LUZERNE
CONSERVATION DISTRICT

Ransom Young Cropland BMPs

566 West Butler Drive, Drums PA 18222

Project Quote Information

INSTRUCTIONS TO INTERESTED CONTRACTORS

1. PROPOSALS

A. This invitation for quotes is for one project within Butler Township, Drums PA.

B. Quotes will be accepted for the entire project only.

C. The Project Design and Technical Specifications provided are specific to this project. The failure to mention any task required to complete the project shall not relieve the contractor(s) of responsibility for performing such work.

D. The contract will cover all aspects of the installation of the Ransom Young Cropland BMPs project in Butler Township, Luzerne County. Unless otherwise indicated, the contracts include (but are not limited to, whereas attached design documents supersede written descriptions):

Turf Reinforced Waterway and Subsurface Drain: Install 726' turf reinforced waterway and 845' of pipe for subsurface drain.

Stone Lined Waterway/Outlets: Install a 746' rock lined waterway with a width flare of 12' to 32', to transition into permanent turf reinforced waterway.

Underground Outlet with Drop Box: Install a 2'x4' precast inlet box with a deep stone lined pool area. Install a 100' of 6" underground outlet and 345' of 12" underground outlet pipe.

Access Road : Install 245' of new access road with water bars.

2. CONTRACTING OFFICER AND PROJECT SPONSOR

A. The project is being implemented for the landowners. Funding is being provided through the Pennsylvania Department of Environmental Protection (PADEP) Countywide Actin Plan (CAP) Implementation Grant.

B. The Luzerne Conservation District is the Project Sponsor, with Joshua Longmore, Executive Director, acting as the Contracting Officer.

C. Jennifer Merryman, the Contracting Officer's Representative, will be the point of contact for communication and direction between the Contracting Officer and Contractor(s).

D. Michael Schlauch, will provide on-site quality assurance of work, monitor work progress, and determine the suitability of all work.

E. Contact Information

Question concerning the terms of the contract or issues related to invoices and billing should be -- directed to the Contracting Officer: Joshua Longmore, 570-674-7991 ext. 8 or josh@luzcd.org

Questions related to the project implementation activities and other technical matters should be directed to the Contracting Officer Representative and Project Inspector:

Jennifer Merryman, 570-674-7991 ext. 7 or jennifer@luzcd.org

Michael Schlauch, 570-938-3018 or mike@luzcd.org

3. INSTRUCTIONS FOR THE QUOTE FORM

A. Quotes shall be submitted only on a hard copy of the furnished Quote Schedule and Quote Form. All blank spaces are to be typed or filled in legibly in blue or black ink, and the forms must be signed as described below in Section 3.E.

B. Do not make changes to the phraseology of the Quote Schedule. Partial quotes or alternative quotes not provided for in the Quote Schedule will not be considered.

C. The Quote Schedule and Quote Form MUST be submitted in one SEALED ENVELOPE with the Contractor's name and the words "**Ransom Young Cropland BMPs**" written on the outside. Sealed quotes can be mailed or submitted in person to:

Luzerne Conservation District
325 Smiths Pond Road
Shavertown, PA 18708

D. A Contractor may withdraw their proposal at any time prior to the schedules closing time for receipt of proposals (see Section 4.B). Proposal may be withdrawn by written notification to the Contracting Officer.

E. Signature requirements on the Quote Form:

1. For Sole Proprietorships & Companies, an owner must sign the Quote.
2. For Partnerships, a general partner must sign the Quote.
3. For Corporations, the President or Vice President must sign the Quote.

4. AWARD OF CONTRACT

A. Valid proposals must include the completed Quote Form and Quote Schedule for the entire project. .

B. **Quotes will be opened at the Luzerne Conservation District office at 3:00 PM, Monday, July 13, 2026.** Sealed quotes must be received prior to this time, or the proposal will not be considered. Award of a contract shall be made as soon as possible after the quote opening. Performance time will begin when the contract has been executed and run through the time specified in the contract. The workweek will be limited to 5 days per week, Monday through Friday, 8 hours per day. All major holidays will be observed. If the contractor fails to complete the work within the time specified in the contract, the contractor shall pay liquidated damages to the project sponsor in the amount of $500 for every day thereafter for each calendar day of delay until the work is completed or accepted

C. Construction is to begin within **30** days of the contract being awarded. The project must be completed within the performance time specified on the Quote Form barring delays caused by severe weather conditions and **before November 30, 2026.** Any severe weather delay request must be submitted in writing to the Contracting Officer's Representative.

5. INTERESTED CONTRACTORS

A. Shall attend the **mandatory site showing** at Ransom Young's farm at **11:00 AM, June 29, 2026** to become fully informed as to all existing conditions and limitations, including access and availability of materials.

The farm location: 566 West Butler Drive
Drums PA, 18222

The primary purpose of the site showing is to make sure interested Contractors have inspected the site and have become familiar with all existing conditions and limitations affecting the work, including, but not limited to, those conditions bearing upon:

i. Site access and transportation, availability, disposal, handling and storage of materials; and availability of labor, water, electric power, and access to the site;

ii. The conformation and conditions of the ground, including the quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from the inspection of the site;

iv. The character of equipment and facilities needed preliminary to, and during, execution of the work.

B. Shall include the following items in the quote:

1. Pre-construction meeting
2. Construction layout
3. Installation of Erosion & Sediment control measures
4. Excavation/fill
5. Installation of all practices and structures identified in project design documents, including but not limited to: Mobilization/demobilization, excavation and debris removal, site preparation, installation of structures, complete final grading, stabilization on all disturbed areas, and all other aspects as outlined in these proposal documents and project design information.
6. Include Pennsylvania Prevailing Wage if total estimated project cost exceeds $25,000.

C. Shall provide all equipment, labor, materials, and supplies necessary to complete the work unless otherwise specified.

D. Materials shall be approved by the Project Inspector prior to use.

E. The Contractor shall be responsible for locating and protecting all utilities.

6. INTERPRETATION OF CONTRACT DOCUMENTS

A. If any Contractor has questions that arise following the site showing regarding the Project Design and Technical Specifications or any other factor, an emailed or written request should be submitted to the Project Inspector for interpretation, clarification, or correction followed by a phone call to confirm receipt and understanding of the inquiry.

B. Any interpretation, clarification, or correction of the quote documents will be made by the Contracting Officer by Addendum. A copy of any Addendum will be posted on the sponsor's website as soon as it is issued:

https://luzernecd.org/programs/agricultural-conservation/ag-bmp-projects/young/

7. THE CONTRACTING OFFICER/PROJECT SPONSOR

A. May, during the quote period, issue Addenda to advise Contractors of additions, omissions, alterations, or clarifications of the Project Design and Technical Specifications for this project.

B. Reserves the right to reject a quote from any Contractor who fails to furnish promptly and properly all the required information, when notified to do so.

C. Reserves the right to reject any and all quotes that are determined to be incomplete, or from Contractors who did not attend the mandatory site meeting.

D. Reserves the right to reject any and all quotes from Contractors who are listed on DEP's or any Federal or State barred contractors list for violations of contracts and any Local, State, or Federal laws and regulations.

E. Reserves the right to postpone the start of construction due to unfavorable weather conditions or other issues related to site access.

F. Reserves the right to cancel a project at any time during the quote acceptance and contracting process for reasons that may arise that are outside of the Landowner's or Project Sponsor's control.

G. Reserves the right to reject any and all quotes that exceed the funding available for the project.

8. ADDITIONAL WORK

A. Changes in the Design or Specifications may be made by the Project Sponsor after construction is in progress, if necessary. When necessary, changes involve work for which no quantity and price have been included in the Quote Form, such work shall be done at a price that shall first be agreed to, in writing, by the Contractor, and the Contracting Officer by written change order.

9. WORK SCHEDULE

A. The work shall be completed within the time allotted for the project and shown on the Quote Form. The start of performance time will begin on the day identified as notice to proceed and determined after the official contract award.

B. The Work Schedule, Start Date, and Completion Date are important and will be considered in awarding the Contract. All work must be completed prior to November 30, 2026.

C. Once the Contractor has started mobilization on the project, it will be expected that work shall proceed continuously through to the conclusion of the project by the proposed completion date, notwithstanding acceptable delays due to weather. The proposed completion date may be extended as needed due to extreme weather conditions as approved by the Contracting Officer's Representative.

10. CONTRACT SECURITY (PERFORMANCE BONDS)

A. The successful Contractor shall deliver to the Contracting Officer executed Payment and Performance Bonds each in the amount of 100% of the accepted quote price for this contract as security for the faithful performance of the Contract. The sureties of all bonds shall be such surety company or companies as are approved by the Contracting Officer, and as authorized to transact business in the Commonwealth of Pennsylvania. The Bonds shall be approved by the Contracting Officer prior to execution of the formal Contract.

GENERAL CONDITIONS

1. WORKING SCHEDULE

A. The Contractor(s) shall coordinate the work schedules with the Contracting Officer's Representative before the Contractor begins work on this Contract. No work requiring the presence of the Project Inspector shall be done at night, on weekends, or on the agency's recognized holidays, except in case of emergency and/or with written permission of Contracting Officer's Representative. Written permission shall be sought at least two days in advance of the desired work day(s).

2. CONTRACTOR'S LIABILITY AND PROPERTY DAMAGE INSURANCE

A. The Contractor and its subcontractors shall maintain such insurance as will provide protection from claims under Worker's Compensation Acts and Federal Employer's Liability Act by coverage with insurance companies or by methods acceptable to the State Insurance Commissioner and by no other methods, for damages which may arise from operations under this Contract, whether such operations be by the Contractor, or by any subcontractor or anyone directly or indirectly employed by either of them.

B. The Contractor shall protect himself, the property owner, the Contracting Officer, the Contracting Officer's Representative, and the Project Inspector from any claims for Bodily Injury Liability, and Property Damage Liability.

C. The limits for Bodily Injury Liability shall not be less than $1,000,000/$2,000,000; that is, $1,000,000 is the limit for injury per occurrence and $2,000,000 in the aggregate. The minimum limit of Property Damage Liability shall be $1,000,000 per occurrence and $2,000,000 in the aggregate.

D. The above policies for Bodily Injury and Property Damage Liability Insurance shall be so written as to include Contingent Bodily Injury and Property Damage Liability Insurance to protect the Contractor against claims from the operation of subcontractors.

E. Certificates of the Contractor's Insurance shall be filed with the Contracting Officer and shall be subject to approval by the Contracting Officer for adequacy of protection. No work shall be started at the site until appropriate Certificates of Insurance are filed with and approved by the Contracting Officer.

3. LAWS, PERMITS AND REGULATIONS

A. All necessary regulatory permits will be the responsibility of the Contracting Officer and not the Contractor. They will be obtained prior to the start of work.

B. The Contractor shall anticipate complying with the requirements of all laws, regulations, ordinances, and requirements applicable to work under this Contract. This will include adherence to any actions prescribed by inspectors enforcing Federal, State, County, or local regulations, laws, or permits. The costs for these actions shall be included in the Quote.

C. The Contractor shall adhere to all laws, regulations, permits, ordinances, safety codes, and building code requirements applicable to work done under this Contract. This requirement shall specifically include all current applicable OSHA requirements.

D. The Contractor shall provide and maintain all necessary safeguards to mark and prevent intrusion into work areas.

E. The Contractor shall be responsible for PA One-Call notification regarding the project activities at least 3 days prior to commencing work.

F. The Contractor shall provide all required borrow and disposal sites. All such sites are subject to approval by the Contracting Officer's Representative. Borrow and/or disposal sites shall not be located in a floodplain or wetland and must meet applicable Erosion & Sediment Control requirements. Copies of releases signed by the landowner shall be provided to the Contracting Officer's Representative.

4. WARRANTY

A. The Contractor unconditionally warrants that all material supplied by the Contractor will be new and of good quality (unless any used materials are specified in the Project Design and Technical Specifications) and that all work performed by the Contractor will be performed in a good and workmanlike manner. The Contractor shall not substitute materials called for by the Project Design and Technical Specifications without the written approval of the Project Inspector. The Contractor unconditionally guarantees it will, at its own expense, at the request of Contracting Officer or Contracting Officer's Representative, promptly replace or repair any work, equipment, or materials that fail to function properly for a period of no less than twelve months following the final inspection and completion of the as-built plans for the project. The Contractor will also repair any surrounding parts of the structure (and/or personal property) that are damaged due to any failure in the Contractor's work for the period of twelve months following the final inspection and completion of the as-built plans for the project. This express warranty is in addition to any implied warranties under state or federal laws. The Contractor provides no warranty on any materials supplied by the Landowner or the Project Sponsor.

B. The Contractor shall promptly upon receipt of notice from the Contracting Officer and without expense to the Landowner or the Project Sponsor, make good all damages to buildings, sites, roads, parking lots, and all aspects thereof which in the opinion of the Contracting Officer is the result of the work outside the scope of this Contract, and therefore is the responsibility of the Contractor.

5. PAYMENT

A. Upon completion and acceptance of the work at the final inspection, the Contractor shall submit an invoice for the entire amount due per project to the Contracting Officer. An alternative invoicing/payment schedule for major phases of the projects may be negotiated during the development of the Contract. The Luzerne Conservation District will make every attempt to make prompt payment after the final inspection, but for invoices greater than $25,000, the district may need to submit a request for payment to the funding agencies prior to paying the Contractor. It is anticipated the district will receive the funds from the agencies approximately sixty (60) days after the request is made. Payment(s) shall be made by the district no later than ten (10) days after it receives the funds.

6. INDEMNIFICATION

A. The Contractor shall indemnify and hold harmless the Landowners, Luzerne Conservation District, Natural Resources and Conservation Services (NRCS), Luzerne County, the State Conservation Commission, and all of their representatives against any and all claims for damages

to persons or property asserted by any person, partnership, corporation, or other organization, arising out of services performed or undertaken by said Contractor, its agents, employees, or subcontractors, except for claims for damages directly caused by the sole fault or negligence of the parties hereto, their officers, or employees.

SEE SEPARATE DESIGN & TECHNICAL SPECIFICATION DOCUMENTS FOR CONSTRUCTION DETAILS FOR THE PROJECT

Attachment 1:
Design Drawings

Ransom Young

Turf Reinforced Waterway, Subsurface Drain, Stone Lined Waterway/Outlets, Underground Outlet with Drop Box and Access Road Design for CAP

Luzerne County

March 2026

Designed by Shannon Levan Date 3/26

Approved by Robert G. Dawson III Date 4-22-26

Contract Name: Ransom Young **County:** Luzerne

Conservation Practice Design for: Grassed Waterway, Lined (TRM) and Subsurface Drain UGO

PROJECT NOTES:

REGULATIONS: All Federal, State, and Local Laws. Rules and Regulations governing the construction of this facility shall be strictly followed. The owner or operator is responsible for obtaining all construction permits.

NRCS DESIGN: Failure to construct this facility in accordance with design or authorized modifications will result in withdrawal of NRCS technical assistance. Withdrawal of financial assistance will also be recommended to the appropriate agencies.

PA ACT 187: The contractor must comply with PA ACT 187 and notify PA One Call at 1-800-242-1776 prior to the start of any excavation. The PA One Call design serial number is 20260783179 dated 3/19/26

CONTRACTOR NAME:	CONTACT INFORMATION:	ENGINEERING JOB CLASS:
		2-3

NRCS PRACTICE CERTIFICATION

The practices listed below have been installed as per the attached drawings and specifications and meet all applicable NRCS standards and specifications and that the as-built documents are a true and correct record. Certification signatures listed below must have appropriate EJAA for the listed conservation engineering practice.

CIN	CPS#	Conservation Practice	Contracted Amount	Designed Amount	As-built Amount	Certification Signature	Date
	~~468~~ 412	Grassed Waterway (TRM)		721'			
	606	Subsurface Drain		845'			
	468	Lined Outlet		25'			
	620	UGO 6"		100'			
	620	UGO 12"		345'			
	468	Stone Lined WW/Outlet		758'			

As-Builts Completed By: Date:

Designed By:	Shannon Swan	Date:	3/20/26
Title:			
Checked By:	RGJ	Date:	4-22-26
Title:			
Approved By:	Robert G. Durkin	Date:	4-22-26
Title:			

USDA

OWNER RESPONSIBILITIES

ACCESS

1. The owner is responsible for ensuring that all livestock are removed from the work site and that livestock will remain excluded from the work site until the project has received final certification and is approved for use.
2. The owner is to provide reasonable access to the work site.

EXCAVATION NOTES

GENERAL

1. No excavation shall begin until the excavator has complied with all PA One-Call requirements and any utility company responses.
2. All erosion and sedimentation practices shall be installed prior to beginning excavation.
3. OSHA standards shall be followed for all excavation.
4. Topsoil shall be stripped and stockpiled to be re-distributed when the project is complete.
5. All manure-laden soil shall be removed and spread according to the landowner's nutrient management plan.
6. The site shall be excavated until good, stable soil is encountered.
7. In the event Rock, Unstable soils, or seeps are encountered during excavation, work shall be stopped and the NRCS shall determine how to proceed.
8. Excess material shall be disposed of as directed by the landowner and the NRCS inspector.
9. Stone depth to be measure after compaction. Stone shall not be placed until earthen subgrade elevation and compaction is approved by NRCS inspector.
10. The contractor is responsible for verifying actual field measurements shown on the plan drawings.
11. The contractor is responsible for implementing all measures necessary to protect work in progress from environmental conditions such as temperature extremes, surface, and ground water.
12. The contractor is responsible for protecting the construction site until the work has been completed and certified by the design engineer. This includes dewatering the site as necessary, as well as preventing upslope runoff from entering the work area. It is strongly recommended that all planned diversions or swales be installed first and all perimeter drain outlets be installed before stone or concrete is placed, if possible.
13. Final grading shall provide positive drainage away from all structures. Swales shall be shaped as necessary along the heavy use area and manure storage to direct stormwater away from the structures.
14. Avoid backfill containing rocks or clods greater than 3" diameter, debris, roots, frozen soil, or other unsuitable material as determined by the NRCS inspector.
15. If seeps are encountered during excavation; provide clean AASHTO #57 stone 1' above that elevation and extend the stone a minimum of 4' left and right of the seep location.
16. Six inches of topsoil shall be incorporated into the final surface of the earthfill.
17. All areas top-dressed with topsoil and disturbed during construction will be seeded according to NRCS Critical Area Planting Specification and the E&S drawing provided in the drawings.

PIPES

1. All pipes shall meet minimum material specifications:
   - 1.1. SCH 40 PVC shall meet ASTM-D1785
   - 1.2. SDR-35 shall meet ASTM-D3034
   - 1.3. Corrugated polyethylene tubing shall meet ASTM-F667 or AASHTO-M252 as detailed below.
     - 1.3.1 ASTM-F667 pipe and fittings may be used when the maximum cover over the pipe does not exceed 9.8'.
     - 1.3.2 AASHTO-M252 pipe and fittings shall be used when the cover over the pipe exceeds 9.8'.
     - 1.3.3 All corrugated polyethylene tubing shall be installed so bedding material is worked in and around the pipe by hand and "knifed" in with a shovel. Haunching and intitial backfill material shall be placed with a high level of effort to ensure that the pipe is adequately supported. Compaction tests are not necessary for pipe installation.
2. All fittings for SCH 40 and SDR-35 pipe shall be watertight, and meet the minimum material specifications of the pipe. When pressure flow is necessary; applicable fittings will be defined in the NRCS supplied construction specifications.
3. Fittings for the corrugated polyethylene pipe do not need to be pressure-rated or watertight but must meet the minimum material specifications of the pipe. If fittings need to be pressure-rated or watertight; applicable fittings will be defined in the NRCS supplied construction specifications.
4. All fittings and connections for pipe shall be made with manufacturer-supplied components made for the intended purpose.
5. Pipes shall be installed to specified depth and to minimum design grade.
6. Trenches for pipelines shall be free of rocks and sharp-edged materials. A supply of AASHTO #57 bedding stone, or other suitable granular material, shall be available to bed pipelines in unstable soils or as directed by NRCS inspectors.
7. Pipes shall be backfilled as shown on design details. Any pipe to be placed in a traffic area is to be bedded as per design details and backfilled to the surface with 2A modified or 2RC aggregate. Any pipe not specifically detailed may be backfilled with moist earth, free of large clods or rocks, and hand compacted in 6-inch lifts. DO NOT drive machinery over recently backfilled pipes. Mound backfill 10% of trench depth to allow for settlement.

GEOTEXTILE

ACCESS ROAD USE:

1. Geotextile for roads with normal farm machinery use shall be WOVEN or NON-WOVEN with a minimum tensile strength of 200 pounds.
2. Geotextile for roads with heavy equipment shall be WOVEN or NON-WOVEN with a minimum tensile strength of 315 pounds.

ALL USES:

3. Geotextile installed on slopes greater than 8% shall be NON-WOVEN.
4. Geotextile installed where a wet subgrade is an issue shall be WOVEN or NON-WOVEN. The inspector shall have a discussion with the contractor to see which geotextile type the contractor recommends for the wet subgrade issues. The inspector shall then discuss with the design engineer.
5. Allow 1' overlap between adjacent panels of geotextile where applicable.

