APPLICATION FOR CONSIDERATION FOR A STORM WATER MANAGEMENT SITE PLAN EXEMPTION
PARADISE TOWNSHIP

SW FILE NO. _____
DATE OF RECEIPT _____

The undersigned hereby applies for approval under the Paradise Township Storm Water Management Ordinance for a Storm Water Management Site Plan Exemption submitted herewith and described below:

1. Plan Name_____Plan No. _____ Plan Date: _____

2. Project Location _____

3. Name of Applicant (if other than owner) _____

   Address_____Phone No. _____

4. Name of Property Owner(s)_____

   Address_____Phone No. _____

6. Total Acreage _____

7. Proposed Activity:
   Are you removing existing impervious as part of this project? [ ] Yes [ ] No
   If yes, total area of existing Impervious to be removed _____ sq. ft.
   Are you removing ground cover, grading, filling, or excavation of an area less than 1,000 square feet?
   [ ] Yes [ ] No
   If yes, total area of land disturbance: _____ sq. ft.
   Type of Regulated Activity (check all that apply): [ ] Removal of ground cover [ ] Grading
   [ ] Filling [ ] Excavation [ ] Other earth disturbance activity (please describe)

   [ ] Addition of new impervious surface (1,000 square feet or less)
   Total new impervious surface proposed _____ sq. ft.
   Type of new impervious surface: [ ] Driveway [ ] Shed [ ] Garage [ ] Deck [ ] Walkway
   [ ] other (please describe) _____

8. Check all items that will be impacted by the project: [ ] Floodplain [ ] Wetlands
   [ ] Slopes greater than 15% [ ] Natural water flow paths (creeks, streams, ponds, swales, etc.)
   [ ] Existing known storm water problem areas [ ] Downstream property owners

9. Sketch – Provide a sketch of the proposed additional impervious area or land disturbance.

I am aware that I cannot commence development of the property and cannot commence excavation, earthmoving, grading, or construction until a Storm Water Management Site Plan Exemption has been approved by Paradise Township. By signing this application, I certify that all facts in the application and all accompanying documentation are true and correct. This application is being made by me to induce official action on the part of Paradise Township, and I understand that any false statements made herein are being made subject to the penalties of 18 Pa. C.S. Section 4904 relating to unsworn falsification to authorities. **I understand and I am aware of and agree to reimburse Paradise Township for engineering review, inspection, recording and reasonable attorney fees incurred by Paradise Township.**

_____ _____
Date Signature of Landowner or Applicant

_____ _____
Date Exemption Approved Signature of Township

APPLICATION FOR CONSIDERATION FOR A STORM WATER MANAGEMENT SITE PLAN
PARADISE TOWNSHIP

SW FILE NO. _____
DATE OF RECEIPT _____

The undersigned hereby applies for approval under the Paradise Township Storm Water Management Ordinance for the Storm Water Management Site Plan submitted herewith and described below:

1. Plan Name_____Plan No. _____ Plan Date: _____

2. Project Location _____

3. Name of Applicant (if other than owner) _____

   Address_____Phone No. _____

4. Name of Property Owner(s)_____

   Address_____ Phone No. _____

5. Land Use and Number of Lots and/or Units (indicate answer by number):

   __ Single-Family (Detached) __ Commercial

   __ Multi-Family (Attached-Sale) __ Industrial

   __ Multi-Family (Attached-Rent) __ Institutional

6. Total Acreage _____

7. Application Classification: (Check One)

   ___ Minor Land Disturbance ___ Major Land Disturbance

I am aware that I cannot commence development of the property and cannot commence excavation, earthmoving, grading, or construction until a plan has been recorded in the office of the Recorder of Deeds or until a Storm Water Management Site Plan has been approved by Paradise Township. By signing this application, I certify that all facts in the application and all accompanying documentation are true and correct. This application is being made by me to induce official action on the part of Paradise Township, and I understand that any false statements made herein are being made subject to the penalties of 18 Pa. C.S. Section 4904 relating to unsworn falsification to authorities. **I understand and I am aware of and agree to reimburse Paradise Township for engineering review, inspection, recording and reasonable attorney fees incurred by Paradise Township.**

_____ _____

Date Signature of Landowner or Applicant

Project Worksheets, Design Tables & Construction Notes – Stone Infiltration Trench

The following guidance has been provided for those regulated activities that qualify as a Minor Land Disturbance. This volume represents the amount of runoff to be permanently removed (managed onsite through reuse, infiltration, evaporation, or transpiration) per the Paradise Township Storm Water Management Ordinance. The volume does not account for the rate of percolation into the ground.

Variables:

A = Impervious Area in square feet (sq. ft.)
V = Required Stone Infiltration Volume in cubic feet (cu. ft.)

Compute Total Required Volume:

V = 0.5 x A
or;
V = 0.5 x _____ (impervious area in sq. ft.) = _____ (required trench volume in cu. ft.).

Sizing Chart for Stone Infiltration Trench

Impervious Area (sq. ft.)	**Stone Infiltration Trench (Cu. ft. - incl. 40% void ratio)**
1000	500
1250	625
1500	750
1750	875
2000	1000
2250	1125
2500	1250
2750	1375
3000	1500
3250	1625
3500	1750
3750	1875
4000	2000
4250	2125
4500	2250
4750	2375
5000	2500

Stone Infiltration Trench

Total Depth = _____ inches of stone + 12 inches of cover = _____ inches*
*must be between 24 inches and 40 inches

Depth of Stone (D) = _____ feet (inches of stone divided by 12)

Width (W) = _____ feet

Length (L) = _____ feet

Note: Depth of Stone x Width x Length must be equal to or greater than (V) total required trench volume.

