GRADING PERMIT REQUIREMENTS

RADNOR TOWNSHIP
ENGINEERING DEPARTMENT AND COMMUNITY DEVELOPMENT
PERMIT APPLICATION FOR:
MINOR GRADING, GRADING, AND STORMWATER MANAGEMENT

Permit Fees

ALL PERMITS REQUIRE 5 SETS OF PLANS. ALL PLANS NEED TO BE TO SCALE

1. **Shed Permit** – The cost for this permit is $120
2. **Minor Grading Permit** ***(for new impervious <500 square feet) -*** The cost for this permit is **$510**, and includes:
    a. One plan review
    b. One site inspection
    c. Additional plan reviews or site inspections will be billed to the applicant at the rates on the attached fee schedule.

3. **Grading Permit** ***(for new impervious >499 square feet and < 1000 square feet)-*** The application fee for this permit is $5,050 (**One (1) checkin the amount of $50 for the Application fee, One (1) check in the amount of $5,000 for a Professional Services Agreement)**. This permit requires a Professional Services Account (PSA), from which all reviews and inspections and Application fee will be paid from. The initial balance provided by the applicant for the PSA is $5,000. Should the balance of this PSA be reduced to $500 from payments for review and inspection, the applicant is required to provide additional funds to keep the balance at $5,000. All unused funds will be returned to the applicant upon completion of the project, in accordance with Township requirements.

4. **Stormwater Management Permit** ***(for new impervious >999 square feet)*** - The application fee for this permit is $5,050. (**One (1) check in the amount of $50 for the Application fee, One (1) check in the amount of $5,000 for a Professional Services Agreement**). This permit requires a Professional Services Account (PSA), from which all reviews and inspections and application fee will be paid from. The initial balance provided by the applicant for the PSA is $5,000. Should the balance of this PSA be reduced to $1,000 from payments for review and inspection, the applicant is required to provide additional funds to keep the balance at $5,000. All unused funds will be returned to the applicant upon completion of the project, in accordance with Township requirements.

5. **Pool Permit-** ***This permit is solely for the installation of a pool, decking, etc. This is not for a pool that is part of a larger grading permit.*** There is a $50 permit application fee. Plan review, and inspection cost is $3,000. Should the cost of reviews and/or inspections exceed $3,000, the application will be required to pay the overage before the project is approved. ***A Certificate of Occupancy will not be issued unless all improvements are installed, inspected and approved by the Township.***

GRADING PERMIT REQUIREMENTS

A Grading Permit or Stormwater Management Permit is required:

1. If you wish to install a shed – Shed Permit
2. Increase impervious Surface (regardless of removed impervious surface)
    a. <500SF Impervious – Minor Grading Permit
    b. >499SF impervious and <1000SF – Grading Permit (Ordinance 2022-15, Stormwater Management Ordinance)
    c. >1000SF impervious – Stormwater Management Permit *(Ordinance 2022-15, Stormwater Management Ordinance)*
3. If you are grading, excavating or filling *(Ordinance Chapter 175 Grading, Execution, Fills)*
4. A pre-construction meeting is required. To schedule your meeting, please call Doug Meder at 610-688-5600 ext. 129.
5. An Approved Grading Permit is required before submitting a building permit to the Community Development Department.

Fees

Fees and Professional Services Agreements (for further details see attached fee schedule)
A Professional Services Agreement (PSA) is required for most grading permits. Depending on the specific permit, the applicant must sign a deposit slip and provide the appropriate amount of funds noted for the Permit's PSA. A permit cannot be reviewed unless the required check and signed deposit slip are present. The PSA is used to reimburse the Township for plan reviews, Legal/Stormwater Management Agreement, and inspections. An applicant is required to make additional deposits in the PSA, if required.

Shed Permit	$120 (see Fee Schedule posted on the Radnor Township Website)
Minor Grading Permit	$510 (includes the application fee and one plan review and one site inspection. Additional plan reviews or site inspections will be billed to the applicant per the approved rates referenced in the Radnor Township Fee schedule)
Grading Permit	$5,050 (one check for the $50 Application fee, and once check for the $5,000 Professional Services Agreement (PSA), as referenced in the Radnor Township Fee Schedule)
Stormwater Management Permit	$5,050 (one check for the $50 application fee; one check for the $5,000 Professional Services Agreement (PSA), as referenced in the Radnor Township Fee Schedule)
Pool Permit	$3,050 (one check for the $50 application fee; one check for the $3,000 Professional Services Agreement (PSA), as referenced in the Radnor Township Fee Schedule)

GRADING PERMIT REQUIREMENTS

Important Ordinance links

Stormwater Ordinance:
https://www.radnor.com/home/showpublisheddocument/164/637698774172530000
Pennsylvania Stormwater Best Management Practices Manual 363-0300-002
http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4673
Ordinance Chapter 175 Grading, Excavation, Fills: https://ecode360.com/10972571

Impervious Surface

Complete the impervious surface table (required).

Location:__________________________________

Project Description: ________________________

Gross Lot Area__________**Sq. Ft.**

To be Completed by Radnor Township

Permit Number: __________________

Submission Date: __________________

Shade Tree Approval Date: __________________

Final Approval Date: __________________

Zoning Approval: __________________

Zoning Officer

Grading Permit Approval: __________________

Township Engineer

5 SET OF SITE PLANS TO SCALE ARE REQUIRED WITH APPLICATION

Complete All Yellow Fields

A Cover Type	***B*** Existing Area (square feet)	***C*** % of existing impervious surface area of your lot	**D** Pervious Paver, Crushed Stone Walkway, Porous Asphalt	**E** Area of Impervious Removed	**F** Impervious to pervious (credit up to 999 square feet)	**G** Area of Added Impervious Cover (square feet)	**H** Total Area (square feet)	***I*** % of total impervious surface of your lot, as proposed
Building								
Walkway/sidewalk								
Patios								
Decks, Stone Walkways								
Driveway								
Other								
Total		%						%

A: This column describes the various types of existing impervious surface on the property.
B: Note the corresponding existing impervious surface on the property.
C: This is required for the zoning review; note the percentage of existing impervious surface on the property.
D: Note the proposed pervious surface by cover type. Pervious paver design will be reviewed on a case-by-case basis. **WOOD OR MANMADE MATERIAL DECKS, ALONG WITH CRUSHED STONE WALKWAYS NOT TO BE USED FOR VEHICULAR TRAFFIC ARE CONSIDERED PERVIOUS.**
E: This is the SF area of existing impervious cover remove.
F: Up to 999 SF of credit provided for converting impervious surface to grass. **THERE IS NO CREDIT PROVIDED FOR REPLACING IMPERVIOUS SURFACE WITH IMPERVIOUS SURFACE. FOR EXAMPLE: IF AN 800SF PATIO IS REMOVED, AND AN 800 SF ADDITION IS BUILT IN ITS PLACE, THE ADDITION OF 800 SF OF NEW IMPERVIOUS, THAT WILL REQUIRE GROUNDWATER INFILTRATION.**
G: Extend all areas of impervious cover
H: Total of all new impervious
I: Total of all new impervious as a percentage of the lot area (zoning).

