

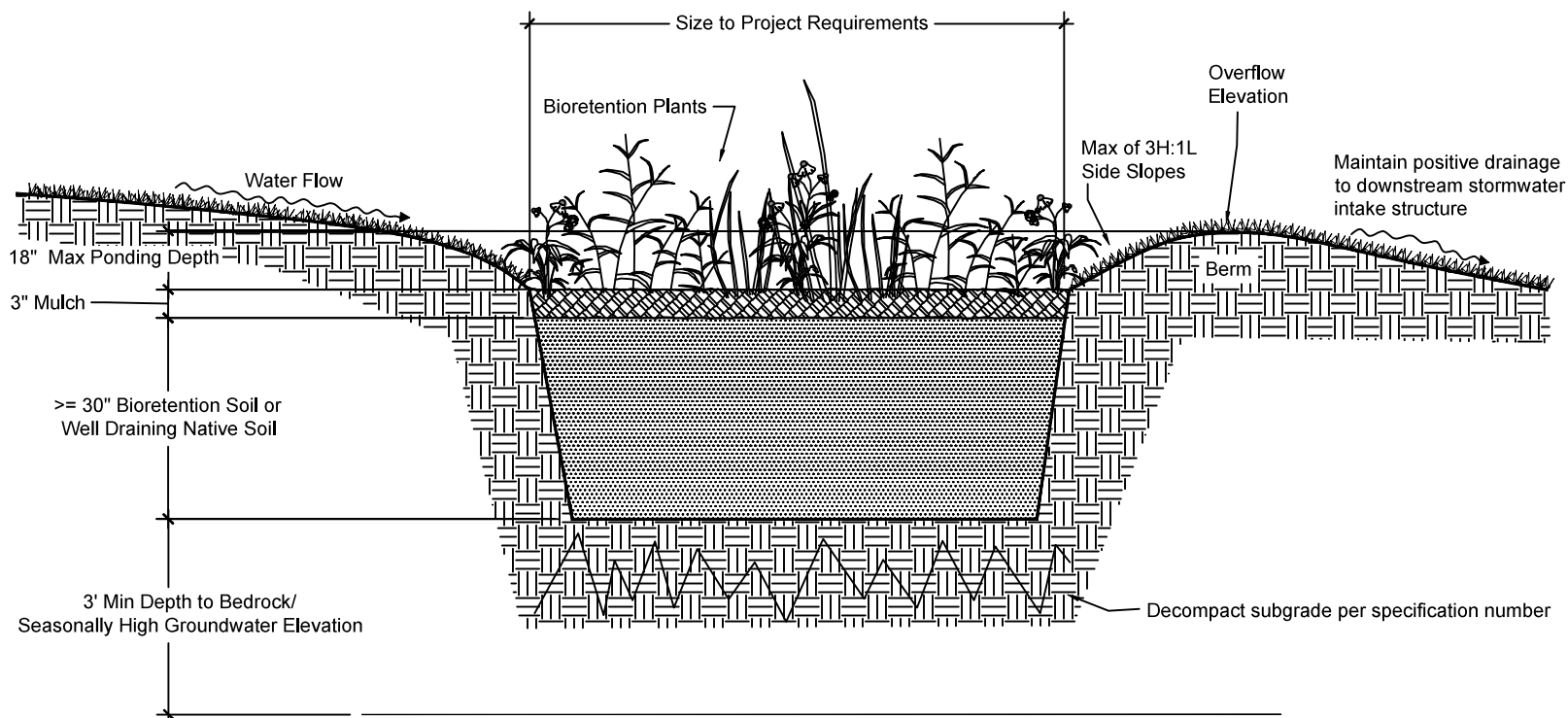
THIS DETAIL IS INTENDED AS A REFERENCE FOR SMALL RAINGARDEN FACILITIES INSTALLED WITHIN A NEWLY OR RECENTLY DEVELOPED RESIDENTIAL LOT OR SIMILAR CONTEXT THAT TYPICALLY RECEIVE STORMWATER FROM 1 ACRE OR LESS.

- PROVIDE ADEQUATE PRETREATMENT FOR ALL FILTRATION AND INFILTRATION PRACTICES. SEE GUIDANCE ON THE MN STORMWATER MANUAL PRETREATMENT PAGE FOR PRETREATMENT OPTIONS AND SIZING.

- FOR PROJECTS SUBJECT TO REGULATION UNDER PERMIT MNR100001, THE CONSTRUCTION STORMWATER GENERAL PERMIT, ENSURE THAT THE DESIGN MEETS ALL REQUIREMENTS STATED IN SECTION 16, INFILTRATION SYSTEMS. OR SECTION 17. FILTRATION SYSTEMS. OF THE PERMIT AS APPLICABLE.

