BCS Building Consultation Services
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April 29, 2016

RE: Residences at 135 Fulkerson Street – Narrative
135 Fulkerson Street, Cambridge, MA
LEED NC 2009 v3 – Goal: Silver

To: John Sullivan
Cabot, Cabot & Forbes
185 Dartmouth Street, Suite 402
Boston, MA 02116

From: Robb A. Van Marter, AIA, LEED AP BD+C
LEED Coordinator

Mr. John Sullivan,

Pursuant to Cambridge Zoning Article 22.0, Sections 22.23 and 22.24, this memorandum illustrates the mechanisms and methods that are anticipated for the above referenced multi-family residential project to successfully address each applicable credit and prerequisite. At present, while this project at under 50,000 square feet is required to demonstrate a LEED level of Certified, it is anticipated that the project can demonstrate a minimum score of 53 points in the LEED NC 2009 v.3 rating system at the level of Silver and has targeted 7 additional points making Gold a possibility.

1. **Sustainable Sites**
   - **Pr1 - Construction Activity and Pollution Prevention:** The plans will include a full Erosion and Sediment Control Plan and are anticipated to meet or exceed the requirements of the 2003 EPA Construction General Permit and/or local standards and codes and will developed by a Licensed Professional Civil Engineer.
   - **Cr1 - Site Selection:** Land for the project is not within 100 feet of any wetlands as defined by 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, or within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent.
   - **Cr2 – Development Density:** This project is located on previously developed land and is within ½ mile of a residential area with at least 10 units per acre as well as within ½ mile of 10 basic services with pedestrian connectivity to those services.
   - **Cr3 – Brownfield Redevelopment:** This project is located on a site with former industrial activities and housed buildings with asbestos containing materials. The soils on site are identified to have unsafe materials content that exceeded the maximum allowable and, thus will require removal and disposal of site soils to an appropriate handling facility or approved, on-site containment. The asbestos containing materials are to be removed under the necessary protocols.
   - **Cr4.1 - Alternative Transportation—Public Transportation Access:** The project is located within a ¼ mile walking distance to 1 or more stops for 8 MBTA bus lines, 64, 68, 69, 80, 85, 87, 88, and CT2.

- **Cr4.2 - Alternative Transportation—Bicycle Storage and Changing Rooms:** Covered bicycle storage for 30% or more of 131 building occupants will be provided in a separate structure and additional, wall-mounted, covered bicycle racks.
- **Cr4.3 - Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles:** This project anticipates providing 2 preferred vehicle parking spaces for low-emitting and fuel-efficient vehicles for resident use.
- **Cr4.4 - Alternative Transportation—Parking Capacity:** Parking has been planned at the project to meet, but not exceed, local zoning requirements with 40 spaces provided for a total of 40 units.
- **Cr6.1: Stormwater Design—Quality Control:** The new stormwater management anticipated at this project is to reduce stormwater runoff by 25% from the 2-year 24-hour design storm as identified through preliminary commentary provided by the Licensed Professional Civil Engineer of record.
- **Cr6.2 - Stormwater Design—Quality Control:** The design of the stormwater management at the site is anticipated to promote infiltration with pervious surfaces and treat runoff from 90% of the average annual rainfall by removing at least 80% of the post-development total suspended solids. Impervious coverage has been reduced by the use of pervious paving surfaces on site where possible. Additionally, stormwater infiltration basins are anticipated to slowly re-introduce stormwater into the subgrade on site, or slowly into the municipal system, in lieu of uncontrolled discharging the run-off to an off-site discharge system. Calculations will be provided by the Licensed Professional Civil Engineer of record to substantiate compliance.
- **Cr7.2 - Heat Island Effect—Roof:** At this project, at least 75% of the roofing surfaces are anticipated for cover with a roofing material that achieves a solar reflective index greater than or equal to 78 by the use of a white roof membrane surface as specified.

2. **Water Efficiency**
   - **Pr1 - Water Use Reduction—20% Reduction:** Use of high efficiency toilets; and low consumption aerators at shower heads, lavatories, and kitchens are anticipated. Installation of each of these fixtures reduces water use that exceeds the threshold of this prerequisite.
   - **Cr1 - Water Efficient Landscaping:** Use of efficient irrigation systems and specification of plant species and design of landscaping to achieve a reduction of 50% in potable water use for irrigation from a calculated midsummer baseline is anticipated. An experienced irrigation consultant will provide the necessary calculations.
   - **Cr3 - Water Use Reduction:** Use of high efficiency toilets; and use of low consumption aerators at shower heads, lavatories, and kitchens is anticipated to achieve a 30% reduction in water use from the baseline residential water use.