Estimated Cubic Yards of Dirt excavated______ Will this fill be taken off site____Yes __No

Number of trees to be removed (over 6" DBH)____Is Property in Historical District___Yes___No

Place a check in the box of the Zoning District applicable to your lot. (required)

Zoning Table								
Zoning District	Maximum Impervious Cover (%)		Zoning District	Maximum Impervious Cover (%)		Zoning District	Maximum Impervious Cover (%)	
R-1	22		CO 2,3 stories	50		GH_CR	95	
R-2	30		C1	60		GH-BC	50	
R-3	35		C-2	70		GH-OS	15	
R-4	40		C-3	65		WBOD	NA	
R-5 Semi/2 family detached	40		PI	45		PB	55	
R-5 Multi Dwelling	36		PA	50		PLO	55	
R-6	70		GH-N	60		FC	NA	
R-IA	30		GH-GA	80		PLU	45	

TO BE COMPLETED BY APPLICANT

Property Owner(s)____

Address of Property____

Phone Number__________________________Email_______________________________

Engineer/Surveyor____

Phone Number____________________________Email_____________________________

The undersigned hereby makes application for a Permit under Chapter 175 and any amendments there of:

Signature of Applicant____

Please note the following requirements:

1. Submit five (5) copies of the plan set with your application
2. Plans are to be no larger than 24” x 36”, and shall be folded
3. Shade Tree Commission: If your project meets any of the following requirements, you will be required to attend the Shade Tree Commission Meeting, as well as an electronic submission to permitplans@radnor.org
    a. Any clearing activity which proposes the removal of six (6) or more trees with a Diameter at Breast Height (DBH) of 6” or greater
    b. Grading in excess of 200 cubic yards, excavation in excess of 60 cubic yards
    c. Grading for parking lots of 5 or more cars
    d. Removal of a Heritage Tree (30” DBH or greater) in a non-emergency situation.
    e. Forestry management and practices
    f. Swimming pool permits
    g. The Shade Tree Commission shall review, if directed by the Township Engineer, applications submitted to the Township for the following: Demolition permits on any building lot whereby the proposed work may impact or cause the removal of trees; and Commercial tree removal.
4. Stormwater Calculations:
    a. Replacement of impervious surface is considered “new” impervious
    b. There is credit for the removal of impervious surface up to 999 sf.
    c. Stormwater calculations are to be based on the total of all added impervious (not the net impervious surface)

d. **Minor Grading Permit** (< 500 SF added impervious) – installation of a stormwater BMP is encouraged.
e. **Grading Permit** (>499 SF and <1000 SF of added impervious) – groundwater recharge is required.
f. **Stormwater Management Permit** (>999SF of added impervious or greater) Stormwater Management required per Ordinance 2022-15, Stormwater Management Ordinance
g. **Pool Permit –** installation of a stormwater BMP is encouraged.

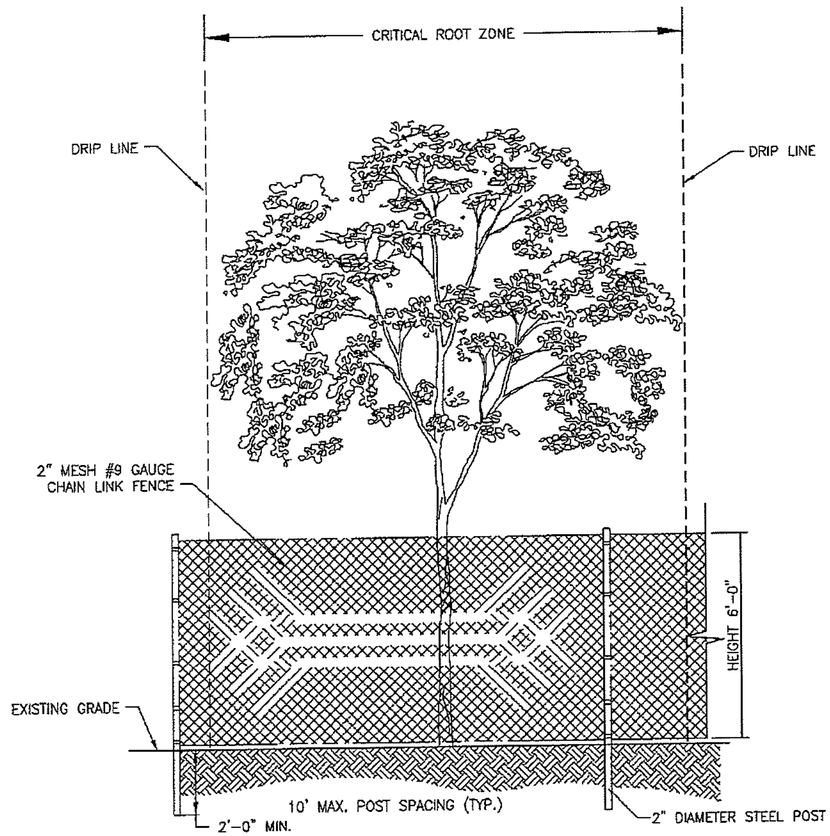
Submission Requirements

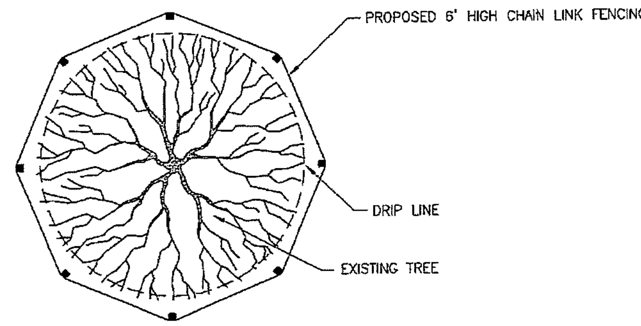
For all projects:

1. Completed Application
2. Plan requirements
    a. Scale
    b. Tree protection fence (if applicable)
    c. Erosion & Sedimentation Control
    d. All existing and proposed structures, with dimensions
    e. All impervious surfaces
    f. Retaining wall height if over 4' in height (if applicable)
    g. Location of utilities
    h. Property lines with metes and bounds
    i. Location of onsite sewer system (if applicable)
    j. Trees (if within 25' of construction disturbance)
        i. Location of all trees over 6" DBH
        ii. DBH of all trees over 6" DBH
        iii. Common and Latin name of trees
        iv. Size and type of compensatory trees (if applicable)
        v. For any grading permit application, where six or more trees are proposed to be removed, a tree table is required on the plans. The tree table will note the species, condition of all trees to be removed and compensatory tree replacement.

For all projects that have greater than 500 square feet of new or additional impervious coverage, the following is also required:

3. Plan Requirements
    a. Existing and proposed 2 'contours
    b. Zoning data
    c. Calculated 100-year flood plain
    d. Signed and sealed by a Pennsylvania registered Professional Engineer or Land Surveyor
4. Ground water recharge calculations
5. Stormwater Management calculation





PLAN VIEW

TREE PROTECTION SPECIFICATIONS

I. A 4" layer of coarse mulch or woodchips is to be placed beneath the dripline of the protected trees. Mulch is to be kept 12" from the trunk.

II. A protective barrier of 6' chain link fencing shall be installed around the dripline of protected tree(s). The fencing can be moved within the dripline if authorized by the Consulting Arborist but not closer than 2' from the trunk of any tree. Fence posts shall be 2.0" in diameter and are to be driven 2' into the ground. The distance between posts shall not be more than 10'. This enclosed area is the Tree Protection Zone (TPZ).

III. Movable barriers of chain link fencing secured to cement blocks can be substituted for "fixed" fencing if the Consulting Arborist agree that the fencing will have to be moved to accommodate certain phases of construction. The builder may not move the fence without authorization form the Consulting Arborist.

IV. Where the Consulting Arborist has determined that tree protection fencing will interfere with the safety of work crews, Tree Wrap may be used as an alternative form of tree protection. Wooden slats at least one inch thick are to be bound securely, edge to edge, around the trunk. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the outside of the wooden slots. Major scaffold limbs may require protection as determined by the Consulting Arborist. Straw waddle may also be used as a trunk wrap by coiling the waddle around the trunk up to a minimum height of six feet from grade. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the straw waddle.