Date 8/2025
Designed BTO STANDARD DWG 8/2025
Drawn
Checked
Approved RGD 8/2025

GENERAL CONSTRUCTION NOTES

United States Department of Agriculture
Natural Resources Conservation Service

File No.
Drawing No.
Sheet of

Turf Reinforced Waterway and Subsurface Drain Design

USDA United States Department of Agriculture

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Contract Name: Ransom Young

County: Luzerne

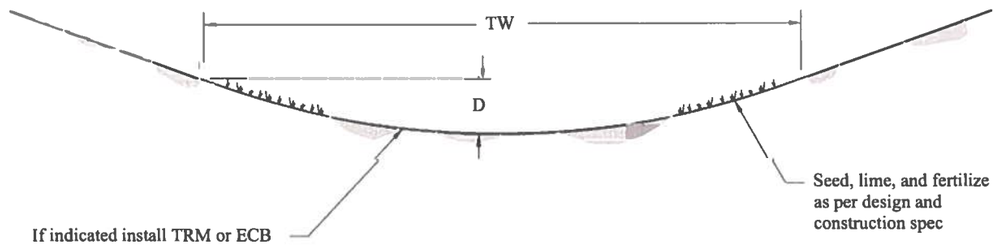
SHEET OF	DRAWING NO.	FILE NO. DESIGN.DWG	USDA United States Department of Agriculture Natural Resources Conservation Service	Project Plan View 1" = 200' Scale LUZERNE COUNTY, PA

		DATE
DESIGNED	SL	3/26
DRAWN	SL	
CHECKED		
APPROVED		

TRM

GRASSED WATERWAY DETAIL

Typical Cross-Section
(not to scale)



Construction Notes:

1. Construct grassed waterway to the dimensions in table below, dimensions shown are after topsoil is applied.
2. Gullies along the waterway shall be filled with compacted earth in 4" loose lifts and compacted with 3-passes of a tracked machine or utilize a hand tamper
3. To help with shaping of the waterway construct to the following dimensions:
   - 3.1. at $\frac{1}{2}$ the top width the depth is equal to D/4
   - 3.2. at $\frac{3}{4}$ the top width the depth is equal to D/2
4. If Erosion Control Blankets (ECB) are to be installed as indicated in the table below they shall be rated for short term longevity and have a minimum shear stress of _____ psf. The ECB shall be installed a minimum of $\frac{2}{3}$ the waterway width
5. If Turf Reinforced Matting (TRM) is to be installed as indicated in the table below they shall be rated for a permanent longevity and have a minimum shear stress 6.86 psf. The TRM shall be installed over the entire width of the waterway. If using TRM the 468 Lined Waterway Specification must be followed
6. Install the ECB or TRM as per the manufacturer's instructions NAG S200

WATERWAY TABLE

REACH	STA - STA	SLOPE	TW	D	ECB	TRM
4	300-746	10	32	1.1	☐	☑
3	100-300	5.8	32	1.25	☐	☑
2	25-100	2.7	32	1.4	☐	☑
1	0-25	1.5	32	1.5	☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐

Rock R-4

USDA United States Department of Agriculture	Ransom Young	Designed SL Date 3/26	File Name
	Luzerne COUNTY, PA	Drawn	Drawing Name
Natural Resources Conservation Service	Grassed Waterway Detail	Checked	
		Approved	Sheet ___ of ___

SHEET OF

DRAWING NO.

FILE NO. DESIGN.DWG

USDA United States Department of Agriculture

Natural Resources Conservation Service

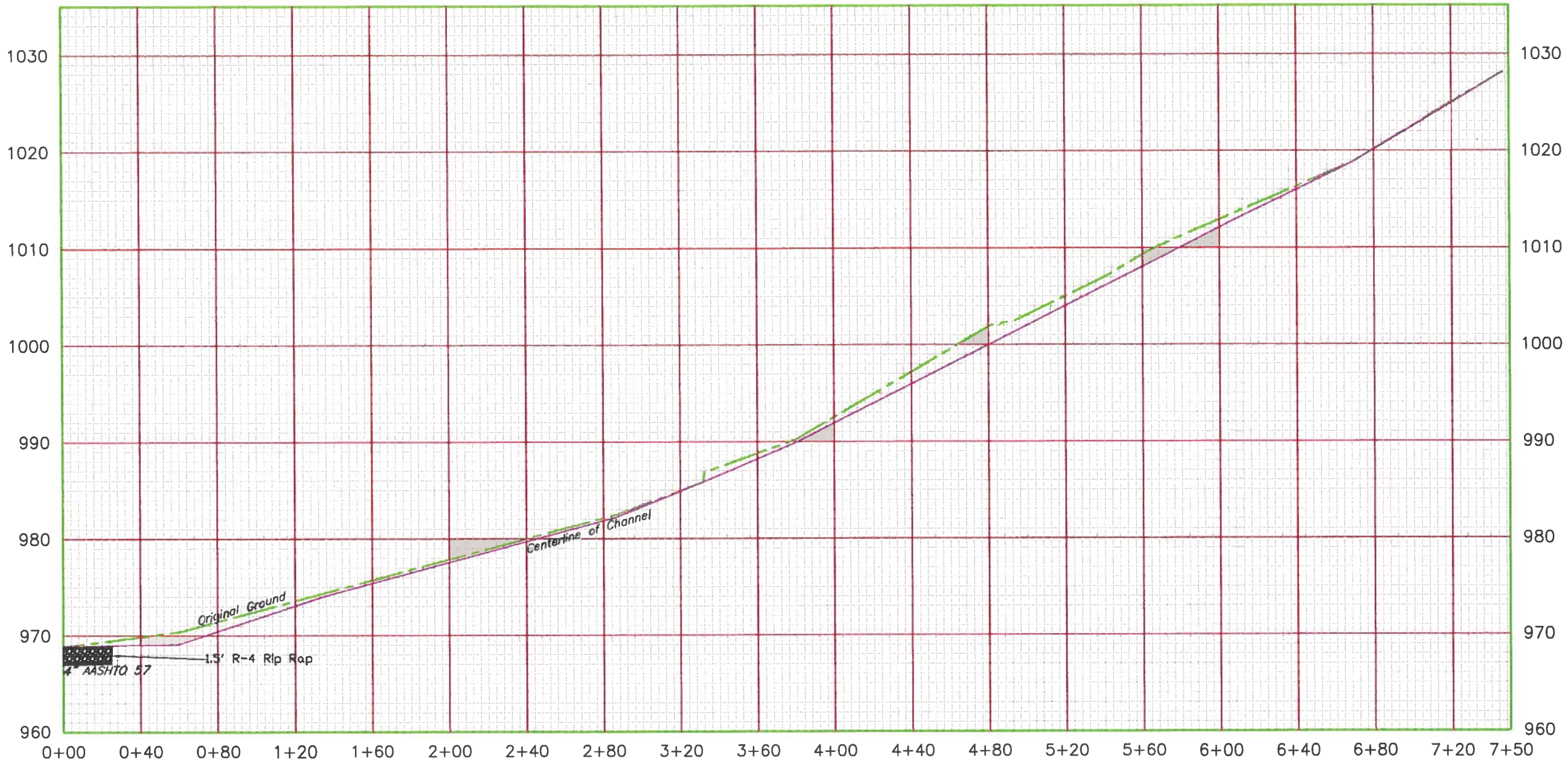
RANSOM YOUNG

TRM Waterway and Tile Plan View

1" =100' Scale

LUZERNE COUNTY, PA

		DATE
DESIGNED	SL	3/26
DRAWN	SL	
CHECKED		
APPROVED		



Turf Reinforced Waterway PROFILE

Reach 1 0–25 32' Wide X 1.5' Deep on .5% Lined with R–4 Rip Rap
Reach 2 25–100 32' Wide X1.4' Deep on a 2.7% slope Lined with North American Green (NAG) S200 Permanent Matting
Reach 3 100–300 32' WideX 1.25' Deep on 5.8% slope Lined with NAG S200 Permanent Matting
Reach 4 300–746 32' Wide X 1.1' Deep on 10% AVG slope Lined with NAG S200 Permanent Matting
Slope varies slightly some between 300–746 at 8.6% to 10.5% but channel depth stays the same
Turf Reinforced Waterway transitions to a stone lined waterway at the top of the hill @ 7+46

0 60 120 180 240

Scale in Feet

DESIGNED SL
DRAWN SL
CHECKED
APPROVED
DATE 3/26

RANSOM YOUNG

Turf Reinforced Waterway Profile

LUZERNE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

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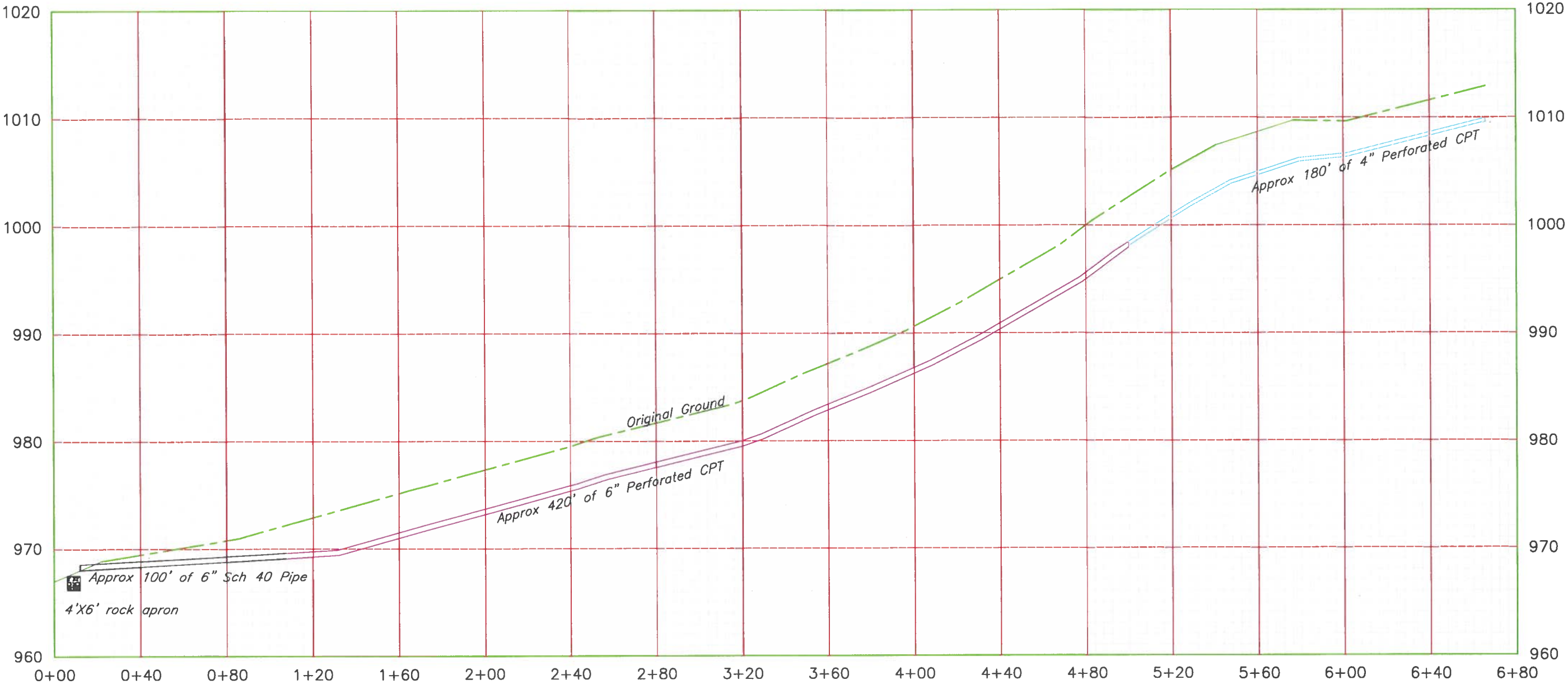

Tile Profile PROFILE

Install 6" sch 40 pvc or SDR 35 pipe at the outlet until 2.5' over cover is reached over the pipe

Install a 4'X6' rock apron lined with 1.5' of R-4 Rip and 4" of AASHTO 57 bedding stone at the tile outlet

Maintain a 1% minimum grade on the pipe at all times

The trench should be a 3.5' to 4' deep maintaining a minimum of 3' of cover over the pipe

Install 3" of AASHTO 57 stone under the outlet pipe

All perforated corrugated plastic tubing (CPT) is to be enveloped in # 57 stone

There should be 6" of drop between the pipe outlet and the rock apron

Tile is to outlet into the riparian area

Install an animal guard at the pipe outlet

0 50 100 150 200

Scale in Feet

DATE 3/26

DESIGNED SL

DRAWN SL

CHECKED

APPROVED

RANSOM YOUNG

Tile Profile

LUZERNE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. DESIGN.DWG

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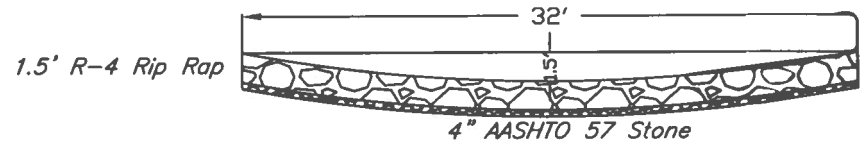
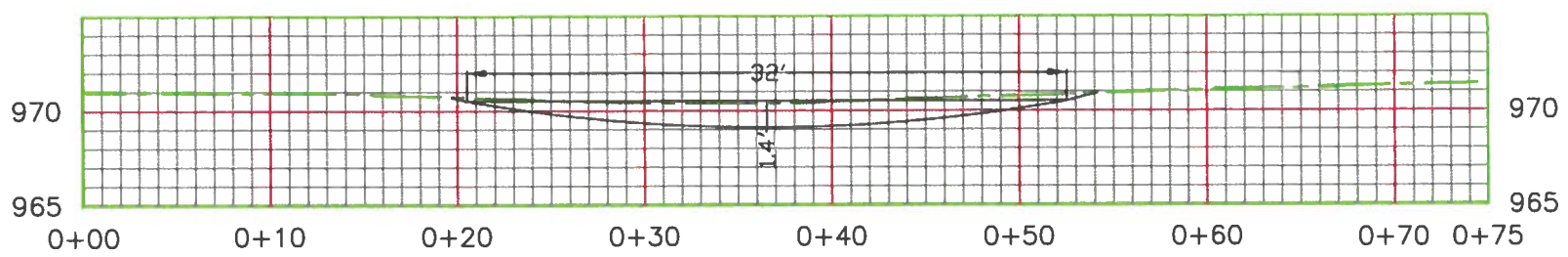


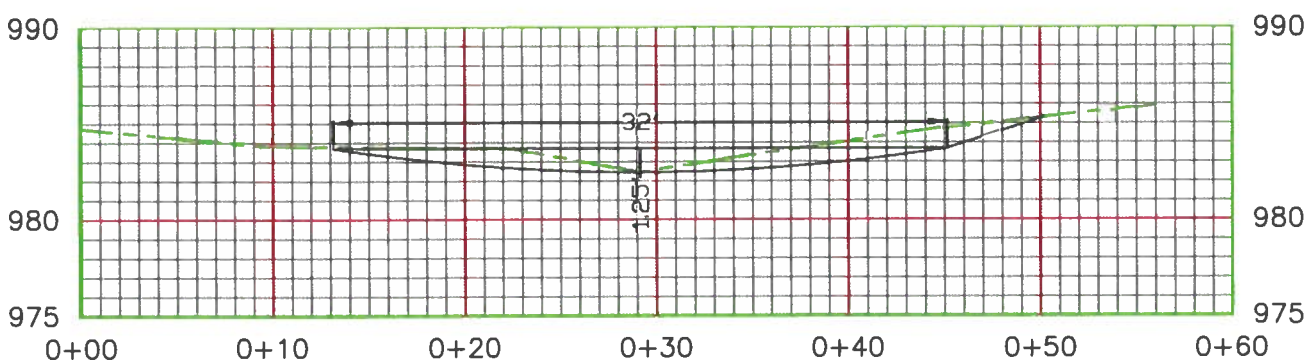
Stone Lined Outlet Cross Section 0-25



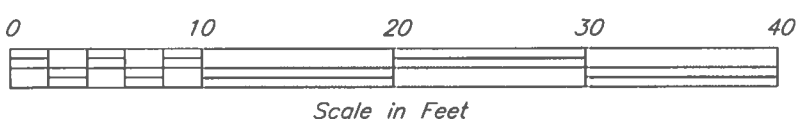
TRM Waterway Cross Section @ 60' PROFILE

Channel to be lined with North American Green S200 Erosion Control Matting

TRM Waterway Cross Section @ 1+36' PROFILE



TRM Cross Section @ 2+86' PROFILE



DATE 3/26

DESIGNED SL

DRAWN SL

CHECKED

APPROVED

RANSOM YOUNG

Turf Reinforced Waterway Cross Sections 1-3 & Stone Lined Outlet Cross Section

LUZERNE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. DESIGN.DWG

DRAWING NO.

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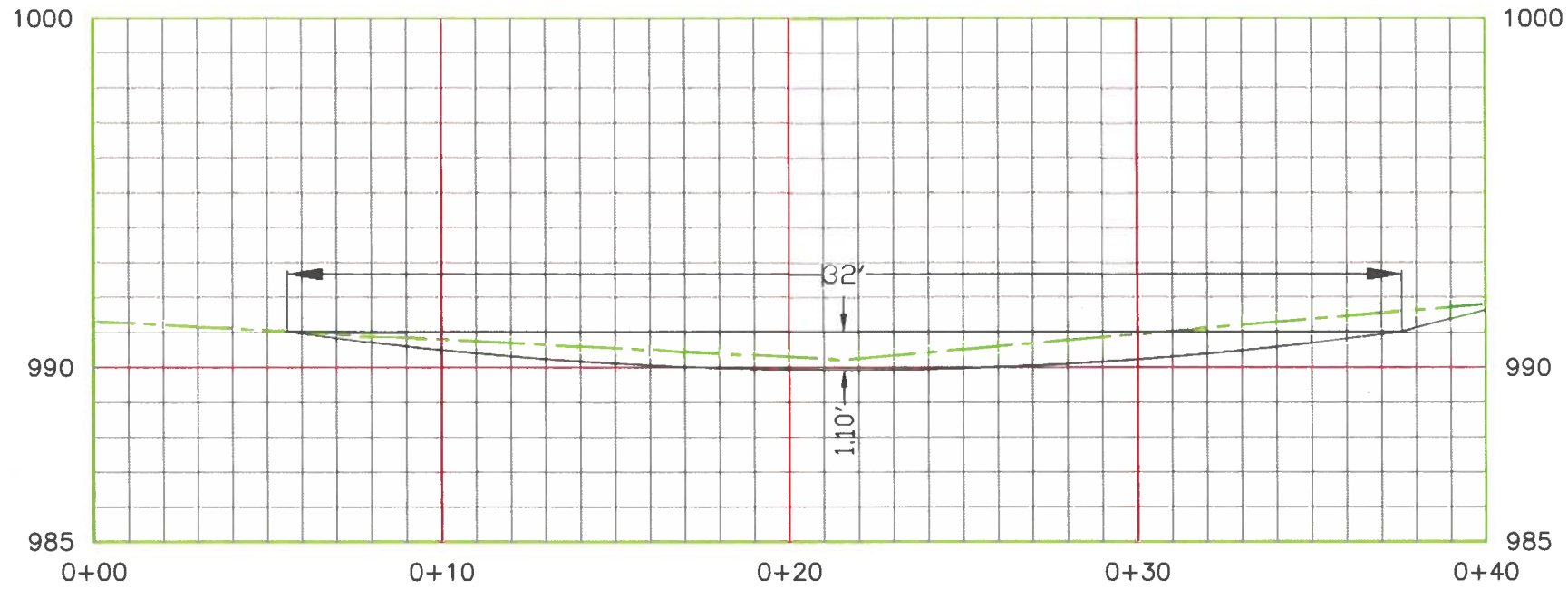
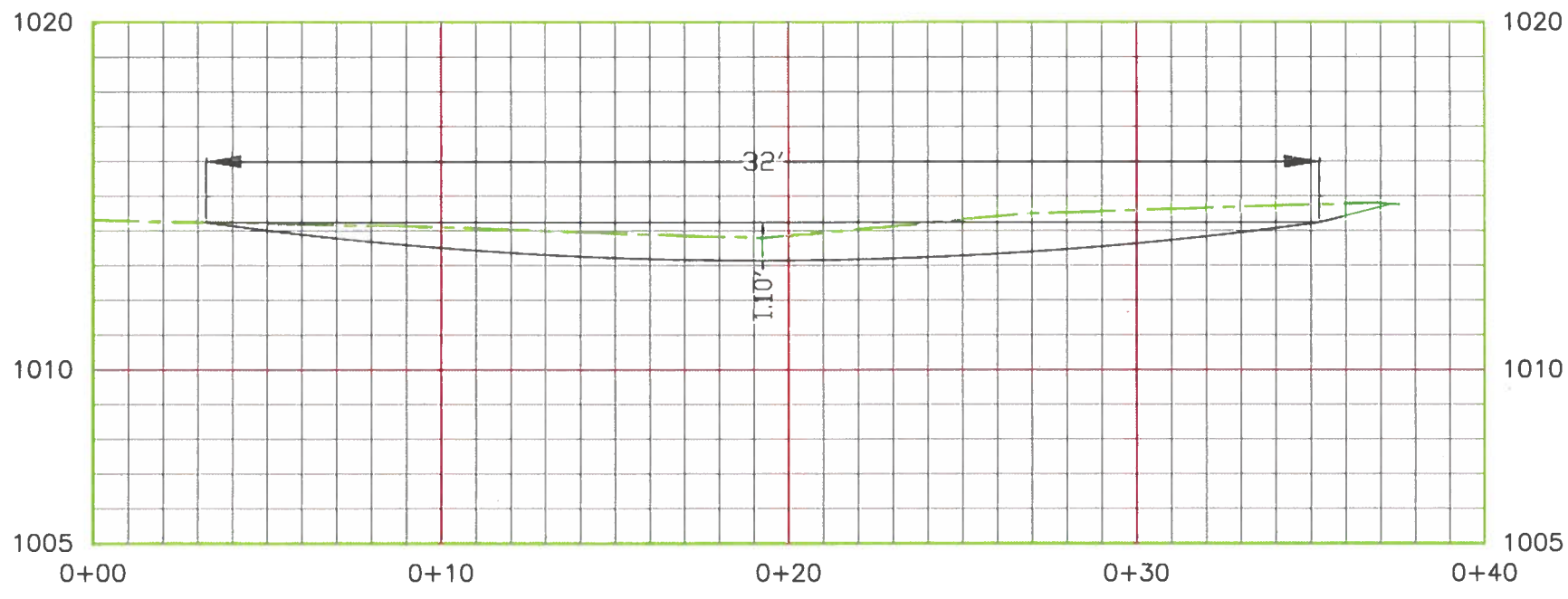


