

BERN TWP PERMIT APPLICATION CHECKLIST

LTl CONSULTANTS, LTD – (610-987-9290)

Storm Water:

- ☐ Application and application fees must be submitted for all projects, except fences (\$25 app. fee for exempt projects, \$75 app. fee and \$500 escrow for >Impervious Area Exemption and <1 ac. Disturbance, \$250 app. fee and \$1000 escrow for 5,000 sq. ft. and over or >1 ac. Disturbance)

Zoning Permit:

- ☐ Submit Application Fee (\$80) **CHECK PAYABLE TO TOWNSHIP**
- ☐ Complete the Zoning/Building Permit Application.
- ☐ Provide a plot plan showing all structures, including sizes, located on the property along with the distance of the structures to each property line. Please note the location of the septic system, well, and any easements on the property.
- ☐ Sign the Permit Terms and Conditions

Residential Building Permit:

- ☐ Complete the Zoning/Building Permit Application. If electrical, plumbing, and/or mechanical work is being performed, please be sure to complete all appropriate applications. Submit workers compensation insurance for each contractor.
- ☐ Complete the driveway and/or well application (if applicable)
- ☐ Submit Application Fee (\$80) **CHECK PAYABLE TO TOWNSHIP**
- ☐ Provide a plot plan showing all structures, including sizes, located on the property along with the distance of the structures to each property line. Please note the location of the septic system, well, and any easements on the property.
- ☐ Provide two (2) copies of the building plans.

- ☐ Provide proof of EDU from the Sewer Authority or On-Lot Septic permit from the Sewage Enforcement Officer (if applicable)

- ☐ Provide Highway Occupancy Permit from PennDot (if applicable)

- ☐ Provide approval from Water Authority for public water connection (if applicable)

- ☐ Provide Storm water Management Approval (required if creating > 1,000 sq. ft. of impervious)

- ☐ Sign the Permit Terms and Conditions

- ☐ Provide Erosion & Sediment Control Plan approval from Conversation District (if applicable)

Additional information/documents may be required depending on the type of construction.

CALL BEFORE YOU DIG, MAKE A PA ONE CALL - Dial 811

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Commercial Building Permit:

- ☐ Complete the Zoning/Building Permit Application. If electrical, plumbing, and/or mechanical work is being performed, please be sure to complete all appropriate applications.
- ☐ Submit Application Fee (\$80) **CHECK PAYABLE TO TOWNSHIP**
- ☐ Provide a site plan showing the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades, the location of parking spaces, accessible routes, public transportation stops and other required accessibility features. If the construction involves demolition, the site plan shall indicate construction that is to be demolished and the size and location of existing structures and construction that will remain on the site or plot.
- ☐ Provide three (3) copies of building, electrical, plumbing, and mechanical plans that are signed and seal by a Pennsylvania licensed design professional.
- ☐ Provide Land Development Approval (if applicable)
- ☐ Provide proof of EDU from the Sewer Authority or On-Lot Septic permit from the Sewage Enforcement Officer (if applicable)
- ☐ Provide Highway Occupancy Permit from PennDot (if applicable)
- ☐ Provide approval from Water Authority for public water connection (if applicable)
- ☐ Provide Storm water Management Approval (required if creating > 1,000 sq. ft. of impervious)
- ☐ Sign the Permit Terms and Conditions
- ☐ Provide Erosion & Sediment Control Plan approval from Conversation District (if applicable)
- ☐ Asbestos Abatement and Demolition/Renovation Notification Forms must be completed and submitted to PA DEP for all commercial demolition/renovation projects.

Additional information/documents may be required depending on the type of construction.

CALL BEFORE YOU DIG, MAKE A PA ONE CALL - Dial 811

BERN TOWNSHIP ZONING/BUILDING PERMIT APPLICATION

\$80 APPLICATION FEE MUST BE SUBMITTED WITH APPLICATION

STORM WATER APPLICATION AND FEE MUST BE SUBMITTED FOR ALL PROJECTS (except fences)

Two (2) sets of building plans must be submitted with the application for Residential Projects.

