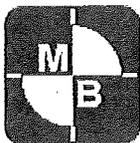


BREM 140-12-31-2014



MEISNER BREM CORPORATION  
ENGINEERS • PLANNERS • LAND SURVEYORS

December 30, 2014

Lisa Davis Lewis  
Carlisle Board of Appeals  
Town Hall  
66 Westford Street  
Carlisle, MA 01741

RECEIVED  
12-31-14

Re: 100 Long Ridge Road  
Amendments to requested local waivers

TOWN CLERK-CARLISLE  
CHARLENE M. HINTON

Dear Ms. Lewis and the members of the Board of Appeals:

As you know, Meisner Brem Corporation (Meisner Brem), civil engineers for the applicant have presented a revised plan set consisting of a full set of engineering plans, specifications, and final Stormwater Management Report on December 8, 2014.

As part of these revisions, many of the previously requested waivers can now be withdrawn. This correspondence is intended to provide a detailed explanation of the withdrawals of certain waiver requests and includes Attachment A as a summary form and Attachment B, a spreadsheet intended to more outline that the remaining waiver requests still being sought.

ZONING BY LAWS – WAIVERS WITHDRAWN:

1. Zoning By Law, §4.2.1 No building shall be erected or altered so as to extend nearer to the line of any street or nearer to its front lot line .....than forty (40) feet, .....

The revised plans include moving Unit 1 to the southerly side of the proposed private driveway. As part of the unit relocations, the required front setback of 40 feet is provided. The waiver request is hereby withdrawn.

SUBDIVISION REGULATIONS – WAIVERS WITHDRAWN:

2. Subdivision Rules & Regulations, Article II §6.B2(a) Landscape Plan  
A Landscape Plan prepared by Megan Gardner, a Massachusetts Registered Landscape Architect of Gardner and Gerrish, was originally provided on October

24, 2014 with revisions related to the final design submitted on or about December 12, 2014. The waiver request is hereby withdrawn.

3. Subdivision Rules & Regulations, Article III §2.B(5)Maximum Grade and Article III §2.C(2) and Exhibit E Table, Vertical Design Standards, footnote b:

Based on lengthy discussions at previous hearings on this subject, Meisner Brem revised the plans to conform to the maximum grade of 6% (on curves with a centerline radius below 200 feet). The waiver request is hereby withdrawn.

4. Subdivision Rules & Regulations, Article III §2.B(5)Sag Vertical Curve and Exhibit E Table, Vertical Design Standards:

In civil engineering, a vertical curve is designed as a parabola (with exponential change throughout). The “K” value represents the sharpness of the curve affecting sight distance as well as the roller coaster feel when the “K” values are exceedingly small. In a sag curve the primary control is the sight distance related to the headlight angles physically determined by the sharpness of the curve and vehicular standards. Although speed is a major factor in setting the required “K” values (higher speeds will not be possible in this case due to the horizontal curve) the Town of Carlisle standards are simplified and require a maximum “K” of 24 for local streets. The vertical curve was re-designed to comply with the Town of Carlisle “K” value for sag (and crest) conditions thereby negating the need for a waiver. The waiver request is hereby withdrawn.

5. Subdivision Rules & Regulations, Article III §5.B(5), Curbing:

The applicant has engaged Low Impact Development (LID) principals and concepts on this project and has proposed a series of LID techniques. These include roof infiltrations systems, a series of vegetated grass swales with ten (10) distinct rain gardens, a bio-retention area, an irrigation cistern to utilize the collected rain water for irrigation use, and an infiltration discharge system.

LID is an innovative land development strategy that utilizes man-made stormwater management features in an effort to re-create naturally occurring drainage characteristics. It is often easiest to visualize LID practices by imagining a drop of water within the rainstorm. In nature, the raindrop can i) infiltrate into the ground, ii) be absorbed within plants and transpired or evaporated, or iii) joins other raindrops as runoff. As runoff, the drop eventually travels over the ground surface, possibly joins up with much larger flows in some sort of conveyance system (pipes, culverts, etc.), flows through wetland systems, brooks, streams,

rivers, and ultimately discharges to the ocean. During this travel the raindrop, as runoff, can add to negative features such as soil erosion or flooding. The concept of LID is to start at the beginning of the cycle instead of the end and attempt to eliminate the raindrop as runoff by various techniques, or if it is runoff, to try to control it early on its travel by creating infiltration mechanisms, reducing slopes, extending the travel time, or other design methods to minimize the impact of the runoff.

The Carlisle Subdivision Regulations recognize LID concepts in their adoption of the standard cross section shown as Exhibit G. This project design follows Exhibit G and therefore, no curbing is proposed in order to provide Low Impact Development (LID) as preferred, and as allowed. The waiver request is hereby withdrawn.

#### HEALTH REGULATIONS – WAIVERS WITHDRAWN:

6. *Sewage Disposal, Section §15.211 The minimum setback distance between a system 2000 GPD/BR or larger to a well is 150’.*

The project proposal includes three septic systems on one facility. Each septic system is designed to be below 2000 GPD thereby negating the need for this waiver. The waiver request is hereby withdrawn.