DO NOT:
A. Allow run off of spillage of damaging materials into the area below any tree canopy.
B. Store materials, stockpile soil, or park or drive vehicles within the TPZ.
C. Cut, break, skin, or bruise roots, branches, or trunks without first obtaining authorization from the Consulting Arborist.
D. Allow fires under and adjacent to trees.
E. Discharge exhaust into foliage.
F. Secure cable, chain, or rope to trees or shrubs.
G. Trench, dig, or otherwise excavate within the dripline or TPZ of the tree(s) without first obtaining authorization from the Consulting Arborist.
H. Apply soil sterilants under pavement near existing trees.

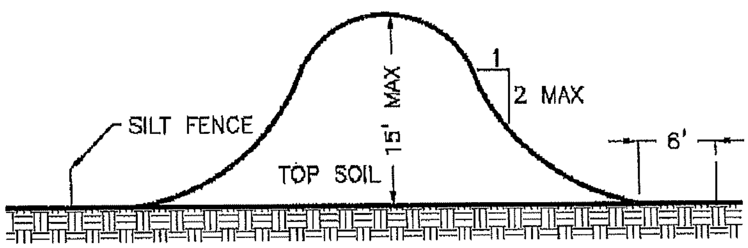
TREE PROTECTION DETAIL

NO SCALE

ROCKWELL ASSOCIATES, LLC
Arboriculture ♦ Urban Forestry ♦ Horticulture
Consulting ♦ Planning ♦ Management

P.O. Box 542, Ridley Park, PA 19078
Phone (610) 731-7969
Fax (610) 521-0108

jhtrees@verizon.net
www.rockwellconsultants.com

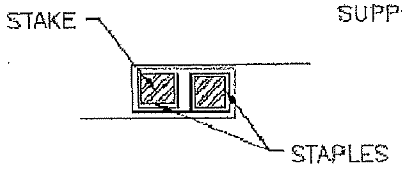


TYPICAL SOIL STOCKPILE CROSS SECTION

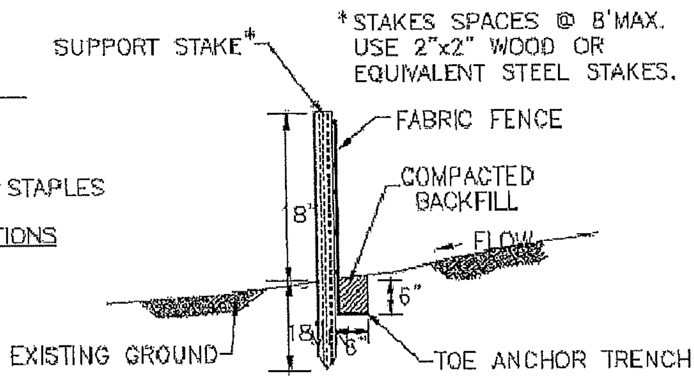
NTS

NOTE: SILT FENCE MUST COMPLETELY ENCIRCLE STOCKPILES

NOTE: TOPSOIL SHALL NOT BE REMOVED FROM THE DEVELOPMENT SITE OR USED AS FILL. TOPSOIL SHALL BE REMOVED FROM THE AREAS OF CONSTRUCTION AND STORED SEPARATELY THE TOPSOIL SHALL BE STABILIZED TO MINIMIZE EROSION DURING STORAGE. UPON COMPLETION OF CONSTRUCTION, THE TOPSOIL SHALL BE UNIFORMLY REDISTRIBUTED ON THE SITE.



JOINING FENCE SECTIONS

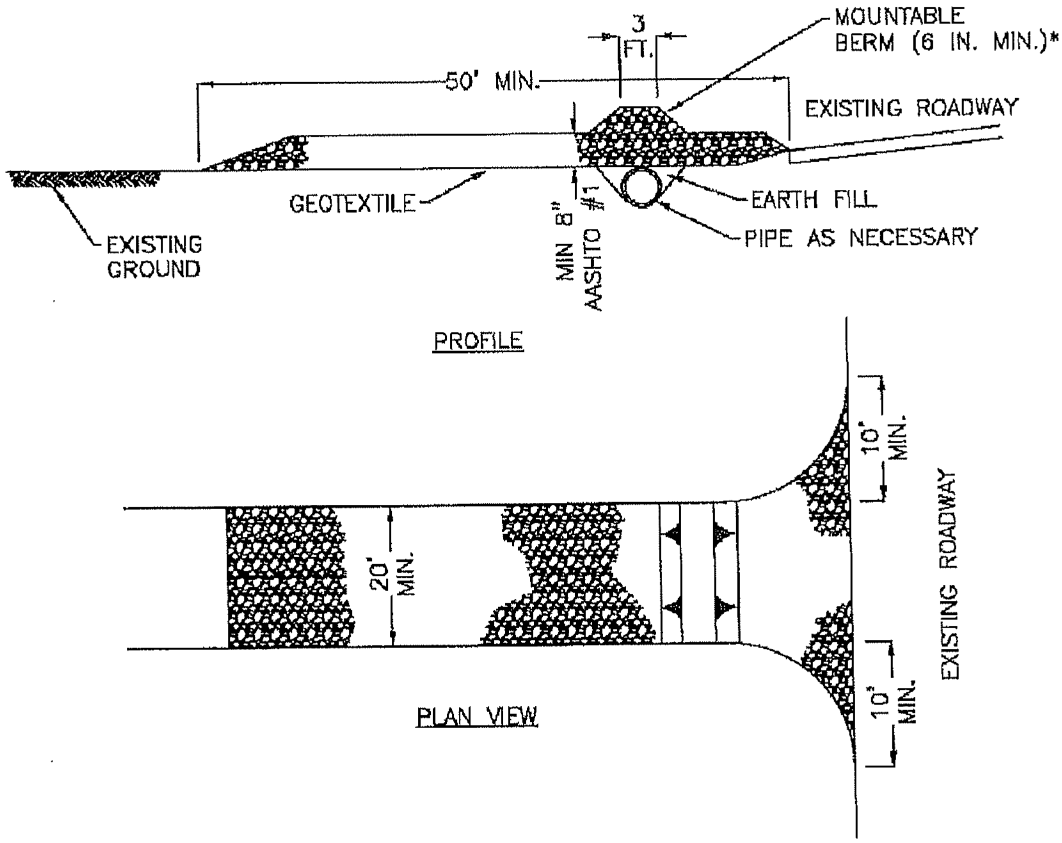


SILT FENCE NOTES:

1. FILTER FABRIC FENCE MUST BE PLACED AT LEVEL GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8' UP SLOPE AT 45° TO THE MAIN BARRIER ALIGNMENT.
2. ANY SILT FENCING WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE REPLACED WITH ROCK FILTER OUTLETS IMMEDIATELY. SEE ROCK FILTER OUTLET DETAIL.
3. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT THE FENCE.

STANDARD SILT FENCE

N.T.S.



* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

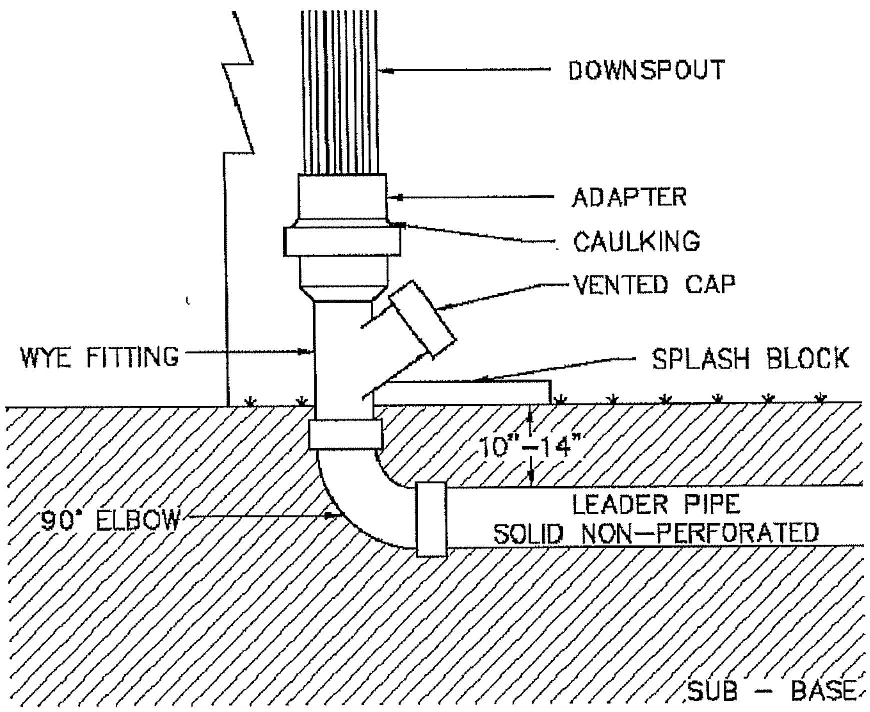
STANDARD CONSTRUCTION DETAIL
ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

RADNOR TOWNSHIP

GANNETT FLEMING

APRIL 2014



DOWNSPOUT DETAIL

NTS

Radnor Township's New Stormwater Management Ordinance Highlights

Effective October 13th, 2022, Radnor Township's new Stormwater Management Ordinance will be in effect. The following is a summary of some of the bigger changes that take place in the new ordinance.

Some big things in the new ordinance include green infrastructure, incentives to reduce impervious surface area, a simplified stormwater management approach, and many others. These changes allow for residents to have more choices when it comes to stormwater management.

- In the previous version of the stormwater ordinance, groundwater recharge methods had to be implemented when an impervious area between 500 and 1,499 SF was being created. This process was allowed to be implemented by either stone bed or pipe. In the updated stormwater ordinance, more options have been given to achieve groundwater recharge. Additionally, recharge is now required for added impervious areas between 500 and 999 SF.

  Furthermore, decks with space between boards will no longer count as impervious area. A grading permit will not be required for a deck, but a building permit will still be required.

Requirements Based on Area of New Impervious			
2005 SWM Ordinance		**New SWM Ordinance**	
Area (SF)	**Requirement**	**Area (SF)**	**Requirement**
0-499	No BMP req'd	0-499	No BMP req'd
500-1,499	Recharge via stone bed or pipe	500-999	Recharge via stone bed, pipe infiltration trench, rain garden/bioinfiltration area

- The following methods can now be used to achieve recharge:

  - **Infiltration Trench**

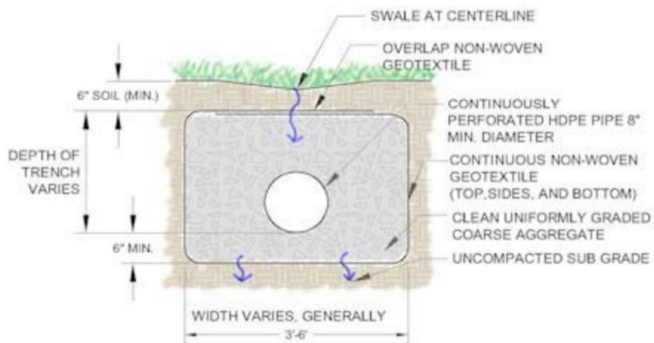


Figure 6.4-1

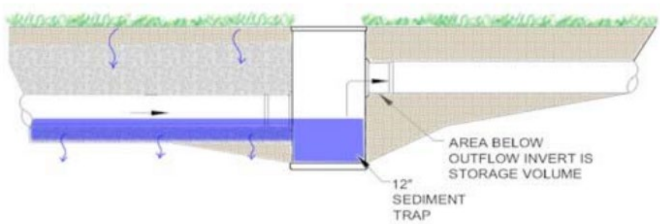
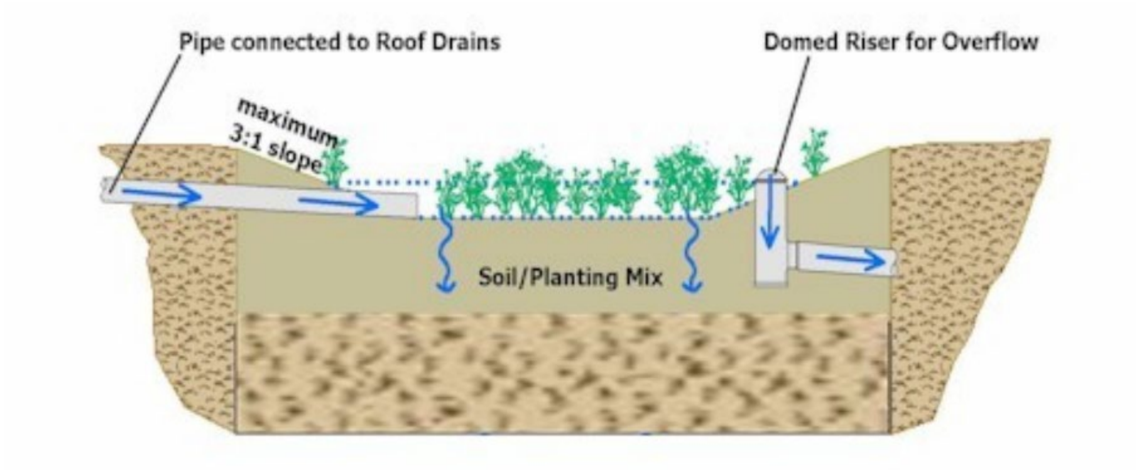


Figure 6.4-2

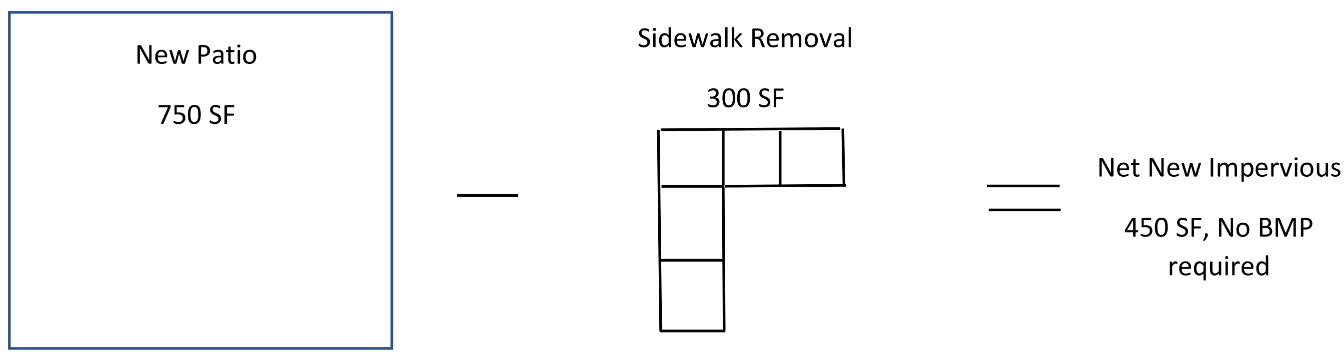
  - **Rain Garden / Bioinfiltration Area**



- Another big change with the new ordinance is the amount of added impervious that requires a stormwater management plan. A stormwater management plan is now required when 1,000 or more SF of impervious is created, as opposed to the 1,500 SF requirement with the old stormwater ordinance.