Trench Volume = D x W x L = _____

Stone Infiltration Trench Construction - General Notes

1. Use the worksheets and table to compute the required volume in the stone infiltration trench (in cubic feet) for all proposed impervious areas. The calculated total volume is the minimum requirement for on-site construction. The actual horizontal dimensions of the stone infiltration trench may vary to fit specific site configurations and constraints, but the vertical depth of the stone infiltration trench must be a minimum of twenty-four (24) inches and a maximum of forty (40) inches. The total volume of the stone infiltration trench must be equal to or greater than the required minimum.

2. Multiple stone infiltration trenches may also be utilized. If multiple stone infiltration trenches are desired, the volume for each stone infiltration trench should be a proportional amount of the calculated total storage volume (if utilizing two [2] trenches; if sixty (60) percent of the total roof area is piped to one [1] stone infiltration trench, then that stone infiltration trench should be sized for sixty (60) percent of the total required minimum volume. The second stone infiltration trench would be sized for the remaining forty (40) percent of the total required minimum volume).

3. Based on the calculations of the required stone infiltration trench dimensions computed using the worksheet and table, stake out the locations of the stone infiltration trench corners. Staking is critical and should outline the location of the stone infiltration trench. The stone infiltration trench shall be located as far as possible downslope from the proposed home. A minimum of ten (10) feet of undisturbed soil shall be provided between the stone infiltration trench and any adjoining building or structure. Maintain a minimum of ten (10) feet between the stone infiltration trench and any property lines and road rights-of-way. Stone infiltration trenches shall be located beside or downslope (not upslope of) and a minimum of ten (10) feet from of any component of any on-lot sewage disposal system or on-lot sewage disposal system replacement absorption area.

4. Excavation of the stone infiltration trench shall be conducted from outside of the stone infiltration trench perimeter, using equipment which has a bucket on a reaching arm (backhoe or trackhoe). No equipment shall be permitted in or on the stone infiltration trench area. The

bottom and sides of the stone infiltration trench shall be chiseled or ripped to break up any smearing or compaction that may have occurred during excavation.

5. After excavation of the stone infiltration trench is complete, ensure that the bottom is graded with a slope that is no greater than two (2) inches per one hundred (100) feet. Line the stone infiltration trench bottom and sides with a Class 1 Geotextile filter fabric, leaving enough excess filter fabric to cover the top of the stone infiltration trench before it is backfilled with earthen fill. If multiple runs of filter fabric are required to completely enclose the stone infiltration trench, a minimum of twelve (12) inches overlapping must be provided.

6. Backfill the stone infiltration with clean aggregate (clean washed stone with no fines in the range of coarse aggregate sizes from AASHTO #1 to AASHTO #57). Backfilling of the stone infiltration trench shall be conducted from outside of the stone infiltration trench perimeter, using equipment which has a bucket on a reaching arm (backhoe or trackhoe). No equipment shall be permitted in or on the stone infiltration trench area. The stone infiltration trench shall be to a uniform depth a minimum of six (6) inches below the finished top of stone (a minimum of eighteen [18] inches below finished grade).

7. The perforated pipe (minimum four [4]-inch PVC) with cleanout pipe extension should then be placed on the stone. Connect roof drain pipes from downspouts to the stone infiltration facility. Be sure to leave the pipes exposed for observation by the Township.

8. At this time, before more stone is placed in the infiltration trench to cover the pipe, or roof leaders trenches are backfilled, the Township should be notified for inspection of the facility to verify proper pipe installation.

9. Following the Township inspection, add more stone around and over the pipe to a uniform depth a minimum of two (2) inches over the top of the pipe. Carefully cover the top of the stone bed with the remaining geotextile fabric, being careful to overlap a minimum of twelve (12) inches.

10. The infiltration trench should then be backfilled to the top of the infiltration trench with at least twelve (12) inches of clean earth fill.

11. To ease maintenance of the underground pipes, and prevent clogging of the infiltration trench, consideration should be given to providing screens for all roof gutters. The screens prevent foreign materials from clogging the pipes and stone infiltration trench.