Three (3) sets of building plans must be submitted with the application for Commercial Projects.

County: _____ Municipality: _____

Site Address: _____

Tax ID #: _____

Owner/Applicant Name: _____ Phone #: _____

Mailing Address: _____

E-Mail: _____

☐ CALL ME WHEN PERMIT IS READY

Principal Contractor: _____ Phone #: _____

Mailing Address: _____

E-Mail: _____ PA Contractor Registration #: _____

☐ CALL ME WHEN PERMIT IS READY

Architect (if applicable): _____ Phone #: _____

Mailing Address: _____

E-Mail: _____

PROPERTY CHARACTERISTICS:

☐ Residential Property (Single-Family Dwelling, Two-Family Dwelling, Townhouse)

☐ Commercial Property – Specific Use _____

Utilities: Water Service: Public / Private Sewer Service: Public / Private (Circle One)

Existing Impervious Area: _____ Sq. Ft. Total Earth Disturbance _____ Sq. Ft.

New Impervious Area created: _____ Sq. Ft.

A Stormwater Management Permit may be required for the new impervious area added.

Is the property located in a Floodplain or Flood Hazard Area? YES / NO

Is the property located in a Historical District? YES / NO

Is the property enrolled in the Agricultural Conservation Easement (ACE) program? YES / NO

TYPE OF WORK: (check all that apply)

☐ New Building ☐ Addition ☐ Renovation ☐ Repair ☐ Demolition ☐ Sign

☐ Deck/Patio ☐ Swimming Pool ☐ Accessory Structure ☐ Fence ☐ Other _____

Describe the proposed work _____

Size of Structure: _____ Height of Structure: _____

ESTIMATED COST: (Reasonable fair market value) \$ _____ **(REQUIRED)**

- OFFICIAL USE ONLY -

APPLICATION FEE PAID: Check # _____ Amount \$ _____ Date: _____

PERMIT TERMS AND CONDITIONS

The Owner/Applicant certifies that all information on this application is correct and the work will be completed in accordance with the approved construction documents, PA Act 45 of 1999 (Uniform Construction Code), Act 247 of 1968 as amended (Municipalities Planning Code), and any additional approved building code requirements adopted by the Municipality. The property Owner/Applicant assumes the responsibility of locating all property lines, setback lines, easements, rights-of-way and flood areas. Issuance of a permit and approval of construction documents shall not be construed as authority to violate, cancel or set aside any provisions of the codes or ordinances of the Municipality or any other governing body. The Owner/Applicant certifies he/she understands all the applicable codes, ordinances and regulations and is responsible for all review costs incurred for the proposed project.

Building and zoning permits are valid for one year from the date of issue. Construction must be started within 180 days of issue. Permits may be extended only once by making application and paying an extension fee prior to expiration of the original permit.

In consideration of the issuance of a permit to the undersigned the Owner/Applicant acknowledges that, in reviewing plans and specifications, in issuing permits, and in periodically inspecting work of the Owner/Applicant, employees of The Municipality and LTL Consultants, Ltd. are only performing their duties to require compliance with the minimum requirements of the applicable Ordinances of The Municipality pursuant to the policy power of The Municipality and are not warranting to the Owner/Applicant or to any third party the quality or adequacy of the design, engineering or construction work of the Owner/Applicant. Owner/Applicant further acknowledges that it will not be possible for The Municipality or LTL Consultants, Ltd. to review every aspect of Owner/Applicant's design and engineering or to inspect every aspect of Owner/Applicant's construction work. Accordingly, neither The Municipality, LTL Consultants, Ltd. nor any of its elected or appointed officials or employees shall have any liability to the Owner/Applicant for defects or shortcomings in such design, engineering or construction work, even if it is alleged that such defects or shortcomings should have been discovered during The Municipality's or LTL Consultants review or periodic inspection.

Furthermore, the Owner/Applicant agrees to defend, hold harmless and indemnify LTL Consultants, Ltd, The Municipality, its' elected and appointed officials and employees from and against any and all claims, demands, actions, and causes of action of any one or more third parties arising out of or relating to The Municipality's or LTL Consultants, Ltd review or periodic inspection of the Owner/Applicant's design, engineering or construction work, or issuance of a permit or permits, or arising out of or relating to the design, engineering or construction work done by Owner/Applicant pursuant to such permit or permits.

