

Engineering Review of Modified Site Plan and Special Permit for
Ashland Rail Transit Apartments
MBTA Access Road
Ashland, MA

November 9, 2015

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Engineer/Surveyor

Kelly Enineering Group, Inc.
0 Campanelli Drive
Braintree, MA 02184

Owner

Robert Gayner
P.O. Box 300
Alton, NH 03609

Applicant

Campanelli II Acquisitions, LLC
c/o Campanelli Companies
10 Campanelli Drive
Braintree, MA 02184

Location

Between West Union Street and High
Street (included in "Ashland Station"
mixed use development project).

Zoning Districts

Transit Village Community TVC;
Rail Transit Overlay District
RTD 'E'

Content

Site Plan set -17 sheets;
Stormwater Management Report

Assessors' Reference

Map 13, Block 152, 154



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INTRODUCTION

Professional Services Corporation (PSC) reviewed the “*Ashland Rail Transit Apartments M.B.T.A. Access Road – Ashland, MA*” Site Plan Modification and Special Permit application prepared by Kelly Engineering Group, Inc., Braintree, Massachusetts dated August 28, 2015. The *Ashland Rail Transit Apartments* project is proposed on two parcels located on assessors Map 13, Block 152 and 154 in the Rail Transit District “RTD”, shown as Lots 1 and 2 on the former *Jefferson at Ashland Station* plan of June 19, 2008. The project consists of three-hundred ninety-eight (398) apartment units to be constructed as a Transit Village Community ‘TVC’ on 30.12 undeveloped acres of land along the west side of the MBTA access road, south of the Ashland Station. The proposal is located on the site of the 2008-approved, unconstructed *Jefferson at Ashland Station (JPI)* project which consisted of 500 units in nineteen (19) apartment buildings.

The currently-proposed project consists of seven (3-1/2)-story buildings and two 3-story buildings, a clubhouse/community center building, twenty one (21) detached accessory garage structures containing one hundred sixty eight (168) spaces, five hundred forty eight (548) surface parking spaces, a playground ‘tot-lot’ area, an enclosed dog area and a recycling/transfer center. The project will consist of one-hundred-forty-nine (149) one-bedroom units and two-hundred-forty-nine (249) two-bedroom units, supporting roadways and infrastructure to be developed as a Rail Transit District Special Permit use, pursuant to Chapter 282-8.4 of the Bylaw. The buildings and clubhouse will be served by two primary 24-foot wide roadways and a system of interior 24-foot wide driveways that provide access and parking for the facilities. Primary access will be derived from the MBTA Access Road. A 15-foot wide secondary emergency access is proposed to High Street, a scenic way.

Utility improvements have been designed for the site, including water and sewer design (including sewer pump station), stormwater management design, underground gas, electric and telephone service. An 8-inch water service will be looped through the project extending from existing service in High Street and connecting to future service in the MBTA Access Road to be constructed by the Town. The sewer system has been designed to collect sanitary flows to a pump station adjacent to the MBTA Access Road. A sewer force main is to be extended from Union Street to the site.



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The stormwater management system proposes separate underground facilities to accommodate roof runoff. The remainder of the project flows are to be collected in a conventional closed system and which will convey the majority of the site flows to a large detention basin adjacent to the MBTA Access Road. Two additional discharge points will accommodate flows from the westerly portion of the project and the emergency access road. One discharge will occur in the southwest corner of the site and the second will drain the emergency access road into a system that will be constructed in High Street.

A portion of the project will be constructed upon an existing 50-foot Shell Oil Easement in the southeast corner of Lot 1 and into a portion of Lot 2. The 100-foot buffer of an existing vegetated wetland extends into the northerly portion of the site and a second bordering vegetated wetland buffer extends into the emergency access road layout. DEP mapping does not indicate existing or potential vernal pools in the vicinity of the project. NHESP does not list Estimated or Priority Habitat Species in the area. The NYANZA National Priorities List 'superfund' site lies to the northeast of the site.

Per review of the *Flood Insurance Rate Map (FIRM)*, Community Panel 25017C0513F, the project is not located within either the one-hundred or five-hundred year flood plains.

BASIS OF REVIEW

Our evaluation is based upon review of the following:

- A. Review of the site plan entitled "*Site Development Plans for Ashland Rail Transit Apartments M.B.T.A. Access Road, Ashland, MA*" prepared by Kelly Engineering Group, Inc. (KEG), Braintree, Massachusetts, dated September 28, 2015 and consisting of seventeen (17) drawing sheets.
- B. Review of Stormwater Management Permit Application including review of "*Stormwater Management Report – Ashland Rail Transit Apartments, Ashland, MA*" dated September 28, 2015 prepared by Kelly Engineering Group, Braintree, MA.
- C. Review of "*Notice of Intent and Project Narrative*" pursuant to the Massachusetts Wetlands Protection Act, the Ashland Wetlands Protection ByLaw (Chapter 280) and the Ashland Stormwater Management Bylaw, (Chapter 247), as prepared by EcoTec, Inc., Worcester, MA and dated September 30, 2015.