Requirements Based on Area of New Impervious			
2005 SWM Ordinance		**New SWM Ordinance**	
Area (SF)	**Requirement**	**Area (SF)**	**Requirement**
≥ 1,500	SWM	≥ 1,000	SWM

- In the updated stormwater ordinance, removal of existing impervious surface (up to 999 SF) is now incentivized! This is explained in the following example scenario:
    - Barbara is building a 750 SF concrete patio. Normally, this would require recharge because it's more than 500 SF of new impervious. However, Barbara has an old 300 SF sidewalk on her property that she doesn't need anymore. With the new ordinance, Barbara can choose to have this sidewalk removed and replaced with grass, bringing her net new impervious to 450 SF. This falls below the area that requires any recharge or stormwater management, meaning no BMP is required!



- Appendix B of the stormwater ordinance shows the simplified approach for stormwater management. This approach lets you calculate required BMP sizes based on the amount of impervious area being created. Here's an example scenario:

    - Barbara now wants to build a new 600 SF asphalt driveway on her property. This is more than 500 SF of impervious, so she needs a BMP for recharge. Barbara decides on installing a Cistern, and consults Appendix B to calculate the required volume. The calculation process can be found in Appendix B of the Stormwater Ordinance.

Radnor Township is very excited for the new Stormwater Management Ordinance to be implemented. Please see the PA DEP Stormwater Best Management Practices Manual for an additional stormwater management resource.

Requirements for submissions to the
Radnor Township Engineering Department

Guidelines for the Protection of Trees On Construction Sites

To preserve certain mature trees within a construction site some precautions must be taken to assure that neither the trunk, limbs nor root system of the tree are damaged. The root system of a tree is the most vital and the most delicate part of the plant, and the most easily damaged.

The root system often extends far beyond the drip-line of the tree. The fine absorbing roots, those that collect water and nourishment for the tree, are located primarily within the top eight to twelve inches of the soil. The roots and the soil in this surface layer must be protected from injury.

Any encroachment, disturbance, or compaction of the soil around the tree will damage or destroy the fine absorbing roots. Injury caused by cutting, crushing, suffocation, poisoning, or moisture stress by inundation or dehydration can result in the death of the tree. Injuries caused during construction projects may not be apparent for many years after the completion of the project, but can ultimately kill the tree.

The following guidelines are minimum standards recommended for the preservation of trees. These guidelines must be incorporated in construction contracts, and the details made available to all parties involved with work on the site, including equipment operators. Other guidelines and protective measures may also be appropriate, in addition to those listed below.

- **Protection Barrier**: A protection barrier shall be installed around the tree or trees to be preserved. The barrier shall be constructed of durable fencing material, such as plastic construction fencing, snow fence, or chain-link fencing. The barrier shall be placed as far from the base of the tree(s) as possible, preferably at the drip-line. The fencing shall be maintained in good repair throughout the duration of the project, and shall not be removed, relocated, or encroached upon without the permission of the arborist involved or the Township.

- **Specimen Tree Protection Barrier Fencing Detail:** Anchor posts must be minimum 2" "U" channel steel. Wood posts are no longer accepted by Radnor Township. (Detail is enclosed).

- **Storage of Materials:** there shall be **NO** storage of materials or supplies of any kind within the area of the protection barriers. Concrete and cement materials, block, stone, sand and soil, lumber, etc shall not be placed within the drip-line of the tree.

- **Fuel Storage**: Fuel storage shall **NOT** be permitted near any tree to be preserved. Refueling, servicing and the maintenance of equipment and machinery must be done in a location that will minimize any possible harm to trees if a spill occurs.

- **Debris and Waste Materials**: Debris and waste from construction or other activities shall NOT be permitted within protected areas. Wash-down of concrete or cement handling equipment, in particular, shall NOT be permitted near protected trees.

- **Grade Changes**: Grade changes can be particularly damaging to trees. Even as little as two inches of fill can cause the death of a tree. Lowering the grade can destroy major portions of a root system. Any grade changes proposed should be approved by an ISA Certified Arborist or a member of the American Society of Consulting Arborists before construction begins. Precautions shall be taken to mitigate potential injuries.

- **Damages**: Any damages or injuries should be reported to the project arborist as soon as possible. Severed roots shall be pruned cleanly to healthy tissue, using proper pruning tools. Broken branches or limbs shall be pruned according to International Society of Arboriculture Pruning Guidelines and ANSI A-300 Pruning Standards.

- **Preventative Measures**: Before construction begins, fertilization of the affected trees is recommended to improve tree vigor and health. Soil analysis testing should be completed to assure fertilization with the appropriate fertilizer products. Pruning of the tree canopies and branches should be done at the direction of the project arborist to remove any dead or broken branches, and to provide the necessary clearances for the construction equipment.

- **Township Shade Tree Commission**: Is a valuable resource to all homeowners in Radnor. They are willing to discuss any tree related issues or concerns at their monthly meeting. Please contact the Township with any questions.

Approval to build is only the beginning...

Sediment-laden stormwater flooding into a stormdrain in Springfield. (Courtesy of Ken Rapp)

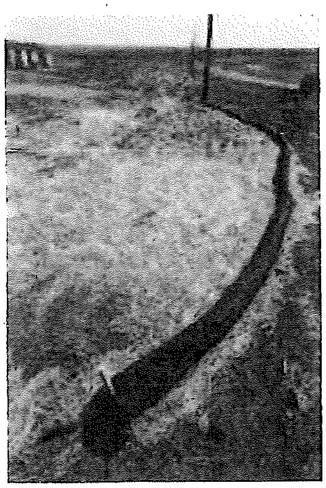
...to protecting water quality.

Sediment is considered a pollutant, and stormwater left uncontrolled will damage our local waterways. It is critical that every developer, construction site manager, and laborer be aware of the importance of implementing their project's approved erosion and sediment pollution control plan. The control measures contained within the plan are referred to as Best Management Practices (BMPs).

Steps You Can Take to Improve Your Efforts

- Upgrade your controls to ABACT Controls. *(Antidegradation Best Available Combination Technologies)* *Example:* A compost filter sock, appropriately sized, is an upgrade for a silt fence.
- Temporary Stabilization – Temporary seeding and mulching will significantly reduce erosion as well as reduce BMP maintenance costs.
- Prior to permanent stabilization till compacted soils and add compost amendments.
- Be aware of weather forecasts and implement additional BMP's if necessary, and make sure your temporary stabilization efforts are maximized.

Post Construction Stormwater Management

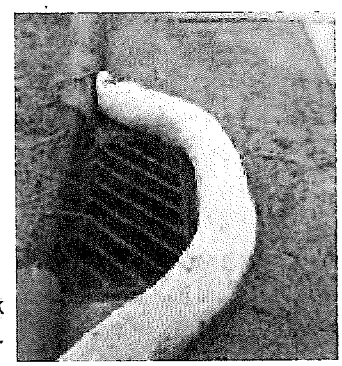


A compost filter berm permanently stabilizing a hillside.

- Infiltration areas should be protected to prevent compaction.
- Preserve and protect mature trees to the maximum extent practicable.
- Prior to installation of underground infiltration facilities stabilize the project as much as possible.
- If your site has riparian buffers make sure these areas are fenced off, and that everyone working on site is aware that the buffers are protected areas.