- IDENTIFY EMERGENCY OVERFLOW PATHWAYS FOR RAINGARDENS ON STORMWATER MANAGEMENT PLANS AND GRADING PLANS. ENSURE THAT OVERFLOWS ARE DIRECTED TO AN APPROPRIATE DRAINAGE STRUCTURE.

- DELINEATE ALL BIORETENTION AREAS ON SITE, GRADING, UTILITY, STORMWATER MANAGEMENT, EROSION & SEDIMENT CONTROL, OR OTHER RELEVANT PLAN SHEETS TO MINIMIZE CHANCES OF MISMANAGEMENT DURING CONSTRUCTION ACTIVITY.
- DEVELOP A POST-CONSTRUCTION MAINTENANCE PLAN SUMMARIZING THE TYPE AND FREQUENCY OF MAINTENANCE ACTIVITIES RECOMMENDED FOR STORMWATER FACILITIES BASED ON THE TYPE OF PRACTICE AND APPLICABLE SITE CONDITIONS.
- PROVIDE A SUBGRADE DECOMPACTION OR SUBGRADE PREPARATION SPECIFICATION FOR ALL BIORETENTION RAINGARDEN AREAS CONSISTENT WITH FINDINGS FROM GEOTECHNICAL INVESTIGATION AND DESIGN GUIDELINES FOR BIORETENTION OUTLINED IN THE MN STORMWATER MANUAL IN THE CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PAGE.
- PLANTING PLAN PREPARED BY A QUALIFIED LANDSCAPE PROFESSIONAL
  - PLANTING NOTES PREPARED BY A QUALIFIED LANDSCAPE PROFESSIONAL
  - PLANTING DETAILS AS APPROPRIATE PREPARED BY A QUALIFIED LANDSCAPE PROFESSIONAL.



## Residential Raingarden

Not To Scale

NOT FOR CONSTRUCTION PURPOSES

MINNESOTA STORMWATER MANUAL		 Minnesota Pollution Control Agency 520 Lafayette Road St. Paul, MN 55155-4194		I hereby certify that this plan was prepared by me or under my direct supervision and that the work was done in accordance with the laws of the State of Minnesota		NO. _____ REVISION _____ DESCRIPTION _____ DATE _____	
RESIDENTIAL RAINGARDEN		Date _____ Designed By _____ Drawn By _____					

**SUGGESTED FOR INCLUSION IN CONSTRUCTION SEQUENCING NOTES (site/project-scale)**

1. INSTALL DOWN-GRADIENT PERIMETER SEDIMENT CONTROL BMPS PRIOR TO ANY UP GRADIENT LAND DISTURBING ACTIVITY BEGINS.
2. INSTALL ALL UTILITIES (WATER, SANITARY SEWER, ELECTRIC, NATURAL GAS, PHONE, FIBER OPTIC, ETC.) PRIOR TO SETTING FINAL GRADE OF STORMWATER BMPS.

**SUGGESTED FOR INCLUSION IN SITE GRADNG NOTES:**

1. PROTECT RAINGARDEN AREAS DURING SITE GRADING ACTIVITY.
  - a. DO NOT EXCAVATE BELOW THE PROPOSED MEDIA SURFACE OF RAINAGRDEN FACILITIES PRIOR TO STARTING FACILITY CONSTRUCTION (SEE CONSTRUCTION NOTES). THIS WILL PREVENT CLOGGING OF PARENT SOILS AT THE PROPOSED SUBGRADE.
  - b. MAINTAIN PERIMETER CONTROLS AROUND RAINGARDEN AREA FOLLOWING ROUGH GRADING TO KEEP HEAVY EQUIPMENT OUT OF RAINGARDEN AREAS.
2. IF RAINGARDEN AREAS ARE BEING USED AS TEMPORARY SEDIMENT BASINS DURING CONSTRUCTION, LEAVE A MINIMUM OF 1 FEET OF COVER OVER THE PRACTICE TO PROTECT THE UNDERLYING SOILS FROM CLOGGING.