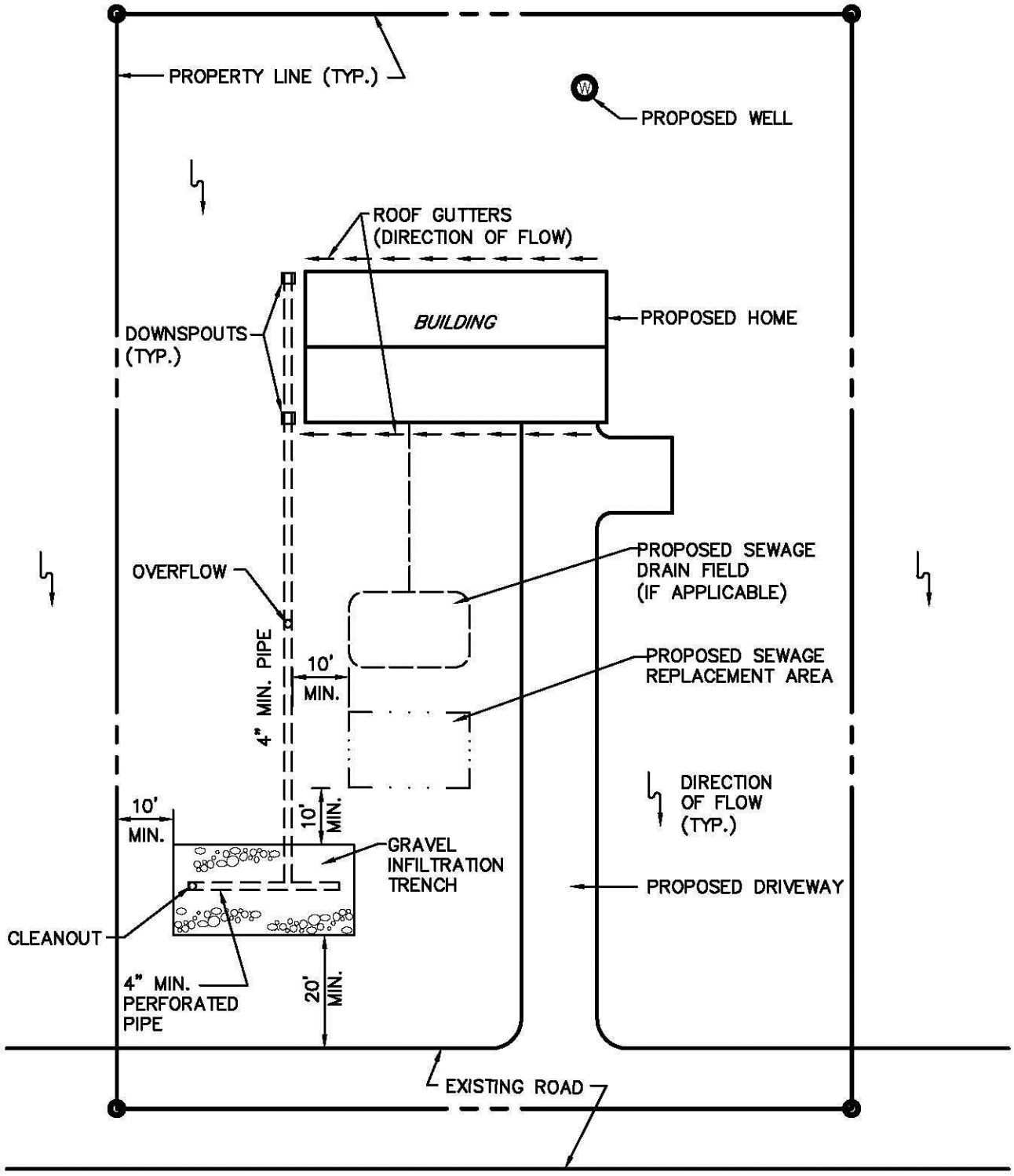


EXHIBIT A
TYPICAL INFILTRATION TRENCH PLAN

PARADISE TOWNSHIP LANCASTER COUNTY

RETTEW
RETTEW Associates, Inc.
3020 Columbia Ave., Lancaster, PA 17603
Phone (717) 394-3721 • Fax (717) 394-1063

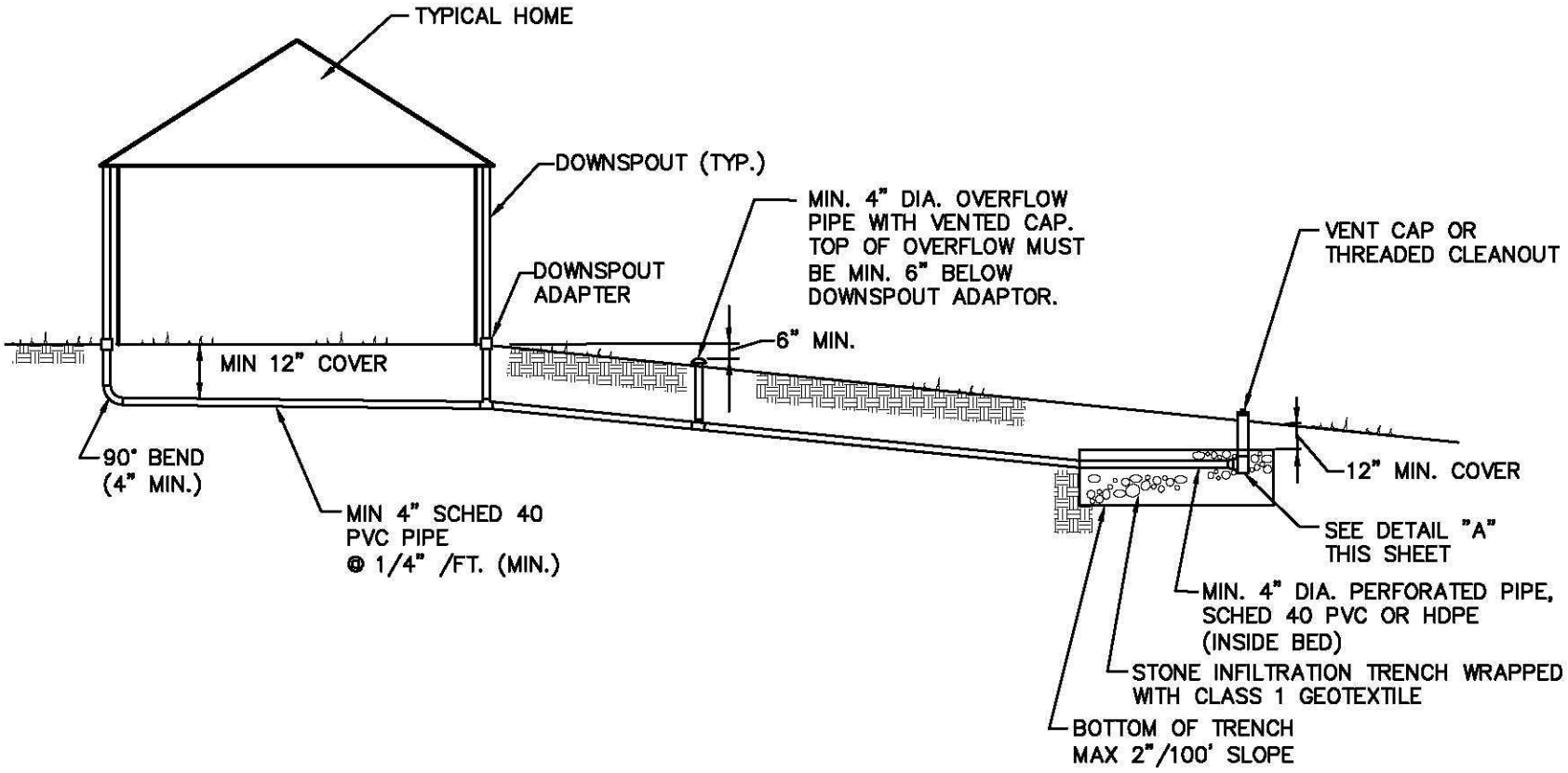
DRAWN BY:
DATE: 6/12/14
SCALE: NOT TO SCALE
DWG. NO. 011132007

