydrant, and then turns northeast, extending back to South Avenue along the proposed emergency access drive. There is a hydrant proposed at the emergency drive/South Avenue intersection, and a second connection to the 10-inch Town water main in South Avenue, thus providing a looped water line service to the Site. The Applicant needs to provide the following:

3. Each proposed water line connection to the Town's 10-inch water main in South Avenue should have three valves.
4. Indicate water main size(s) serving the Site.



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5. Indicate proposed sizes of domestic service and fire protection lines at each building.
6. The South Avenue 10-inch water main material, age, and adequacy should be discussed with the Weston DPW, Water Department and Fire Department, and the Applicant should obtain their approval in writing to the ZBA for connecting new service to the Site.
7. A static pressure and fire flow test should be conducted at the South Avenue water main in front of the Site to check for compliance with *PBRR §4.22 Water Supply*, and to ensure adequate domestic and fire protection flows. Test results should be reported to the Town's DPW, Planning Board, Fire Department and ZBA.
8. The proposed design and details, and adequacy of the fire protection services to the two buildings should be discussed with the Weston Fire Department, and a summary memorandum concerning Fire Department approval should be provided to the ZBA.

Private Utilities

An underground electric line is shown on Utility Plan Sheets C-8 and C-9. It is proposed to start at the northwest side of the entrance drive, from a connection at utility pole #118 on South Avenue. The underground electric service continues to the Site under the west side of the access driveway. An electric service branches off to a transformer on the west side of the proposed wastewater treatment building; and the main service continues up to a proposed primary switch and two (2) transformers at the southeast corner of the proposed garage. A standby generator is shown for the wastewater treatment plant building, but not at the residential building. The Applicant needs to provide the following:

9. Provide a detail of the proposed conduit to be used to carry underground electric services.
10. The Landscaping Plan should call for plantings of fencing (visual screenings) of the primary switch and all transformer and generator locations.
11. The transformers should be protected by bollards against vehicle impact. Provide a detail that will be required by the utility company.
12. Indicate if the residential building will be served by a standby generator separate from the generator at the wastewater treatment plant.
13. Indicate if the generator(s) be fueled by diesel fuel or by natural gas. If by diesel fuel, what are the planned containment and spill prevention features.



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14. Indicate if the standby generator(s) will have sound attenuation features, and if so, what is the anticipated sound level during operation. Also, how frequently will the standby generator(s) be exercised as part of ongoing standby power maintenance. Also see Comment 31.b below.

A gas service line (unknown size and material) is shown on Utility Plan Sheets C-8 and C-9. It is proposed to connect to an existing 12-inch gas main (material not noted) within South Avenue. The new gas service line enters along the access drive, provides a service line (tee connection) to the wastewater treatment building, and continues to the north side of the residential building where there will be a tee connection to another gas line (unknown size and material) that will loop around the residential and garage buildings. The Applicant needs to provide the following:

15. The size and adequacy (safety) of the existing gas main in South Avenue, the proposed gas service to the Site, and all building meter connection(s), should be confirmed with the gas utility; and meter locations need to be shown on the plans for both the treatment plant building and the residential building.
16. The Landscape Plan should depict appropriate screening for the gas meters.

An underground telephone/cable line is noted on Utility Plan Sheets C-8 and C-9: It starts at utility pole #118 (northwest side of the entrance drive) on South Avenue. These service lines continue to the Site under the access driveway, pass in front of the north side of the residential building and then down along the east side of the buildings, where the lines enter the southeast corner of the garage building.

17. The Applicant needs to Provide a detail of the proposed conduit to be used to carry the underground cable/data lines.

Site Planning Elements

The Applicant's submittal does not include a summary of conformance with Town of Weston Rules and Regulations for Site Plan Approval (RRSPA) or conformance with applicable requirements of the Weston Planning Board Rules and Regulations (PBRR) which serve as site construction standards. Our review of project submittals indicates general compliance with



many of the standards. However, we note the following exceptions and suggestions that require a response:

RRSPA Section 4 – Content of the Submission:

18. RRSPA §4.02 List of All Items Submitted: This section requires the Submission to include a separate titled *“List of Items Submitted which shall number and identify each document, plan, drawing or other item that is submitted by the Applicant”*. The Applicant needs to submit this list and be sure that *“any item that is added to the Submission during the course of the site plan approval process shall be added to the List...”*

RRSPA §4.07 Site Improvements: This section requires the following: *“A table shall show the dimensional requirements (maximum-minimum) of the zoning district and pre-and post-development site characteristics including square feet and percentage of land; of open space, undisturbed open space, wetlands, floodplain, developable site area, footprint of structures, and paved areas; front yard; side yard; rear yard; any buffers; building height; floor to lot ratio; amount of impervious cover; number of parking spaces (including handicapped and compact car space) with supporting calculations;”*

19. Although Sheet C-2 of the Applicant’s Site Plans contains a limited zoning table that describes required lot size, frontage, setbacks and building height, the Applicant needs to submit a revised table that provides all the information required by the first paragraph of RRSPA §4.07.