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- D. Review of “*Site Plan Modification Application – Ashland Rail Transit Apartments Smart Growth Multi-Family Apartment Community*” prepared by Campanelli Companies and Thorndike Development and “*Application for Scenic Road Permit Chapter 249-15*”, dated October 2, 2015 and addressed to the Ashland Planning Board.
- E. Review of the *Flood Insurance Rate Map (FIRM)*, Community Panel 25017C0513F, issued July 7, 2014.
- F. Review of the *Zoning Map* of the Town of Ashland, Massachusetts as revised.
- G. Review of the *Code of the Town of Ashland, Massachusetts* as amended.
- H. Review of the *Zoning By-laws of the Town of Ashland, Massachusetts* as amended.
- I. A field reconnaissance of the property.

GENERAL

1. A Landscape Plan was referenced on the Site Plan index to be developed by others, but was not provided. A comprehensive Landscape Design Plan should be developed by a Registered Landscape Architect and should include a schedule of specific species, caliper and heights, and should identify proposed locations of each. Chapter 282, Section 5.4.5 should be referenced for general standards. A waiver has been requested from Section 9.4.4.6 for submission of the landscape plan from the initial submittal.
2. A Scenic Road hearing will be required for the portion of the emergency access road construction that falls within the High Street right-of-way.
3. Based upon the number of potential residents in the project and the length of the dead end road to the site from West Union Street, which is many times in excess of the 800 foot allowable maximum, it is strongly recommended that a comprehensively designed, full second access be provided to the project from High Street.
4. Earthwork calculations should be provided. (Chapter 343-7.6.13).



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5. A Construction Timetable indicating estimated startup and completion dates should be provided. (Chapter 282, Section 9.4.4.11)

RULES AND REGULATIONS - The project is subject to the Subdivision Rules and Regulations (Chap 282, §9.4.4)

6. The Traffic Study indicates that the project will generate an average of 2,536 trips per day. The Rules and Regulations define a Collector Street as carrying between 500 and 3,000 trips per day. The main site driveway would be defined as a Collector Street, particularly near the front of the project. The centerline near the second interior intersection should be increased from 150 feet to 500 feet. (Chapter 344-4.A and Chapter 344-12.6.c).
7. The roadway pavement should be 2-inch bituminous binder course, a 1-inch leveling course if required by the town and a 1-inch top course. The pavement section on Sheet 14 should be adjusted. (Chapter 344-20.E).
8. A Collector Street pavement width is required to be 30 feet. The entrance roadway is 24 feet and should be widened to accommodate the expected 2,500+ daily trips from the project. (Chapter 344-20.H.3).
9. Type VA-4 granite curbing should be provided for roadways in excess of 6% grades. (Chapter 344-21.A.1)
10. Granite curb inlet throatstones should be provided for all catch basins along roadway edges having greater than 6% grades, or within granite curb radii. (Chapter 344-21.B)
11. The sidewalk section on Sheet 14 should be adjusted to indicate a 2-inch bituminous binder course overlain by a 1-inch top course. The 6-inch gravel base course should be increased to 10 inches. (Chapter 344-22)
12. The details indicate that concrete curb stops are to be utilized for the project. Curb stops are difficult to maintain free from plow damage during wintertime snow removal operations. An alternate design should be considered.



