City of Cambridge, Massachusetts

Department of Public Works

147 Hampshire Street • Cambridge, MA 02139

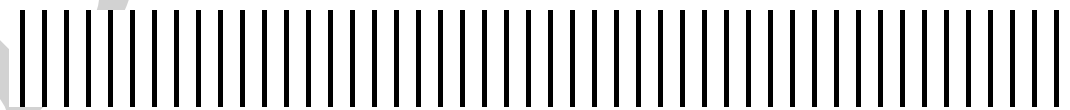# APPENDIX E
DRAFT
Example Calculation for Water Quality Control Runoff Volume

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E. EXAMPLE CALCULATION FOR WATER QUALITY CONTROL RUNOFF VOLUME

Example:

Pre-development condition - 10 acres of pavement and roof

Post-development condition - 2.5 acres of permeable area, 3.0 acres roof (50% green – type 2 technology), 4.5 acres of pavement

Initial *roof runoff* volume requiring treatment = 3.0 ac * 0.5 inch = 1.5 ac-inch.

→Initial abstraction of water due to vegetation on green roof = 0.3 inches * 1.5 ac = 0.45 ac-inch

→Infiltration into post-development permeable area: 2.5 ac * 0.085 inches = 0.21 ac-inch

Adjusted *roof runoff* volume requiring water quality treatment = 1.5 ac-inch – 0.45 ac-inch - 0.21 ac-inch = 0.84 ac-inch

Pavement runoff volume requiring treatment = 0.5 ac-inch * 4.5 ac = 2.25 ac-inch

Total net runoff volume (roof + pavement) requiring water quality treatment = 0.84 ac-inch + 2.25 ac-inch = 3.09 ac-inch

Note that the system used to satisfy the stormwater retention requirement of between the 2-year and 25-year storm may also be used to offset the water quality volume requiring treatment, providing it satisfies the other stormwater quality treatment requirements.

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