3. **Energy and Atmosphere**
   - **Pr1 - Fundamental Commissioning of Building Energy Systems:** Building energy systems, including lighting controls, ventilation, heating, cooling, and domestic water heating systems, will undergo fundamental commissioning per LEED NC 2009 v.3. The process will be conducted by a third party Commissioning Agent or a qualified member of the design team, guided by the commissioning plan.
   - **Pr2 - Minimum Energy Performance:** An improvement in energy performance of at least 10% better than the requirements identified by ASHRAE 90.1-2007 is anticipated by a variety of methods, including: exterior envelope thermal insulation enhancements, low U-Value exterior windows, high efficiency hot water heating systems that deliver hydronic space heating needs, natural ventilation to the resident units, 15 SEER air conditioning condensing units, and a mixture of efficient and LED lighting systems at the units and at the common spaces, such as hallways, and amenity spaces. An energy model summary will be provided to substantiate the efficiencies.
     Pr3 - Fundamental Refrigerant Management: There will be no use of CFC-based refrigerants in any of the cooling systems at the project.

- **Cr1 - Optimize Energy Performance:** Energy performance improvements identified in Pr2 above are anticipated to deliver an anticipated 20% improvement in energy performance as defined by the ASHRAE 90.1-2007 energy performance baseline. This performance will be illustrated in the pending energy model.

4. **Materials and Resources**
   - **Pr1 - Storage and Collection of Recyclables:** An easily-accessible, dedicated area for the collection and storage of recycling materials will be provided in the trash/recycle rooms at the building. This system is available for use for the entire building. Recyclable materials will be collected from comingled recycle containers on a required frequency by a third party service.
   - **Cr2 - Construction Waste Management:** During construction and demolition, nonhazardous debris will be recycled and/or salvaged by a third-party hauler in order to divert at least 75%, and targeting 95%, of the materials from disposal. The hauler will accept co-mingled disposal from the site and will provide haul slips and data to support the percentage of waste recycling.
   - **Cr4 – Recycled Content:** Materials for the project are to be specified that, in combination, will provide recycled content per LEED requirements reaching a minimum of 20% of the total project material costs, and targeting 30%. The submittal process is to identify the requirement to illustrate compliance or non-compliance with this credit for all products and components used for the construction project. Target products include concrete, gypsum wall board, interior doors, structural steel, steel framing channels, carpeting, carpeting pad, insulation, and rails.
   - **Cr5 – Regional Materials:** Some materials and products will be specified for the project that have been extracted, harvested, recovered, or manufactured within 500 miles of the project site such that at least 20% of the total project materials cost comes from within the specified distance, and a target for 30%. Such targeted components include wood panels and trusses, drywall, structural panels, and wood flooring.

5. **Indoor Environmental Quality**
   - **Pr1 – Minimum Indoor Air Quality Performance:** The project anticipates meeting the minimum requirements of ASHRAE 62.1-2007, Sections 4-7 for mechanical ventilation and section 5.1 for natural ventilation at the spaces required. A combination of mechanical and natural systems will be employed to meet the minimum requirements. For instance, in the resident units, operable windows will provide the required ventilation to those spaces within 25 feet of the window source with supplemental ventilation provided by occasional opening of the corridor door as well as the operation of the mechanical heating and cooling distribution system. At the common hallways and ancillary spaces, exterior air will be ducted directly to the air handling units in order to provide the required ventilation rates.
   - **Pr2 - Environmental Tobacco Smoke Control:** Smoking will be prohibited inside the entire building and in the resident units. Non-smoking signs have been provided at building entries and language is anticipated to be made a part of the condominium documents.
   - **Cr 3.1 – Construction IAQ Management Plan During Construction:** An IAQ management plan will be implemented for construction and preoccupancy that will: meet or exceed SMACNA IAQ Guidelines for Occupied Buildings Under Construction; protect stored absorptive materials from moisture damage prior to and after installation; and use MERV 8 filters in air grilles on permanently installed mechanical systems used during construction.
   - **Cr4.1 - Low-Emitting Materials—Adhesives and Sealants:** All adhesives and sealants used on the interior of the building will comply with SCAQMD rule 1168 and low VOC limits identified by LEED. This credit will be illustrated as a requirement in the specifications and demonstration of compliance will be part of the submittal process requirement.
   - **Cr4.2 - Low-Emitting Materials—Paints and Coatings:** Paints and coatings used on the interior of the building will comply with low VOC requirements of Green Seal Standard for paints and coating, anti-corrosive and anti-rust paints are not anticipated for application during construction on the interior of the building, and clear wood finishes, floor coatings, stains, and primers applied to the interior will meet the VOC content limits established by SCAQMD rule 113, 1/1/2004. This