20. RRSPA §4.07 Site Improvements requires that the submitted existing conditions plan show *“the location of any existing septic systems, cesspools, leaching fields and wells on or within 500 feet of the development parcel.”* The Applicant needs to submit a revised Existing Conditions Site Plan that complies with this requirement. In addition, we recommend that this same information also be shown on Site Plan Sheets C-1 through C-7 so that setbacks of proposed features from the noted abutting features are clear.

21. RRSPA §4.07 Site Improvements requires: *“All required setbacks for buildings and structures, parking and loading facilities shall be shown with dimensions on the plan to demonstrate compliance with zoning requirements.”* The Applicant needs to submit revised Site Plans to comply with this requirement.

22. RRSPA §4.07 Site Improvements requires: *“Parking spaces must be located and identified as either standard size, or handicapped spaces. The location of any signs intended for identification of handicapped spaces must be shown. Pavement markings must be shown.”*



The Applicant needs to submit more detailed parking plans that show each proposed parking level and the spaces that will be designated as standard size or handicapped spaces on each parking level (including typical dimensions).

23. RRSPA §4.07 Site Improvements requires: *“Proposed parking structures must contain the above information as well as: dimensions of the structures; means of ingress and egress; internal traffic circulation; lighting and access to the principal structure.”* The Applicant needs to submit more detailed parking plans that show each proposed parking level including, for each level, the dimensions of the parking structure (including floor to ceiling height), means of ingress and egress to adjacent floors, internal traffic circulation, pedestrian areas, proposed lighting, and proposed access points to the residential structures.
24. RRSPA §4.07 Site Improvements requires: *“All driveway entrances shall be shown with dimensions; and sight distances at the driveway intersection shall be provided. The weight, turning radius length and height of the largest truck expected to use the site shall be noted. All the driveways and entrances must be designed to accommodate trucks as well as fire apparatus which must be able to maneuver freely. Service areas, truck loading areas and utility buildings shall be shown.”* The Applicant needs to submit more detailed Site Plans to provide (a) sight distances at the access driveway intersections with South Avenue, (b) the weight, turning radius length and height of the largest truck expected to use the site, (c) a turning movement plan to demonstrate that the Weston Fire Department vehicles and their proposed firefighting apparatus (per consultation with the Fire Chief) can maneuver freely to, from and within the Site.
25. RRSPA §4.07 Site Improvements requires: *“The plans shall show areas intended for outdoor storage (open) with dimensions and screening. Traffic flow patterns within the site and off site must be shown and curb cuts and intersections within 500 feet of the property line.”* It appears that the Applicant has complied with these requirements, but, if there are no areas intended for outdoor storage (e.g., waste containers), then the Applicant should add a statement to that effect to the Site plans.
26. RRSPA §4.08 Site Utilities requires: *“Location of any underground storage tanks for fuel or other chemical storage shall be shown including tank type, capacity, age and condition.”* If any underground storage tanks are required for the residential buildings or for the



wastewater treatment plan, then the Applicant should show such element(s) to the Site plans; and, if not, the Applicant should add a statement to that effect on the Site plans.