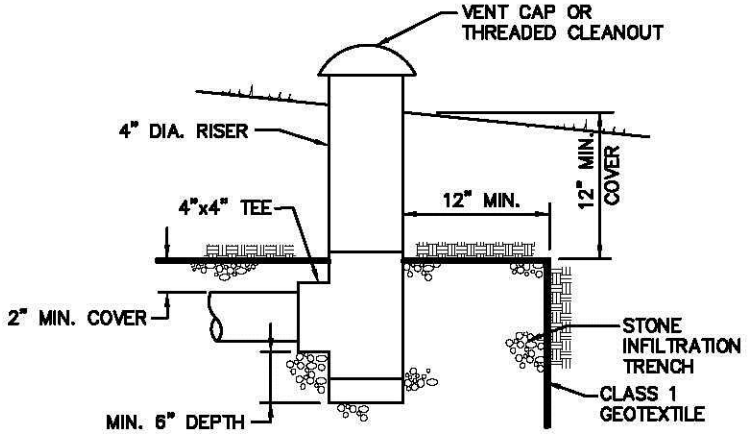
PARADISE TOWNSHIP

LANCASTER COUNTY

EXHIBIT B

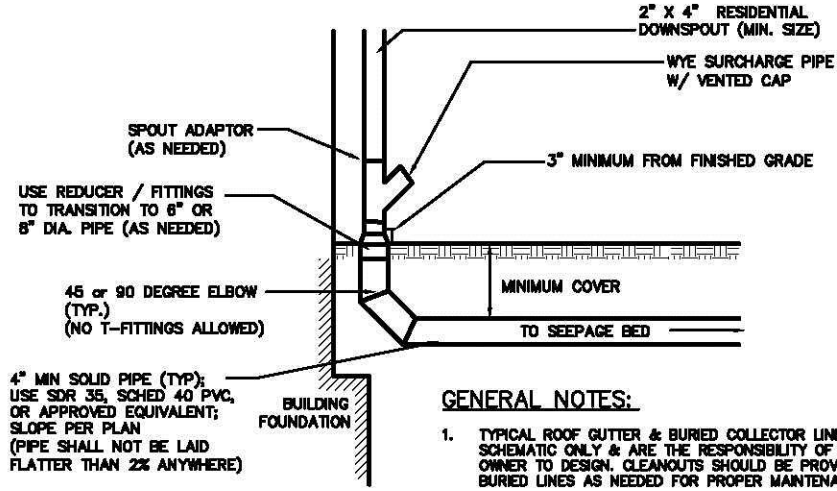
TYPICAL INFILTRATION TRENCH PROFILE





DETAIL "A"

NOT TO SCALE



GENERAL NOTES:

1. TYPICAL ROOF GUTTER & BURIED COLLECTOR LINES SHOWN ARE SCHEMATIC ONLY & ARE THE RESPONSIBILITY OF THE BUILDER & OWNER TO DESIGN. CLEANOUTS SHOULD BE PROVIDED ON ALL BURIED LINES AS NEEDED FOR PROPER MAINTENANCE.
2. WYE "Y" FITTINGS MUST BE USED AT ALL PIPE INTERSECTIONS. TEE "T" FITTINGS SHALL NOT BE USED.

DOWNSPOUT CONNECTION DETAIL

NOT TO SCALE

RETTEW Associates, Inc.
3020 Columbia Ave., Lancaster, PA 17603
Phone (717) 394-3721 • Fax (717) 394-1063

DRAWN BY:

DATE: 6/12/14

SCALE: NOT TO SCALE

DWG. NO. 011132007

Project Worksheets, Design Tables & Construction Notes – Rain Garden

The following guidance has been provided for those regulated activities that qualify as a Minor Land Disturbance. This volume represents the amount of runoff to be permanently removed (managed on-site through reuse, infiltration, evaporation, or transpiration) per the Paradise Township Storm Water Management Ordinance. The volume does not account for the rate of percolation into the ground.

Variables:

A1 = Impervious Area in square feet (sq. ft.)
A2 = Required Rain Garden Surface Area in square feet (sq. ft.)

A2 = 0.4 x A1
or;
A2 = 0.4 x _____ (impervious area in sq. ft.) = _____ (required rain garden surface area in sq.ft.).