Article by Ed Magargee, District Manager, Delaware County Conservation District

TOWNSHIP OF RADNOR
301 IVEN AVENUE
WAYNE, PA 19087



A compost filter sock protecting a storm drain.

Message brought to you by your municipality through the CRC MS4 Municipal Stormwater Partnerships and Eastern Delaware County Stormwater Collaborative.

CRC Watersheds Association
Chester • Ridley • Crum

Chester County Conservation District

Delaware County Conservation District

Eastern Delaware County Stormwater Collaborative

Don't Let Storm Water Run Off With Your Time and Money!

What the Construction Industry Should Know About Storm Water In Our Community

The construction industry plays an important role in improving our community's quality of life by not only providing new development, but also protecting our streams and rivers through smart business practices that prevent pollution from leaving construction sites.

Storm water runoff leaving construction sites can carry pollutants such as dirt, construction debris, oil, and paint off-site and into storm drains. In our community, storm drains carry storm water runoff directly to local creeks, streams, and rivers with no treatment. Developers, contractors, and homebuilders can help to prevent storm water pollution by taking the following steps:

What is Storm Water?

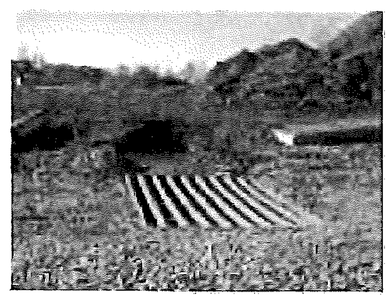
Storm water is water from precipitation that flows across the ground and pavement when it rains or when snow and ice melt. The water seeps into the ground or drains into what are commonly called storm sewers. These are the drains you see at street corners or at low points on the sides of streets. Collectively, the draining water is called **storm water runoff.**

1. Comply with storm water permit requirements.
2. Practice erosion control and pollution prevention practices to keep construction sites "clean."
3. Conduct advanced planning and training to ensure proper implementation on-site.

The remainder of this fact sheet addresses these three steps.

Storm Water Permit Requirements for Construction Activity

Planning and permitting requirements exist for construction activities. These requirements are intended to minimize storm water pollutants leaving construction sites.



- Pennsylvania's Erosion and Sediment Pollution Control Program (25 Pa. Code, Chapter 102) requires Erosion and Sediment Control Plans for all earth disturbing activities.
- The National Pollutant Discharge Elimination System (NPDES) Permit Program (25 Pa. Code, Chapter 92) requires that construction activities disturbing greater than one acre submit a Notice of Intent for coverage under a general NPDES permit.

Knowing your requirements before starting a project and following them during construction can save you time and money, and demonstrate that you are a partner in improving our community's quality of life. For more information about these programs, contact your local county conservation district office or the Department of Environmental Protection.

Erosion Control Practices:

- Perimeter controls (e.g. silt fence)
- Sediment traps
- Immediate revegetation
- Phased, minimized grading
- Construction entrance
- Protection of streams and drainage ways
- Inlet protection

An Ounce of Prevention

Rain that falls onto construction sites is likely to carry away soil particles and other toxic chemicals present on construction sites (oil, grease, hazardous wastes, fuel). Storm water, if not properly managed, carries these pollutants to streams, rivers, and lakes. Erosion and sediment control practices can serve as a first line of defense,

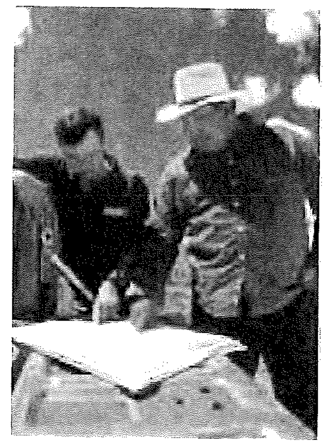
Pollution Prevention Practices:

- Designated fueling and vehicle maintenance area away from streams.
- Remove trash and litter.
- Clean up leaks immediately.
- Never wash down dirty pavement.
- Place dumpsters under cover.
- Dispose of all wastes properly.

minimizing clean up and maintenance costs, and the impacts to water resources caused by soil erosion during active construction. Erosion controls can reduce the volume of soil going into a sediment control device, such as a sediment trap, therefore, "clean out" frequencies are lower and maintenance costs are less. When possible, divert water around the construction site using berms or drainage ditches.

In addition, use pollution prevention and "good housekeeping measures" to reduce the pollution leaving construction sites as well. This can be as simple as minimizing the pollution source's contact with rainwater by covering it, maintaining a "clean site" by reducing trash and waste, and keeping vehicles well maintained.

The Best Laid Plans



Plans such as erosion and sediment control plans and storm water pollution prevention plans are important tools for outlining the erosion control and pollution prevention practices that you will use to manage storm water runoff prior to breaking ground. Developing good plans allows for proper budgeting and planning for the life of the project. Proper installation and maintenance of erosion and storm water controls is essential to a plan that works. Training for on-site staff helps to ensure the proper installation and maintenance of erosion controls and pollution prevention practices. Inspect controls and management techniques regularly to ensure they are working, especially after storm events. If polluted storm water is leaving the site, you may need to repair or add additional storm water controls.

The Bigger Storm Water Picture

Your community is preventing storm water pollution through a comprehensive storm water management program. This program addresses storm water pollution from construction, but it also deals with new development, illegal dumping to the storm sewer system, and municipal operations. It will also continue to educate the community and get everyone involved in making sure the only thing that storm water contributes to our streams is . . . water! Contact your community or the Pennsylvania Department of Environmental Protection for more information about storm water management.

For more information:

Radnor Township
301 Iven Avenue
Wayne, PA 19087
Phone: 610-688-5600

Pennsylvania Association of Conservation District's:
http://www.pacd.org/default.html

Pennsylvania Handbook of Best Management Practices for Developing Areas:
http://www.pacd.org/products/bmp/bmp_handbook.html

Storm Water Manager's Resource Center:
http://www.stormwatercenter.net

Pennsylvania Department of Environmental Protection:
http://www.dep.state.pa.us

Chapter 175. Grading, Excavations and Fills

§ 175-3. Definitions.

As used in this chapter, the following terms shall have the meanings indicated:

BUILDING PERMIT
A permit issued by the Building Inspector pursuant to the provisions of Chapter 125, Building Construction, for the construction, erection or alteration of a structure or building.

EXCAVATION
Any act by which earth, sand, gravel, rock or any other similar material is cut into, dug, quarried, uncovered, removed, displaced, relocated or bulldozed, and includes the conditions resulting therefrom.

FILL
Any act by which earth, sand, gravel, rock or any other material is deposited, placed, pushed, dumped, pulled, transported or moved to a new location, and includes the conditions resulting therefrom.

GRADE
The elevation of the existing ground surface at the location of any proposed excavation or fill.

GRADING
Excavation or fill or any combination thereof, and includes the conditions resulting from any excavation or fill.

GRADING PERMIT
Any permit required under § 175-5 hereof.

PERSON
A natural person, but also includes a partnership or corporation.

SITE
A lot, tract or parcel of land, or a series of lots, tracts or parcels of land joined together, where grading work is continuous and performed at the same time.

§ 175-4. Scope of provisions.

New grading, excavations and fills or changes, additions, repairs or alterations made to existing excavations and fills shall conform to the provisions of this chapter, except that this chapter shall not apply to work in a public street or alley[1] or in a Township park, playground or recreation area or on other public property.

[1] *Editor's Note: See Ch. 250, Streets and Sidewalks, Art. V.*

§ 175-5. Permits required; exceptions.