13. The Rules and Regulations (344-12.C and D) specify centerline grades of between 0.5% and 6% for Collector Streets, leveling areas at intersections (3% maximum for the first 75'), vertical curves at breaks in grade exceeding 2%, and 350-foot sight distances for Collector Streets. Typically this information would be provided on roadway profiles which were not included in the plan set. Roadway profiles should be provided for Roads A&B, and should include both the proposed centerline vertical geometry and utilities.
14. By virtue of the modified Site Plan Review, soil disturbance of 10,000 square feet, development of 5 or more acres, and disturbance of more than 5,000 square feet of land having a slope greater than 15%, the project is subject to the provisions of the Ashland Stormwater Management Bylaw.
15. The previously developed stormwater management watershed drawings that were completed by Allen and Major for the *Jefferson at Ashland Station (JPI)* project comprehensively analyzed approximately 322.110 acres of tributary drainage area, including the Nyanza superfund site, the Chemical Brook conveyance and the 36"/48"/4'x4' culvert system that discharges to the Sudbury River. The current *Ashland Rail Transit Apartments* plan analyzes approximately 67 acres, or about one-fifth of the original study area. Several concerns raised during the original hearings centered upon the adequacy of the culverts extending from Chemical Brook to the Sudbury River. This culvert system currently is undersized and results in periodic flooding in the area, (surface overflow to the fire station in March, 2001 was cited on the drawings). Because the project increases volumetric flows, the off-site impacts to the existing stormwater management system should be evaluated under the new design. It is recommended that the 67 acre study area be expanded to include the 322-acres that were originally analyzed under the Allen and Major 2008 plan.
16. The 13.7-acre design point to the easterly wetlands experiences increases in peak runoff under both the 2-year and 10-year events. The Checklist for Stormwater Report which, indicates under Standard 2 that Peak Rate Attenuation has been met for the 2-year and 10-year 24-hour storms is inconsistent with the calculations.
17. The Applicant is requesting a waiver from Chapter 282, Section 9.4.9, which requires no increase in runoff volume. A summary table of pre-developed and post-developed runoff volumes should be provided to assist the board in determining the degree of non-compliance. The request indicates that the design will be constructed to ensure that there would be zero



- increase in runoff volume measured on annual basis. A supporting calculation was not provided for this annual recharge calculation.
18. Subject to the review of the MEPA Secretary, a New ENF for Lapse of Time filing will likely be required by MEPA under 301 CMR 11.10(2)-(4).
 19. The Stormwater Management Report narrative indicates that the Rainfall Frequency Atlas for the Eastern United States data (i.e. TP-40) was utilized to determine the Rainfall Intensity (i) that utilized in the rational formula for the pipe design. The TP-40 curves are designed for the TR55/TR20 methodology and should not be used for the rational formula for Rainfall Intensity. Local IDF curves should be utilized based upon time of concentration calculations.
 20. In the existing stormwater model, shallow concentrated flows should be specified as flowing over "Woodland" surfaces rather than "unpaved".
 21. The roughness coefficient (Manning's number) should be adjusted from $n=0.011$ to $n=0.012$ for HDPE pipe (ADS N12 is specified in the construction notes). Please verify that pipe segments PA3 (18" HDPE between DMH A3 and DMH A2 near Building #2), PA6 (18" HDPE between DMH A6 and DMH A5 near Building #1), PB14 (18" HDPE between DMH B14 and DMH B13 near Building #5), PB21 (12" HDPE between DMH B20 and DMH B21 near Building #9) and PC4 (24" HDPE between DMH C4 and DMH C3 near Garages H and I) do not surcharge with the corrected coefficient.
 22. Pipe segment PC7 in front of Garage K should be relabeled as a 24-inch pipe on Sheet 11. The inverts and capacity in the calculations are OK for this pipe.
 23. According to Test Pit TP-32, near Building #3, groundwater was indirectly observed (through mottling) at a depth of 2.5 feet. Based upon TP-32, the roofwater recharge system for the building may not operate 'in-the-dry' as required. The remainder of the buildings' recharge systems appear to be appropriately sited with respect to the absence of observed groundwater in each of their nearby test pits.
 24. Please verify that the correct Rawls Rate was utilized for the three roof recharge systems found within the Narragansett silt loam portion of the site. The recharge rate of 4.0 in/hr should be adjusted to 2.41 in/hr.



25. To ensure that the recharge systems only intercept 'clean' roofwater flows, the yard drain connection east of Building #9 from CB B24A should not connect to the roofdrain recharge system, but should be directed instead to the site stormwater system. The remainder of the building roofwater systems are segregated from the site systems and are OK.
26. As required Stormwater Management Standard #10, an Illicit Discharge Statement has been provided. It should be signed and dated.
27. The name and 24hr/7 day contact information of the person responsible for the site's development is required for the stormwater management permit submission. (Chapter 343-7.6.16.b.13.g)
28. The Operation and Maintenance Plan should include a plan showing the location of the systems and facilities including catch basins, manholes/access lids, main and stormwater devices. (Chapter 343-7.6.17.1.c).
29. The O&M Plan should include maintenance agreements that specify the person(s) responsible for operation and maintenance, and the person(s) responsible for financing maintenance and emergency repairs (Chapter 343-7.6.17.1.d.2 and 3). Changes in personnel and/or ownership should be provided to the Commission. (Chapter 343-7.6.17.2.a).
30. Water Quality Volume calculations have been provided that indicate the WQV is provided in the Water Quality Forebay and Sediment Forebay of the Stormwater Management Pond. The Town requires that Best Management Practices (BMPs) must be designed to remove 80% of the average annual post-development total suspended solids (TSS) and 40% for total phosphorus (TP), and 30% for total nitrogen (TN). Because the design captures the Water Quality Volume, it is presumed that a BMP complies with this performance goal. **OK.**
31. Regular street sweeping of the MBTA Access Road should be included in the Erosion and Sedimentation Control notes found in the Stormwater report.
32. Catchbasins located in profile sag points, such as CB-13A (near Garage N), CB-11A (near Garage M), CB-11 (near Garage L), CB-C8A (near Garage K), CB-C7A (near Garage J), CB-14A (near Garage 14A) and CB-C3A (near Garage H) should be upgraded to double grate structures. (344-14.C)