Storage Provided = (Length) x (Width) x (Ponding Depth)
(or for irregular shapes) Storage Provided = (Surface Area) x (Ponding Depth)

Sizing Chart for Rain Garden

Impervious Area (sq. ft.)	**Square Feet of Rain Garden Surface Area (6" depth)**
1000	400
1250	500
1500	600
1750	700
2000	800
2250	900
2500	1000
2750	1100
3000	1200
3250	1300
3500	1400
3750	1500
4000	1600
4250	1700
4500	1800
4750	1900
5000	2000

Rain Garden Construction - General Notes

1. Use the worksheet and table to compute the required volume in the rain garden (in cubic feet) for all proposed impervious areas. The calculated total volume is the minimum requirement for on-site construction. The actual horizontal dimensions of the rain garden may vary to fit specific site configurations and constraints, but the vertical depth of the rain garden should not exceed six (6) inches. The total volume of the rain garden must be equal to or greater than the required minimum.

2. Multiple rain gardens may also be utilized. If multiple rain gardens are desired, the volume for each rain garden should be a proportional amount of the calculated total storage volume (i.e. utilizing two [2] rain gardens, if sixty (60) percent of the total roof area is piped to one rain garden, then that rain garden should be sized for sixty (60) percent of the total required minimum volume. The second rain garden would then be sized for the remaining forty (40) percent of the total required minimum volume).

3. Based on the calculations of the required rain garden dimensions computed using the worksheets and table, stake out the locations of the rain garden corners. Staking is critical and should outline the location of the rain garden. The rain garden shall be located as far as possible downslope from the proposed home. A minimum of ten (10) feet of undisturbed soil shall be provided between the rain garden and any adjoining building or structure. Maintain a minimum of ten (10) feet between the rain garden and any property lines and road rights-of-way. Rain gardens shall be located beside or downslope (not upslope of) and a minimum of ten (10) feet from any component of any on-lot sewage disposal system or on-lot sewage disposal system replacement absorption area.

4. Excavation of the rain garden shall be conducted from outside of the rain garden perimeter, using equipment which has a bucket on a reaching arm (backhoe or trackhoe). No equipment shall be permitted in or on the rain garden area. The bottom and sides of the rain garden shall be chiseled or ripped to break up any smearing or compaction that may have occurred during excavation. The side slopes of the rain garden should be no steeper than 3:1 (three [3] feet horizontal to one [1] foot vertical). The planting soil depth in the bottom of the rain garden shall be at least eighteen (18) inches deep and should be a mixture of thirty (30) percent organic material (compost) and seventy (70) percent topsoil.

5. Backfill the rain garden with amended soils to proposed bottom elevation of facility. Connect roof drain leaders from downspouts to rain garden and contact Paradise Township for an observation.

6. At this time, before planting and placement of compost layer, the Township shall be notified for inspection of the facility to verify proper installation.

7. Following the Township observation, plant vegetation in the rain garden and add a two (2)-inch to three (3)-inch layer of shredded mulch or leaf compost. The amended soils should be overfilled to allow for settlement and lightly hand tamped in place. Presoaking the amended soils is recommended prior to planting. The plant selection should be suited to a variety of wet and dry weather conditions.

PARADISE TOWNSHIP

LANCASTER COUNTY

EXHIBIT C

TYPICAL RAIN GARDEN DETAIL

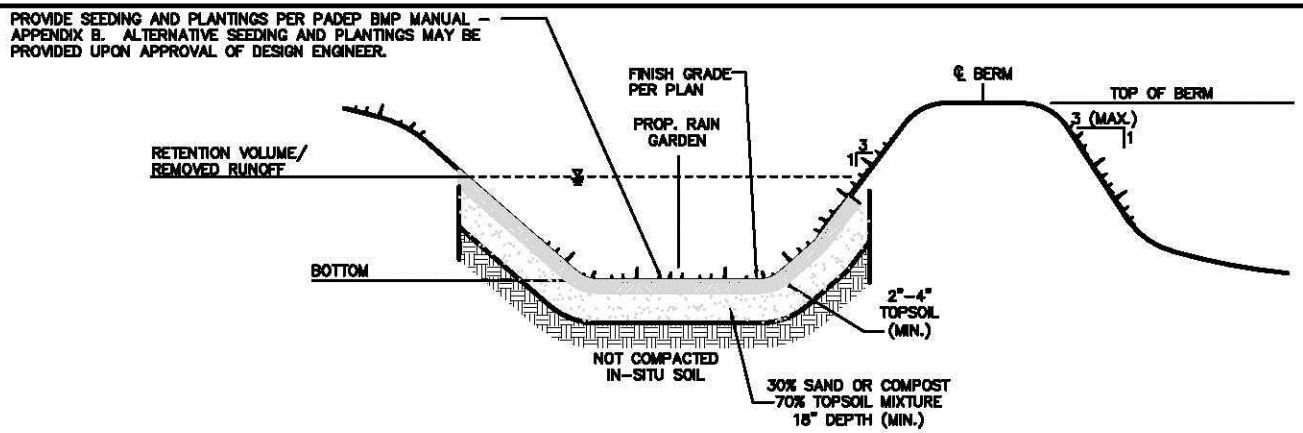
RETTEW Associates, Inc.
302D Columbia Ave., Lancaster, PA 17603
Phone (717) 394-3721 • Fax (717) 394-1063

DRAWN BY:

DATE: 6/12/14

SCALE: NOT TO SCALE

DWG. NO. 011132007



NOTE: IF UNSUITABLE SOIL IS ENCOUNTERED OR IF SOIL IS COMPACTED SO INFILTRATION IS ELIMINATED OR REDUCED, EXCAVATE OUT THE UNSUITABLE SOIL (24" DEPTH) AND REPLACE WITH SOIL OF THE FOLLOWING SPECIFICATION:

1. UTILIZE TOPSOIL GRADED FROM OTHER ON–SITE AREAS (CLEANED AND DRAINED).
2. USE SILT LOAM SOIL WITH MAXIMUM 10% CLAY; COMPOST (ORGANIC ADMENDMENT) 5% TO 10% MAXIMUM.