TRM Waterway Cross Section @ 3+80' PROFILE

Channel to be lined with North American Green S200 Erosion Control Matting



TRM Waterway Cross Section @ 6+10' PROFILE

0 5 10 15 20

Scale in Feet

DATE 3/26

DESIGNED SL

DRAWN SL

CHECKED

APPROVED

RANSOM YOUNG

Turf Reinforced Waterway Cross Sections 4-5

LUZERNE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

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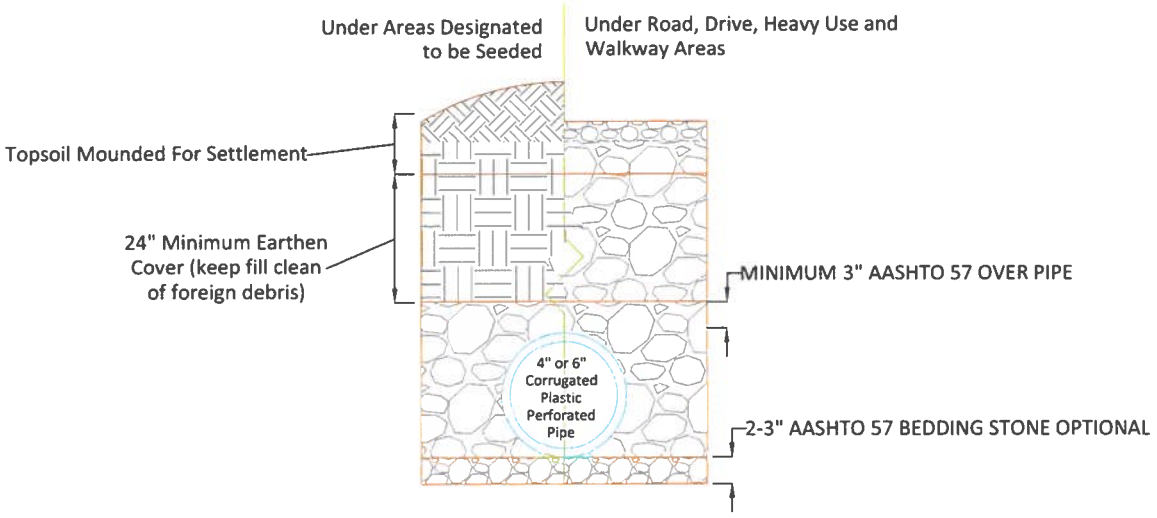


1. INSTALL PIPE AS LOCATIONS AS SHOWN ON PLANS.
2. INSTALL PIPE ON CONTINUOUS 1 % MINIMUM GRADE AT LOCATION AND IN THE DIRECTION AS PROVIDED AND FIELD VERIFIED AND APPROVED BY NRCS.
3. LOCATIONS WITH LESS THAN 9.8' OF COVER, SUBSURFACE DRAIN PIPE SHALL BE SINGLE WALL POLYETHYLENE CORRUGATED PERFORATED PIPE MEETING ASTM F667, OR BETTER.
4. LOCATIONS WITH GREATER THAN 9.8' OF COVER, SUBSURFACE DRAIN PIPE SHALL BE SINGLE WALL POLYETHYLENE CORRUGATED PERFORATED PIPE MEETING AASHTO M252 OR BETTER.
5. PIPE DIAMETERS AND LOCATIONS ARE GIVEN IN PROPOSED PLAN VIEW. PIPE ALIGNMENTS, LOCATIONS, AND DEPTHS ARE TO BE FIELD VERIFIED AND APPROVED BY NRCS.
6. EXISTING UTILITIES SHALL BE LOCATED PRIOR TO EXCAVATION.
7. PIPE AT OUTLET TO BE SCHEDULE 40 PVC OR SDR35 SEWER AND DRAIN PIPE MEETING ASTM-D3034 OR ASTM-D2729 UNTIL A MINIMUM OF 2.5' OF COVER IS REACHED OVER THE PIPE THEN SWITCH TO PERFORATED CORRUGATED PLASTIC TUBING (CPT) PIPE
8. INSTALL AN ANIMAL GUARD AT THE OUTLET OF THE PIPE, USE END CAPS, AND TAPE ALL JOINTS
9. BEDDING STONE TO BE INSTALLED UNDER OUTLET PIPE AND ALL CPT TO BE ENVELOPED IN STONE

SUBSURFACE DRAIN TRENCH AND BACKFILL DETAILS

Date
Designed
Drawn
Checked
Approved

SUBSURFACE DRAIN TRENCH DETAILS

United States Department of Agriculture
Natural Resources Conservation Service

File No.
Drawing No.
Sheet of

GRASSED WATERWAY SEEDING INFORMATION SHEET

Following Construction Specification PA-342, Critical Area Seeding

1. Permanent seeding must be done on all disturbed areas as a result of the installation of the conservation practices. The planned grassed waterway is required to be seeded following the guidance below.

2. Lime, fertilizer and seeding shall take place after topsoil and final grading of the waterway has been completed. The local quality assurance inspector should verify the designed sizes are adequate prior to any seeding taking place.

3. Prior to seeding the topsoil shall be amended with lime and fertilizer according to the soil tests or at the following rates: **Lime 6 tons/acre, Fertilizer (10-20-20) 1000 lbs/acre**. Amendments shall be incorporated into the soil at a depth of 4 to 6 inches.

4. After soil amendments have be complete permanent seeding shall be applied with a broadcast seeder or drilled. If broadcast; disk lightly to cover seed. The following species and rates shall be followed and shall incorporate a nurse crop:

   a. Nurse Crop (choose one)

Oats	64 lbs/acre
Annual Ryegrass	20 lbs/acre
Wheat	90 lbs/acre
Rye	56 lbs/acre

   b. Seed Mixture[1]

Species	Lbs/acre – PLS*
Perennial Ryegrass	15
AND Tall Fescue OR	60
Kentucky Bluegrass	25

[1] Other seed mixtures are available, contact the local NRCS District Conservationist for guidance on selecting an alternative mixture.

5. If erosion control blankets or turf reinforced matting is to be included, seeding shall be done prior to the installation of these items. The manufacturers instructions shall be followed, and the correct longevity and shear stress rating shall be met as shown in the design. Generally, place blankets or turf reinforced matting starting at the top and work down the hill.

**Seeding rates are stated as pounds per acres (lbs/acre) of pure live seed (PLS). PLS is the product of the percentage of pure seed times the percentage of germination divided by 100. (e.g. [85% pure seed x 72% germination] ÷ 100 = 61% PLS). Seed should not be used later than one year after the test date that appears on the label. Use of seed older than one year could result in less than satisfactory vegetative coverage and the need to re-seed the disturbed areas.*

United States Department of Agriculture

Natural Resources Conservation Service
Practice Specification
Grassed Waterway (Code 412)

1. SCOPE

The work shall consist of the construction of the Grassed Waterways at locations and grades shown on the drawings, or as stated in Section 5 of the specification. Construction work covered by this specification shall not be performed between October 15 and the following February 15, unless the site conditions and/or construction methods to be used have been reviewed and approved by the Engineer.

2. MATERIALS

The earth material used in constructing the grassed waterway shall be obtained from the grassed waterway area or other approved sources. Other required materials shall be as shown in the drawings or in Section 5 of this specification.

3. FOUNDATION PREPARATION

All trees, stumps, brush and similar material are to be removed from the site and disposed of in a manner consistent with environmental concerns and proper functioning of the grassed waterway. The area shall be stripped of vegetation, topsoil, and unsuitable material. Topsoil shall be stockpiled and spread uniformly over the finished waterway, unless stated otherwise in Section 5 of this Specification.

4. INSTALLATION

Fill shall contain no frozen materials, rocks greater than 6-inches in diameter, roots or wood greater than 2-inches in diameter or 4- inches in length, sod, brush, or other objectionable material.

The earth fill shall be compacted by routing the hauling and spreading equipment over the fill in such a manner that the entire surface of the fill will be traversed by not less than one tract tread of the loaded equipment. However, the compaction shall not be excessive so as to deter a suitable seedbed. The completed grassed waterway shall conform to the cross section(s) shown on the drawings.

When an excess of earth material results from cutting the grassed waterway to the required cross section and grade, it shall be spread adjacent to the grassed waterway without blocking surface runoff from reaching the waterway, or in another

designated area where fill is needed.

Watershed runoff shall be diverted away from the waterway until vegetation is established, as shown in the drawings, or in Section 5 of this Specification. Any protective works shall then be removed, and the disturbed areas shall be seeded to permanent grass. Other options include the use of erosion control blankets for erosion protection until the vegetation is established.

5. ADDITIONAL CONDITIONS WHICH APPLY TO THIS PROJECT ARE:

United States Department of Agriculture

Natural Resources Conservation Service
Practice Specification
Lined Waterway or Outlet (Code 468)

1. SCOPE

The work shall consist of furnishing materials and installing all components of the lined waterway or outlet, as outlined in this specification and the drawings.

Construction work covered by this specification shall not be performed between December 1 and the following March 15, unless the site conditions and/or construction methods to be used have been reviewed and approved by the Engineer.

2. MATERIALS

All materials used shall conform to the quality and grade noted on the drawings, set forth in Section 6, or as otherwise listed below:

a. ROCK shall be durable and obtained from sources listed in Penn DOT Bulletin 14 or as otherwise approved by the designer. Gradation shall be as specified in Section 6 or on the drawings. The nominal size of a rock is that dimension (middle) which passes through a square opening with the same dimension; i.e., it is not the greatest dimension. The rock shall be free from soil and trash. Rocks shall be angular or sub-angular in shape. However, the least dimension of any individual rock shall be greater than one-third the greatest dimension. Unless specified in Section 6, a gradation quality control check shall be made of the in-place riprap by the Contractor. Any dispute on the acceptability of the gradation shall be resolved by physically testing the riprap in question. The Contractor is to provide the equipment and labor necessary to perform the testing at no additional cost.

b. EARTH FILL material used in constructing the waterway shall be obtained from the waterway area or other approved sources. Fill shall contain no frozen material, rocks greater than 6 inches in diameter, roots or wood greater than 2 inches in diameter or 4 inches in length, sod, brush, or other objectionable material.

c. DRAINFILL AGGREGATE shall meet the requirements of Penn DOT Specifications, Section 703.2, Type A, Coarse Aggregate. The size and gradation shall be as specified in Section 6 or on the drawings.

d. CONCRETE, masonry, or pre-cast concrete shall be made in conformance with the requirements of Penn DOT Specifications, Sections 704, 713, and 714, as appropriate.

e. GEOTEXTILE shall meet the requirements as outlined in NRCS Design Note 24 and NRCS Material Specification 592 or as otherwise stated in the design and specifications. Certification from the manufacturer shall be provided by the Contractor that the geotextile meets these requirements.

f. SYNTHETIC TURF REINFORCEMENT FABRICS shall meet the requirements of Penn DOT Specifications, Section 806.2(b) and (c), unless otherwise set forth in Section 6.

g. GRID PAVERS shall meet the requirements of Penn DOT Specifications, Section 857.

3. SITE PREPARATION

The foundation area shall be cleared of trees, stumps, roots, sod, loose rock, and other material. The waterway cross section shall be excavated to the neat lines and grades as shown on the drawings. The sub-grade surface on which the lining is to be installed shall be excavated or filled as needed. Fill shall be compacted to approximately the same density as the adjacent undisturbed material. No abrupt deviations from the design grade or horizontal alignment shall be permitted.

All material removed by the clearing and grubbing operation shall be disposed of as directed by the Owner or his/her Representative, or as set forth in Section 6.

Areas adjacent to the waterway shall be graded to allow water to drain directly into the waterway.

4. FILTER OR BEDDING

Where a geotextile fabric is required under the lining, it shall be unrolled in a direction parallel to the waterway in a loose manner permitting it to conform to the surface, without damage, when the lining is placed. The fabric shall be secured and overlapped as per the manufacturer's recommendations for waterway applications. Fabric ends shall be trenched, as necessary, to ensure that drainage from adjacent areas does not get under the fabric. Placement of fabric on mud, un-compacted fill or frozen material will not be permitted.

Prior to the placement of the lining material, the fabric shall be inspected and approved by the designated inspector. Notification shall be given far enough in advance to provide time to schedule the inspection.
Any fabric which is damaged during placement of the lining material shall be replaced.

Aggregate bedding shall be placed to the thickness shown on the drawings, or as set forth in Section 6. Compaction of the bedding material is not required; however, the surface of the material shall be reasonably smooth and free of mounds or windrows.

5. LINING PLACEMENT

Rock linings shall be placed by equipment to the thickness specified. The rock shall be installed to the full thickness in one operation, and in such a manner as to avoid serious displacement or damage to the underlying materials or adjacent structures. In no case shall rock be dropped from a height greater than 3 feet.

The rock shall be delivered and placed in such a manner that will ensure that the in-place lining is homogeneous with no one size dominating an area. Some hand placing may be necessary to provide a neat and uniform surface on grade. Rock shall be

placed so as not to obstruct or divert drainage from areas adjacent to the waterway sides.

Concrete linings shall be placed to the thickness shown on the drawings. The surface shall be smooth and even with concrete paste worked to the surface to fill all voids. Careful screeding (striking-off) and/or wood float finishing shall be required, unless otherwise shown on the drawings, or as set forth in Section 6. Adequate precautions shall be taken to protect freshly placed concrete from freezing or extremely high temperatures, to insure proper curing.

Other pavement or linings, such as synthetic turf reinforcement fabrics, grid pavers, etc., shall be installed in accordance with Penn DOT Specifications, Sections 806 and 857, as appropriate, and/or as otherwise set forth in Section 6.

6. ADDITIONAL CONDITIONS WHICH APPLY TO THE PROJECT ARE:

Additional Conditions and Construction Notes:

A. Grassed Waterway, PA-412 / (TRM) 468

a. This item includes excavation, furnishing of materials, and construction of the grassed waterway as shown on the construction drawings.

b. Installation of the waterway shall follow the construction notes and dimensions shown on the grassed waterway detailed drawings. Protect the waterway during construction from upslope runoff.

c. The grassed waterway shall be seeded as per the Grassed Waterway Seeding Information Sheet.

d. If indicated on the construction drawings the waterway shall have an erosion control blanket or turf reinforced matting installed. These shall be installed after topsoiling, finish grading, and seeding is complete. Installation shall follow the manufacturers recommendations and instructions.

USDA United States Department of Agriculture

Natural Resources Conservation Service
PRACTICE SPECIFICATION
SUBSURFACE DRAIN
(Code 606)

1. SCOPE

The work shall consist of furnishing materials and installing all components of the subsurface drain as outlined in the specification and the drawings.

2. MATERIALS

a. DRAINFILL AGGREGATE shall meet the requirements of Penn DOT, Publication 408, Section 703, fine and coarse aggregate. The size and gradation shall be as specified in the additional conditions of this specification or on the drawings.

Table 1 – Drain Pipe Requirements

Type	Specification
Concrete drain tile	ASTM-C-412
Concrete pipe for irrigation or drainage	ASTM-C-118
Concrete pipe or tile, determining physical properties of	ASTM-C-497
Concrete sewer, storm drain and culvert pipe	ASTM-C-14
Reinforced concrete culvert, storm drain and sewer pipe	ASTM-C-76
Perforated concrete pipe	ASTM-C-444
Portland cement	ASTM-C-150
Pipe, bituminized fiber & fitting	Federal Specification SS-P-1540
Styrene rubber (SR) plastic drain pipe & fitting	ASTM-D-2852
Polyvinyl chloride (PVC) sewer pipe & fitting	ASTM-D-2729
Polyvinyl chloride (PVC) pipe	ASTM-D-3034 type PSM
Corrugated polyethylene tubing & fitting (3-6 inch)	ASTM-F-405
Corrugated polyethylene tubing & fitting (8-24 inch)	ASTM-F-667
Pipe corrugated (steel, polymer coated)	ASTM-A-762
Pipe, corrugated (steel, zinc coated)	ASTM-A-76

b. PIPE shall meet the requirements of Table 1, and as set forth in Section 9 and/or on the drawings. All pipes shall be clearly marked with the appropriate specification designation. Provide UV protection for pipe stored and exposed to sunlight for extended periods of time exceeding 6 months or exceeding the pipe manufacturer's' limit for UV exposure. At the time of installation, it should be kept as cool as possible to minimize elongation of the pipe during installation.

GEOTEXTILE shall meet the requirements as outlined in NRCS Design Note 24 and NRCS Material Specification 592

3. SITE PREPARATION

All trees, brush, fences, and rubbish shall be cleared within the area that the subsurface drain will be installed. All material removed by the clearing and grubbing operation shall be disposed of as directed by the Owner or his/her Representative.

4. INSPECTION AND MATERIAL HANDLING

Material for subsurface drains shall be carefully inspected before the drains are installed. If applicable, clay and concrete tile shall be checked for damage from freezing and thawing before it is installed.

Bituminized fiber and plastic pipe and tubing shall be protected from hazard causing deformation or warping. Plastic pipe and tubing with physical imperfections shall not be installed. Any damaged section shall be removed and replaced. All material shall be satisfactory for its intended use and shall meet applicable specifications and requirements.

5. SAFETY

All positive "design" responses from the Pennsylvania One Call System are noted on the plans. It is the Contractor's or Landowner's responsibility to notify One Call of pending construction and to contact the affected utility for marking at the time of construction.

The Contractor must comply with OSHA requirements Part 1926, subpart P, for protection of workers entering trench.

6. INSTALLATION

Flexible conduits, such as plastic pipe or tubing and bituminized fiber pipe, shall be installed, according to the requirements in ASTM-F-449, "Standard Recommended Practice for Subsurface Installation of Corrugated Thermoplastic Tubing for Agricultural Drainage or Water Table Control."

All subsurface drains shall be laid to line and grade and covered with approved blinding, envelope, or filter material to a depth of not less than three inches over the top of the pipe. If an impervious sheet is used over the drain, at least three inches of blinding material must cover the sheet. No reversals in grade of the conduit shall be permitted.

If the conduit is to be laid in a rock trench or if rock is exposed at the bottom of the trench, the rock shall be removed below grade so that the trench can be backfilled, compacted and bedded. When completed, the tile conduit shall be not less than two inches from the rock.

Earth backfill material shall be placed in the trench in a manner to ensure that the conduit does not become displaced and so that the filter and bedding material, after backfilling, meet the requirements of the plans and specifications.

If a filter is needed, no part of the conduit containing openings shall be left exposed. If a sand-gravel filter material is used, it shall be a gradation that is compatible with the base material in the trench. The trench shall be over excavated three inches and backfilled to grade with filter material. After the conduit is placed on the filter material, additional filter material shall be placed over the conduit to fill the trench to a depth of three inches over the conduit.

7. FITTING AND CONNECTIONS

All fitting and connections for pipe shall be made with manufacturer-supplied components made for the intended purpose.

8. CONDUIT PERFORATIONS

If perforations are specified, the water inlet area shall be at least 1 inch/foot of the pipe length. The perforations shall be either circular or slots equally spaced around the circumference of the pipe in not less than three rows. Circular perforations shall not exceed 3/16 inch in diameter and slots shall not be more than 1/8 inch wide and 1 ¼ inch long for 3-, 4- and 5-inch diameter pipe, or 1 ½ inch for 6- and 8-inch diameter pipe, or 1 ¾ inch for 10- and 12-inch diameter pipe. All slots and circular perforations shall be cleanly cut.

9. ADDITIONAL CONDITIONS WHICH APPLY TO THIS PROJECT ARE:

United States Department of Agriculture

Natural Resources Conservation Service
PRACTICE SPECIFICATION
UNDERGROUND OUTLET
(Code 620)

1. SCOPE

The specification covers the fabrication, installation, and construction of underground outlets.

2. MATERIALS

The materials required for the underground outlet shall be as shown on the drawings or as otherwise required in Section 9.

a. DRAINFILL AGGREGATE shall meet the requirements of Penn DOT, Publication 408, Section 703, fine and coarse aggregate. The size and gradation shall be as specified in the additional conditions of this specification or on the drawings.

Table 1 – Drain pipe requirements:

Type	Specification
Concrete drain tile	ASTM-C-412
Concrete pipe for irrigation or drainage	ASTM-C-118
Concrete pipe or tile, determining physical properties of	ASTM-C-497
Concrete sewer, storm drain and culvert pipe	ASTM-C-14
Reinforced concrete culvert, storm drain and sewer pipe	ASTM-C-76
Perforated concrete pipe	ASTM-C-444
Portland cement	ASTM-C-150
Pipe, bituminized fiber & fitting	Fed Spec SS-P-1540
Styrene rubber (SR) plastic drain pipe & fitting	ASTM-D-2852
Polyvinyl chloride (PVC), SHD 40, 80, 120	ASTM-D-1785
Polyvinyl chloride (PVC) sewer pipe & fitting	ASTM-D-2729
Polyvinyl chloride (PVC), SDR 35, 26	ASTM-D-3034
Corrugated polyethylene tubing & fitting (3-6 inch)	ASTM-F-405
Corrugated polyethylene tubing & fitting (8-24 inch)	ASTM-F-667
Corrugated polyethylene tubing	ASTM F2648
Corrugated polyethylene tubing (3-10")	AASHTO M252
Corrugated polyethylene tubing (12-60")	AASHTO M294
Pipe, corrugated (steel, polymer coated)	ASTM-A-762
Pipe, corrugated (steel, zinc coated)	ASTM-A-760

b. PIPE shall meet the requirements of Table 1, and as set forth in Section 9 and/or on the drawings. All

pipes shall be clearly marked with the appropriate specification designation. If plastic pipe is stored on site for a length of time, it should be protected from sunlight. At the time of installation, it should be kept as cool as possible to minimize elongation of the pipe during installation.

c. GEOTEXTILE shall meet the requirements as outlined in NRCS Design Note 24 and NRCS Material Specification 592.

d. CONCRETE and related materials shall meet the requirements set forth in Construction Specification PA313, Waste Storage Facility and/or as set forth in Section 9.

All materials shall be carefully inspected prior to installation. Clay and concrete tile shall be checked for damage by freezing. Plastic pipe and tubing shall be protected from hazards causing deformation. Any damaged or imperfect pipe or tubing shall not be installed. Any pipe or tubing which is damaged during installation shall be removed and replaced.