33. Cascade grates should be specified for catchbasin structures located on steeper grades, such as CB-14A near Garage O (6.7% grade), CB-C5A between Building #4 and #5 (10% grade), and CB-B3A near Building #2 (10% grade).
34. The area of alteration exceeds 1 acre, therefore an EPA NPDES Construction General Permit will be required. This would require the preparation and submission of a Stormwater Pollution Prevention Plan (SWPPP).
35. The Notice of Intent did not include the emergency access road construction, which occurs within the 100-foot buffer of the vegetated wetland within the calculated fee (under Category 3c).

TRAFFIC AND SITE PARKING

36. The project provides 716 parking spaces for 398 units or 1.8 spaces per unit, which is generally sufficient for a project of this type and complies with Zoning. OK
37. Twenty-one (21) spaces are marked as handicap accessible and all are provided as outdoor surface parking. The former project separated the required handicap accessible parking spaces, calculating surface and garage parking separately, using the ratios required in 521 CMR 23.2.1. (See Note 1 on the Allen & Major Sheet C8-1). This project does not specify any accessible spaces in the garages, but if calculated using 521 CMR 23.2.1, then six (6) accessible spaces would be required in the 168 structured spaces.
38. The architectural plans do not indicate individual building mail facilities. Please indicate whether the project will be served by a central mail facility. If not located in the Community Center/Clubhouse, the mail facility should be identified on the plan and provided with a suitable pullout or parking area.
39. Each of the apartment buildings, and clubhouse is accessible on at least two sides. Please verify that the Fire Chief is satisfied with access along each of the interior driveways, including the turning radii into Driveway B, between Buildings #4 and #5.



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40. To ensure adequate access by emergency personnel, parking should be prohibited from the connecting site drives that do not include dedicated parking spaces, for example, Driveway A, between Buildings #2 and #3, and Driveway B, between Buildings #4 and #5. No Parking signs should be considered on at least one side of each such drive.
41. Verify that within the 8-space parking area across from the clubhouse entrance, there will be a dedicated handicap accessible parking space.
42. The drawings should indicate whether the project is to be phased. If phased, the first phase should clearly indicate completion of the secondary access road, construction of the large detention basin, completion of the looped water system and construction all pavements and utilities required to maintain full emergency access and provide utilities for the phase as a stand-alone project. Permanent dead-end lengths of more than 800 feet are prohibited by the town, so the secondary access to High Street would be required even for construction of Buildings 1 and 2, adjacent to the MBTA road.
43. Given the relative density of the project, snow storage may be an issue, particularly after larger events. Dedicated snow storage locations should be provided on the drawings that preclude the use of shared parking areas.
44. The plans do not provide details for traffic or directional signage. If required, a Not A Thru Street sign should be provided at the Road A entrance.
45. The pavement marking detail on Sheet 14 should be corrected to show 20-foot depth parking stalls.

UTILITIES

46. Similar to the previously-approved 500-unit project, the existing town water system is to be looped through the site from the MBTA access road and from High Street. The previously approved 12-inch water main is now to be replaced with an 8-inch service which may not be adequate for the project.