27. RRSPA §4.09 Waste Disposal requires: *“Location, type and screening details for all waste disposal containers shall be shown including type and composition of solid waste and any hazardous wastes with estimated amounts; and operational plans and facilities for solid waste disposal.”* If applicable, the Applicant should show such element(s) on the Site plans; and, if not, then the Applicant should add a statement to the Site plans that describes the proposed solid waste management plan for the residential building and the wastewater treatment facility.
28. RRSPA §4.09 Waste Disposal requires: *“The location of the area which is capable of supporting on-site sewage disposal from the proposed project shall be shown. Design, operating and maintenance details of the proposed disposal facility shall be explained.”* The Applicant has clearly noted the areas of proposed wastewater treatment and of effluent disposal. However, the Applicant needs to submit design, operating and maintenance details for these facilities, as noted above.
29. RRSPA §4.10 Earth Removal/Fill requires: *“Indicate areas where earth removal, blasting, or filling is proposed and the approximate volume in cubic yards, along with the rationale for proposed removal of vegetation, trees, soil and for any grade change.”* The Applicant needs to submit a cut & fill plan to indicate areas of cut and fill along with the proposed volumes of earth (or rock) involved; and provide a narrative to describe their *rationale for proposed removal of vegetation, trees, soil and for any grade change.*
30. RRSPA §4.10 Earth Removal/Fill requires: *“Precise calculations for determining the total amount of earth removal or fill will only be required when the development will require earth materials to be obtained or removed off site. If the amount is over 30 cubic yards, a removal/fill schedule will be required which shows size of trucks, gross vehicle weight, estimated number of trips per day for each vehicle, travel routes to be taken, and hours of operation, and certification that fill is free of hazardous materials.”* As a supplement to their response to Comment 29 above, the Applicant should indicate if they will need to remove to, or obtain earth materials from an off-site location; and, if the amount of cut or fill will be over 30-cubic yards, provide their proposed schedule including all details as requested in RRSPA §4.10.



31. RRSPA §4.11 Light, Shadow, Sound, Odors requires: *“The proposed location, height, intensity and bulb type (e.g., fluorescent, sodium incandescent) of all external lighting fixtures shall be shown including the direction of illumination and methods to eliminate glare onto adjoining properties; and post development shadow on abutting properties. Calculations and descriptions of construction noise during and after construction shall be provided and a description and explanation of any potential odors during construction and thereafter.*
 - a. The Applicant needs to provide a photometric plan to illustrate proposed exterior light locations (including building wall packs) and the proposed resultant light intensities at the Site and at abutting property lines.
 - b. The Applicant should provide a narrative to discuss any potential noise and odors that may be generated during construction, and after completion of the project (e.g., at the wastewater treatment plant, the residential building, and parking garage). Also see Comment 14 above.
32. RRSPA §4.12 Signs: The Applicant needs to provide details on *“The location, height, size, material and design of all proposed signagesincluding demonstration of compliance with Zoning By-Law.*
33. RRSPA §4.13 Design and Landscape: The Applicant needs to submit architect plans as follows: *“Elevation plans shall be provided at a scale of 1/8 inch= 1 foot for all exterior facades of the proposed structure and/or existing facades, plus additions(s), showing design features and indicating the type of material to be used.”*
34. RRSPA §4.13 Design and Landscape requires: *“A landscaping plan shall be provided showing all existing natural features, trees proposed for removal over six inches caliper (measured twelve inches over the soil line), area of forest cover including description of type, height, and density, and all proposed changes to these features including size, and type of plant material.”* The Applicant has provided stamped landscape architect plans “Planting Site Plan” as prepared by GWH Landscape Architects, dated June 21, 2019. However, the Applicant needs to submit supplemental plans that provide the detailed information required by RRSPA §4.13 Design and Landscape, as noted above.
35. RRSPA §4.14 Traffic Study: A traffic study is required encompassing all roads and intersections within 500 ft. of the site as well as all roads and intersections impacted by site generated traffic. The Planning Board (in this instance the Zoning Board of Appeals acting in



lieu of the Planning Board) is authorized to define requirements for the traffic study. The Town has engaged MDM Transportation Consultants to conduct a peer review of the Traffic Impact and Access Study (TIAS) prepared by Vanasse & Associates, Inc. (July 2019). In order to avoid duplication, we will not perform a detailed analysis of the submitted TIAS. However, it should be noted that the submitted TIAS does not comply with the requirement of Section 4.14 to identify and evaluate construction phase traffic impacts. The TIAS should address construction equipment and heavy truck trips, particularly those generated by earthwork, foundation, and building structure tasks. The TIAS should also identify total construction phase trips based upon the overall project schedule. See Comment 30. The TIAS should identify truck routes and traffic management measures coordinated with Police Department requirements. A draft Construction Management Plan should be provided to minimize overall construction trips particularly single occupant vehicle trips.

36. RRSPA §4.15 Impact and Mitigation requires: *“Analysis shall be provided of impacts during construction including days and hours of operation; provisions for employee and equipment parking; traffic, noise, dust vibration; impacts on wildlife habitats; demand for and effects on character of the community. Any proposed mitigation of negative impacts shall be provided and shall be consistent with the Standards and Criteria set forth in Section XI, Subsection H. of the Weston Zoning By-Law.”* The Applicant needs to provide this required analysis including a proposed construction schedule. Also see Comment 30 above.