3. SITE PREPERATION

All trees, brush, fences and rubbish shall be cleared within the area that the subsurface drain will be installed. All material removed by the clearing and grubbing operation shall be disposed of as directed by the Owner or his/her Representative.

4. INSPECTION AND MATERIAL HANDLING

Material for underground outlets shall be carefully inspected before the drains are installed. If applicable, clay and concrete tile shall be checked for damage from freezing and thawing before it is installed. Bituminized fiber and plastic pipe and tubing shall be protected from hazard causing deformation or warping.

Plastic pipe and tubing with physical imperfections shall not be installed. Any damaged section shall be removed and replaced. All material shall be satisfactory for its intended use and shall meet applicable specifications and requirements.

5. SAFETY

All positive "design" responses from the Pennsylvania One Call System shall be noted on the plans. It is the Contractor's or Landowner's responsibility to notify One Call of pending construction and to contact the affected utility for marking at the time of construction.

The Contractor must comply with OSHA requirements Part 1926, subpart P, for protection of workers entering trench.

6. EXCAVATION

Construction operations shall follow the erosion and sediment control plan.

Unless otherwise specified, excavation for each underground outlet shall begin at the outlet end and progress upstream. The trench shall be excavated to the grades and cross sections shown on the drawings. The trench width above the conduit may increase as necessary for safe installation or for the convenience of the Contractor. Trench shields, shoring, or bracing are required whenever workers will be in a trench deeper than four feet, or as otherwise required be OSHA Regulations.

7. INSTALLATION

BEDDING. In stable soils, the conduit shall be firmly and uniformly bedded throughout its entire length as required on the drawings or Section 9. Where the underground outlet foundation is in unstable soils, the bedding shall be as shown on the drawings or as otherwise required by the Engineer. Where the conduit is to be laid in rock, or rock is exposed at the trench bottom, the rock shall be removed at least two inches below the invert grade to allow for compacted bedding under the conduit.

PLACEMENT. Debris inside of pipes and tubing shall be removed prior to installation. The conduit ends shall be protected during placement. Similarly, all appurtenances, including trash guards and animal guards, shall be protected during installation to avoid damage. All underground outlets shall be laid to line and grade, and immediately covered with an approved blinding, envelope, or the required depth of filter material. No reversals in grade of the conduit are permitted, and in very hot climates no more than five percent stretch is allowed. Special precautions must be taken in hot weather to observe this stretch limit.

Flexible conduits, such as plastic pipe or tubing and bituminized fiber pipe, shall be installed, according to the requirements in ASTM-F-449, "Standard Recommended Practice for Subsurface Installation of Corrugated Thermoplastic Tubing for Agricultural Drainage or Water Table Control."

Earth backfill material shall be placed in the trench in a manner to ensure that the conduit does not become displaced and so that the filter and bedding material, after backfilling, meet the requirements of the plans and specifications.

8. BACKFILL

Initial backfill shall be of selected material that is free of rocks or other sharp-edged material that could damage the pipe. Earth backfill shall be placed in the trench in such a manner that the conduit is not displaced, and that the filter and bedding materials are not contaminated or displaced. Unless otherwise specified, where the underground outlet is laid under roads or at other designated locations, the backfill shall be placed in successive layers of not more than six inches, and each lift compacted before the subsequent layer. Backfill shall extend above the adjacent ground to allow for settlement and be well rounded over the trench.

Work areas shall be restored to their pre- construction condition or as otherwise required in the plans or Section 9.

9. ADDITIONAL CONDITIONS WHICH APPLY TO THIS PROJECT ARE:

Additional Conditions and Construction Notes:

A. Subsurface Drain, PA-606 and Underground Outlet, PA-620

a. This item includes excavation, furnishing of materials, and installation of the subsurface drains and underground outlets as shown on the construction drawings.

b. The subsurface drain shall consist of perforated corrugated plastic drain tubing meeting ASTM F-667. The size shall be as listed in the construction drawings, installation shall follow the slopes of the proposed grassed waterway or as shown on the construction drawings.

c. The upper end of the drain shall be capped.

d. The underground outlet shall be Sch-40 PVC and shall connect onto the end of the subsurface drain and daylighted in a safe location as shown on the construction drawings. A minimum of 10ft of underground outlet is required for each subsurface drain. Provide an animal guard and field stone at the outlet to prevent erosion.

e. The subsurface drain shall be laid on firm material in the trench but shall not have hard objects greater than 1.5" touching the conduit. Backfill shall be with native material in 8" loose lifts and compacted with mechanical means. No stones larger than 6" shall be allowed in the backfill material.

f. Do not install the subsurface drain or the outlet pipe within the footprint of the waterway, as trench settlement can occur, causing channeling and erosion within the waterway.

USDA

United States Department of Agriculture

E & S PLAN

1. *It is the responsibility of the contractor to comply with the provisions of PA Code Title 25, Chapter 102 before performing any construction.*

2. *All construction permits are the responsibility of the landowner and their contractor.*

3. *Install straw bale barrier or silt fence on the contour at base of slope below the construction area, prior to construction.*

4. *Divert surface water from upslope of the construction site by installing a temporary diversion.*

5. *Minimize the disturbed area.*

6. *Upon completion of construction, all disturbed areas must be seeded and mulched according to NRCS construction specification PA-342 available at the local NRCS Field Office or online at https://efotg.sc.egov.usda.gov/ . Or the PSU agronomy guide seeding recommendations shall be followed.*

7. *In addition to the requirements set forth in the PA-342 specification, all state and local regulations shall be followed for seeding. Contact the local Conservation District for more information about the requirements.*

8. *Regrade and establish permanent seeding on all disturbed areas as soon as practical after completion of the job.*

USDA

United States Department of Agriculture

Fact Sheet #9

January 2016

Agriculture Construction Safety

Compliance with safety regulations on agricultural projects is required by OSHA and by all construction insurance/ liability companies. The contractor is to maintain a safe working environment for themselves, their employees, subcontractors, and others who must have access to the site. Detailed knowledge and implementation of safety regulations is their responsibility. Those with more than ten employees must have written safety procedures and document implementation.

Imminent danger situations (hazards that could cause death or serious physical harm) require immediate action, including work stoppage. When NRCS and/or partner personnel observe or become aware of an imminent danger on the work site they will alert the contractor and landowner. They will also advise the landowner that funding and/or technical assistance will be withdrawn if the situation is not corrected. Work may continue after the imminent danger is resolved.

Effective January 1, 2015, all employers must report work-related fatalities, hospitalizations, amputations, and losses of an eye. They can contact the 24-hour OSHA hotline at 1-800-321-OSHA (6742) or their regional OSHA office. See OSHA standards 29 CFR 1904.39 for more information.

Soil Cave-In Protection

- Applies to all excavation over five feet in depth.
- OSHA has regulations set forth in Standards 29 CFR 1926 -Subpart P.
- Options include: sloping, shoring, or working from a safe distance.
- See "Fact Sheet" – SOIL CAVE IN – A FATAL SLIP for general information.

Fall Protection

- This applies to all areas where an individual could fall six feet or more.
- OSHA regulations in 29 CFR Parts 1910 for General Industry and 1926 for the Construction Industry apply to agricultural construction.
- OSHA 29 CFR 1926 subpart L deals with scaffolds and 29 CFR 1926 Subpart M deals with overall fall protection, including but not limited to cast-in-place concrete work, leading edge work, pre-cast concrete erection, tying reinforcement steel, truss installation, and roof construction.
- Options include: warning line system, safety monitors, mechanical equipment, controlled access area, covers, safety nets, scaffolding, guardrail system, and personal fall arrest.
- Selected method(s) shall be implemented at the start of construction.

Underground and Overhead Utility Protection

- Contractor is required to do their own utility check via PA-ONE Call system (811).
- Landowner and/or contractor shall contact any overhead utilities and prepare a procedure to avoid contact and/or schedule work with utility oversight.
- Landowner is to mark and locate any known private buried utilities within the work area.

NOTE: Critical safety measures may be highlighted in the Project Drawings and Specifications.

Fact Sheet

SOIL CAVE IN-A FATAL SLIP

United States Department of Agriculture

Natural Resources Conservation Service

Cause of Cave Ins

Cave ins in pits and ditches cause the death of construction workers every year. Most deaths have occurred in trenches dug for utility lines. However, soil slippage can occur anywhere soil is excavated. Landslides in clay soils kill more people each year than those in sandy soils.

Most workers are careful around sand because they know it moves easily. However, many believe a thick, tough clay soil will not slip. Yet, most clay soils shrink and crack open when dry and swell when wet. This shrinkage and swelling cause slick areas to develop beneath the surface.

Some clay soils contain water-tight layers called fragipans. Water accumulating on the impervious layer lubricates the soil, increasing the probability of slippage. When a ditch or pit is dug in a soil with a fragipan or in a soil with a high shrink-swell potential, the soil will often slip, resulting in a dangerous cave in. This becomes even more likely WHEN THE SOIL IS WET.

Prevention

Occupational Safety and Health Administration (OSHA) regulations require protective action on all worker-occupied excavations unless the cut is made in stable rock, or the cut is less than five feet deep and there is no potential for a cave in to occur. Protection can be accomplished with sloping and benching, support systems, or shield systems which conform to OSHA regulations.

Sloping the sides of the excavation is the simplest protection against a cave in. If soil properties in the excavation are unknown, the excavation slopes should be no steeper than 1-1/2 horizontal to 1 vertical. If the soil can be classified as a Type A or Type B material according to the OSHA classification system (see back side), you can use a steeper slope, as shown in Figures 1 through 5.

Consult OSHA regulations when more than one soil type is exposed in an excavated slope, or when benched slopes are used. The regulations also provide details on support and shield requirements. Complete requirements are found in OSHA's safety and health standards (29 CFR 1926, Subpart P).

Soils Information

Soil survey publications are available for most counties. This information is useful to engineers, builders, contractors and others interested in construction hazards. The publication identifies soils with fragipans and high shrink-swell potential. Other potential construction problems, such as water table, bedrock and corrosiveness, are also contained in the reports as well as information on engineering properties of soils.

Copies of soil survey reports and other soils information are available from the local office of the USDA, Natural Resources Conservation Service, or write Soils, USDA, Natural Resources Conservation Service, Suite 340, One Credit Union Place, Harrisburg, PA 17110-2993.

OSHA Soils Classification for Excavated Slopes

Type A means cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as hardpan are also considered Type A. However, no soil is Type A if:

(i) The soil is fissured; or
(ii) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
(iii) The soil has been previously disturbed; or
(iv) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of 4H:1V or greater; or
(v) The material is subject to other factors that would require it to be classified as a less stable material.

Type B means:

(i) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf; or
(ii) Granular, cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam; or
(iii) Previously disturbed soils except those which would otherwise be classed as Type C soil; or
(iv) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
(v) Dry rock that is not stable; or
(vi) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than 4H:1V, but only if the material would otherwise be classified as Type B.

Type C means:

(i) Cohesive soil with an unconfined compressive strength of 0.5 tsf or less; or
(ii) Granular soils including gravel, sand, and loamy sand; or
(iii) Submerged soil or soil from which water is freely seeping; or
(iv) Submerged rock that is not stable; or
(v) Material in a sloped, layered system where the layers dip into the excavation ona slope of four 4H:1V or steeper.

MAXIMUM ALLOWABLE SLOPES

Figure 1. Type A Soil
Simple Slope, General

Figure 2. Type A Soil
Simple Slope, Short Term

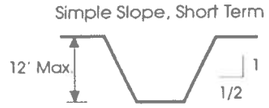


Figure 3. Type A Soil
Unsupported, Vertically Sided Lower Portion, Maximum 8 Feet in Depth

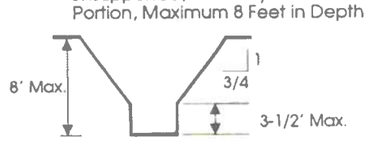


Figure 4. Type A Soil
Unsupported, Vertically Sided Lower Portion, Maximum 12 Feet

Figure 5. Type B Soil
Simple Slope

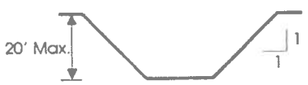


Figure 6. Type C Soil
Simple Slope

USDA United States Department of Agriculture

Appendix

Grassed Waterway Design

- County, PA

OPERATION AND MAINTENANCE
GRASSED WATERWAY / TURF REINFORCED WATERWAY
CODE 412 / 468

Landowner/Operator Ransom Young

County Luzerne Farm/Tract No. _____

Field Office Phone Number: _____

Prepared By: SL Date: 3/26

Inspections and maintenance are required to obtain the intended function of the waterway for its design life. The waterway capacity and vegetative cover shall be maintained. Items to inspect and maintain during the 10-year design life may include, but are not limited to the following.

- Maintain waterway capacity and outlet elevations especially if high sediment yielding areas are in the drainage area above the waterway. Establish necessary clean-out requirements.
- Spoil grading after construction should be accomplished promptly, fully, uniformly, without gaps, and with attention to tile trenches so that the practice functions as it was intended to function.
- Inspect waterway periodically, after significant storms and at a minimum, inspect annually for damage or deleterious effects such as sedimentation or vegetation beyond what is considered normal and healthy.
- If an erosion control blanket is installed, ensure that it is in-tact periodically and particularly after storms before vegetation is fully established.
- Do not graze waterway during establishment of vegetation and when soil conditions are wet.
- Protect waterway from damage by farm equipment and vehicles. Do not use waterway as a road and practice care when crossing to prevent tillage marks or wheel tracks.
- Avoid farming operations along the waterway (planting endrows), which would hinder water entry. Fill and seed all rills or small gullies that occur in the waterway.
- Maintain effective erosion control on the contributing watershed to prevent sedimentation and the resulting loss of capacity.
- Reestablish vegetative cover immediately where scour erosion has removed established seeding.
- Do not spray the waterway with herbicides intended for adjacent crops. Avoid crossing waterways during spray operations, and then cross only if the spray equipment is completely shut off.
- Fertilize waterways the first spring after seeding and thereafter as necessary to maintain a vigorous stand of grass.
- Mow waterways regularly to maintain a healthy, vigorous sod.

- The design height of the vegetation is 4 inches to 8 inches. The grass height is consistent with the retardance design.
- Do not burn or overgraze the waterway.
- Keep trees and brush from growing in the waterway. Regular mowing will control woody vegetation.
- Where rock checks, chutes or outlets are installed, replace any dislodged rock and fill back to grade if displacement or settlement occurs.
- Promptly repair all broken subsurface drain lines adjacent to or in the waterway and repair or replace any other damaged components as necessary. Ensure that tile outlets are open following storm events.
- Each inlet for underground outlets must be kept clean and sediment buildup redistributed so that the inlet is at the lowest point. Inlets damaged by farm machinery must be replaced or repaired immediately.
- Redistribute sediment as necessary to maintain the capacity of the waterway.
- Vegetation shall be maintained and trees and brush controlled by hand, chemical and/or mechanical means. The waterway shall be kept free of weeds, shrubs, trees and burrowing animals.
- Keep machinery away from steep sloped ridges.
- Keep equipment operators informed of all potential hazards.

Other Considerations: _____

OPERATION AND MAINTENANCE
SUBSURFACE DRAIN
CODE 606

Landowner/Operator Ransom Young County Luzerne

Farm/Tract No. _____

Field Office Phone Number: _____

Prepared By SL Date 3/26

Inspections and maintenance are required to obtain intended function for subsurface drains. Items to inspect and maintain during the 20-year design life of the drains are:

- Settling of fill in the subsurface drain installation trench may occur. Addition of compacted fill material may be needed. Maintain a minimum 24 inches of soil cover over subsurface drains.
- Remove woody vegetation such as willows, cotton wood, elm, and soft maple trees from the vicinity of subsurface drains.
- Broken subsurface drains are evident from wet areas, holes, or seeps that develop. Repair all broken subsurface drains immediately.
- Inspect and maintain subsurface drain outlets, including animal guards.
- Check surface inlets, junction boxes, and other appurtenances. Repair as needed to maintain their intended function.
- Remove woody vegetation within 5 feet of a subsurface drain outlet. The outlet must be fire resistant if burning is used to remove vegetation. Herbicide applications to remove vegetation must be applied according to manufacturer's recommendations.
- If iron ochre and manganese dioxide precipitates plug the lines, a cleanout structure must be installed to provide access for cleaning equipment.
- It is recommended to install tile blocks, stoppable catch basins, or other temporary flow blocking devices if subsurface drain water can become polluted from land application of manure.

Special considerations: _____

_____

OPERATION AND MAINTENANCE
UNDERGROUND OUTLET
CODE 620

Landowner/Operator Ransom Young

County Luzerne Farm/Tract No. _____

Field Office Phone Number: _____

Prepared By SL Date 3/26

This Operation and Maintenance, O&M Plan cites normal, repetitive activities that apply to the conservation practice and the plan lists inspection, repair and upkeep items which are required to achieve the intended function, benefits, and life of the conservation practice. The landowner/operator is responsible for establishing and implementing this plan. Items to inspect and maintain during the 20-year design life of the practice include, but are not limited to the following.

1. Inspect after significant storm events and at least annually to identify repair and maintenance needs.
2. Keep inlets, trash guards, and collection boxes and structures clean and free of materials that can reduce the flow.
3. Repair leaks and broken or crushed pipe to insure proper functioning.
4. Repair any settlement or erosion that occurs around the pipe with soil and reseed as needed. If this problem persists, evaluate the pipe for leakage and erosion of the fill material into or along the pipe.
5. Keep adequate backfill over the conduit.
6. Check outlet pipe and animal guard to ensure proper functioning.
7. Maintain erosion protection at outlets; repair any eroded areas at the outlet.
8. Promptly repair or replace damaged or inoperable components.
9. Protect the components from damage by farm equipment and livestock. Avoid damage to riser inlets by farm equipment. Mark risers so they are visible to prevent damage by equipment.

Special Considerations:

_____

_____

USDA

United States Department of Agriculture

QUALITY ASSURANCE PLAN

Landowner/Operator: Ransom Young Location: Luzerne

Job Description: Grassed Waterway and Suvsurface Drain Engineering Job Class: II

Primary QA Inspector: Mike S. Designer: Shannon Lovan

The items listed below are the critical items for inspection as determined by the designer of the project to assure quality workmanship is performed and the intent of the design is met. This is not a complete list, but shows the minimum required to assure that the work meets FOTG standards and specifications. The items listed in **bold** require continuous inspection and is typically required where quality of work cannot be verified by intermittent observations, all other items shall be checked intermittently. Not all items will apply to this project.

- Excavation – follow all safety regulations as per OSHA
- Installation of any pipes – check grade, size, and material conformance
- **Installation of waterways, diversions; check channel shape, and grade.**
- Lime, Fertilize, Seed, Mulch: verify that the correct type and amount of each is being applied and applied correctly.
- Other items:
- Other items:

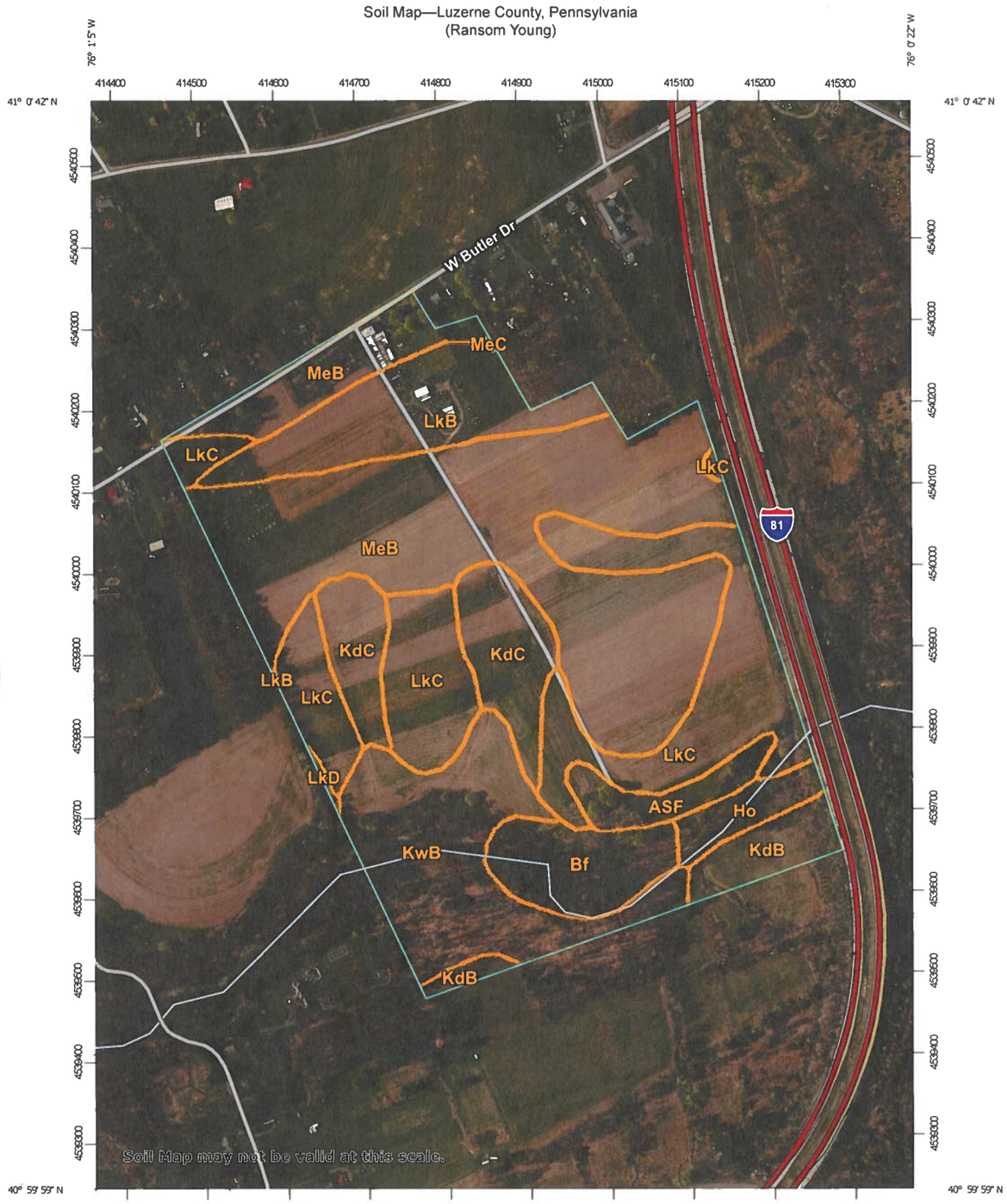
In addition to the plan the inspector shall follow all requirements of the National Engineering Manual and the PA State Supplement, Part 512 to this manual. Daily construction activity shall be documented on the SCS-CPA-6 sheets. As-builts must be completed prior to certification of the job, these shall be in red pen and shall include the inspector's initials and date. No changes or modifications are allowed to this design without approval from the designer.