All references in these Terms and Conditions is to Owner/Applicant's employees, agents, independent contractors, subcontractors or any other person or entities performing work pursuant to the issuance of the building or grading permit by The Municipality.

Application for a permit shall be made by the Owner of the building or structure, and agent (if different than the owner).

I certify the Municipal Code Administrator or LTL Consultants, Ltd. shall have the authority to enter areas covered by such permit at any reasonable hour to enforce the provisions of the code(s) applicable to such permit.

Signature of Property Owner (required)

Signature of Authorized Agent (if different than Owner)

Printed Name of Property Owner

Print Name of Authorized Agent

Address

Date

Address

Date

Last Revised December 27, 2017

REFER TO CHECKLIST TO DETERMINE ADDITIONAL APPLICATION REQUIREMENTS

PLUMBING PERMIT APPLICATION

County: _____ Municipality: _____
Site Address: _____

Owner/Applicant Name: _____ Phone #: _____
Mailing Address: _____
E-Mail: _____
☐ CALL ME WHEN PERMIT IS READY

Principal Contractor: _____ Phone #: _____
Mailing Address: _____
E-Mail: _____ PA Contractor Registration # _____
☐ CALL ME WHEN PERMIT IS READY **BERN TWP LICENSE# _____ (REQUIRED)**

PROPERTY CHARACTERISTICS:

- ☐ Residential Property (Single-Family Dwelling, Two-Family Dwelling, Townhouse)
☐ Commercial Property – Specific Use _____

TYPE OF WORK:

- ☐ New Building
☐ Addition
☐ Renovation
☐ Repair
☐ Sewer Lateral
☐ Water Lateral
☐ Other _____

Description of work: _____

Estimated Cost (*Reasonable fair market value*) \$ _____

I hereby certify that the information hereon and herewith is true and correct to the best of my knowledge, and furthermore the property owner has authorized the work.

I certify the code administrator or the code administrator's authorized representative shall have the authority to enter areas covered by such permit at any reasonable hour to enforce the provisions of the code(s) applicable to such permit.

Applicant's Signature: _____ Date: _____

ELECTRICAL PERMIT APPLICATION

County: _____ Municipality: _____
Site Address: _____

Owner/Applicant Name: _____ Phone #: _____
Mailing Address: _____
E-Mail: _____
☐ CALL ME WHEN PERMIT IS READY

Principal Contractor: _____ Phone #: _____
Mailing Address: _____
E-Mail: _____ PA Contractor Registration # _____
☐ CALL ME WHEN PERMIT IS READY

PROPERTY CHARACTERISTICS:

- ☐ Residential Property (Single-Family Dwelling, Two-Family Dwelling, Townhouse)
☐ Commercial Property – Specific Use _____
Name of Electric Company _____

TYPE OF WORK:

- ☐ New Building ☐ Addition ☐ Renovation ☐ Repair
☐ Service (Size: _____ Electrical Job # _____)
☐ Generator (Size _____)
☐ Other _____

Amps _____ Phase _____ Voltage _____ ☐ Overhead ☐ Underground

Description of work: _____

Estimated Cost (*Reasonable fair market value*) \$ _____

I hereby certify that the information hereon and herewith is true and correct to the best of my knowledge, and furthermore the property owner has authorized the work.

I certify the code administrator or the code administrator's authorized representative shall have the authority to enter areas covered by such permit at any reasonable hour to enforce the provisions of the code(s) applicable to such permit.