credit will be illustrated as a requirement in the specifications and demonstration of compliance will be a submittal process requirement.

- **Cr4.3 - Low-Emitting Materials—Flooring Systems:** All carpet will meet the Green Label Plus program, all pad will meet the Green Label Program; all carpet adhesive will have a limit of 50g/L VOC; all hard surface flooring will meet the certification of FloorScore; hard floor finishes will meet SCAQMD rule 113, 1/1/2004; and setting adhesives and grout will meet SCAQMD low VOC standards rule 1168, 7/1/2005 and amendment 1/7/2005. This credit will be illustrated as a requirement in the specifications and demonstration of compliance will be a submittal process requirement.
- **Cr6.1 - Controllability of Systems—Lighting:** Individual lighting controls will be provided for at least 90% of the building occupants to suit individual task needs and preferences in regularly occupied spaces. This will be largely achieved by provision of switches to control lighting in the resident units as is typical for a residential condominium community such as this.
- **Cr6.2 - Controllability of Systems—Thermal Comfort:** Individual comfort controls for at least 50% of the building occupants will be provided that allow adjustments to meet individual needs. This will be largely achieved through programmable thermostats at each of the resident units as is typical for a residential condominium community such as this.
- **Cr7.1 – Thermal Comfort – Design:** HVAC systems and the building envelope are anticipated to meet ASHRAE 55-2004, Thermal Environmental Conditions for Human Occupancy. The design of the building is to be completed by a Licensed Professional Mechanical Engineer.
- **Cr8.2 - Daylight and Views—Views:** A direct line of sight to the outdoors is anticipated with glazing between 30 and 90 inches above the finished floor for residents in 90% of regularly occupied areas. This credit will be demonstrated by identifying the area of the regularly occupied areas, such as the living areas and the bedrooms, and projecting a line of site geometry to the floor plan. The area of the resulting line of site geometry inside the regularly occupied space will be calculated as a percentage of the total area of the regularly occupied space to illustrate achievement of 90% or better direct line of site to the outdoors. Typical exterior views will be documented with photographs.

6. Innovation and Design Process

- **Cr1.1 – Exemplary Performance – MRc2 Construction Waste Management:** The project is anticipated to exceed 95% of construction waste to be either diverted or recycled through implementation of an effective Construction Waste Management Plan.
- **Cr1.2 - Exemplary Performance – MRc4 Recycled Content:** This project is anticipated to exceed the threshold Recycled Content requirement by an additional 10%, achieving over 30% of construction materials provide the required recycled content.
- **Cr1.3 –. Exemplary Performance – MRc5 Regional Materials:** This project has exceeded the threshold Regional Materials requirement by an additional 10%, achieving over 30% of construction materials obtained, manufactured, or harvested regionally.
- **Cr1.4 – Exemplary Performance - SS4 Alternative Transportation (4.2, 4.3, transportation plan):** Exemplary performance is anticipated by exceeding the requirement of bicycle storage for 30% of occupants. Additionally, the building development team is anticipating that a comprehensive transportation management plan, demonstrating a quantifiable reduction in personal automobile use as a direct result of the site selection and project design, will be developed.
- **Cr2 - LEED Accredited Professional:** Participation in this project has involved at least one LEED AP, including the author of this narrative.

7. **Regional Priority Credits**
   The following list of credits have been achieved as described in the preceding pages and permit this project to include an additional credit for each:

   - **Cr1.1 - SS6.1 Stormwater Design - Quantity Control**
   - **Cr1.3 - SS7.2 Heat Island Effect – Roof**
   - **Cr1.4 – SS3 Brownfield Redevelopment**

As previously identified, Cambridge Zoning requires certifiability of LEED Certified. Under LEED NC 2009 v3, 40-49 points are required to achieve this level. At present, this project anticipates exceeding the threshold minimum points with 53-60 possible points for a target certifiability goal of Silver and perhaps Gold. A checklist has been provided within this narrative.