The undersigned agree to commit time to act as the quality assurance inspector on this job. It is the primary inspector's responsibility to provide continued inspection of this job, if unavailable they shall be responsible for assigning a backup inspector.

Primary Inspector: Date: _____

Inspector's Supervisor: _____ Date: _____

Soil Map—Luzerne County, Pennsylvania
(Ransom Young)



Map Scale: 1:6,510 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Soil Map—Luzerne County, Pennsylvania
(Ransom Young)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Luzerne County, Pennsylvania
Survey Area Data: Version 20, Sep 3, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 19, 2023—May 14, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ASF	Arnot-Rock outcrop complex, steep	2.8	2.7%
Bf	Basher soils	5.4	5.1%
Ho	Holly silt loam	2.4	2.2%
KdB	Kedron channery silt loam, 3 to 8 percent slopes	3.6	3.4%
KdC	Kedron channery silt loam, 8 to 15 percent slopes	8.2	7.7%
KwB	Kedron channery silt loam, somewhat poorly drained, 0 to 8 percent slopes	14.3	13.4%
LkB	Leck kill channery silt loam, 3 to 8 percent slopes	9.4	8.8%
LkC	Leck kill channery silt loam, 8 to 15 percent slopes	21.7	20.3%
LkD	Leck kill channery silt loam, 15 to 25 percent slopes	0.1	0.1%
MeB	Meckesville channery silt loam, 3 to 8 percent slopes	39.0	36.4%
MeC	Meckesville channery silt loam, 8 to 15 percent slopes	0.0	0.0%
Totals for Area of Interest		**107.2**	**100.0%**

Luzerne County, Pennsylvania

MeB—Meckesville channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9yh1
Elevation: 600 to 2,800 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 130 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Meckesville and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meckesville

Setting

Landform: Mountain valleys
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandstone, siltstone and shale colluvium derived from sedimentary rock

Typical profile

H1 - 0 to 8 inches: gravelly silt loam
H2 - 8 to 36 inches: channery silt loam
H3 - 36 to 60 inches: channery silt loam
H4 - 60 to 64 inches: channery silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 25 to 48 inches to fragipan
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 36 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F147XY002PA - Mixed Sedimentary Upland

Hydric soil rating: No

Data Source Information

Soil Survey Area: Luzerne County, Pennsylvania
Survey Area Data: Version 20, Sep 3, 2025

Luzerne County, Pennsylvania

LkC—Leck kill channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9ygs
Elevation: 500 to 1,500 feet
Mean annual precipitation: 38 to 46 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Leck kill and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Leck Kill

Setting

Landform: Mountainslopes mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Reddish residuum derived from sedimentary rock

Typical profile

H1 - 0 to 10 inches: channery silt loam
H2 - 10 to 27 inches: channery silty clay loam
H3 - 27 to 48 inches: very channery silt loam
R - 48 to 52 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F147XY002PA - Mixed Sedimentary Upland

Hydric soil rating: No

Data Source Information

Soil Survey Area: Luzerne County, Pennsylvania
Survey Area Data: Version 20, Sep 3, 2025

Luzerne County, Pennsylvania

KdC—Kedron channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9ygd
Landscape: Broad, rolling intermontane basins
Elevation: 670 to 1,440 feet
Mean annual precipitation: 34 to 51 inches
Mean annual air temperature: 40 to 50 degrees F
Frost-free period: 100 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Kedron and similar soils: 90 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kedron

Setting

Landscape: Broad, rolling intermontane basins
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium and/or till derived from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 9 inches: channery silt loam
H2 - 9 to 22 inches: silty clay loam
H3 - 22 to 60 inches: channery silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 32 inches to fragipan
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Ecological site: F147XY002PA - Mixed Sedimentary Upland
Hydric soil rating: No

Minor Components

Shelmadine
Percent of map unit: 3 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Luzerne County, Pennsylvania
Survey Area Data: Version 20, Sep 3, 2025

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INSERT DESIGN CALCULATIONS, SURVEY NOTES/POINTS, PA ONE CALL AND ANY ADDITIONAL INFO HERE

USDA NRCS NETS Hydrology V1.0

NETS Hydrology - Single Watershed

Estimating Runoff and Peak Discharge

Project Name:	CAP Project
Client:	Ransom Young
Project ID:	B42C8A5B-FF5D-485F-99C4-BB2C0319F8DF
Project Owner:	Shannon Levan
Job Class:	null
Location:	
Description:	
Designed By:	Shannon Levan
County:	Luzerne
State:	PA
Lat:	41.0081
Long:	-76.0155
Practice:	Waterway
Date:	3/3/2026
Checked By:	
DEM Service Selected:	USDA bare earth 10m
DEM Service Metadata URL:	https://gis.sc.egov.usda.gov/data/rest/services/elevation/elevation_metadata/FeatureServer/16

Drainage Area:	72.42	Acres
Weighted Curve Number:	75	
Watershed Length:	3747.0	Feet
Watershed Slope:	5.95	Percent
Watershed Acreage:	72.42	Acres
Time of Concentration:	0.73	Hours
Method:	Calculated using the Lag method	
Rainfall Distribution Type:	Site Specific using NOAA Atlas 14 data	
Rainfall Distribution Smoothed:	YES	
Dimensionless Unit Hydrographs:	Standard - 484	

Frequencies (yrs)	1	2	5	10	25	50	100	200	500
24-HR Rain (in)	2.63	3.16	3.92	4.60	5.68	6.68	7.88	9.31	11.70
Runoff (in)	0.73	1.07	1.61	2.13	3.01	3.87	4.93	6.24	8.47
Runoff (ac-ft)	4.39	6.44	9.70	12.85	18.17	23.35	29.77	37.65	51.13
Peak Discharge (cfs)	29.8	46.06	69.99	91.29	123.49	150.82	181.81	216.15	266.66

USDA NRCS NETS Hydrology V1.0

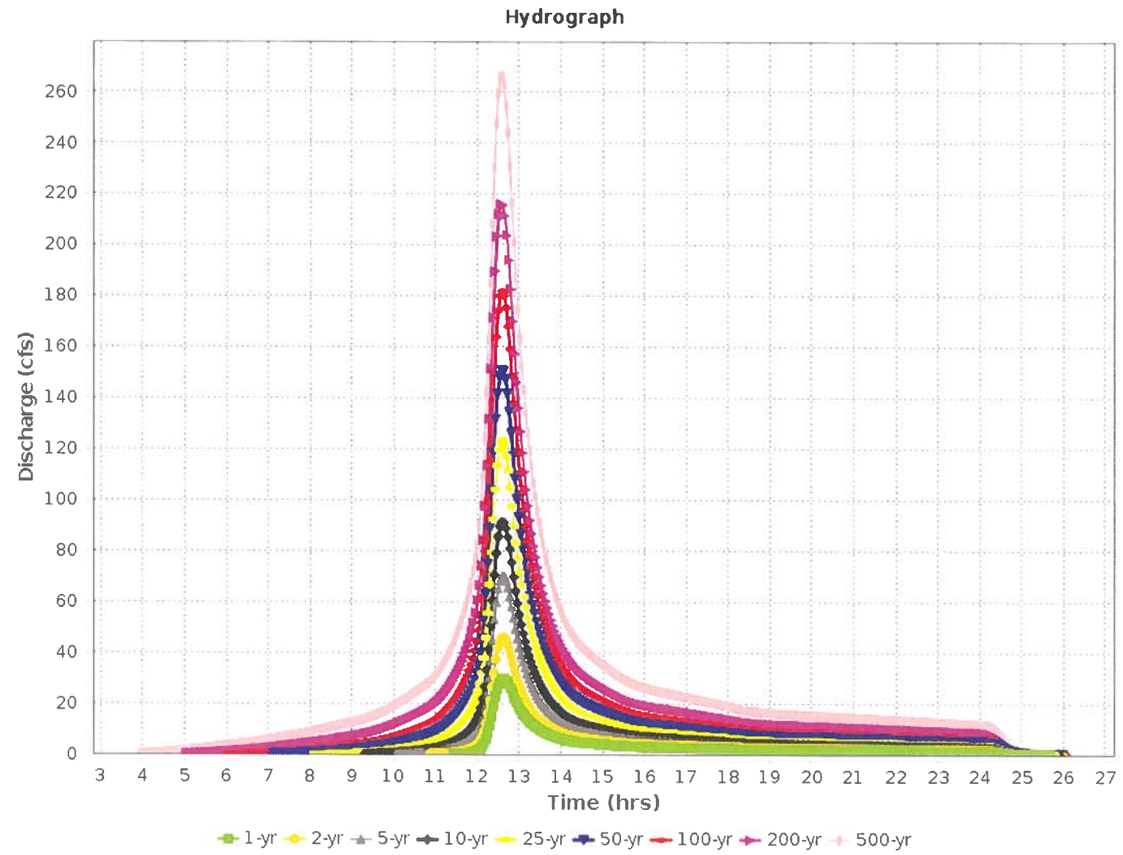
COVER DESCRIPTION (Land use land cover -- Condition):	Acres(CN)			
	Hydrological Soil Group			
	A	B	C	D
CULTIVATED AGRICULTURAL LANDS				
Row crops/C + Crop residue--Good	-	-	8.76(81)	-
Row crops/SR + Crop residue--Good	13.11(64)	-	29.65(82)	2.22(85)
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Streets and roads/Paved; open ditches (w/right-of-way)--N/A	0.02(83)	-	0.11(92)	-
OTHER AGRICULTURAL LANDS				
Farmsteads/Farmsteads--N/A	2.39(59)	-	5.83(82)	-
Meadow -cont. grass (non grazed)/Meadow -cont. grass (non grazed)--N/A	1.26(30)	-	1.60(71)	-
Woods/Woods--Good	0.28(30)	-	7.18(70)	-
Total Area (by Hydrological Soil Group)	17.065	0.000	53.133	2.217
TOTAL DRAINAGE AREA: 72.42 Acres	WEIGHTED CURVE NUMBER: 75 ADJUSTED CURVE NUMBER: 0			

User Notes:

USDA NRCS NETS Hydrology V1.0

County: Luzerne

State: PA

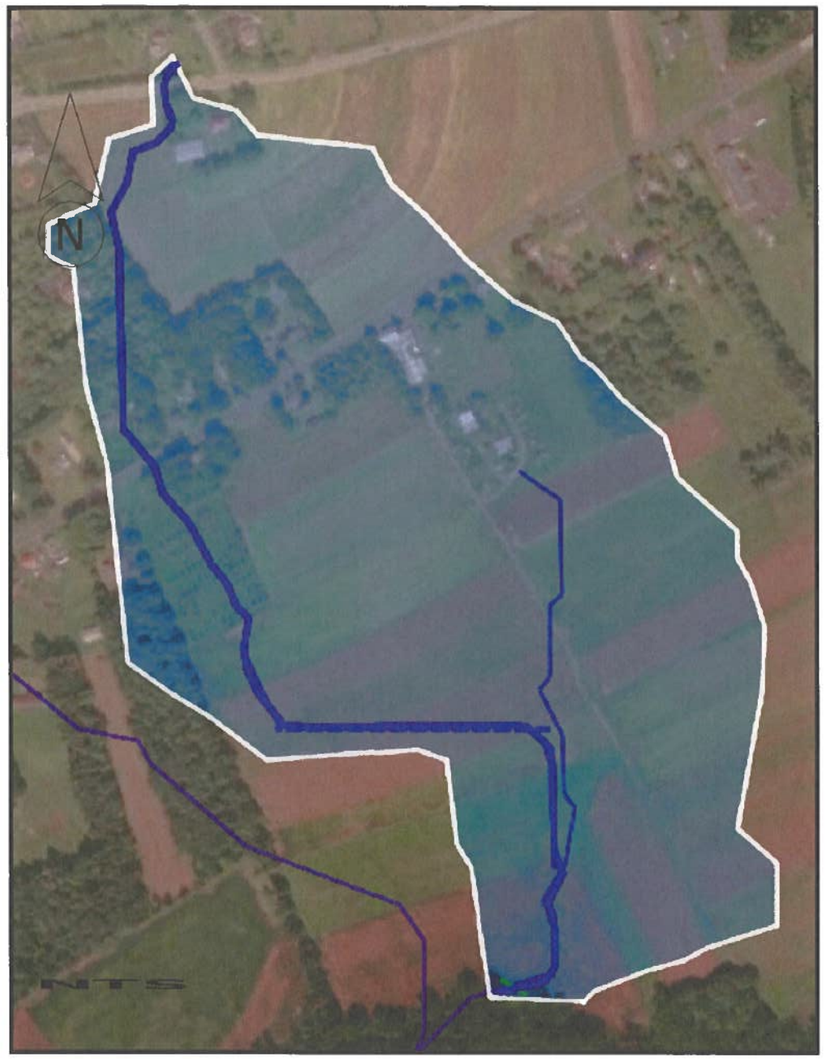


USDA NRCS NETS Hydrology V1.0

STORM ANALYSIS:

1_yr_sm	2.630	1_yr_sm 2		3.160
2_yr_sm	3.160	2_yr_sm 2		
5_yr_sm	3.920	5_yr_sm 2		
10_yr_sm	4.600	10_yr_sm 2		
25_yr_sm	5.680	25_yr_sm 2		
50_yr_sm	6.680	50_yr_sm 2		
100_yr_sm	7.880	100_yr_sm 2		
200_yr_sm	9.310	200_yr_sm 2		
500_yr_sm	11.700	500_yr_sm 2		

AOI Map



Projection: WGS 1984 UTM Zone 18N

County: Luzerne

State: PA

Lat: 41.0081

Long: -76.0155

USDA NRCS NETS Hydrology V1.0

Point precipitation frequency estimates (inches)
NOAA Atlas 14 Volume 8 Version 2
Data type: Precipitation depth
Time series type: Partial duration
Project area: Ohio River Basin
Latitude: 41.0081
Longitude: -76.0155

PRECIPITATION FREQUENCY ESTIMATES
by duration for ARI (years):, 1,2,5,10,25,50,100,200,500,1000
5-min:, 0.349,0.416,0.493,0.553,0.632,0.699,0.769,0.847,0.964,1.06
10-min:, 0.543,0.650,0.767,0.855,0.968,1.06,1.16,1.27,1.42,1.55
15-min:, 0.666,0.795,0.942,1.05,1.20,1.31,1.44,1.58,1.77,1.93
30-min:, 0.883,1.07,1.29,1.46,1.69,1.88,2.08,2.30,2.62,2.90
60-min:, 1.08,1.31,1.62,1.86,2.20,2.48,2.78,3.12,3.64,4.08
2-hr:, 1.28,1.55,1.93,2.25,2.74,3.18,3.69,4.29,5.23,6.10
3-hr:, 1.39,1.68,2.08,2.43,2.97,3.45,4.03,4.69,5.76,6.74
6-hr:, 1.75,2.10,2.58,3.01,3.67,4.27,4.98,5.82,7.17,8.41
12-hr:, 2.21,2.65,3.28,3.83,4.70,5.51,6.46,7.59,9.42,11.1
24-hr:, 2.63,3.16,3.92,4.60,5.68,6.68,7.88,9.31,11.7,13.8
2-day:, 3.10,3.72,4.60,5.39,6.65,7.82,9.21,10.9,13.6,16.2
3-day:, 3.27,3.91,4.82,5.63,6.91,8.10,9.51,11.2,13.9,16.5
4-day:, 3.44,4.11,5.04,5.87,7.17,8.38,9.81,11.5,14.3,16.8
7-day:, 4.09,4.88,5.93,6.86,8.33,9.67,11.2,13.1,16.1,18.8
10-day:, 4.73,5.62,6.77,7.76,9.30,10.7,12.3,14.1,17.0,19.7
20-day:, 6.39,7.54,8.83,9.92,11.6,13.1,14.7,16.6,19.4,22.0
30-day:, 7.96,9.36,10.8,12.0,13.8,15.3,17.0,18.9,21.8,24.2
45-day:, 10.0,11.7,13.3,14.6,16.5,18.1,19.9,21.8,24.7,27.1
60-day:, 12.1,14.1,15.8,17.3,19.4,21.3,23.2,25.4,28.5,31.1

Date/time: Tue Mar 03 14:51:56 CST 2026
pyRunTime: 0.46761345863342285;

How to calculate Shear Stress to determine Temporary **Erosion Control Blanket (ECB)** to use

Half the depth of the waterway (BEFORE FREE BOARD) from (Capacity) EFT X 62.4 pounds of water X the Bed slope as a Decimal

Example 1: Design from Grassed waterway spreadsheet shows 0.8' by 30' channel on a 4% slope.

0.4' x 62.4 x 0.04 = 0.99 lbs/ sq ft

Shear stress is based on an unvegetated channel

Max Shear Stress for Temporary Netting is 2.5 psf

2/3 center of the channel to be covered (20')

Velocity to be 4.0 fps +/- or below on EFT (Stability) print out (No Warning)

How to calculate Shear Stress to determine what **Permanent Turf Reinforced Matting (TRM)** to use

The Full Depth of the Waterway BEFORE FREEBOARD from EFT X 62.4 pounds of water X the bed slope as a Decimal

Example 1: Design from Grassed waterway spreadsheet shows 0.8' by 30' channel on a 4% slope.

.8X 62.4 X.04 = 1.9968 psf

Shear stress is based on the partially or fully vegetated channel

Full width of channel to be covered (30')

PARABOLIC Inputs

Channel Data

Limiting BS, z:1	4.0	**Bed Slope:** 10.000%	**Freeboard:** 0.30 ft	
Fixed Flow Depth:	NA	**Fixed Flow Width:** 29.67	**Discharge:** 92.0 cfs	

LRGD

Soil Data

Grain Roughness: 0.0156

Allowable Stress: 0.030 lb/sq.ft

Vegetal Data

	Stem Length	Density	Ret Curve Index	Vegetal Cover Factor
Stability			4.44 (D)	Tall Fescue (0.87)
Capacity			5.60 (C)	

Outputs

Flow Conditions with Minimum cover (Stability)

Manning's n	Average Velocity	Flow Depth	Effect. Soil Stress	Flow Width
0.0375	7.60 ft/sec	0.71 ft, 1.01 ft w/Fb	0.099 lb/sq.ft	25.7 ft
X-sect. Area	**Hydraulic Radius**	**Bank Slope z1**	**P-Channel Coeff**	**Flow Width w/Fb**
12.1 sq.ft	0.47 ft	9.12:1	0.00426 ft	28.5 ft

Capacity Flow Conditions

Manning's n	Average Velocity	Flow Depth		Flow Width
.0481	6.39 ft/sec	0.79 ft, 1.09 ft w/Fb		27.3 ft
X-sect. Area	**Hydraulic Radius**	**Bank Slope z1**	**P-Channel Coeff**	**Flow Width w/Fb**
14.4 sq.ft	0.53 ft	8.61:1	0.00426	32.0 ft

Warning: Effective Soil Stress is greater than Allowable Stress
(Might re-check your fixed depth and fixed width values)
Design channel is 29.7 ft wide x 1.09 ft deep

USDA United States Department of Agriculture
Natural Resources Conservation Service

Reach Simulation Report
Ransom Young
TRM WW
Reach 4 300-746

		Date
Designed	SL	3/26
Drawn		
Checked		
Approved		

EFT Version 4.0.8.1

File Name
Wizard
Drawing Name
03/17/2026
Sheet ____ of ____

62.4 x 1.1 x .10 = 6.86 psf

PARABOLIC Inputs

Channel Data

Limiting BS, z:1	4.0	**Bed Slope:** 5.800%	**Freeboard:** 0.30 ft	
Fixed Flow Depth:	NA	**Fixed Flow Width:** 30.17	**Discharge:** 92.0 cfs	

Soil Data

Grain Roughness: 0.0156
Allowable Stress: 0.030 lb/sq.ft

Vegetal Data

	Stem Length	Density	Ret Curve Index	Vegetal Cover Factor
Stability			4.44 (D)	Tall Fescue (0.87)
Capacity			5.60 (C)	

Outputs

Flow Conditions with Minimum cover (Stability)

Manning's n	Average Velocity	Flow Depth	Effect. Soil Stress	Flow Width
0.0376	6.39 ft/sec	0.82 ft, 1.12 ft w/Fb	0.067 lb/sq.ft	26.2 ft
X-sect. Area	**Hydraulic Radius**	**Bank Slope z1**	**P-Channel Coeff**	**Flow Width w/Fb**
14.4 sq.ft	0.55 ft	7.94:1	0.00481 ft	28.6 ft

Capacity Flow Conditions

Manning's n	Average Velocity	Flow Depth		Flow Width
0484	5.37 ft/sec	0.93 ft, 1.23 ft w/Fb		27.8 ft
X-sect. Area	**Hydraulic Radius**	**Bank Slope z1**	**P-Channel Coeff**	**Flow Width w/Fb**
17.1 sq.ft	0.62 ft	7.49:1	0.00481	31.9 ft

Warning: Effective Soil Stress is greater than Allowable Stress
(Might re-check your fixed depth and fixed width values)
Design channel is 30.2 ft wide x 1.23 ft deep

USDA United States Department of Agriculture
Natural Resources Conservation Service