Applicant's Signature: _____ Date: _____

MECHANICAL PERMIT APPLICATION

County: _____ Municipality: _____
Site Address: _____

Owner/Applicant Name: _____ Phone #: _____
Mailing Address: _____
E-Mail: _____
☐ CALL ME WHEN PERMIT IS READY

Principal Contractor: _____ Phone #: _____
Mailing Address: _____
E-Mail: _____ PA Contractor Registration # _____
☐ CALL ME WHEN PERMIT IS READY

PROPERTY CHARACTERISTICS:

- ☐ Residential Property (Single-Family Dwelling, Two-Family Dwelling, Townhouse)
☐ Commercial Property – Specific Use _____

TYPE OF WORK:

- ☐ New Building
☐ Addition
☐ Renovation
☐ Repair
☐ Other _____
☐ Chimney (Type) _____

FUEL TYPE: ☐ Natural Gas ☐ LPG ☐ Fuel Oil ☐ Solid Fuel ☐ Electric ☐ Other _____

Description of work: _____

Please provide manufacturers' installation guide with the application.

Estimated Cost (*Reasonable fair market value*) \$ _____

I hereby certify that the information hereon and herewith is true and correct to the best of my knowledge, and furthermore the property owner has authorized the work.

I certify the code administrator or the code administrator's authorized representative shall have the authority to enter areas covered by such permit at any reasonable hour to enforce the provisions of the code(s) applicable to such permit.

Applicant's Signature: _____ Date: _____

DRIVEWAY PERMIT APPLICATION

County: _____ Municipality: _____

Site Address: _____

Owner/Applicant Name: _____ Phone #: _____

Mailing Address: _____

E-Mail: _____

☐ CALL ME WHEN PERMIT IS READY

Principal Contractor: _____ Phone #: _____

Mailing Address: _____

E-Mail: _____ PA Contractor Registration # _____

☐ CALL ME WHEN PERMIT IS READY

Location of Driveway: _____

Statement of materials and Construction to be Used:

***A Sketch of the Driveway must be provided
% Slope and distances must be indicated on the plan***

I hereby certify that the information hereon and herewith is true and correct to the best of my knowledge, and furthermore the property owner has authorized the work.

I certify the code administrator or the code administrator's authorized representative shall have the authority to enter areas covered by such permit at any reasonable hour to enforce the provisions of the code(s) applicable to such permit.

Applicant's Signature: _____ Date: _____

WELL PERMIT APPLICATION

County: _____ Municipality: _____	
Site Address: _____	
Owner/Applicant Name: _____ Phone #: _____	
Mailing Address: _____	
E-Mail: _____	
<input type="checkbox"/> CALL ME WHEN PERMIT IS READY	
Principal Contractor: _____ Phone #: _____	
Mailing Address: _____	
E-Mail: _____ PA Contractor Registration # _____	
<input type="checkbox"/> CALL ME WHEN PERMIT IS READY	
Location of Well: _____	

Water must be tested for quality.

Laboratory Test Maximum Contaminant Level –

Total Coliform 0, Fecal Coliform 0, Iron .3 mg/l, Nitrates 10 mg/l, Hardness: equivalent calcium carbonates 150 mg/l

Source of Pollution	Minimum Distance
Storm drains	25 feet
Drains carrying domestic sewage or industrial wastes	50 feet
Septic or holding tanks	50 feet
Surface/subsurface sewage disposal fields	100 feet
Sewage seepage pits, cesspools	100 feet
Privies	50 feet
Fuel Tanks	as approved
Other (ditches, streams, barnyards, etc.)	as approved
Additional Location Restrictions Driveways	10 feet
Principal structure/dwelling	20 feet
Property lines	10 feet

I hereby certify that the information hereon and herewith is true and correct to the best of my knowledge, and furthermore the property owner has authorized the work.

I certify the code administrator or the code administrator's authorized representative shall have the authority to enter areas covered by such permit at any reasonable hour to enforce the provisions of the code(s) applicable to such permit.

Applicant's Signature: _____ Date: _____

Workers' Compensation Insurance Coverage Information

- A. Is the applicant a contractor within the meaning of the Pennsylvania Worker's Compensation Law?
☐ Yes ☐ No

If the answer is "yes", complete **Sections B, C, D, and E** below as appropriate.

If the answer is "no", complete **Section E**.

B. Insurance Information

Name of Applicant _____

Federal or State Employer Identification Number _____

Applicant is a qualified self-insurer for workers' compensation.