RAIN GARDEN CROSS SECTION

NOT TO SCALE
NG\NG015

RAIN GARDEN:

RAIN GARDEN AREA TO BE SEEDED AND PLANTED AS SPECIFIED PER APPENDIX B OF THE PENNSYLVANIA STORMWATER BEST MANAGEMENT PRACTICES MANUAL. WE SUGGEST THE USE OF ERNST CONSERVATION SEED MIX ERNMX–180, WHICH CONTAINS MANY OF THE PLANTS LISTED IN THIS APPENDIX SECTION.

WHILE VEGETATION IS BEING ESTABLISHED IN THE RAIN GARDEN, PRUNING AND WEEDING MAY BE REQUIRED. DETRITUS MATERIAL MAY NEED TO BE REMOVED ANNUALLY OR AS NEEDED TO MAINTAIN PROPER FUNCTION OF THE RAIN GARDEN. PERENNIAL PLANTINGS (IF PRESENT) MAY BE CUT DOWN AT THE END OF THE GROWING SEASON. THE RAIN GARDEN SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION, AND VEGETATIVE CONDITIONS (HEALTH). ANY DEAD OR DISEASED VEGETATION SHALL BE REPLACED IMMEDIATELY. DURING PERIODS OF EXTENDED DROUGHT, RAIN GARDEN AREAS MAY REQUIRE WATERING.

RAIN GARDEN MIX – ERNMX–180

% MIX	BOTANICAL NAME	COMMON NAME
20.00%	*Panicum rigidulum, PA ecotype*	Redtop Panic Grass, PA Ecotype
20.00%	*Schizachyrium scoparium, Eastern ecotype*	Little Bluestem, Eastern Ecotype
10.00%	*Elymus virginicus*	Virginia Wild Rye
5.00%	*Carex vulpinoidea*	Fox Sedge
5.00%	*Chasmanthium latifolium*	River Oats
5.00%	*Echinacea purpurea*	Purple Coneflower
5.00%	*Liatris spicata*	Marsh (Dense) Blazing Star (Spiked Gayfeather)
5.00%	*Rudbeckia hirta*	Black 'eyed Susan
3.00%	*Monarda fistulosa*	Wild Bergamot
3.00%	*Penstemon digitalis*	Tall White Beard Tongue
2.00%	*Andropogon gerardii, 'WI Ecotype'*	'WI Ecotype' Big Bluestem
2.00%	*Asclepias incarnata*	Swamp Milkweed
2.00%	*Aster novae–angliae*	New England Aster
2.00%	*Baptisia australis*	Blue False Indigo
2.00%	*Geum lachiatum*	Rough Avens
2.00%	*Senna hebecarpa*	Wild Senna
2.00%	*Tradescantia ohiensis*	Ohio Spiderwort
2.00%	*Verbena hastata*	Blue Vervain
2.00%	*Zizia aurea*	Golden Alexanders
1.00%	*Agrostis perennans*	Autumn Bentgrass
100.00%	SEEDING RATE: 15LB. PER ACRE OR 1/3 –1/2 LB. PER 1,000 SQ. FT.	

OPERATION AND MAINTENANCE SCHEDULE

1. THE PROPERTY OWNER SHALL OWN, MAINTAIN AND BE RESPONSIBLE FOR ALL STORMWATER MANAGEMENT AND PERMANENT BMP FACILITIES (I.E. RAIN GARDENS, SWALES AND LEVEL SPREADERS) THAT ARE LOCATED OUTSIDE OF STREET RIGHT–OF–WAYS AS PROPOSED ON THE PLANS.
2. THE OWNER SHALL CONDUCT A VISUAL INSPECTION OF ALL STORMWATER MANAGEMENT AND PERMANENT BMP FACILITIES AT LEAST ONCE EVERY THREE MONTHS AND IMMEDIATELY AFTER STORM EVENTS. SUCH VISUAL EXAMINATION SHALL AT LEAST INVOLVE AN EXAMINATION OF THE STORMWATER COLLECTION, CONVEYANCE AND BMP FACILITIES FOR DEBRIS DEPOSITION (SUCH DEBRIS MAY INCLUDE, BUT SHALL NOT BE LIMITED TO AGGREGATE MATERIAL, LEAVES, GRASS CLIPPINGS, SOIL AND TRASH), AND AN EXAMINATION OF THE STORMWATER BMP FACILITIES FOR SOIL AND STRUCTURAL SETTLEMENT, DEPRESSIONS, SINKHOLES, SEEPS, STRUCTURAL CRACKING, ANIMAL BURROWS, EXCESSIVE VEGETATION, CLOGGING, EROSION AND FOUNDATION MOVEMENT.
3. THE OWNER SHALL REMOVE ANY ACCUMULATION OF DEBRIS AND REPAIR ANY DAMAGE TO THE STORMWATER MANAGEMENT AND PERMANENT BMP FACILITIES. REPAIRS SHALL BE MADE USING MATERIAL THAT MEETS OR EXCEEDS THE SPECIFICATIONS PROVIDED ON THE PLANS.
4. THE OWNER IS REQUIRED TO MAINTAIN A RECORD OF ALL INSPECTIONS, REPAIRS AND MAINTENANCE ACTIVITIES ASSOCIATED WITH THE STORMWATER MANAGEMENT AND PERMANENT BMP FACILITIES AT THIS PROJECT SITE. THE OWNER SHALL IMMEDIATELY NOTIFY THE TOWNSHIP AND THE COUNTY CONSERVATION DISTRICT PRIOR TO INITIATING ANY MAJOR REPAIR ACTIVITIES (SUCH AS REPAIRS THAT MAY BE REQUIRED BECAUSE OF SETTLEMENT, SINKHOLES, SEEPS, STRUCTURAL CRACKING OR FOUNDATION MOVEMENT).
5. THE OWNER SHALL ALSO COMPLY WITH ANY OTHER MAINTENANCE NOTES INCLUDED ON THE LAND DEVELOPMENT PLANS.