[Amended 5-28-1974 by Ord. No. 1572]
No person shall commence or perform any grading, excavation or fill without first having obtained a grading permit from the Township Engineer, and in the case of an excavation or fill involving 10,000 cubic yards or more, except where a subdivision is involved as defined in § 255-6 of the Code of the Township of Radnor, the written approval of the Board of Commissioners is required. A separate grading permit shall be required for each site. One permit may cover both an excavation and any fill made on the same site. A grading permit will not be required, however, in the following situations, but in all other respects the provisions of this chapter shall apply:

A. An excavation which does not exceed three feet in vertical depth at its deepest point measured from the natural ground surface nor cover an area of more than 1,000 square feet. This exception shall not affect the applicability of this chapter nor the requirement of a grading permit for any fill made with the material from such excavation.

B. A fill which does not exceed 10 cubic yards of material on any one site or a fill which does not exceed three feet in vertical depth at its deepest point measured from the natural ground surface nor cover an area of more than 1,000 square feet, provided that the surfaces of such fills do not have a slope at any point steeper than five horizontal to one vertical.

C. An excavation below finished grade for basements and footings of a building or an underground structure authorized by a building permit. Also, an excavation for a driveway between a building site and the street, if placed on grade, provided its surface area is less than 1,500 square feet. This exception shall not affect the applicability of this chapter nor the requirement of a grading permit for any fill made with the material from such excavation. A grading permit shall not be required for the temporary stockpiling on the same site of the material from such excavation.
[Amended 10-13-1992 by Ord. No. 92-19][1]

[1] *Editor's Note: Former Subsection D, regarding single-family house sites, which immediately followed this subsection, was repealed 10-13-1992 by Ord. No. 92-19.*

§ 175-6. Permit application.

A. Every applicant for a grading permit shall file a written application therefor with the Township Engineer. Such application shall:

(1) Describe the land on which the proposed work is to be done, by lot, block, tract or street address or similar description which will readily identify and definitely locate the proposed work.

(2) Be accompanied by plans and specifications prepared by a registered engineer or surveyor in the Commonwealth of Pennsylvania.
[Amended 3-14-1994 by Ord. No. 94-08]

(a) The plans and specifications shall include:

[1] A contour map showing the present contours of the land and the proposed contours of the land after completion of the proposed grading.

[2] A plot plan showing the location of the grading, boundaries, lot lines, neighboring streets and alleys, buildings, trees over six inches in diameter two feet above the ground and sufficient dimensions and other data to show the location of all work. The plan shall also indicate the proposed location of tree protection, including a detail of such, which shall be installed and inspected by the Township Engineer or Township Arborist prior to issuance of the grading permit.
[Amended 8-19-1996 by Ord. No. 96-24]

[3] Description of the type and classification of the soil.

[4] Details and location of any proposed drainage structures and pipes, walls and cribbing.

[5] The nature of fill material and trees to be removed as a result of the proposed construction and such other information as the Township Engineer may require to carry out the purposes of this chapter.

[6] The location of all existing and proposed buildings, structures, and other improvements, including the location of any existing or proposed subdivision and land development.
[Added 3-14-2011 by Ord. No. 2011-04]

[7] The proposed lowest floor elevation of any proposed building based upon North American Vertical Datum of 1988.
[Added 3-14-2011 by Ord. No. 2011-04]

[8] The elevation of the one-hundred-year flood.
[Added 3-14-2011 by Ord. No. 2011-04]

(b) All plans shall be dated and bear the names of the persons who prepared the same, the applicant and the owner of the land. Plans shall be submitted in triplicate.

(c) The preliminary plan required by Chapter 255, Subdivision of Land, may be substituted for the contour map and plot plan required by Subsection A(2)(a)[1] and [2] above.

(3) State the estimated dates for the starting and completion of the grading work.

(4) State the purpose for which the grading application is filed.

B. The Township Engineer may waive the requirement of any or all plans and specifications listed above if he finds that the information on the application is sufficient to show that the work will conform to the provisions of this chapter.

C. The Township Engineer may require that escrow funds be posted with the Township in the amount of 110% of the estimated cost of the project when public improvements or private improvements which effect Township facilities are proposed by the grading permit application.
[Added 3-14-1994 by Ord. No. 94-08]

D. When the Township Engineer requires inspection fees pursuant to the Shade Tree Ordinance (Chapter 263), the cost of these inspections shall be passed on to the applicant.
[Added 12-9-1996 by Ord. No. 96-31]

§ 175-7. Permit fees.

[Amended 2-27-1984 by Ord. No. 84-02; 3-14-1994 by Ord. No. 94-08; 12-13-1999 by Ord. No. 99-43]
Before issuing a grading permit, a permit fee shall be collected as follows:

Volume of Material (cubic yards)	**Permit Fee**
Not more than 50	$100
51 to 1,000	$200
Each additional 1,000 or portion thereof	$200

§ 175-8. Expiration of permit; extensions.

Every grading permit shall expire by limitation and become null and void if the work authorized by such permit has not been commenced within six months or is not completed within one year from the date of issue, provided that the Township Engineer may, if the permit holder presents satisfactory evidence that unusual difficulties have prevented work from being started or completed within the specified time limits, grant a reasonable extension of time, and provided further that the application for the extension of time is made before the date of expiration of the permit.

§ 175-9. Denial of permit; appeals.

A. Where, in the opinion of the Township Engineer, the work as proposed by the applicant is likely to endanger any property or any street or alley, he shall deny the grading permit. In determining whether the proposed work is likely to endanger property or streets or alleys or create hazardous conditions, the Township Engineer shall give due consideration to possible saturation by rains, earth movements, runoff of surface waters and subsurface conditions such as the stratification and faulting of rock and the nature and type of the soil or rock.

B. The Board of Commissioners shall consider promptly appeals from the provisions of this chapter or from the determinations of the Township Engineer, and the Board shall make determinations of alternate methods, standards or materials when, in its opinion, strict compliance with the provisions of this chapter is unnecessary. Any applicant or permit holder shall have the right to appeal to any court of competent jurisdiction from any decision or determination of the Board of Commissioners.

§ 175-10. Inspections; imposition of additional conditions.

A. The Township Engineer shall, when requested, make inspections hereinafter required and shall either approve that portion of the work which has been completed or notify the permit holder wherein the same fails to comply with the provisions of this chapter. Where it is found by inspection that the soil or other conditions are not as stated or shown in the application, the Township Engineer may refuse to approve further work until approval is obtained for a revised grading plan conforming to existing conditions.

B. Plans for the grading work shall be approved by the Township Engineer and shall be maintained at the site during the progress of the grading work and until the work has been approved.

C. The permit holder shall notify the Township Engineer in order to obtain inspections, in accordance with the following schedule, at least 24 hours before the inspection is to be made:

(1) Initial inspection. When work on the excavation or fill is about to be commenced.

(2) Rough grading. When all rough grading has been completed.

(3) Drainage facilities. When drainage facilities are to be installed and before such facilities are backfilled.

(4) Special structures. When excavations are complete for retaining and crib walls, and when reinforcing steel is in place and before concrete is poured.

(5) Final inspection. When all work, including the installation of all drainage and other structures, has been completed.

D. If at any state of the work the Township Engineer shall determine by inspection that the nature of the grading is not in accordance with the approved plans or is not functioning as designed and/or is likely to endanger property or streets or alleys or create hazardous conditions, the Township Engineer may require, as a condition to allowing the work to be done, that such reasonable safety precautions be taken as the Township Engineer considers advisable to avoid such likelihood of danger. Safety precautions may include but shall not be limited specifying a flatter exposed slope, construction or additional drainage facilities, berms, terracing, compaction or cribbing.
[Amended 4-29-1989 by Ord. No. 89-19]

§ 175-11. Standards for excavations.