☐ Check if Certificate is attached.

Name of Workers' Compensation Insurer _____

Workers' Compensation Insurance Policy Number _____

☐ Check if Certificate is attached.

Policy Expiration Date _____

-
-
- C. Is the applicant using any subcontractor(s) on this project? ☐ Yes ☐ No

If the answer is "yes", the applicant hereby certifies that any and all subcontractors have presented proof to the applicant of insurance under the Pennsylvania Workers' Compensation Act.

-
-
- D. Exemption: Complete **Section D** if the applicant is a contractor claiming exemption from providing workers' compensation insurance.

The undersigned swears or affirms that he/she is not required to provide worker's compensation insurance under the provisions of the Pennsylvania Worker's Compensation Law for one of the following reasons, as indicated:

☐ Contractor with no employees. Contractor prohibited by law from employing any individual to perform work pursuant to this building permit unless contractor provides proof of insurance to the Township.

☐ Religious exemption under the Workers' Compensation Law.

Subscribed and sworn to before me this _____ day of _____, 20__

Signature of Notary Public

My Commission expires: _____

(Seal)

E. Signature required for all applicants

Signature of Applicant _____

Address _____

County _____ Municipality of _____

LOCATION: _____

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.

Is your drawing to scale Y / N? If yes, what is the scale? _____

**BERN TOWNSHIP
STORMWATER APPLICATION**

Application is hereby made for review of the Stormwater facilities submitted herewith and more particularly described below:

1. Name Applicant(s): _____
Address: _____
_____ Phone No. _____
2. Name of Owner(s): _____
(If other than Applicant)
Address: _____
_____ Phone No. _____
3. Applicant's interest, if other than the owner _____
4. Location of Parcel _____
5. Engineer/Surveyor responsible for the plan: _____
Address _____ Phone No. _____
6. Total Acreage: _____ Number of Lots: _____
7. Lot Use Proposed _____ Single Family _____ Commercial _____
_____ Two Family _____ Industrial _____
_____ Townhouse _____ Other(specify) _____
_____ Multi-Family _____
8. Size of proposed structure: _____

Filing Fee Amount _____ Received _____

Signature of Applicant _____

FOR TOWNSHIP USE ONLY

<input type="checkbox"/> Exempt		<input type="checkbox"/> Small Project	<input type="checkbox"/> Other
Total Parcel Size	Impervious Area Exemption (sq.ft.)	<p>> Impervious Area Exemption and <1 ac. Disturbance* <u>Application Fee \$75</u> <u>\$500 escrow required</u></p>	<p>>5,000 Ft² Impervious Area or >1 ac. Disturbance* <u>Application Fee \$250</u> <u>\$1,000 escrow required</u></p>
0 to <0.125 ac	500 sq. ft.		
0.125 to <0.5 ac	1,500 sq. ft.		
0.5 to <1 ac	3,250 sq. ft.		
≥1 ac	5,000 sq. ft.		
<u>Application Fee \$25 No escrow required</u>			

*NOTE: If greater than 5,000 Ft² of disturbance, Berks County Conservation District approval of an Erosion and Sedimentation Control Plan is required.

Stormwater Best Management Practices Worksheets

Stormwater Management for Minor Land Disturbance Activities addresses the intent of the SWM Ordinance by managing the runoff through infiltration facilities. To determine the size of infiltration facilities required for a site for a Minor Land Disturbance Activity, utilize a factor 0.18 times the impervious area. This approximates the net 2-year increase.

STEP ONE: DETERMINE REQUIRED VOLUME	
TOTAL AREA of IMPERVIOUS COVER Includes all areas of new building, paving, concrete and compacted gravel that are part of the proposed work. (Except pervious paver blocks)	Sq. ft.
Multiply by 0.18	x 0.18
TOTAL WATER QUALITY VOLUME REQUIRED (WQ_v)	Cu. ft.

Details of the BMPs listed below are provided as part of this Appendix. For additional information on how these BMPs function and ideas of other BMPs refer to the "Pennsylvania Stormwater Best Management Practices Manual" latest edition prepared by the DEP.