RAIN GARDENS

1. MULCH AND INSTALL EROSION PROTECTION AT SURFACE FLOW ENTRANCES WHERE NECESSARY.
2. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED.
3. DETRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR. PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON.
4. MULCH SHOULD BE RE–SPREAD WHEN EROSION IS EVIDENT AND BE REPLENISHED AS NEEDED. ONCE EVERY 2 TO 3 YEARS THE ENTIRE AREA MAY REQUIRE MULCH REPLACEMENT.
5. BIORETENTION AREAS SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC.
6. DURING PERIODS OF EXTENDED DROUGHT, BIORETENTION AREAS MAY REQUIRE WATERING.
7. TREES AND SHRUBS SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH
8. WEEDING WILL BE NEEDED THE FIRST COUPLE OF YEARS. REMOVE BY HAND ONLY THOSE PLANTS THAT ARE POSITIVELY IDENTIFIED AS WEEDS. IN THE THIRD YEAR AND BEYOND, THE NATIVE GRASSES, SEDGES, RUSHES, AND WILDFLOWERS WILL BEGIN TO MATURE AND WILL OUT–COMPETE THE WEEDS. WEEDING ISOLATED PATCHES MIGHT STILL BE NEEDED ON OCCASION AND INVASIVE SPECIES SHOULD ALWAYS BE REMOVED.

RAIN GARDEN SEQUENCE OF CONSTRUCTION

1. INSTALL TEMPORARY SEDIMENT CONTROL BMPs AS SHOWN ON THE PLANS.
2. COMPLETE SITE GRADING. IF APPLICABLE, CONSTRUCT CURB CUTS OR OTHER INFLOW ENTRANCE BUT PROVIDE PROTECTION SO THAT THE DRAINAGE IS PROHIBITED FROM ENTERING THE CONSTRUCTION AREA.
3. STABILIZE GRADING WITHIN THE LIMIT OF DISTURBANCE EXCEPT WITHIN THE RAIN GARDEN AREA. RAIN GARDEN BED AREAS NAY BE USED AS TEMPORARY SEDIMENT TRAPS PROVIDED THAT THE PROPOSED FINISHED ELEVATION OF THE BED IS 12" LOWER THAN THE BOTTOM ELEVATION OF THE SEDIMENT TRAP.
4. EXCAVATE RAIN GARDEN TO PROPOSED, INVERT DEPTH AND SCARIFY THE EXISTING SOIL SURFACS. DO NOT COMPACT IN–SITU SOILS.
5. BACKFILL RAIN GARDEN WITH AMENDED SOIL AS SHOWN ON PLANS AND SPECIFICATIONS. OVERFILLING IS RECOMMENDED TO ACCOUNT FOR SETTLEMENT. LIGHT HAND TAMPING IS ACCEPTABLE IF NECCESASARY.
6. PRESOAK THE PLANTING SOIL PRIOR TO PLANTING VEGETATION TO AID IN SETTLEMENT.
7. COMPLETE FINAL GRADING TO ACHIEVE PROPOSED DESIGN ELEVATIONS, LEAVING SPACE FOR UPPER LAYER OF COMPOST, MULCH OR TOPSOIL AS SPECIFIED ON PLANS.
8. PLANT VEGETATION USING ERNST CONSERVATION SEED MIX ERNMX–180.
9. MULCH AND INSTALL EROSION PROTECTION AT SURFACE FLOW ENTRANCES WHERE NECESSARY.

Project Worksheets, Design Tables & Construction Notes – Rain Barrel/Cistern

The following guidance has been provided for those regulated activities that qualify as a Minor Land Disturbance. This volume represents the amount of runoff to be permanently removed (managed on-site through reuse, infiltration, evaporation, or transpiration) per the Paradise Township Storm Water Management Ordinance. The volume does not account for the rate of percolation into the ground.

Variables:

A = Impervious Area in square feet (sq. ft.)
V = Required Rain Barrel/Cistern Volume in gallons

Compute Total Required Volume:

V = 1.5 x A
or;
V = 1.5 x _____ (impervious area in sq. ft.) = _____ (required rain barrel/cistern volume in gallons).

Storage Provided in Circular Cistern (cu. ft.) = [Radius (ft.)]^2 x [Height (ft.)] x (3.14)

Storage Provided in Circular Cistern (gal) = [Radius (ft.)]^2 x [Height (ft.)] x (3.14) x (7.48)

Sizing Chart for Rain Barrels and Cisterns

Impervious Area (sq. ft.)	Gallons of Storage in Cistern
1000	1496
1250	1870
1500	2244
1750	2618
2000	2992
2250	3366
2500	3740
2750	4114
3000	4488
3250	4862
3500	5236
3750	5610
4000	5984
4250	6358
4500	6732
4750	7106
5000	7480

Project Worksheets, Design Tables & Construction Notes – Vegetated Swale with Check Dam

The following guidance has been provided for those regulated activities that qualify as a Minor Land Disturbance. This volume represents the amount of runoff to be permanently removed (managed on-site through reuse, infiltration, evaporation, or transpiration) per the Paradise Township Storm Water Management Ordinance. The volume does not account for the rate of percolation into the ground.