**SUGGESTED FOR INCLUSION IN CONSTRUCTION NOTES**

1. FINAL GRADING OF RAINGARDEN PRACTICE SHALL NOT BEGIN UNTIL AFTER ALL UPSTREAM DRAINAGE AREAS HAVE BEEN ADEQUATELY STABILIZED.
2. REVIEW AS-BUILT ELEVATIONS OF INSTALLED UTILITIES TO CONFIRM THAT REQUIRED CONNECTIONS, CLEARANCES, AND OVERFLOWS FOR THE RAINGARDEN PRACTICES WILL BE MET. ADJUST FINAL GRADE OF THE PRACTICE AS NECESSARY.
3. INSTALL APPROPRIATE TEMPORARY EROSION CONTROL DEVICES TO PREVENT SEDIMENT FROM LEAVING OR ENTERING THE PRACTICE DURING CONSTRUCTION.
4. FOLLOWING EXCAVATION OF THE RAINGARDEN FOOTPRINT, INSPECT SOILS AT THE SUBGRADE ELEVATION. CONSULT DESIGN ENGINEER IF SOIL TYPE/TEXTURE IS NOT CONSISTENT WITH DESIGN ASSUMPTIONS OR SOIL INVESTIGATION.
5. LOOSEN/PREPARE RAINGARDEN SUBGRADE PER DESIGN ENGINEER'S SPECIFICATIONS.
6. PERFORM CONTINUOUS INSPECTIONS OF EROSION CONTROL PRACTICES DURING AND FOLLOWING CONSTRUCTION, ESPECIALLY AFTER EACH RAINFALL EVENT TO PREVENT CLOGGING.
7. CONSTRUCT FOLLOWING STABILIZATION OF CONTRIBUTING DRAINAGE AREA. ENSURE THAT CRITICAL ELEVATIONS, SUCH AS UNDERDRAIN INVERT, TOP OF MEDIA, TOP OF MULCH, AND INVERT OF OVERFLOW STRUCTURE (IF PRESENT) ARE CORRECT.
8. INSTALL VEGETATION PER APPROVED/RECOMMENDED PLANTING PLAN INCLUDING MAINTENANCE DURING VEGETATION ESTABLISHMENT.
9. REMOVE TEMPORARY EROSION CONTROL DEVICES ONLY AFTER THE CONTRIBUTING DRAINAGE AREA IS ADEQUATELY VEGETATED.

**SUGGESTED FOR INCLUSION IN PLANT NOTES**

1. PLANT PLUGS ARE PREFERRED OVER SEEDS DUE TO FLOODING AND WIND THAT MIGHT MAKE SEEDING DIFFICULT. AIM TO USE 100% PLUGS TO MORE QUICKLY ESTABLISH THE RAINGARDEN.
2. RECOMMENDED PLANT SPECIES FOR RAINGARDENS INCLUDE BUT ARE NOT LIMITED TO:

- GIANT HYSSOP <i>AGASTACHE FOENICULUM</i>	- PALM SEDGE <i>CAREX MUSKINGUMENSIS</i>	- BLUE LOBELIA <i>LOBELIA SIPHILITICA</i>
- BLACK CHOKEBERRY <i>ARONIA MELANOCARPA</i>	- TURTLEHEAD <i>CHELONE GLABRA</i>	- SENSITIVE FERN <i>ONOCLEA SENSIBILIS</i>
- MARSH MILKWEED <i>ASCELIAS INCARNATA</i>	- RED -OSIER DOGWOOD <i>CORNUS SERICEA</i>	- SWITCH GRASS <i>PANICUM VIRGATUM</i>
- PLAINS OVAL SEDGE <i>CAREX BREVIOR</i>	- JOE-PYE WEED <i>EUTROCHIUM PURPUREUM</i>	- PRAIRIE CORD GRASS <i>SPARTINA PECTINATA</i>
- BOTTLEBRUSH SEDGE <i>COMOSA</i>	- SNEEZEWEED <i>HELENIUM AUTUMNALE</i>	- RED-STEMMED ASTER <i>SYMPHYOTRICHUM PUNICEUM</i>
- PORCUPINE SEDGE <i>CAREX HYSTERICINA</i>	- WINTERBERRY <i>ILLEX VERTICILLATE</i>	- IRONWEED <i>VERNONIA FASCICULATA</i>
- FOX SEDGE <i>CAREX VULPINOIDEA</i>	- SOFT RUSH <i>JUNCUS EFFUSUS</i>	- GOLDEN ALEXANDERS <i>ZIZIA AUREA</i>
		- NORTHERN PLAINS BLAZING STAR <i>LIATRIS LIGULISTYLIS</i>

**SUGGESTED FOR INCLUSION IN MAINTENANCE NOTES**

1. RECOMMENDED POST-CONSTRUCTION MAINTENANCE FOR THIS PRACTICE INCLUDES:
  - a. MAINTAIN HEALTHY VEGETATION
  - b. CLEAR DEBRIS FROM INLETS AND OUTLET.
  - c. INSPECT DRAINTILE PERIODICALLY AND REMOVE ACCUMULATED SEDIMENT TO MAINTAIN FLOW.
  - d. SEE THE OPERATION AND MAINTENANCE OF BIORETENTION AND OTHER INFILTRATION PRACTICES PAGE IN THE STORMWATER MANUAL FOR ADDITIONAL DETAILS

NOT FOR CONSTRUCTION PURPOSES

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota		NO.	REVISION	DESCRIPTION	DATE	BY
Print Name: _____						
Sign Name: _____						
Date: _____						
Minnesota Pollution Control Agency 520 University Road St. Paul, MN 55155-4194		Designed By		Drawn By		
						
MINNESOTA STORMWATER MANUAL						
RESIDENTIAL RAINGARDEN						
Sheet No. _____ of _____ Sheets						