STEP TWO: SELECT BMPs TO BE UTILIZED	
BMP NAME	(How Many)
1. Infiltration Basin	
2. Infiltration Bed	
3. Infiltration Trench	
4. Other*	
TOTAL	

* As approved by the Township Engineer. Provide additional information as needed.

The first three BMPs listed are Infiltration BMPs and as such should be located on the site in areas with the most suitable soil. Areas of wet or poorly drained soils should be avoided.

Infiltration BMPs shall also be located with the following setbacks:

- ☐ Ten (10) feet down gradient from a building basement
- ☐ One hundred (100) feet up gradient from a building basement
- ☐ Ten (10) feet from property lines
- ☐ One Hundred (100) feet from wells
- ☐ Fifty (50) feet from septic system drain fields

Recognizing that Minor Land Disturbance Activities often cannot meet the setback requirements due to the size of the proposed work area, consideration will be made to reduce the setbacks provided.

BMP Installation Notes:

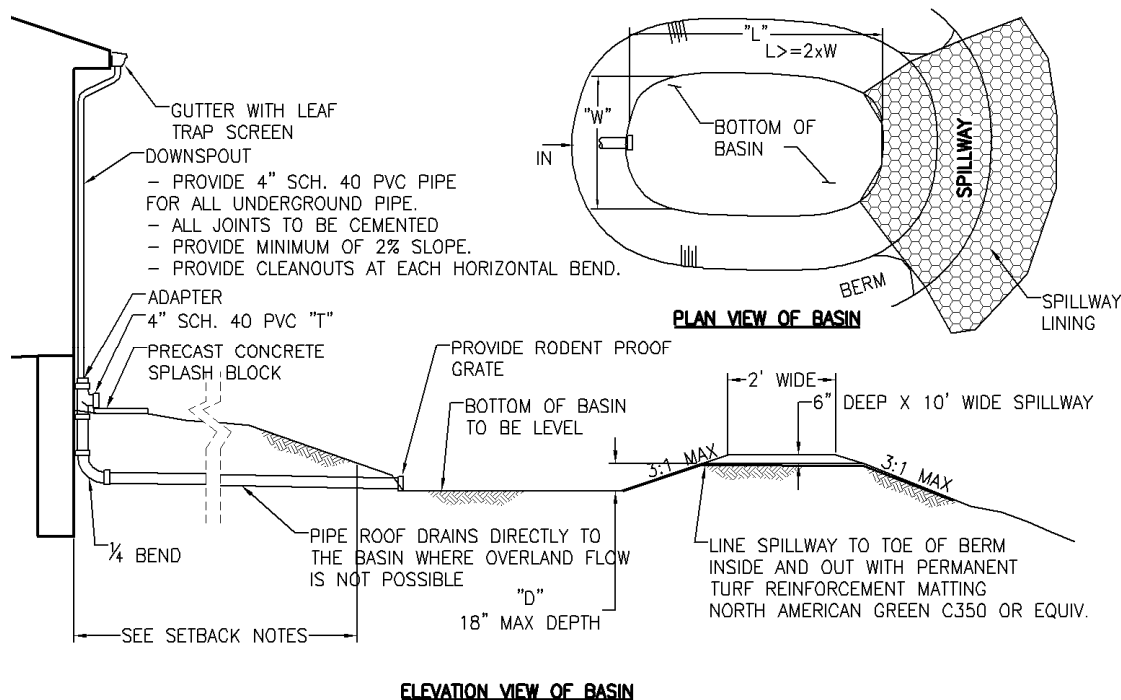
1. BMPs shall be protected during construction to prevent sediment-laden water from entering the facility.
2. Excavation of the BMPs shall be conducted in a manner that will not compact the bottom of the facility.
3. The bottom of the facility shall be scarified immediately prior to the placement of the bottom layer of geotextile for subsurface structures or the topsoil placement for above ground structures.
4. Geotextile shall be placed in accordance with the manufacturer's specifications. Seams shall be overlapped a minimum of 16 inches.
5. The area of the BMP shall be fenced off during construction. Construction equipment shall be prohibited from entering the area to avoid soil compaction.