Should you have any comments or wish to discuss in more detail the content presented herein, please do not hesitate to contact me at your convenience.

Respectfully Submitted,

Robb A. Van Marter, AIA, NCARB, LEED AP, BD+C
BCS – Building Consultation Services

encl: LEED NC 2009 v3 Checklist

BCS Building Consultation Services

LEED 2009 for New Construction and Major Renovations

Project Checklist

135 Fulkerson

29-Apr

Sustainable Sites — Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
1			Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
		1	Credit 5.1	Site Development—Protect or Restore Habitat	1
		1	Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
		1	Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
		1	Credit 8	Light Pollution Reduction	1

Water Efficiency — Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
2		2	Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
2	1	1	Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
5	2		Credit 1	Optimize Energy Performance	1 to 19
		7	Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
		2	Credit 4	Enhanced Refrigerant Management	2
		3	Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
2			Credit 4	Recycled Content	1 to 2
2			Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
		1	Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
		1	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
		1	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
		1	Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
		1	Credit 7.2	Thermal Comfort—Verification	1
		1	Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

?				
1			Credit 1.1	Innovation in Design: MRc2 construction waste diversion to 95%	1
1			Credit 1.2	Innovation in Design:MRc4 Recycled Content 30%	1
1			Credit 1.3	Innovation in Design: MRc5 Regional Materials 30%	1
1			Credit 1.4	Innovation in Design: SSc4.2 Bicycle Storage	1
		1	Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

?				
1			Credit 1.1	Regional Priority: SS6.1 Stormwater Design - Quantity Control	1
		1	Credit 1.2	Regional Priority: SS7.1 Heat Island Effect- Nonroof	1
1			Credit 1.3	Regional Priority: SS7.2 Heat Island Effect - Roof	1
1			Credit 1.4	Regional Priority:SS3 Brownfield Redevelopment	1

Total — Possible Points: 110

53	? 7	38

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

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April 29, 2016

John Sullivan
Cabot Cabot & Forbes of New England
185 Dartmouth Street, Suite 402
Boston, MA 02116

RE: RESIDENCES AT 135 FULKERSON, 135 FULKERSON STREET, CAMBRIDGE, MA
CAMBRIDGE ZONING GREEN BUILDING REQUIREMENTS, ARTICLE 22.24.2.A(2)
LEED AFFIDAVIT

Mr. John Sullivan,

Pursuant to the Cambridge Zoning Green Building Requirements, Article 22.0, this affidavit professes that to the best of my knowledge, the above referenced project has been designed to achieve the credits outlined in the LEED narrative and LEED checklist, both dated April 29, 2016.

Respectfully Submitted,

Robb A. Van Marter, AIA, NCARB, LEED AP BD+C

Zachary Richards

From: Lefcourt, David <dlefcourt@cambridgema.gov>
Sent: Wednesday, February 17, 2016 1:22 PM
To: Paden, Liza
Cc: Stephen Martorano; Brian Ford; Zachary Richards
Subject: FW: 135 Fulkerson - Tree Study Certification
Attachments: M151016_SS0d-09-Land.pdf; M151016_SS0d-Tree Protection.pdf

Hi Liza,

Based on the Tree Survey and Mitigation plans, the project at 135 Fulkerson St satisfies the requirements of the tree ordinance.

18" caliper inches are proposed for removal
22" caliper inches are proposed for replacement.

Please let me know if you have any questions.

Thanks,

David Lefcourt
City Arborist/Tree Warden
MCA I MCLP I ISA Municipal Specialist I TRAQ
City of Cambridge
147 Hampshire Street
Cambridge, MA 02139
617-349-6433
dlefcourt@cambridgema.gov
www.cambridgema.gov/tree

From: Zachary Richards [mailto:zrichards@bohlereng.com]
Sent: Tuesday, February 16, 2016 9:26 AM
To: Brian Ford <bford@bohlereng.com>; Lefcourt, David <dlefcourt@cambridgema.gov>
Cc: Stephen Martorano <smartorano@bohlereng.com>; CambridgeTrees <cambridgetree@cambridgema.gov>
Subject: RE: 135 Fulkerson - Tree Study Certification

David,

I have also attached the latest landscape plan showing proposed tree calipers. Please let us know if you need anything else for your sign off. We are hoping to submit to the planning board at the end of the week.

Thanks,

Zack