Reach Simulation Report
Ransom Young
TRM WW
Reach 3 100-300

		Date
Designed	SL	3/26
Drawn		
Checked		
Approved		

EFT Version 4.0.8.1

File Name
Wizard
Drawing Name
03/18/2026
Sheet ____ of ____

62.4 x 1.25 x .058 = 4.52 psf

PARABOLIC Inputs

Channel Data

Limiting BS, z:1 4.0 | **Bed Slope:** 2.700% | **Freeboard:** 0.25 ft

Fixed Flow Depth: NA | **Fixed Flow Width:** 31.03 | **Discharge:** 92.0 cfs

RCS

Soil Data

Grain Roughness: 0.0156

Allowable Stress: 0.030 lb/sq.ft

Vegetal Data

	Stem Length	Density	Ret Curve Index	Vegetal Cover Factor
Stability			4.44 (D)	Tall Fescue (0.87)
Capacity			5.60 (C)	

Outputs

Flow Conditions with Minimum cover (Stability)

Manning's n	Average Velocity	Flow Depth	Effect. Soil Stress	Flow Width
0.0381	4.95 ft/sec	1.02 ft, 1.27 ft w/Fb	0.037 lb/sq.ft	27.4 ft
X-sect. Area	**Hydraulic Radius**	**Bank Slope z1**	**P-Channel Coeff**	**Flow Width w/Fb**
18.6 sq.ft	0.68 ft	6.72:1	0.00544 ft	29.0 ft

Capacity Flow Conditions

Manning's n	Average Velocity	Flow Depth		Flow Width
.0492	4.15 ft/sec	1.15 ft, 1.40 ft w/Fb		29.0 ft
X-sect. Area	**Hydraulic Radius**	**Bank Slope z1**	**P-Channel Coeff**	**Flow Width w/Fb**
22.2 sq.ft	0.76 ft	6.33:1	0.00544	32.0 ft

Warning: Effective Soil Stress is greater than Allowable Stress
(Might re-check your fixed depth and fixed width values)
Design channel is 31.0 ft wide x 1.40 ft deep

USDA United States Department of Agriculture
Natural Resources Conservation Service

Reach Simulation Report
Ransom Young
TRM WW
Reach 2 25-100

		Date
Designed	SL	3/26
Drawn		
Checked		
Approved		

EFT Version 4.0.8.1

File Name Wizard
Drawing Name
03/18/2026
Sheet ____ of ____

62.4 x 1.4 x .027 = 2.36 psf

TRM outlet

RGD

PARABOLIC ROCK LINED WATERWAY DESIGN

STATE - Pennsylvania PROJECT: Young

DESIGN BY: sl DATE: 3/13/26 CHECK BY: _____ DATE: _____

SUBJECT- Parabolic Waterway No. 1 REACH NO. _____ SHEET ____ of ____

0-25

includes .2 freeboard

GIVEN:	Qr =	92	CFS	
	S =	0.5	%	
	L =	25	FT	
DESIGN:	D =	1.5	FT	
	TW =	32	FT	
	D_{50} =	6	IN	NCSA r-4
	T =	1.5	FT	

$n = 0.047 \times (D_{50} \times (S/100))^{0.147}$ = 0.0281

CROSS SECTIONAL AREA (A) = 2/3 x D x TW = 32.00 FT^2

WETTED PERIMETER (WP) = TW + $(8 \times D^2)/(3 \times TW)$ = 32.19 FT

HYDRAULIC RADIUS (R) = A / WP = 0.994

VELOCITY (V) = $(1.486 \times R^{2/3} \times S^{1/2})/n$ = 3.73 FT/S ✓

DESIGN FLOW (Q) = A x V = 119.4 CFS > 92 CFS ✓

CHECK ROCK SIZE - (USING ISBASH CURVE - EXHIBIT 16-1, EFM)

DESIGN $D_{50} = 2.032 \times e^{(0.1883 \times V)}$ = 4.1 IN ✓

LB D_{50} = (165 LBS/CU.FT) x 4/3 x 3.14 x $(10/9 \times D_{50})^3$ = 4.7 LBS

D_{100} = $9/10 \times (2 \times (LB\ D_{50}) \times 3/(3.14 \times 4 \times 165))^{1/3}$ = 5.2 IN ✓

COMPUTE ROCK QUANTITY T = 1.5 FT

ROCK VOLUME (Vr) = T x WP x (L) = 1207.0 CU FT

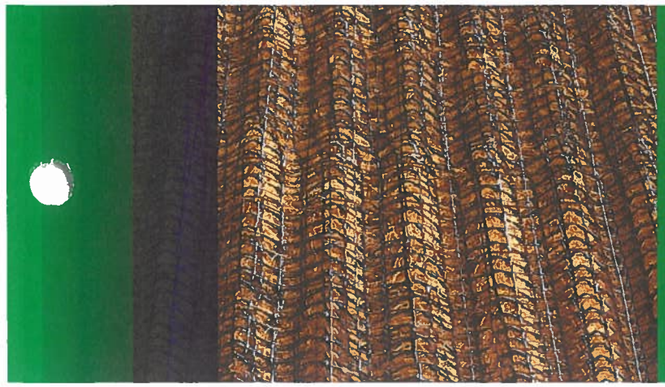
TONS = (Vr x 1.6 TON/CU.YD.) / (27 CU.FT./CU.YD.) = 71.5 TONS

BEDDING VOLUME (Vb) = 6" THICK x WP x L = 402.3 CU FT

TONS = (Vb x 1.7 TON/CU.YD.) / (27 CU.FT./CU.YD.) = 25.3 TONS

Note: Geotextile may be used in place of stone bedding if the design velocity is less than the erodible velocity of the soil.

TOTAL = 96.9 TONS



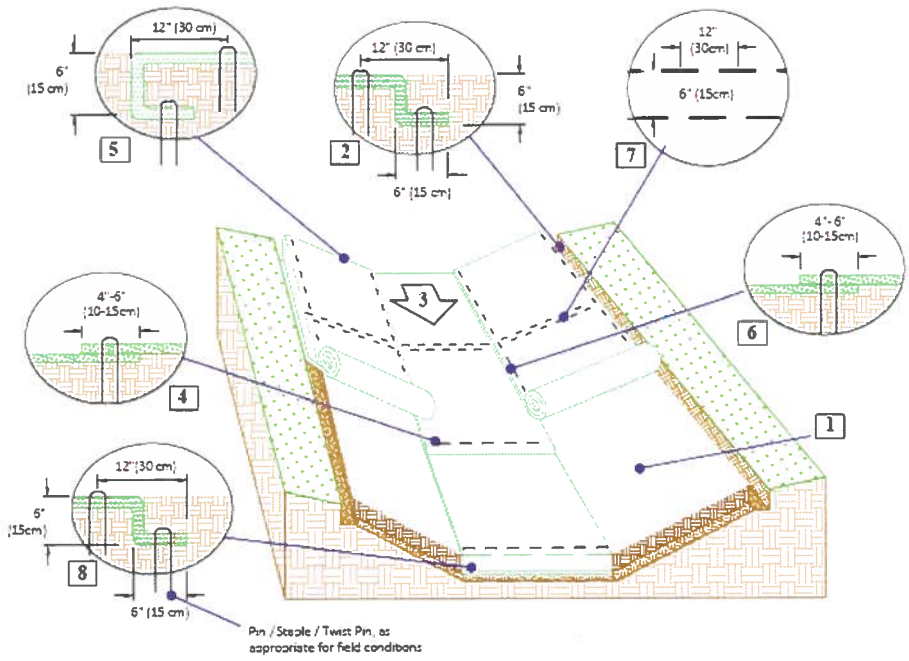
RollMax Product Selection Chart

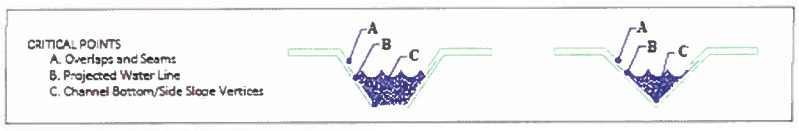
TEMPORARY

	Product Description	Longevity	Typical Slope Applications (H:V)	Channel Application Thresholds
DS75	Accelerated photodegradable, polypropylene top net, 100% straw fiber matrix	45 days	4:1 - 3:1	1.55 psf / 5.0 fps
DS150	Accelerated photodegradable, polypropylene top & bottom net, 100% straw fiber matrix	60 days	3:1 - 2:1	1.75 psf / 6.0 fps
S75	Photodegradable, polypropylene top net, 100% straw fiber matrix	12 months	4:1 - 3:1	1.55 psf / 5.0 fps
S150	Photodegradable, polypropylene top & bottom net, 100% straw fiber matrix	12 months	3:1 - 2:1	1.75 psf / 6.0 fps
SC150	UV-stable polypropylene top net, 70% straw/30% coconut fiber matrix, photodegradable polypropylene bottom net	24 months	2:1 - 1:1	2.0 psf / 8.0 fps
C125	UV stable polypropylene top & bottom nets, 100% coconut fiber matrix	36 months	1:1 and Greater	2.25 psf / 10.0 fps
BIONET				
S75BN	Leno woven biodegradable jute top net, 100% straw fiber matrix	12 months	4:1 - 3:1	1.6 psf / 5.0 fps
S150BN	Woven biodegradable jute top and bottom net, 100% straw fiber matrix	12 months	3:1 - 2:1	1.85 psf / 6.0 fps
SC150BN	Woven biodegradable jute top and bottom net, 70% straw/30% coconut fiber matrix	18 months	2:1 - 1:1	2.10 psf / 8.0 fps

TEMPORARY

	Product Description	Longevity	Typical Slope Applications (H:V)	Channel Application Thresholds
C125BN	Woven biodegradable jute top and bottom net, 100% coconut fiber matrix	36 mo.	1:1 and Greater	2.35 psf / 10.0 fps
C700BN	700 g woven biodegradable coir top net, 100% coconut fiber matrix, woven biodegrdable jute bottom net	36+ mo.	1:1 and Greater	2.35 psf / 10.0 fps
PERMANENT				
ERONET				
P300	UV-stable polypropylene (PP) top and bottom net, 100% PP fiber matrix	Permanent	1:1	Unvegetated 3.0 psf/9.0 fps Vegetated 10 psf / 16.0 fps
VMAX				
S200	UV-stable PP top & bottom nets, UV-stable PP crimped center net, 100% straw fiber matrix	Permanent	1:1 and Greater	Unvegetated 2.3 psf/8.5 fps Vegetated 8 psf / 18 fps
SC250	UV-stable PP top & bottom nets, UV-stable PP crimped center net, 70% straw/30% coconut fiber matrix	Permanent	1:1 and Greater	Unvegetated 3.0 psf/9.5 fps Vegetated 10 psf / 15.0 fps
C350	UV-stable PP top & bottom nets, UV-stable PP crimped center net, 100% coconut fiber matrix	Permanent	1:1 and Greater	Unvegetated 3.2 psf/10.5 fps Vegetated 12 psf / 20 fps
P550	UV-stable PP top & bottom nets, UV-stable PP crimped center net, 100% PP fiber matrix	Permanent	1:1 and Greater	Unvegetated 4.0 psf/12.5 fps Vegetated 14 psf / 25 fps
TMAX/ TMAX3k	100% UV-stable PP monofilament yarns, woven into a 3-D structure	Permanent	1:1 and Greater	Vegetated TMax: 16 psf / 25 fps TMax-3k: 12 psf / 20 fps



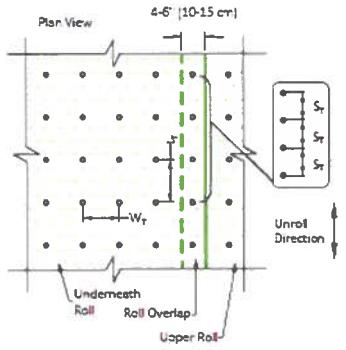


NOTES:
* Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

Instructions

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed. Ground surface must be free of debris, rocks, clay clods and raked smooth sufficient to allow intimate contact of the RECP with the soil over the entirety of the installation.
2. Begin at the top of the channel by anchoring the RECPs in a 6" (15 cm) deep X 6" (15 cm) wide trench with approximately 12" (30 cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes/pins approximately 12" (30 cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12" (30 cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes/pins spaced approximately 12" (30 cm) apart across the width of the RECPs.
3. Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes/pins in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (Shingle style) with a 4" - 6" (10 - 15 cm) overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
5. Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6"(15 cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 4" - 6" (10 - 15 cm) and secured with staples/stakes/pins at S_T.
7. In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 -12m) intervals. Use a double row of staples staggered 6" (15 cm) apart and 12" (30 cm) on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples/stakes/pins spaced at S_T apart in a 6" (15 cm) deep X 6" (15 cm) wide trench. Backfill and compact the trench after stapling.
9. Fasteners should provide a minimum of twenty pounds of pullout resistance. Six-inch (10 cm) X one-inch (2.5 cm) eleven gauge staples are typically adequate. In loose soils, longer staples may be necessary, twist pins can provide the greatest pullout resistance. In hard or rocky soils, straight pins may by used where staples or twist pins are refused, provided the minimum pullout requirements are met. Bio-degradable fasteners shall not be used with VMax (TRM) or TMax (HPTRM) materials.

Staple Pattern Guide



* Pin / Staple / Twist Pin, as appropriate for field conditions

	Staple Pattern
Dimension	E
W_T	20" (50 cm)
L_T	20" (50 cm)
S_T	18" (45 cm)
Nominal Frequency	3.8 / SY
Required Fastener	Min. 20# Pullout

WESTERN GREEN / WESTERN EXCELSIOR / EAST COAST / NORTH AMERICAN GREEN	Project: Standard Channel Layout, Unroll w/Flow - RECP Shown: Isometric View of Channel, Fastener Placement, Trenching and Overlap, Some Fasteners and Vegetation Omitted for Clarity, NTS	Date: 5/3/2022 WG: 886-540-9810 www.westerngreen.com www.westernexcelsior.com www.nagreen.com

COMPUTATION SHEET
NRCS-ENG-522 Rev. 10-97

U S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

STATE	; county, Pennsylvania	PROJECT		
Luzerne		Ransom Young		RBD
SC	DATE 3/26	CHECKED BY	DATE	JOB NO
SUBJECT Tile				SHEET OF

LINE	STATIONS	GRADE %	INFLOW RATE ft PER 1000 FT spec 606	DRAINAGE AREA lin.ft.	VELOCITY fps	CAPACITY REQ'D cfs	CAPACITY AVAIL cfs	TILE SIZE in. dia.	
Main	0-100	1%	.07	845'	less than 5	.0592	.66	6"	Sch 40
	100-520	|					.46	6"	CPT
RL1	3+78 70'	|					.165	4"	CPT
RL2	4+10 80'								
RL3	4+28 95'								
6"	Sch 40	100'							
6"	CPT	420'							
4"	CPT	425'							
	total	945'							

One Call for Design: 20260783179

Soils Type: LkC + KdC silt loam

Max. Allowable Velocity for type of Soils (Spec 606): 5 fps

The contractor must comply with OSHA requirements Part 1926, Subpart P for the protection of workers in trenches.

It is the duty of contractors to comply with provisions of the ***PA One-Call Utility Check*** *to comply with PA Act 287 (1974) as amended by Act 121 (2008) before performing any excavation work*

Estimated Materials: *(Contractor is responsible for verifying actual field measurements shown on plan)*

4" Schedule 40	Lin. Ft	6" Schedule 40 100	Lin. Ft
4" CPT 425	Lin. Ft	6" CPT 420	Lin. Ft
4/4/4 CPT tees 3	Ea	6/6/6 CPT tees	Ea
4" end caps 4	Ea	6" end caps	Ea
4" animal guard	Ea	6" animal guard 1	Ea
AASHTO 57 (2B) stone	Tons	AASHTO 57 (2B) stone 74	Tons

2-3 - 6" - 4" Reducer

Perforated

Perforated

Construction Notes:

Average trench depth : ~~3~~ 3.5' (use sched 40 where less than 2' 2.5 of cover over pipe)

Minimum trench width for 4" pipe : 12"

Minimum stone cover over pipe : 3"

Other Notes:

Simple interceptor or random drains may be designed without calculating "Q" if the total length of the subsurface drain system does not exceed the maximum lengths in Table 2 and surface water or heavy spring flows are not added to the drain.

Table 2 – Maximum Lengths

Minimum Grade or Subsurface Drain Percent	Maximum Length (ft) 4" Diameter	Maximum Length (ft) 6" Diameter
0.1	300	800
0.2	400	1,200
0.3	500	1,500
0.4	600	1,700
0.5	700	1,900
1.0	900	2,700
1.5	1,100	3,300
2.0	1,300	3,800
2.5	1,500	4,200
3.0	1,600	4,600
4.0	1,800	5,400
5.0	2,000	5,800

Calcs not required but shown anyway

Table 3 - Maximum Velocities by Soil Texture

Soil Texture	Velocity, ft/s
Sand and sandy loam	3.5
Silt and silt loam	5.0
Silty clay loam	6.0
Clay and clay loam	7.0
Coarse sand or gravel	9.0

Source: PAFOTG 606 Conservation Practice Standard October 2024

Exhibit 14-11.2 ***National Engineering Handbook***

Discharge in cfs of **Corrugated** Plastic Drain Tubing (CPT)

Pipe size	Slope	Discharge (cfs)
4"	0.5%	0.117
	1%	0.165
	2%	0.235
	3%	0.285
	4%	0.335
	5%	0.370
	6%	0.400
	7%	0.440
	8%	0.470
	9%	0.500
6"	0.5%	0.360
	1%	0.460
	2%	0.670
	3%	0.820
	4%	0.950
	5%	1.050
8"	0.5%	0.730
	1%	1.050
	2%	1.500

Exhibit 14-11.1 ***National Engineering Handbook***

Discharge in cfs of **Smooth** inside Pipe (SCH 40, N-12)

Pipe size	Slope	Discharge (cfs)
4"	0.5%	0.161
	1%	0.225
	2%	0.340
	3%	0.400
	4%	0.460
	5%	0.520
6"	0.5%	0.460
	1%	0.660
	2%	0.930
	3%	1.150
	4%	1.300
	5%	1.500
8"	0.5%	1.030
	1%	1.850
	2%	2.030

Spec 606 (old version) Table 1 - INTERCEPTOR DRAINS

SOIL TEXTURE	UNIFIED SOIL CLASSIFICATION	Inflow Rate per 1,0000 ft of Line in cfs (1)
Coarse Sand & Gravel	GP, GW, SP, SW	0.15 to 1.00
Sandy Loam	SM, SC, GM, GC	0.07 to 0.25
Silt Loam, Loam	CL, ML	0.04 to 0.10
Clay & Clay Loam	CL, CH, MH	0.02 to 0.20

.07

(1) Required inflow rates for interceptor lines on sloping land should be increased by 10% for slopes 2-5%; by 20% for slopes 5-12%

HOW TO CALCULATE STONE FOR SUBSURFACE DRAIN (TILE)

TRENCH WIDTH IN FEET x DEPTH OF STONE IN FEET X LENGTH OF TRENCH IN FEET/ 27 X 1.7 TONS PER CUBIC YARD = TONS OF 2B STONE NEEDED

EXAMPLE 18" TRENCH WIDTH, 6" OF STONE AND 500 FT OF TILE

1.5x.5x500/27x1.7 = 23. 6 TONS

Stone Lined Waterway Design

Access Road with Water bars and Stone lined Waterway

SHEET OF

DRAWING NO.