7. *Sewage Disposal, Section 15.221 General Construction Requirements for All System Components, Daily Flow Rate*

The daily design flow rate for all types of uses within Title 5 are outlined in 310 CMR 15.203 which requires a design flow of 110 gallons of day per bedroom for “Family Dwelling, Single... including, but not limited to, single family condominiums & cooperatives”<sup>1</sup>

Carlisle Board of Health Supplementary Regulations for Sewage Disposal Systems amends the state regulatory daily flow design requirements of Title 5 with a tabulation in Section 15.221 with separate columns for designs with or without garbage grinders. The project intends to comply with this table without the use of garbage grinders complying with the design flow of 110 gallons per day per bedroom for each of the three septic systems; each system greater than 6

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<sup>1</sup> 310 CMR 15.000, seq.  
<http://www.mass.gov/eea/agencies/massdep/water/regulations/310-cmr-15-00-septic-systems-title-5.html>

bedrooms and less than 2000 gallons per day. The waiver request is hereby withdrawn.

8. Water Supply, Section VI Location And Use Requirements:

Carlisle Water Supply regulations, Section 6 requires that "all private wells shall be located a minimum of twenty-five (25) feet from the normal driving surface of any public roadway or a minimum of fifteen (15) feet from the road right-of-way, whichever is greater." The existing well for the existing home is located within 25 feet of the proposed private driveway. As this regulation is specifically for public roadways, such as Long Ridge Road, it is therefore not applicable to the existing well and private driveway, a waiver is not necessary. Furthermore, the design revision proposes that the existing well be changed in use to the irrigation well and a new well to be drilled for use of the existing home. The waiver request is hereby withdrawn.

We have spent a considerable effort to re-design this project to eliminate as many waivers from local regulations as possible. The remaining waivers are generally definition specific for the intended use, none of which will diminish public health or safety as outlined in Attachment B. We expect to discuss the subject of the waivers at the upcoming hearings. We will be prepared to discuss this at the January 5, 2014 scheduled hearing or thereafter, as the Board may decide.

Sincerely,



Jeffrey Brem, P.E.  
Meisner Brem Corporation

cc: Client  
Attorney Doug Deschenes  
Carlisle Board of Selectmen  
John Luther, Carlisle Building Inspector

# ATTACHMENT A

## The Birches, Carlisle, MA

### Waivers Withdrawn – 12-12-14

1. Zoning By Law, §4.2.1 No building shall be erected or altered so as to extend nearer to the line of any street or nearer to its front lot line .....than forty (40) feet, .....

Front Setback of 40 feet provided.

2. Subdivision Rules & Regulations, Article II §6.B2(a) Landscape Plan

Landscape Plan provided.

3. Subdivision Rules & Regulations, Article III §2.B(5)Maximum Grade and Article III §2.C(2) and Exhibit E Table, Vertical Design Standards, footnote b:

Maximum Grade conforms to 6% as required.

4. Subdivision Rules & Regulations, Article III §2.B(5)Sag Vertical Curve

Sag Vertical Curve maximum K = 24 provided.

5. Subdivision Rules & Regulations, Article III §5.B(5)

No curbing proposed in order to provide Low Impact Development (LID) as preferred, and as allowed.

6. Sewage Disposal, Section §15.211 The minimum setback distance between a system 2000 GPD/BR or larger to a well is 150'.

Septic Systems are below 2000 GPD.

7. Sewage Disposal, Section 15.221 General Construction Requirements for All System Components, Daily Flow Rate

Daily flow will conform to Table in regulations.

8. Water Supply, Section VI Location And Use Requirements:

Existing well, within 25 feet of pavement, is changed to be the irrigation well.

## ATTACHMENT B

### The Birches, Carlisle, MA

#### Summary of Waiver Request in Relation to Public Health and Safety

1	Use - allow 20 units on single lot	Not Health or Safety Issue (see also other 40B projects: Benfield Farms, Rocky Point)
2	Side & Rear Building Setback	Not Health issue, Safety met by meeting Building Code, No issue with Fire/Police
3	20 lots on private drive	Not Health issue, Safety met as Driveway width of 24' is greater than required of 20', No issue with Fire/Police
4	Two street accesses over 10 lots	Not Health issue, Safety met as shown on Traffic Impact Assessment(TIA). No issue with Fire/Police
5	Access to over 10 lots	Not Health issue, Safety met as shown on TIA. No issue with Fire/Police
6	Intersection offset to be greater than 125'	Not Health issue, Safety met as shown on TIA. No issue with Fire/Police, 120' provided.
7	Centerline Radius $\geq$ 125'	Not Health issue, Safety met as shown on TIA. No issue with Fire/Police, Fire apparatus turning movement met.
8	Cul-de-sac geometry	Not Health issue, Safety met as shown on TIA. No issue with Fire/Police, Fire apparatus turning movement met.
9	Max 4 units on cul-de-sac	Not Health issue, Safety met as shown on TIA. No issue with Fire/Police, Genrally Accepted Standards met
10	80% Pretreatment of a portion of stormwater	Not Safety, Health issue met by meeting MassDEP Stormwater Handbook Requirements over 44%. (Providing 80%, 80%, 63%).
11	Condominium shared system	Not <del>Health</del> <sup>safety</sup> issue - complying with flow rates per Local Rules, Table in 15.221 for over 6 Bedroom per septic system (this is only a waiver for a rule by category of ownership and not use or flow)
12	Partial Carlisle Conservation Fee Refund	Not Public Health or Safety
13	Partial ZBA Fee Refund	Not Public Health or Safety

Note: TIA is the Traffic Impact Assessment by MDM Transportation and Peer Reviewed by Nitsch Engineering