

LAND PLANNING, INC.

Civil Engineers • Land Surveyors • Environmental Consultants

July 3, 2019

Leicester Planning Board
Leicester Town Hall
3 Washburn Square
Leicester, MA 01524

Attention: Michelle Buck, Town Planner
Subject: Submission of revised plans for Cultivate dated July 3, 2019
Reference: Topnotch Realty Corp, 1762 Main Street, Leicester, proposed new parking lot

Dear Michelle:

On behalf of our clients at Cultivate, we hereby submit a revised set of plans dated July 3, 2019. Please forward a copy of this letter and a set of plans to your review engineer. Following is a summary of the revisions made. We are using the same numbering system as contained in your review engineers letter dated May 14, 2019.

- 1 We have added a zoning block to the plans, including setbacks.
- 2 We have added a table showing earth moving quantities to the plans.
- 3 There are two pre-existing handicap spaces at 1764 Main Street.
- 4 The Leicester ZBA granted a variance to allow the parking lot to be located as close as 20 feet from the front lot line. The proposed parking lot is more than 20 feet away from the front lot line.
- 5 A traffic study was provided when the Cultivate facility at 1764 was permitted. We are not proposing any new facility addition or new service at 1764 Main Street.
- 6 We have added a detail of the proposed retaining wall. The wall itself will be raised and act as the guard rail.
- 7 We have added a parking table to the plans to show that the parking is enough to meet all zoning regulations.
- 8 We have added a detail of the rip rap apron.
- 9 We have corrected the typo on the plans regarding the Cultec chambers.
- 10 We also have a curb side opening in the granite curbing. This opening will be two feet wide by .5 feet tall. The manufacturer of the unit only makes it with one inlet grate.
- 11 Please find attached a copy of our buoyancy calculations, which show that the HDPE pipes will not float.

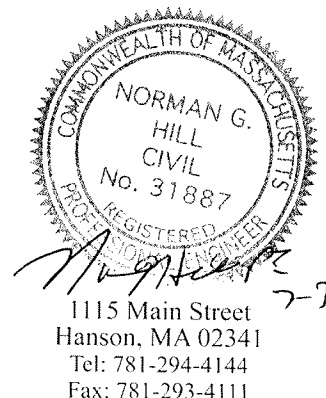
Please contact me if you have any questions or desire any additional information.

Sincerely,
Land Planning Incorporated

Norman G. Hill, P.E.

214 Worcester Street
North Grafton, MA 01536
Tel: 508-839-9526
Fax: 508-839-9528

167 Hartford Avenue
Bellingham, MA 02019
Tel: 508-966-4130
Fax: 508-966-5054



1115 Main Street
Hanson, MA 02341
Tel: 781-294-4144
Fax: 781-293-4111

PIPE SIZE: 24" HDPE

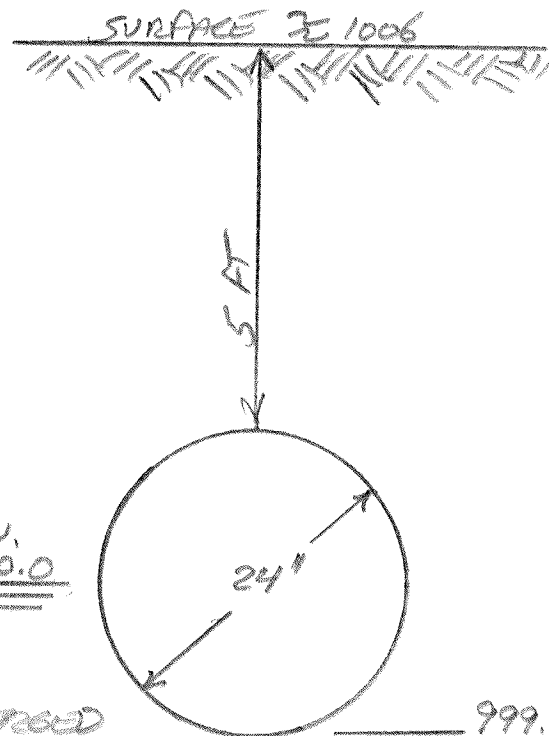
COVER OVER PIPES: 5 FT

PIPE INVERT: 999.0 FT

GROUNDWATER DEPTH: 6 FT

SOIL DENSITY: 110 #/FT³

WATER DENSITY: 62.4 #/FT³



BUOYANT FORCE OF PIPE:

ASSUME PIPE IS FULLY SUBMERGED

$$A = \frac{\pi D^2}{4} = \frac{\pi 2^2}{4} = 3.14 \text{ FT}^2$$

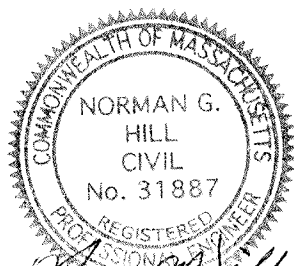
$$\text{LIFT} = (3.14 \text{ FT}^2)(62.4 \text{ #/FT}^3) = 196 \text{ #/FT OF PIPE}$$

WEIGHT OF SOIL COVER:

$$\text{SOIL VOLUME} = (5 \text{ FT})(2 \text{ FT}) = 10 \text{ FT}^3 \text{ / FT OF PIPE}$$

$$\text{SOIL WEIGHT} = (10 \text{ FT}^3)(110 \text{ #/FT}^3) = 1100 \text{ #/FT OF PIPE}$$

$1100 \text{ #} > 196 \text{ #} \therefore$ PIPE WILL NOT BE
DISPLACED BY GROUNDWATER



Norman G. Hill, P.E.

7-3-19