FILE NO. DESIGN.DWG

USDA United States Department of Agriculture

Natural Resources Conservation Service

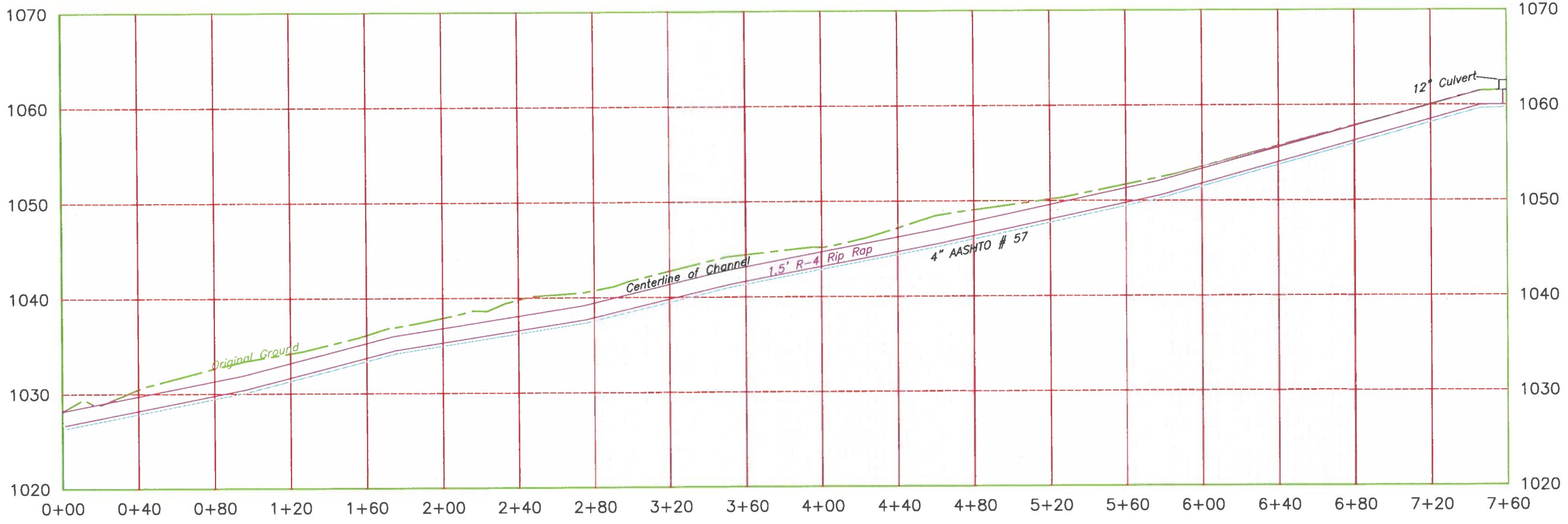
RANSOM YOUNG

Stone Lined Waterway Plan View

1" =100' Scale

LUZERNE COUNTY, PA

		DATE
DESIGNED	SL	3/26
DRAWN	SL	
CHECKED		
APPROVED		



Rock Lined Waterway (1) PROFILE

Rock Lined Waterway to flare from 12' wide to 32' wide to transition into Permanent Turf Reinforced Waterway @ 0+00

Rock to extend 2' under 12" Culvert Pipe

Reach 1 0–500 4% Average Slope (Slope varies from 3.7% to 4.6% but channel depth remains the same

Reach 2 500–746 5% Slope

0 60 120 180 240

Scale in Feet

DESIGNED SL DATE 3/26
DRAWN SL
CHECKED
APPROVED

RANSOM YOUNG

Rock Lined Waterway Profile

LUZERNE COUNTY, PA

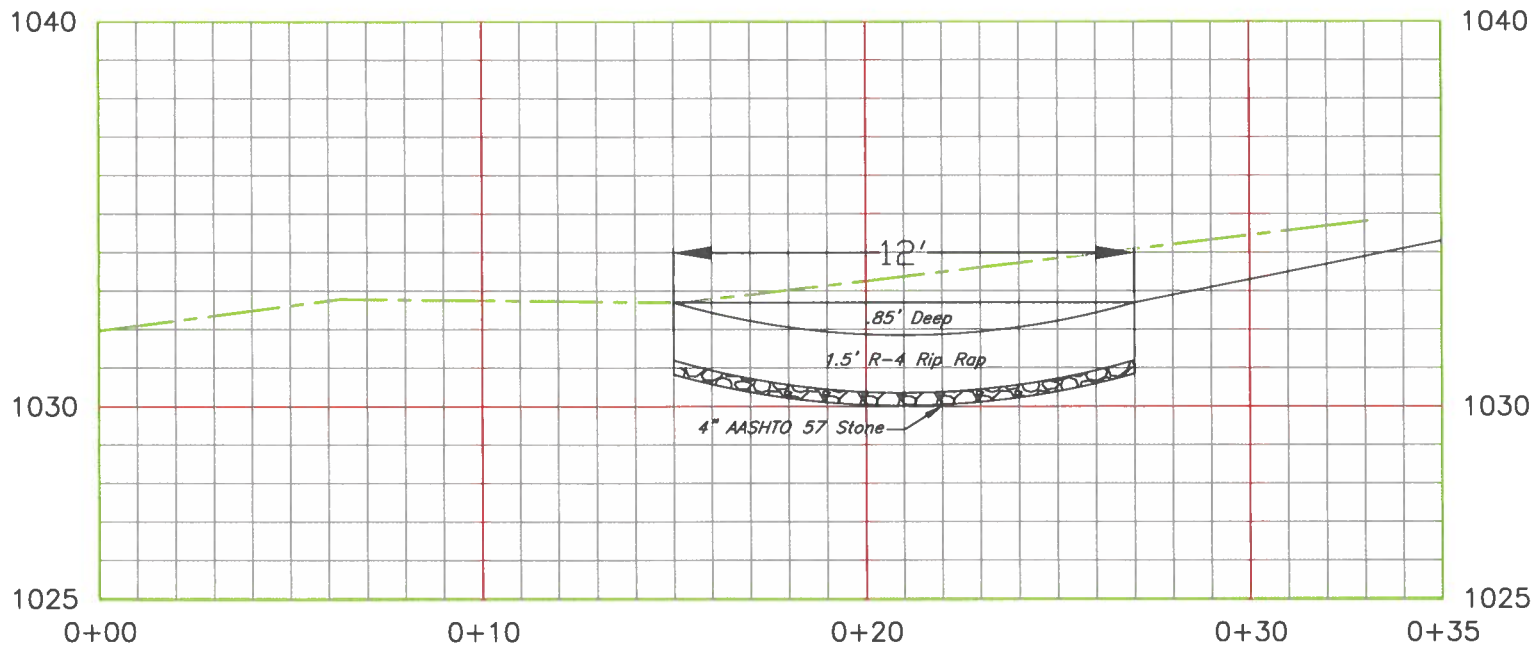
United States Department of Agriculture
Natural Resources Conservation Service

FILE NO. *DESIGN.DWG*

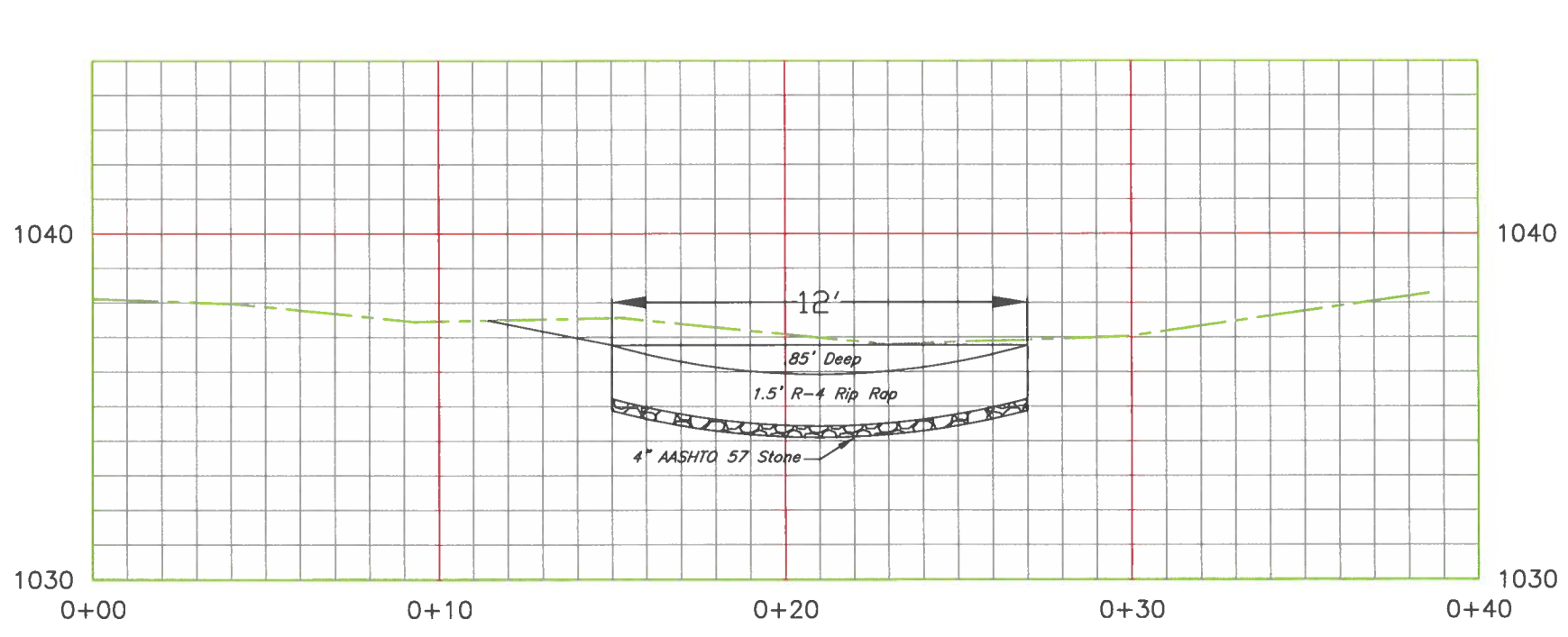
DRAWING NO.

3/26/26 3:07 PM

SHEET OF



Cross Section @ 95 PROFILE



Cross Section @ 1+74 PROFILE

0 5 10 15 20

Scale in Feet

DESIGNED SL DATE 3/26

DRAWN SL

CHECKED

APPROVED

Ransom Young

Rock Lined Waterway

Cross Sections 1 & 2

LUZERNE COUNTY, PA

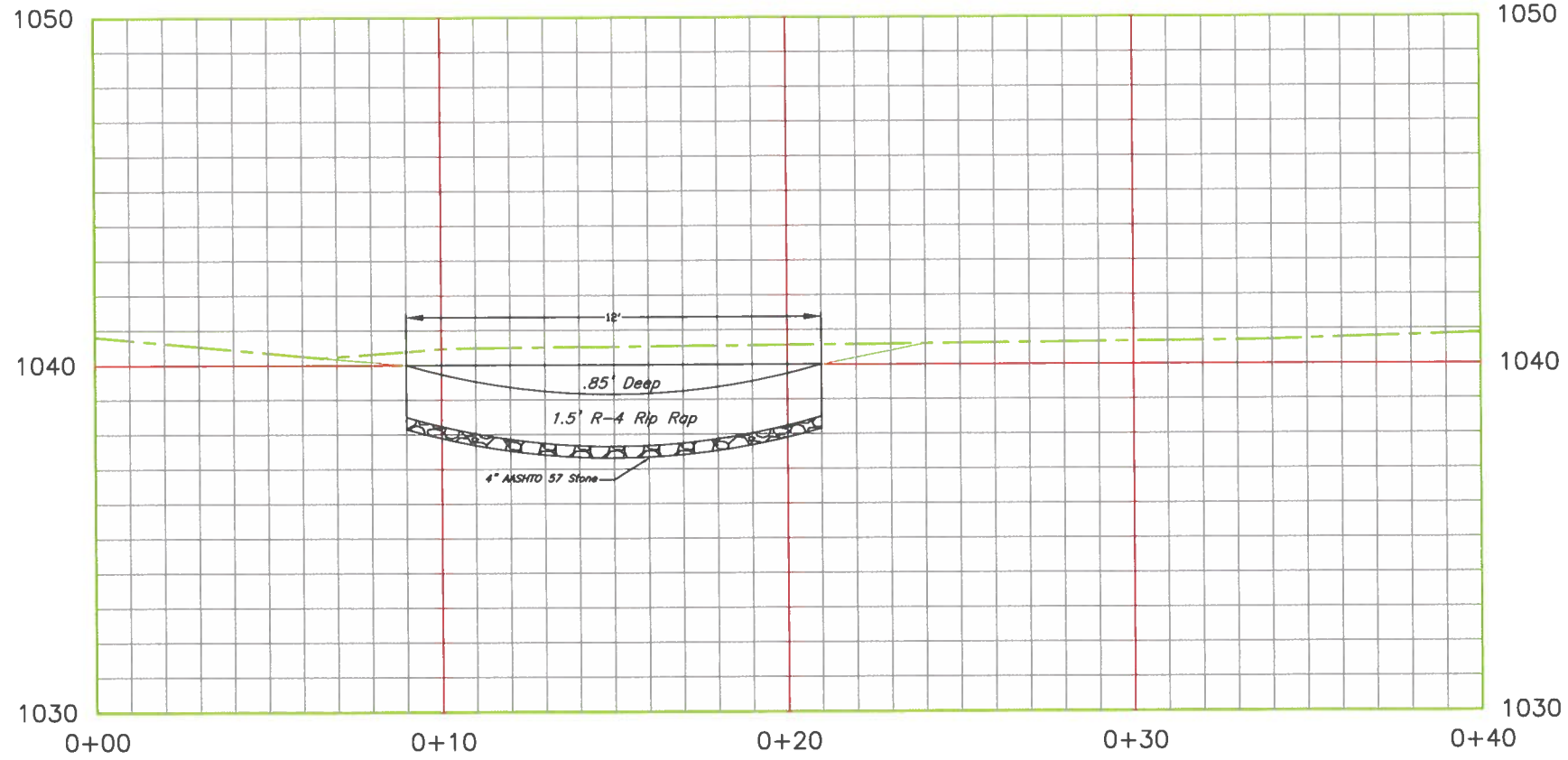
United States Department of Agriculture

Natural Resources Conservation Service

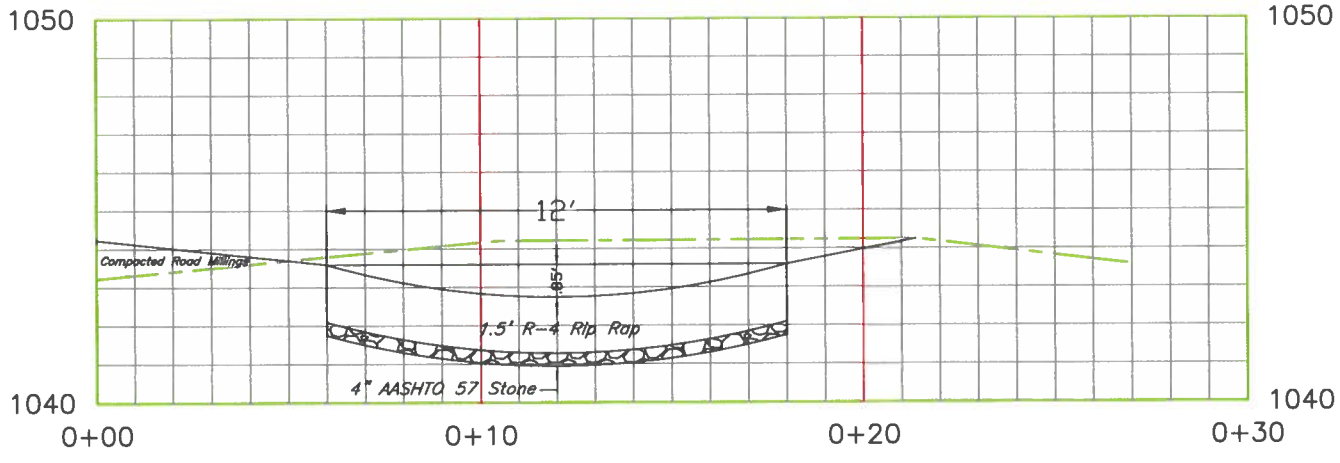
FILE NO. DESIGN.DWG

DRAWING NO.

SHEET OF



Cross Section @ 2+74 PROFILE



Cross Section @ 3+50 PROFILE

0 5 10 15 20

Scale in Feet

DATE 3/26

DESIGNED SL

DRAWN SL

CHECKED

APPROVED

Ransom Young

Rock Lined Waterway

Cross Sections 3 & 4

LUZERNE COUNTY, PA

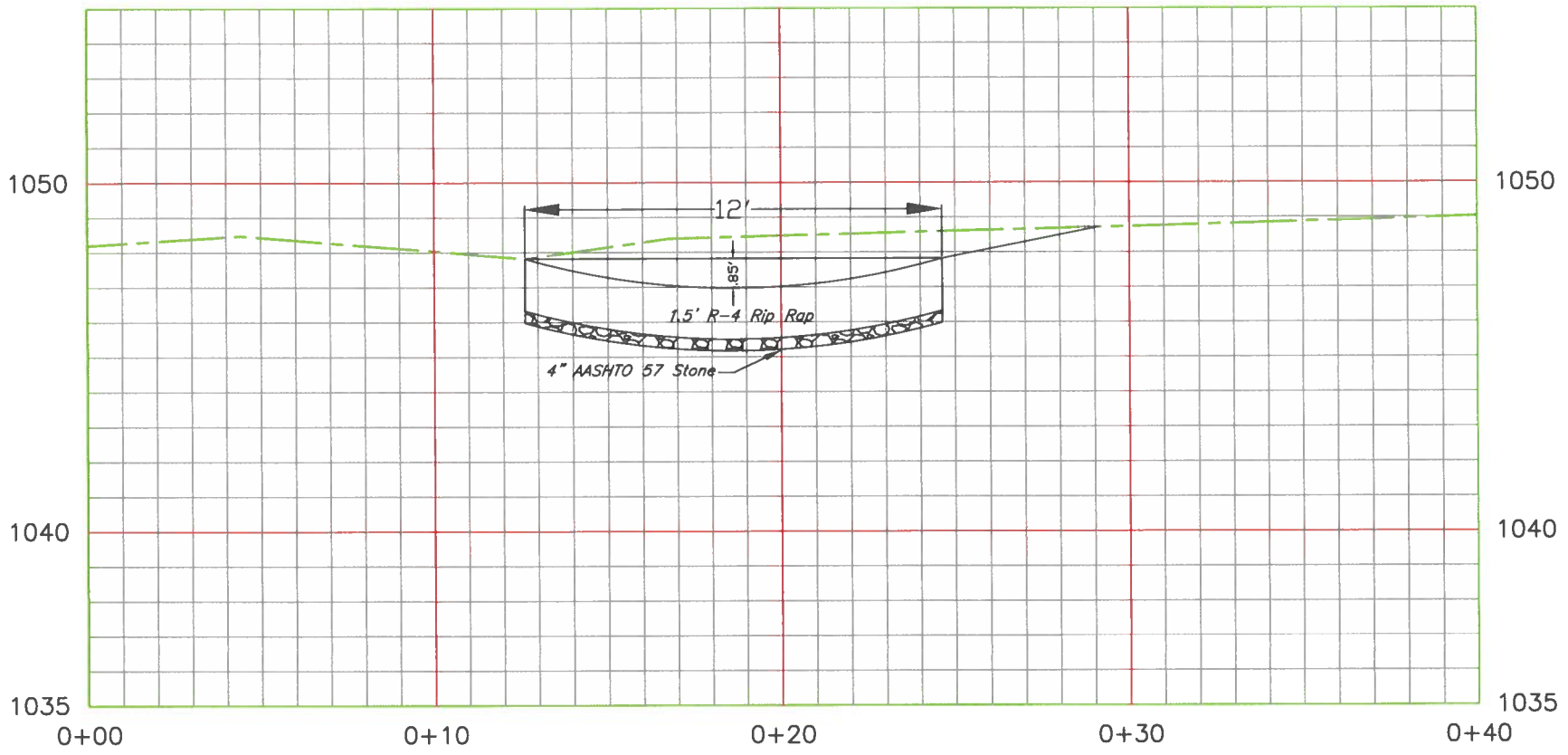
United States Department of Agriculture

Natural Resources Conservation Service

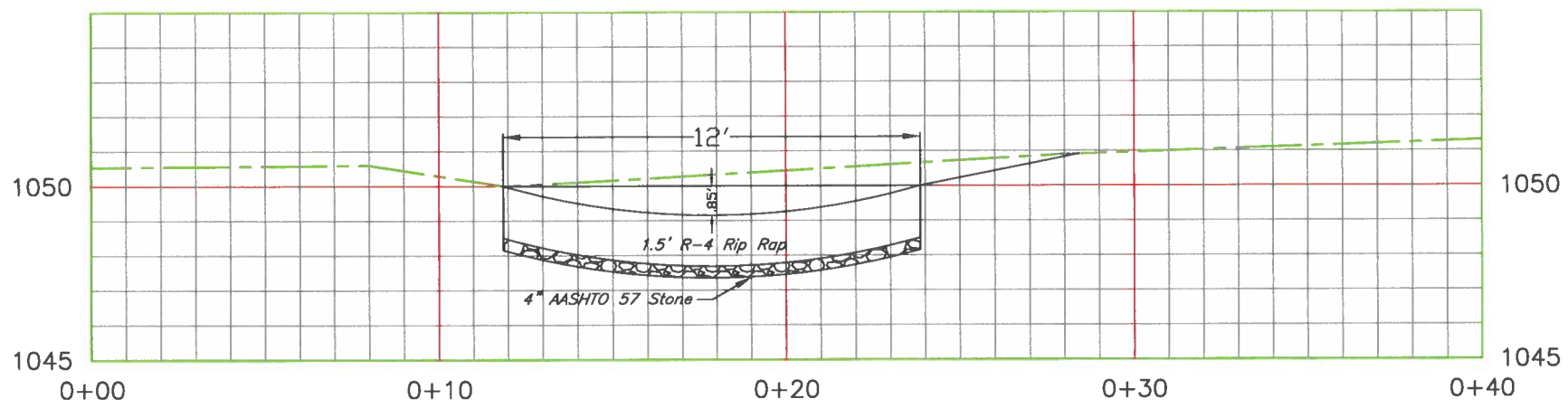
FILE NO. DESIGN.DWG

DRAWING NO.

SHEET OF



Cross Section @ 460 PROFILE



Cross Section @ 5+26 (1) PROFILE

0 5 10 15 20

Scale in Feet

DESIGNED SL
DRAWN SL
CHECKED
APPROVED
DATE 3/26

Ransom Young
Rock Lined Waterway
Cross Sections 5&6
LUZERNE COUNTY, PA

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO. DESIGN.DWG

DRAWING NO.