PBRR Article IV – Design Standards

PBRR §4.03 Radii requires: *“Street right-of-way side lines at intersections shall be cut back so as to provide for curved radii of not less, than 35 feet and pavement lines at intersections shall be cut back so as to provide curb radii of not less than 48 feet. The minimum centerline radii of streets shall be 250 feet.”*

37. The Applicant should address plan compliance with these standards.

PBRR §4.04 Grades requires: *“Grades of streets shall be not less than 1.00% nor, shall grades be greater than 6%. All streets shall be graded so as to provide not less than 250 feet of clear sight distance at 4 1/2 feet above pavement. At an intersection, no grade shall exceed 3% within a distance of 225 feet of the centerline intersections of the two roads. The minimum vertical curve shall be 200 feet.”* The access road for the Site basically complies with these requirements, however the Applicant needs to address the following:



38. The Applicant should address compliance with this standard for areas where the site access drive exceeds 6% slope: There are two areas where the drive slope is 10%: 40-feet of length located off the northeast corner of the building, and 100-feet of length located off the southwest corner of the buildings.

39. The Applicant should provide a surveyor's measurement of site distance where the two driveways will provide access to South Avenue. Also see Comment 24 above.

PBRR §4.17 Shade Trees requires the following: *"Shade trees, not less than 12 feet in height and of a species approved by the Planning Board shall be planted on each side of every street in the subdivision wherever, in the opinion of the Planning Board, existing woodlands or suitable individual trees are not adequate. Trees shall be located outside the exterior street lines, and at such distance therefrom, and at such spacing, as the Planning Board shall specify, in accordance with the most recent general practice of the Town relating to planting trees on private property along public ways."*

40. Although not a public way, in regard to the access driveway to the site, the Applicant should present information to the Town on how proposed plantings along the access drive (per the project landscaping plans) will comply, or might be modified to comply with requirements of this PBRR section.

41. PBRR §4.18 Fire Alarm requires *"A fire alarm system shall be installed underground in accordance with the specifications and requirements of the Weston Fire Department as promulgated and amended from time to time."* The Applicant should obtain a letter from the Weston Fire Department in support of their proposed fire alarm system for the Site.

PBRR Article V – Construction Standards

42. PBRR §5.08 Paving of Sidewalks requires the following: *"Sidewalks shall be brought to subgrade by the necessary excavation and filling and shall receive a coat of selected gravel at least 8 inches in thickness, free of all stone over 1 inch in diameter and free from loam, clay, and other foreign matter. Thereafter, each sidewalk shall receive a two-course bituminous paving at least 2 1/2 inches in total thickness after compaction."* The Applicant should confirm with the Town's DPW that the sidewalk detail shown on Details Sheet C-13 will satisfy their requirement and the requirements of PBRR §5.08 Paving of Sidewalks. The Applicant's Site plans call for a 5-foot wide concrete sidewalk within the Site, and also along the south side of South Avenue heading east from a point about 100-feet west of the



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Project entrance until reaching Wellesley Street. In addition, the Applicant needs to correct the detail shown on Sheet C-13 to call for a 5-foot sidewalk (not 4-foot as detailed).

43. PBRR §5.13 Cleaning Up requires the following: *“Upon completion of the work, the Subdivider shall clean up any debris thereon caused by street construction, installation of utilities, and other operations of the subdivider. All areas within a right of way or foot path destroyed, damaged, or altered in construction operations shall be restored to vegetation or other finish satisfactory to the Board. Any areas which are used for the disposition of excess fill, stumps, rock, and similar materials which may have accumulated during the prosecution of the work shall, as soon as practicable (and no later than the time of completion of the work), be excavated and then recovered, graded, and landscaped by the Subdivider. The Subdivider shall leave the subdivision area in a neat and orderly condition.”* The Applicant should add a note to the Site plans that will require the Project construction to comply with the intent of PBRR §5.13 Cleaning Up.

Other Site Planning Comments

44. The Applicant should present calculations of snow storage requirements (specifying snow-storm accumulation criteria) and illustrate on the Site plans the proposed locations that will provide adequate snow storage after plowing.
45. The Applicant should provide certification of compliance with applicable provisions of the Americans with Disabilities Act (ADA) and the Massachusetts Architectural Barriers Board.