Variables:

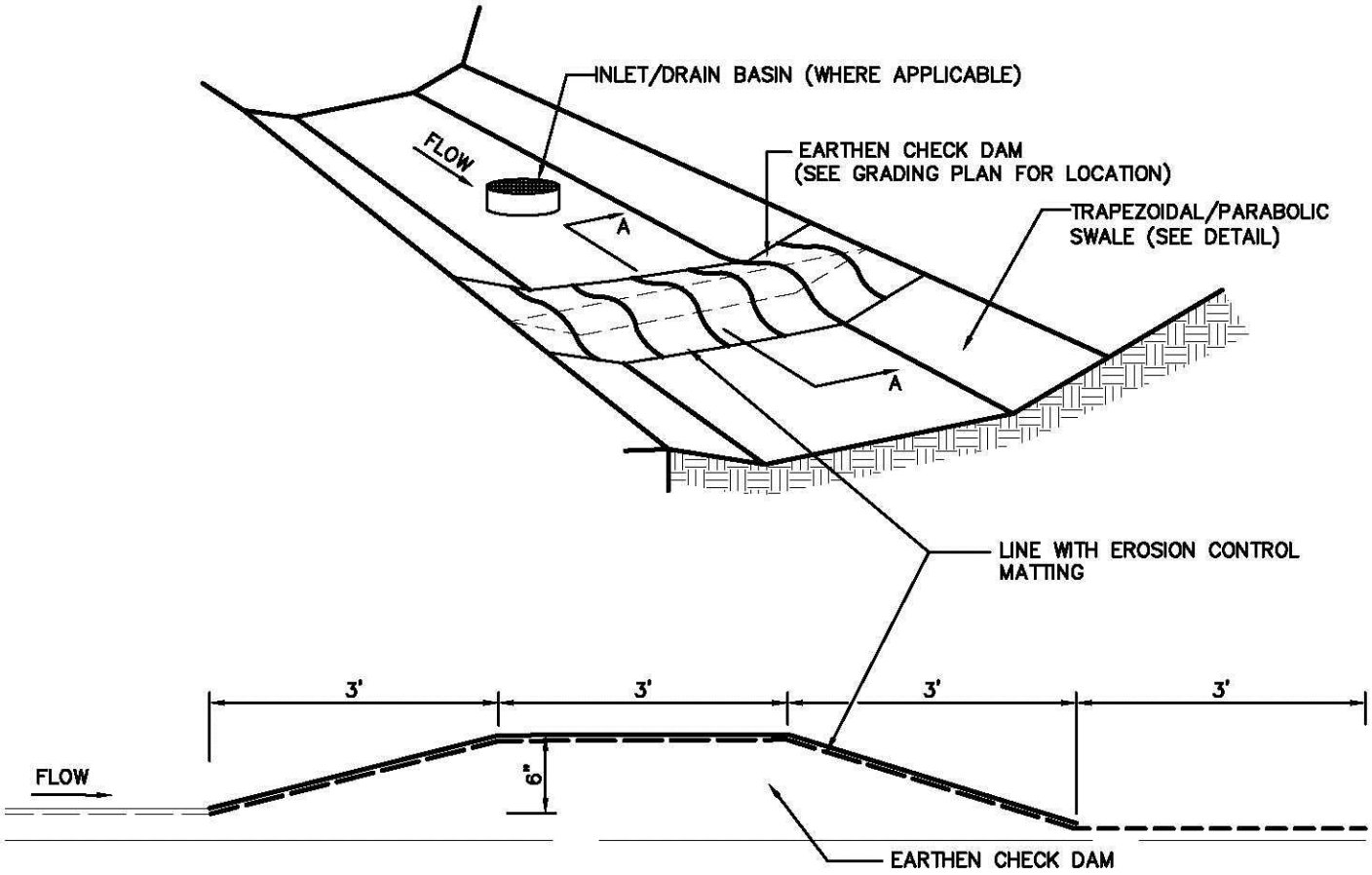
A = Impervious Area in square feet (sq. ft.)
L = Required Length of Swale in feet (ft.)

L = 0.05 x A
or;
L = 0.05 x _____ (impervious area in sq. ft.) = _____ (required length of swale in ft.).

Swale w/ Check Dam
Storage Provided = (Length) x (Bottom Width) x (Ponding Depth)

Sizing Chart for Swale with Check Dam

Impervious Area (sq. ft.)	**Linear Feet of 8' Wide Swale w/Check Dam (6" ponding depth)**
1000	50
1250	62.5
1500	75
1750	87.5
2000	100
2250	112.5
2500	125
2750	137.5
3000	150
3250	162.5
3500	175
3750	187.5
4000	200
4250	212.5
4500	225
4750	237.5
5000	250



SECTION A–A

CHECK DAM

NOT TO SCALE (SEE GRADING PLAN FOR LOCATION)

SD\SD075

EXHIBIT D
TYPICAL SWALE CHECK DAM DETAIL

PARADISE TOWNSHIP LANCASTER COUNTY

RETTEW
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DRAWN BY:
DATE: 6/12/14
SCALE: NOT TO SCALE
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