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47. The age, condition and materials of the existing water main in High Street should be provided on the drawings. The proposed pipe material and connection technique should be reviewed with the DPW Water and Sewer Division. The connection technique to the MBTA Access Road system should also be reviewed with DPW.
48. The former JPI plans included full designs for utility upgrades in the MBTA Access Road, including water, sewer force main system, telephone and electric utilities, and stormwater management upgrades, including cross culverts, sediment forebays and basin designs. Please indicate whether the current project will utilize the previously designed upgrades within the Access Road, or whether changes will be necessary to the design.
49. The project proposes to connect to the existing town sewer system which is to be extended up the MBTA Access Road. The applicant is required to submit the design to the DPW that conforms to §326-11. The project will generate in excess of 43,780 GPD from the dwellings, plus flows from the clubhouse building. The applicant should document the status of the anticipated connection to the existing sewer system in Union Street (§326-10.B, §326-10.F.)
50. Determine whether the DPW Water and Sewer Division will require a master meter with backflow devices. The location of the meter pit should be indicated on the drawings and coordinated to minimize tree clearance.
51. The applicant should confer with the Fire Department and provide documentation from the Department indicating their concurrence that the building access, water pressure and volume, alarms, and other fire protection related matters are deemed safe and acceptable.
52. Fire flow calculations should be provided for the project that demonstrate compliance with Insurance Services Office (ISO) fire flow guidelines while maintaining a residual pressure of 20 pounds per square inch (psi). Static pressure should be 60 psi desirable with a minimum 35 psi. Flow tests were performed on two hydrants in West Union Street (Hyd #244 and #245) and two hydrants in High Street (Hyd #315 at 107 High Street and Hyd #320 at 29 High Street) for the former project on August 24, 2007. Fire officials should verify that the former tests are sufficient for the current project. It is noted that the static pressure was below optimal at the 29 High Street hydrant.



- 53. A trench detail should be provided for water, gravity sewer (Chapter 326-14,15), forcemain and stormdrain trenches that specify pipe materials, bedding materials and depths, compaction methods and required depth of cover.
- 54. A water/sewer crossing detail should be provided.
- 55. A standard direct inlet sewer manhole should be provided in the details. There do not appear to be any drop manhole structures in the sewer design, which are discouraged by the town, so the detail on Sheet 17 should be eliminated. (The 8-inch invert callout into SMH B1 on Sheet 10 should be corrected)
- 56. A note should indicate on the details that all structures will accommodate an H-20 loading.
- 57. A pavement restoration detail should be provided for the utility and roadway connections to High Street and MBTA Access Road. (Chapter 330-9), (Chapter 334-58).

LANDSCAPING, LIGHTING AND SECURITY

- 58. Signage has not been indicated in the submittal. For the initial submission only, a waiver has been requested from the required "location, dimensions, height and characteristics of proposed signs" (Section 9.4.4.7). It is anticipated that proposed sign details will be forthcoming in subsequent submissions.
- 59. Road signs indicating "Private Way" or other appropriate wording should be provided to temper unnecessary intrusion of off-site traffic. (Section 8.4.14.12).
- 60. Site lighting has not been indicated in the drawings. A waiver has been requested from Section 9.4.4.8 with a note that the landscape architect is currently developing a compliant lighting plan. Section 8.4.14.11.d lighting requirements for a Transit Village Community should be coordinated in the design.
- 61. The 'Recycle Center' should be provided with attractive screening which should be detailed on the drawings.



62. There are numerous interior intersections, each of which should adhere to the sightline requirements of Section 5.6. The landscape design should address sightlines by maintaining free of obstruction, the vertical heights of between 2-1/2 feet and 8 feet within the 20-foot intersection sightline triangles.
63. The site slopes are graded at a 2:1 ratio (2 feet horizontal per 1 foot vertical). A special permit is required from 5.7.3.1. for slopes steeper than 3:1.
64. All slopes steeper than 10:1 (10%) are required to be constructed with compacted 4-inches of topsoil stabilized with vegetation, and/or retained with a masonry, reinforced concrete, stone or other suitable wall. (5.7.3.2). For slopes greater than 15%, the applicant has requested a waiver from (former) Section 282-27.E which required a minimum 8-inch depth of topsoil. The requested 6-inch depth appears suitable if compacted and vegetated.
65. A Site Alteration Special Permit will be required from the Planning Board for clearing in excess of 5,000 square feet and grading more than 100 cu-yds of earth. Earthwork calculations should be provided and the area of clearing should be calculated. (Section 5.8.2). Additional submission requirements are detailed in (Section 5.8.4).
66. A watering and maintenance schedule for the site landscaping should be provided in the specifications on the landscape plan when submitted. A 2-year guarantee should be provided for all plants. (344-29.B.)
67. All dead trees or shrubs should be replaced within one growing season as a condition of approval.
68. The Landscape Design plan should identify any perimeter specimen plantings to be preserved if possible.
69. A certification should be provided that the design is compliant with the provisions of the Massachusetts Architectural Access Board and Federal ADA requirements.
70. The location of each building's Knox Box, or other type rapid entry key boxes should be provided at an accessible location near each building main entrance as coordinated with the Fire Chief, and should be clearly labeled on the drawings. §150-1