BACKYARD RAIN GARDEN

RAIN GARDEN SITE REQUIREMENTS
1. DISTANCE TO BUILDING FOUNDATION: ____________ (10 FEET MINIMUM)
2. DISTANCE TO SEPTIC SYSTEM DRAINFIELD: ____________ (25 FEET MINIMUM)
3. DISTANCE TO WELL HEAD: ____________ (25 FEET MINIMUM)
4. UPSLOPE DOWNSLOPE FROM WELL HEAD (CIRCLE ONE: DOWNSLOPE RECOMMENDED)
5. UPSLOPE DOWNSLOPE LATERAL TO SEPTIC DRAINFIELD (CIRCLE ONE: LATERAL RECOMMENDED)
6. SUN EXPOSURE IS FULL PARTIAL (CIRCLE ONE)
7. DEPTH TO SEASONAL HIGH WATER TABLE: ____________ (>30 INCHES RECOMMENDED)

SOIL DATA
1. PREDOMINANT SOIL TYPE: ___________________ (FROM SOIL SURVEY)
2. POST RAINFALL CONDITION OF PROPOSED RAIN GARDEN LOCATION ACCORDING TO LANDOWNER: WET OR SATURATED 1.5 DAYS AFTER RAINFALL? ________ IF YES, SELECT ALTERNATE SITE.
3. DEPTH TO WETLAND SOILS IN 24 INCH DEPTH TEST PIT: ________ INCHES
   IF WETLAND SOILS (GREY WITH RIBBONS OF BROWN) ARE OBSERVED WITHIN 12 INCHES OF SURFACE, SITE IS UNSUITABLE FOR RAIN GARDEN
4. IS WATER PRESENT IN TEST PIT, 36 HOURS AFTER COMPLETE FILLING WITH WATER? YES NO (CIRCLE ONE).
   ANY WATER PRESENT WITHOUT ADDITIONAL RAINFALL INDICATES POORLY DRAINED SITE. IF PIT DRAINS COMPLETELY, REFILL AND CHECK AFT 12 HOURS. A COMPLETELY DRAINED PIT CHARACTERIZES A WELL DRAINED SITE.

RUNOFF VOLUME
TOTAL WATERSHED AREA (A) = ____________ SQUARE FEET
AREA OF IMPERVIOUS SURFACES (AI) = ____________ SQUARE FEET
IMPERVIOUS PERCENTAGE OF WATERSHED (I) = AIA
RUNOFF COEFFICIENT (Rv) = 0.05 + [0.009 * (I * 100)]
STORM PRECIPITATION (P): ____________ (1.5 INCHES FOR CAMA COUNTIES, 1.0 INCH FOR ALL OTHERS)
RUNOFF VOLUME (V) = Rv * A * (P/12) = ____________ CUBIC FEET
** REFER TO APPENDIX D OF CCAP STORMWATER BMP DESIGN MANUAL FOR RAIN GARDEN SIZING CHARTS.**
RAIN GARDEN SIZE

RAIN GARDEN PONDING DEPTH (Dp): ___________ inches (3, 6 OR 9-INCHES RECOMMENDED)

SURFACE AREA = RUNOFF VOLUME (V) / PONDING DEPTH (FEET) = V/(Dp/12) = ___________ SQUARE FEET

NOTE: BOTTOM OF RAIN GARDEN MAY HAVE VARYING DEPTHS IF WATER DRAINS FROM TEST PIT BETWEEN 12 AND 36 HOURS. GRADE BOTTOM WITH ZONES AT DIFFERENT ELEVATIONS TO IMPROVE SURVIVAL OF BIORETENTION PLANTS THAT CANNOT TOLERATE WET CONDITIONS FOR EXTENDED PERIODS. DETERMINE AVERAGE DEPTH TO CALCULATE REQUIRED SURFACE AREA. FOR EXAMPLE, 50% OF CELL HAS 9-INCH DEPTH AND 50% OF CELL HAS 6-INCH DEPTH; THE AVERAGE DEPTH IS 7.5-INCHES.

PEAK STORMWATER RUNOFF USING RATIONAL METHOD

C = RUNOFF COEFFICIENT = ([IMPERVIOUS AREA x 0.95] + [PERVIOUS AREA x 0.25]) / DRAINAGE AREA

I = STORM INTENSITY (10-YEAR STORM EVENT, 5-MINUTE DURATION) FROM TABLE 3.1 OF CCAP BMP DESIGN MANUAL = ___________ INCHES/HOUR

A = WATERSHED AREA DRAINING INTO BMP = ___________ ACRES

PEAK FLOW FROM WATERSHED DURING 10-YEAR STORM EVENT = Q = C x I x A

Q = PEAK FLOW = ___________ CUBIC FEET PER SECOND

OUTLET WEIR DESIGN

Cw = WEIR COEFFICIENT = 3.0

H = HEIGHT OF WATER OVER TOP OF WEIR = ___________ FEET (0.5 FEET MAXIMUM)

Q = PEAK FLOW = ___________ CUBIC FEET PER SECOND

L = LENGTH OF WEIR = Q / (Cw x H^2) = ___________ FEET

NOTES:

CROSS SECTION

TOP OF BERM ELEVATION = ___________ FEET

L = WEIR LENGTH = ___________ FEET

H = HEIGHT OF WATER OVER WEIR = ___________ FEET

BOTTOM ELEVATION = ___________ FEET

PLAN

NOTE: LOCATE ALL INLET AND OUTLET LOCATION(S)

MARK ANY ZONES OF VARYING BOTTOM ELEVATIONS

NOT TO SCALE

CROSS SECTION

NOT TO SCALE

WARNING:

LOCATE ALL UNDERGROUND UTILITIES BEFORE DIGGING. CALL 1-800-632-4949 FOR BURIED UTILITY LOCATION SERVICE.