STEP THREE: DETERMINE VOLUME PROVIDED	
BMP (See details for volume calculations)	Volume (cu. ft.)
1. Infiltration Basin	
2. Infiltration Bed	
3. Infiltration Trench	
4. Other*	
TOTAL (must be greater than WQ_v in Step One)	

* As approved by the Township Engineer. Provide additional information as needed.

SWM BMP #1 –INFILTRATION BASIN

An Infiltration Basin provides an aboveground area for water to be stored and infiltrate into the ground. Roof Drains and overland runoff are directed into an aboveground basin to infiltrate. A spillway is provided to release the larger storm volumes. The spillway should be located to avoid any down slope problems when water is flowing over the spillway. The spillway shall be lined with a permanent erosion mat to prevent deterioration. The spillway should be located as far away as possible from any inflow pipes to promote infiltration and settling of runoff contaminants. The basin shall also be planted with vegetation that is tolerant of the wet conditions that will occur during infiltration. The depth of the basin may be increased with the approval of the Township Engineer.

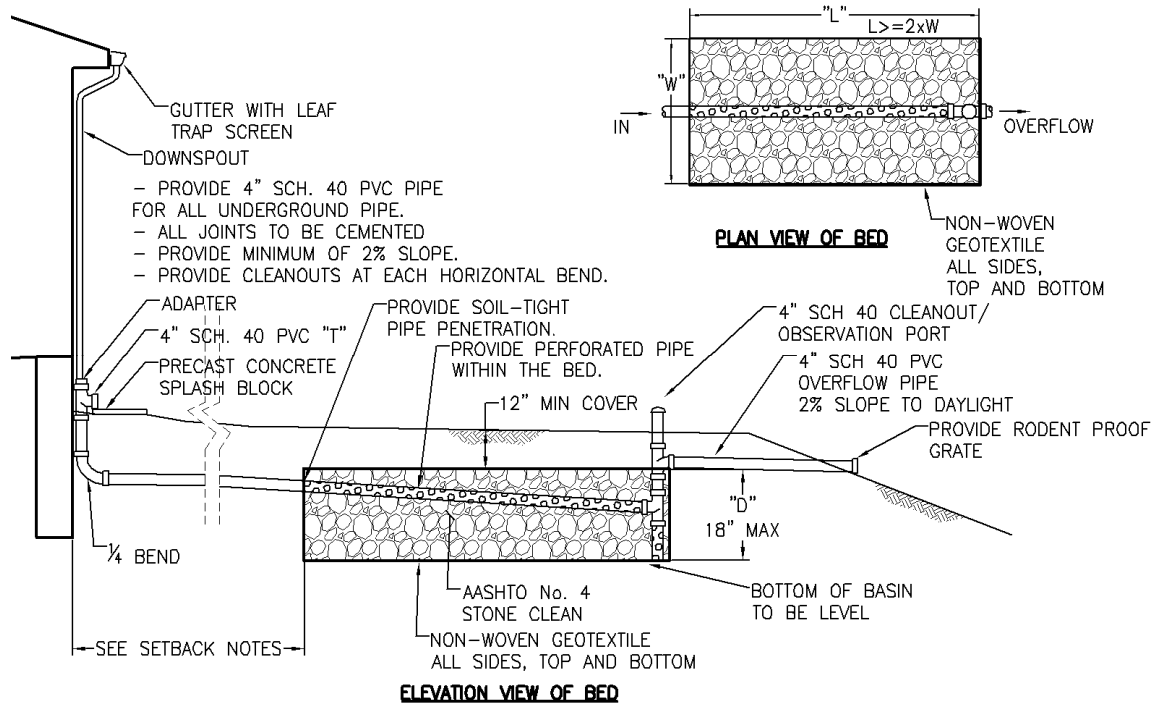


Determination of Water Quality Volume provided:

1	Bottom Area – for rectangular basins use $L \times W$, estimate for irregular shaped Basin	Sq. ft.
2	Depth of Basin = D	Ft.
3	Basic Volume = $L \times W \times D$ (Line 1 x Line 2)	Cu. Ft.
4	Side Slope Factor “Z” – Use 3 for 3:1 slope, 4 for 4:1 slope, etc	
5	Approx. Additional Volume = $(L+W) \times Z \times D \times D$	Cu. Ft.
6	TOTAL VOLUME (WQ_v) (Line 3 + Line 5) (Use this number in Step Three)	Cu. Ft.