A. No excavation shall be made with a cut face steeper in slope than one horizontal to one vertical, except under one or more of the following conditions:

(1) The excavation is located so that a line having a slope of one horizontal to one vertical and passing through any portion of the cut face will be entirely inside the property lines of the property on which the excavation is made.

(2) The material in which the excavation is made is sufficiently stable to sustain a slope of steeper than one horizontal to one vertical, and a written statement of a civil engineer, licensed by the Commonwealth of Pennsylvania and experienced in erosion control, to that effect is submitted to the Township Engineer and approved by him. The statement shall state that the site has been inspected and that deviation from the slope specified above will not result in injury to persons or damage to property.

(3) A retaining wall or other approved support is provided to support the face of the excavation.

B. The Township Engineer may require an excavation to be made with a cut face flatter in slope than one horizontal to one vertical if he finds the material in which the excavation is to be made unusually subject to erosion or if other conditions exist which make such flatter cut slope necessary for stability and safety.

C. Excavations shall not extend below the angle of repose or natural slope of the soil under the nearest point of any footing or foundation of any building or structure unless such footing or foundation is first properly underpinned or protected against settlement.

D. Before commencing any excavation which will in any way affect an adjoining property or structures thereon, the person making the excavation or causing the excavation to be made shall notify, in writing, the owners of adjoining buildings, not less than 30 days before such excavation is to be made, that the excavation is to be made. Adjoining properties and structures shall be protected.

§ 175-12. Standards for fills.

A. No fill shall be made which creates any exposed surface steeper in slope than 1 1/2 horizontal to one vertical, except under one or more of the following conditions:

(1) The fill, in the opinion of the Township Engineer, is located so that settlement, sliding or erosion of the fill material will not result in property damage or be a hazard to adjoining property, streets, alleys or buildings.

(2) A written statement from a civil engineer, licensed by the Commonwealth of Pennsylvania and experienced in erosion control, certifying that he has inspected the site and that the proposed deviation from the slope specified above will not endanger any property or result in property damage, is submitted to and approved by the Township Engineer.

B. The Township Engineer may require that the fill be constructed with an exposed surface flatter than 1 1/2 horizontal to one vertical if he finds that under the particular conditions such flatter surface is necessary for stability and safety.

C. Whenever a fill is to be made of materials other than clean soil or earth, the grading permit shall be subject to the following additional limitations and requirements:

(1) The fill shall be completed within a reasonable length of time, said time limit to be determined by the Township Engineer and to be specified on the grading permit.

(2) Clean soil or earth shall be placed over the top and exposed surfaces of the fill to a depth sufficient to effectively conceal all materials, other than clean soil or earth, within the fill. Where the nature of the fill requires, the Township Engineer may require clean soil or earth to be placed over the top and exposed surfaces of the fill to a depth sufficient to conceal all materials at the end of each day's operations.

(3) No grading permit shall be issued for the filling of materials other than clean soil or earth until a faithful performance bond in the amount of at least 10% more than the Township Engineer's estimated cost of adequately covering such fill with clean soil or earth has been furnished to the Township. Such bond shall be executed by a corporate surety, as well as by the principal, and shall be subject to the approval of the Township Solicitor as to form. The bond shall inure to the benefit of the Township and be conditioned upon the faithful performance of the work required under the terms and conditions of the grading permit to the satisfaction of the Township Engineer. In lieu of said bond, a cash deposit in said amount may be made with a bank or trust company, approved by the Township Solicitor, which shall act as escrow agent.

D. All fills shall be compacted to provide stability of material and to prevent undesirable settlement. The fill shall be spread in a series of layers, each not exceeding 12 inches in thickness, and shall be compacted by a sheepsfoot roller or other approved method after each layer is spread. The Township Engineer may require tests or other investigation if, in his opinion, the conditions or materials are such that additional information is necessary.

§ 175-13. Drainage.

Adequate provisions shall be made to prevent any surface waters from damaging the cut face of and excavation of the sloping surface of a fill. Slopes of more than 10 feet in vertical height shall be separated by level berms of at least four feet in width. Berm ditches shall be constructed when necessary to prevent erosion. All drainage provisions shall be of such design as to carry surface waters to the nearest practical street, storm drain or natural watercourse approved by the Township Engineer as safe for the deposit and receipt of such waters. The Township Engineer may require such drainage structures or pipes to be constructed or installed as, in his opinion, are necessary to prevent erosion damage and satisfactorily carry off surface waters.

§ 175-14. Maintenance of retaining walls and other protective devices.

The owner of any property on which an excavation or fill has been made shall maintain in good condition and repair all retaining walls, cribbing, drainage structures, fences and other protective devices.

§ 175-15. General requirements.

A. The top or bottom edge of slopes shall be at least three feet from property or right-of-way lines of streets in order to permit the normal rounding of the edge without encroaching on the abutting property. At property lines where walls or slopes are steeper than 1:1 and six feet or more in height, they shall be protected by a substantial fence three feet or more in height. Before a grading permit is issued, a bond may be required to guarantee the protection of steep slopes.

B. The owner of a property shall be responsible to protect and clean up lower properties of silt and debris washing from his property as a result of the regrading of his property.

C. In order to prevent the denuding of the landscape, wherever practicable, large trees and other natural features constituting important physical, aesthetic and economic assets to existing or impending suburban development shall be preserved.

§ 175-16. Issuance of grading certificate; revocation.

A. If upon final inspection of any excavation or fill it is found that the work authorized by the grading permit has been satisfactorily completed in accordance with the requirements of this chapter and any other requirements imposed, a grading certificate covering such work and stating that the work is approved shall be issued to the permit holder by the Township Engineer.

B. The Township Engineer shall have the power to revoke any grading certificate whenever he finds that the work covered by the certificate has been materially extended or altered without a permit so to do or that any retaining walls, cribbing, drainage structures, fence or other protective devices shown on the approved plans and specifications submitted with the application for a permit have not been maintained in good order and repair.

C. Before such revocation, the Township Engineer shall first give written notice to the permit holder and to the owner of the property involved, specifying the defective condition and stating that unless such defective condition is remedied satisfactorily, the grading certificate may be revoked. If the defective condition is remedied, the certificate shall not be revoked.

§ 175-17. Violations and penalties; remedies.

A. No person shall construct, enlarge, alter, repair or maintain any grading, excavation or fill or cause the same to be done, contrary to or in violation of any provision of this chapter.

B. When written notice of a violation of any of the provisions of this chapter has been served by the Township Engineer on any person, such violation shall be discontinued immediately.

C. Any person violating any of the provisions of this chapter shall be liable, on conviction thereof, to a penalty not exceeding $1,000, plus costs of prosecution, for each and every offense, and in default of such fine and costs, to imprisonment in the county jail for a term not exceeding 30 days. Whenever such person shall have been notified by the Township Engineer, by service of summons in a prosecution or in any other way, that he is committing such violation of this chapter, each day that he shall continue such violation after such notification shall constitute a separate offense, punishable by a like fine or penalty. Such fines or penalties shall be collected as like fines or penalties are now by law collected.
[Amended 7-20-1992 by Ord. No. 92-13]

D. In case any work is performed by any person in violation of any of the provisions of this chapter, the proper officer of the Township, in addition to other remedies, may institute in the name of the Township any appropriate action or proceeding, whether by legal process or otherwise, to prevent such unlawful work and to restrain or abate such violation.