SWM BMP #2 –INFILTRATION BED

An infiltration bed can be used where surface runoff is not to be captured. Roof Drains from the proposed structure are piped into an underground basin to infiltrate into the ground. An overflow pipe is provided to release the larger storm volumes. A cleanout is provided to facilitate maintenance and provide an inspection port for the bed. The pipe within the bed is perforated and should be run through the basin to the fullest extent to promote infiltration and distribution of the runoff. The soil over the basin shall also be planted with vegetation that will not interfere with the operation of the bed. The depth of the bed may be increased with the approval of the Township Engineer.

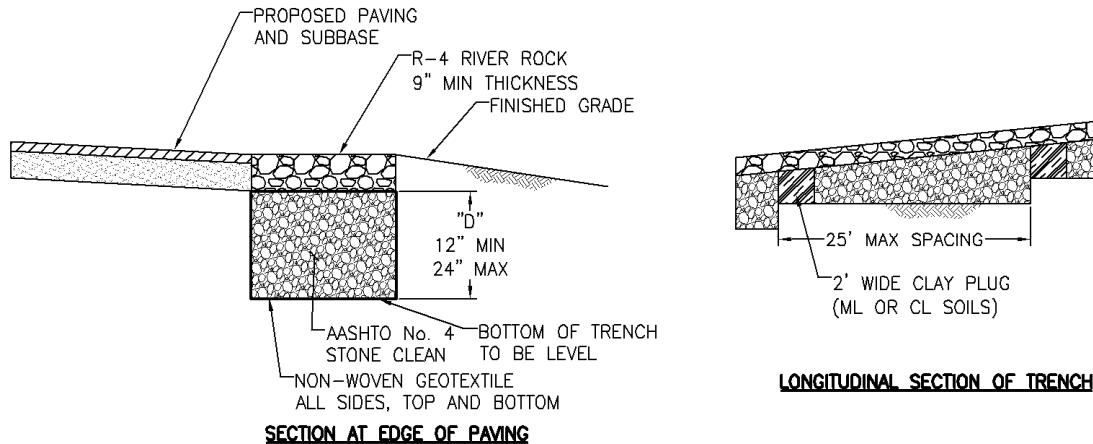


Determination of Water Quality Volume provided:

1	Bottom Area – for rectangular basins use L x W	Sq. ft.
2	Depth of Basin = D	Ft.
3	Basic Volume = L x W x D (Line 1 x Line 2)	Cu. Ft.
4	Actual Void Volume in Stone Bed (WQ_v) = 0.4 x Line 3 (Use this number in Step Three)	Cu. Ft.

SWM BMP #3 –INFILTRATION TRENCH

Infiltration trenches are utilized along the perimeter of impervious surfaces to collect, store and infiltrate runoff. River rock will be placed on the bed to allow the runoff to enter the trench; alternately the bed may utilize a perforated pipe with inlets to get the runoff into the trench. The trench is constructed as a terraced system with clay dikes to promote infiltration. The depth of the trench may be increased with the approval of the Township Engineer. Pipe can be utilized within the trench to increase the available storage volume. Because the trench is installed along paved area that needs to be compacted during construction, extra attention needs to be paid to avoid compaction in the area of the trench or loosen the material under the trench prior to installation.



Determination of Water Quality Volume provided:

1	Bottom Area = Length of Trench x Width	Sq. ft.
2	Depth of Basin = D	Ft.
3	Basic Volume = L x W x D (Line 1 x Line 2)	Cu. Ft.
4	Actual Void Volume in Stone Bed (WQ_v) = 0.4 x Line 3 (Use this number in Step Three)	Cu. Ft.

If perforated pipe is used in the bed, adjust volume accordingly.