SHEET OF

USDA NRCS NETS Hydrology V1.0

NETS Hydrology - Single Watershed

Estimating Runoff and Peak Discharge

Project Name:	CAP ROCK LINED
Client:	Ransom Young
Project ID:	4D26006B-D321-49EA-AD07-532E5693C9C7
Project Owner:	Shannon Levan
Job Class:	null
Location:	
Description:	
Designed By:	Shannon Levan
County:	Luzerne
State:	PA
Lat:	41.0081
Long:	-76.0155
Practice:	WW
Date:	3/3/2026
Checked By:	
DEM Service Selected:	USDA bare earth 10m
DEM Service Metadata URL:	https://gis.sc.egov.usda.gov/data/rest/services/elevation/elevation_metadata/FeatureServer/16

Drainage Area:	11.96	Acres
Weighted Curve Number:	72	
Watershed Length:	2004.0	Feet
Watershed Slope:	5.34	Percent
Watershed Acreage:	11.96	Acres
Time of Concentration:	0.50	Hours
Method:	Calculated using the Lag method	
Rainfall Distribution Type:	Site Specific using NOAA Atlas 14 data	
Rainfall Distribution Smoothed:	YES	
Dimensionless Unit Hydrographs:	Standard - 484	

Frequencies (yrs)	1	2	5	10	25	50	100	200	500
24-HR Rain (in)	2.63	3.16	3.92	4.60	5.68	6.68	7.88	9.31	11.70
Runoff (in)	0.60	0.91	1.40	1.89	2.73	3.56	4.59	5.86	8.05
Runoff (ac-ft)	0.60	0.90	1.40	1.89	2.72	3.55	4.57	5.84	8.03
Peak Discharge (cfs)	4.86	7.93	12.5	16.62	22.85	28.2	34.17	41.03	50.75

USDA NRCS NETS Hydrology V1.0

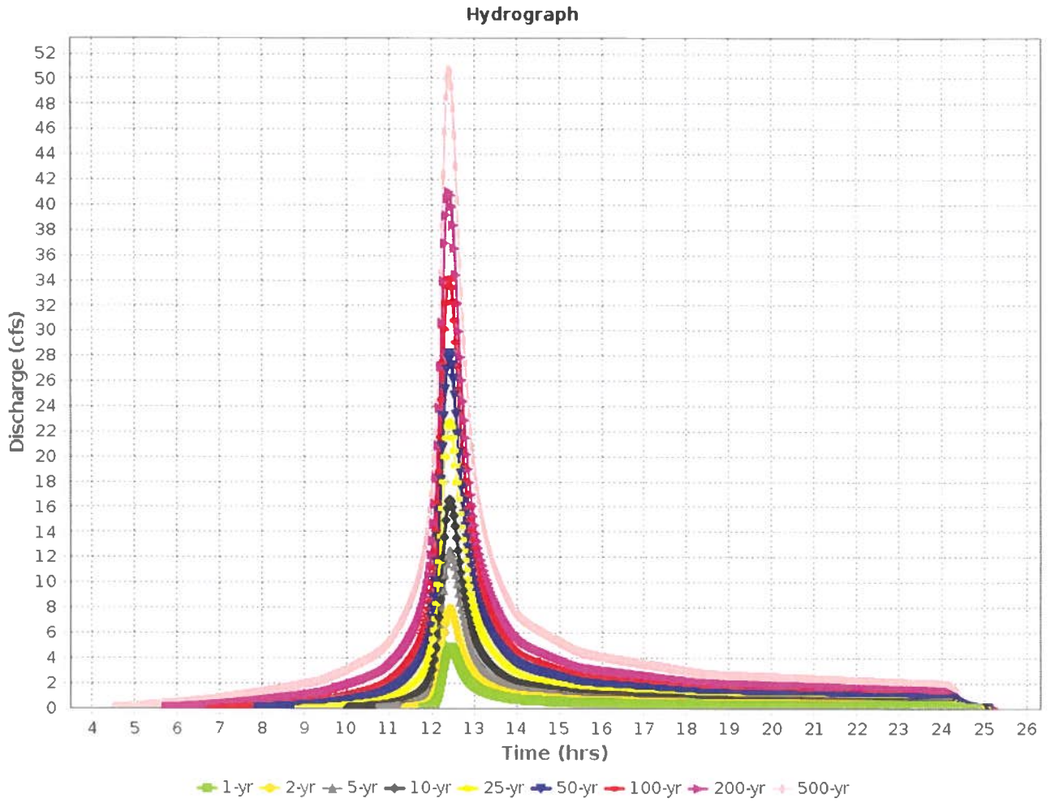
COVER DESCRIPTION (Land use land cover -- Condition):	Acres(CN)			
	Hydrological Soil Group			
	A	B	C	D
CULTIVATED AGRICULTURAL LANDS				
Row crops/SR + Crop residue--Good	0.13(64)	-	5.53(82)	-
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Open space (Lawns,parks etc.)/Good condition; grass cover > 75% --N/A	1.59(39)	-	1.67(74)	-
Residential districts /1/2 acre (Avg % imperv: 25) --N/A	-	-	0.18(80)	-
Streets and roads/Paved; open ditches (w/right-of-way)--N/A	-	-	0.49(92)	-
OTHER AGRICULTURAL LANDS				
Farmsteads/Farmsteads--N/A	1.81(59)	-	0.55(82)	-
Total Area (by Hydrological Soil Group)	3.526	0.000	8.430	0.000
TOTAL DRAINAGE AREA: 11.96 Acres	WEIGHTED CURVE NUMBER: 72 ADJUSTED CURVE NUMBER: 0			

User Notes:

USDA NRCS NETS Hydrology V1.0

County: Luzerne

State: PA

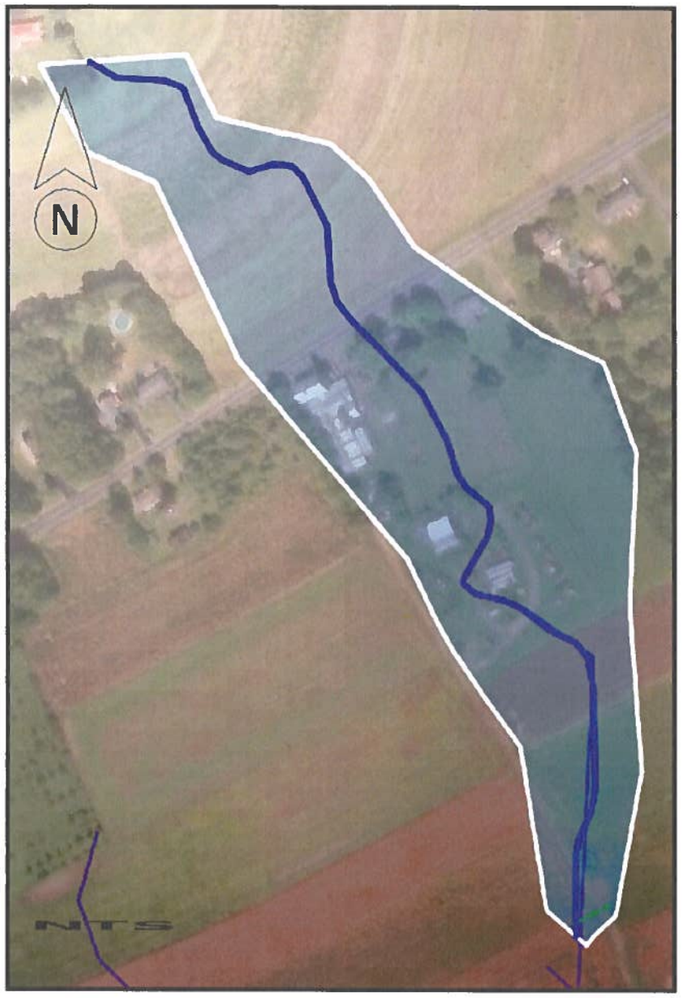


USDA NRCS NETS Hydrology V1.0

STORM ANALYSIS:

1_yr_sm	2.630	1_yr_sm	2	3.160
2_yr_sm	3.160	2_yr_sm	2	
5_yr_sm	3.920	5_yr_sm	2	
10_yr_sm	4.600	10_yr_sm	2	
25_yr_sm	5.680	25_yr_sm	2	
50_yr_sm	6.680	50_yr_sm	2	
100_yr_sm	7.880	100_yr_sm	2	
200_yr_sm	9.310	200_yr_sm	2	
500_yr_sm	11.700	500_yr_sm	2	

AOI Map



Projection: WGS 1984 UTM Zone 18N

County: Luzerne

State: PA

Lat: 41.0081

Long: -76.0155

USDA NRCS NETS Hydrology V1.0

Point precipitation frequency estimates (inches)
NOAA Atlas 14 Volume 8 Version 2
Data type: Precipitation depth
Time series type: Partial duration
Project area: Ohio River Basin
Latitude: 41.0081
Longitude: -76.0155

PRECIPITATION FREQUENCY ESTIMATES
by duration for ARI (years):, 1,2,5,10,25,50,100,200,500,1000
5-min:, 0.349,0.416,0.493,0.553,0.632,0.699,0.769,0.847,0.964,1.06
10-min:, 0.543,0.650,0.767,0.855,0.968,1.06,1.16,1.27,1.42,1.55
15-min:, 0.666,0.795,0.942,1.05,1.20,1.31,1.44,1.58,1.77,1.93
30-min:, 0.883,1.07,1.29,1.46,1.69,1.88,2.08,2.30,2.62,2.90
60-min:, 1.08,1.31,1.62,1.86,2.20,2.48,2.78,3.12,3.64,4.08
2-hr:, 1.28,1.55,1.93,2.25,2.74,3.18,3.69,4.29,5.23,6.10
3-hr:, 1.39,1.68,2.08,2.43,2.97,3.45,4.03,4.69,5.76,6.74
6-hr:, 1.75,2.10,2.58,3.01,3.67,4.27,4.98,5.82,7.17,8.41
12-hr:, 2.21,2.65,3.28,3.83,4.70,5.51,6.46,7.59,9.42,11.1
24-hr:, 2.63,3.16,3.92,4.60,5.68,6.68,7.88,9.31,11.7,13.8
2-day:, 3.10,3.72,4.60,5.39,6.65,7.82,9.21,10.9,13.6,16.2
3-day:, 3.27,3.91,4.82,5.63,6.91,8.10,9.51,11.2,13.9,16.5
4-day:, 3.44,4.11,5.04,5.87,7.17,8.38,9.81,11.5,14.3,16.8
7-day:, 4.09,4.88,5.93,6.86,8.33,9.67,11.2,13.1,16.1,18.8
10-day:, 4.73,5.62,6.77,7.76,9.30,10.7,12.3,14.1,17.0,19.7
20-day:, 6.39,7.54,8.83,9.92,11.6,13.1,14.7,16.6,19.4,22.0
30-day:, 7.96,9.36,10.8,12.0,13.8,15.3,17.0,18.9,21.8,24.2
45-day:, 10.0,11.7,13.3,14.6,16.5,18.1,19.9,21.8,24.7,27.1
60-day:, 12.1,14.1,15.8,17.3,19.4,21.3,23.2,25.4,28.5,31.1

Date/time: Tue Mar 03 15:08:08 CST 2026
pyRunTime: 0.46761345863342285;

RGS

PARABOLIC ROCK LINED WATERWAY DESIGN

STATE - Pennsylvania PROJECT: Young

DESIGN BY: sl DATE: 3/13/26 CHECK BY: _____ DATE: _____

SUBJECT- Parabolic Waterway No. 1 REACH NO. _____ SHEET ___ of ___

0-500

GIVEN:	Qr =	23	CFS	
	S =	4	%	
	L =	500	FT	
DESIGN:	D =	0.85	FT	including .25 fb
	TW =	12	FT	
	D_{50} =	6	IN	NCSA r-4
	T =	1.5	FT	

$n = 0.047 \times (D_{50} \times (S/100))^{0.147}$ = 0.0381

CROSS SECTIONAL AREA (A) = 2/3 x D x TW = 6.80 FT^2

WETTED PERIMETER (WP) = TW + $(8 \times D^2)/(3 \times TW)$ = 12.16 FT

HYDRAULIC RADIUS (R) = A / WP = 0.559

VELOCITY (V) = $(1.486 \times R^{2/3} \times S^{1/2})/n$ = 5.29 FT/S ✓

DESIGN FLOW (Q) = A x V = 36.0 CFS > 23 CFS

CHECK ROCK SIZE - (USING ISBASH CURVE - EXHIBIT 16-1, EFM)

DESIGN $D_{50} = 2.032 \times e^{(0.1883 \times V)}$ = 5.5 IN ✓

LB D_{50} = (165 LBS/CU.FT) x 4/3 x 3.14 x $(10/9 \times D_{50})^3$ = 11.5 LBS

D_{100} = $9/10 \times (2 \times (LB\ D_{50}) \times 3/(3.14 \times 4 \times 165))^{1/3}$ = 6.9 IN ✓

COMPUTE ROCK QUANTITY T = 1.5 FT

ROCK VOLUME (Vr) = T x WP x (L) = 9120.4 CU FT

TONS = (Vr x 1.6 TON/CU.YD.) / (27 CU.FT./CU.YD.) = 540.5 TONS

1.5

****

BEDDING VOLUME (Vb) = 6" THICK x WP x L = 3040.1 CU FT

TONS = (Vb x 1.7 TON/CU.YD.) / (27 CU.FT./CU.YD.) = 191.4 TONS

****

Note: Geotextile may be used in place of stone bedding if the design velocity is less than the erodible velocity of the soil.

TOTAL = 731.9 TONS

****

RGS

PARABOLIC ROCK LINED WATERWAY DESIGN

STATE - Pennsylvania PROJECT: Young

DESIGN BY: sl DATE: 3/13/26 CHECK BY: _____ DATE: _____

SUBJECT- Parabolic Waterway No. 1 REACH NO. 2 SHEET ___ of ___

500 - 746

GIVEN: Qr = 23 CFS

S = 5 %

L = 246 FT

includes .25 fb

DESIGN: D = 0.85 FT

TW = 12 FT

D_{50} = 6 IN NCSA r-4

T = 1.5 FT

$n = 0.047 \times (D_{50} \times (S/100))^{0.147}$ = 0.0394

CROSS SECTIONAL AREA (A) = 2/3 x D x TW = 6.80 FT^2

WETTED PERIMETER (WP) = $TW + (8 \times D^2)/(3 \times TW)$ = 12.16 FT

HYDRAULIC RADIUS (R) = A / WP = 0.559

VELOCITY (V) = $(1.486 \times R^{2/3} \times S^{1/2})/n$ = 5.73 FT/S ✓

DESIGN FLOW (Q) = A x V = 39.0 CFS > 23 CFS ✓

CHECK ROCK SIZE - (USING ISBASH CURVE - EXHIBIT 16-1, EFM)

DESIGN $D_{50} = 2.032 \times e^{(0.1883 \times V)}$ = 6.0 IN ✓

LB D_{50} = (165 LBS/CU.FT) x 4/3 x 3.14 x $(10/9 \times D_{50})^3$ = 14.6 LBS

D_{100} = $9/10 \times (2 \times (LB\ D_{50}) \times 3/(3.14 \times 4 \times 165))^{1/3}$ = 7.5 IN ✓

COMPUTE ROCK QUANTITY T = 1.5 FT

ROCK VOLUME (Vr) = T x WP x (L) = 4487.2 CU FT

TONS = (Vr x 1.6 TON/CU.YD.) / (27 CU.FT./CU.YD.) = 265.9 TONS

1.5

****

BEDDING VOLUME (Vb) = 6" THICK x WP x L = 1495.7 CU FT

TONS = (Vb x 1.7 TON/CU.YD.) / (27 CU.FT./CU.YD.) = 94.2 TONS

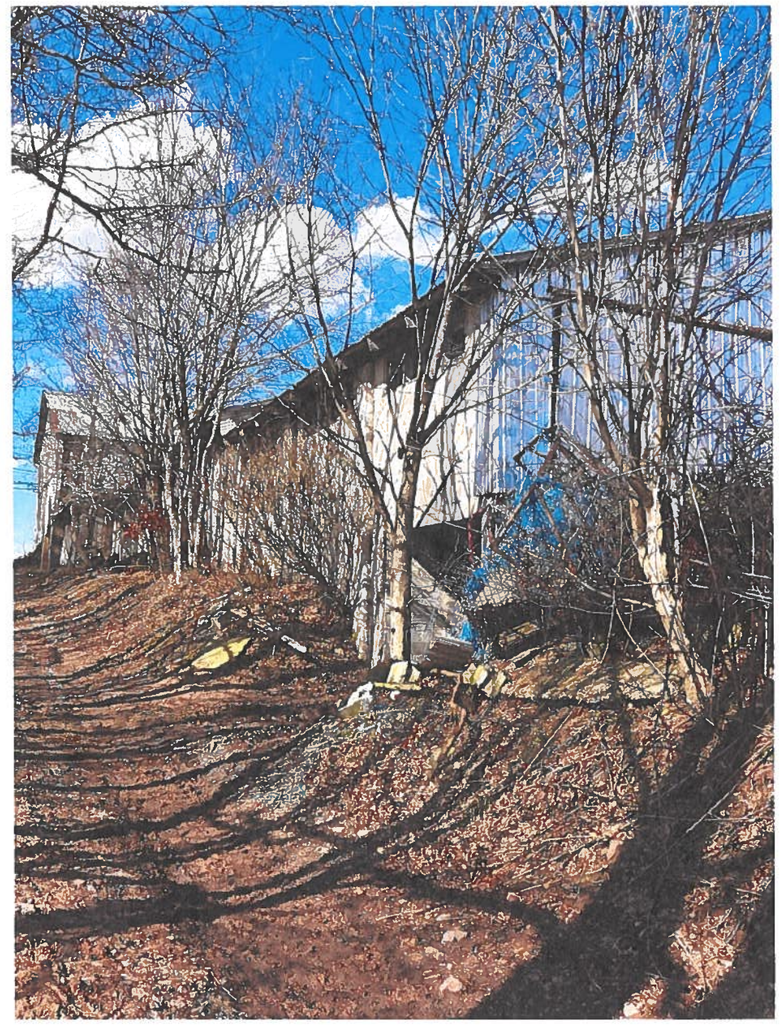
****

Note: Geotextile may be used in place of stone bedding if the design velocity is less than the erodible velocity of the soil.

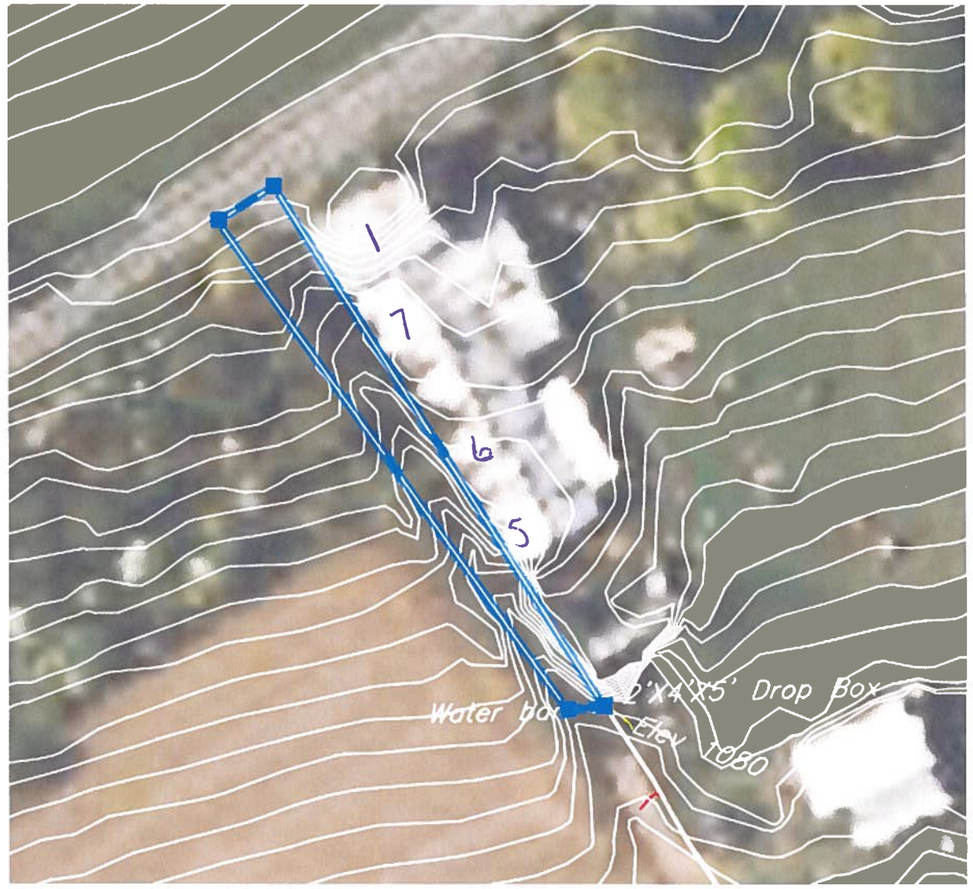
TOTAL = 360.1 TONS

****

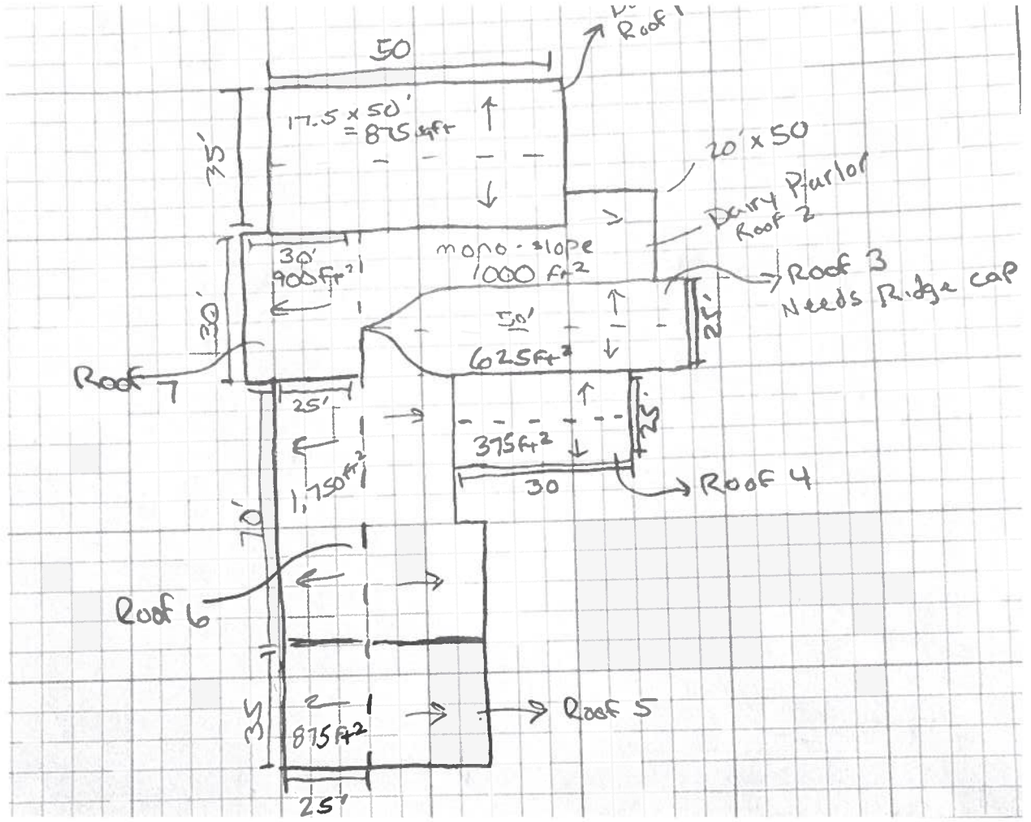
Underground Outlet with Drop Box Design



Roofs and access road water going to drop box and UGO



6050 SF Watershed to go to drop box in addition to roof water



Roofs are in rough shape and would be difficult to install gutters, downspouts and underground outlets. Water will sheet flow off roofs and flow down the access lane for a short distance to a waterbar and into a drop box

Roof 7 30X30 = 900 sf

Roof 6 70X25= 1750 sf

Roof 5 25X35= 875 sf

Roof 1 35X 50 = 1750 sf

Access Road 6050 sf

Total 11325 sfX.00017= 1.925 cfs Required

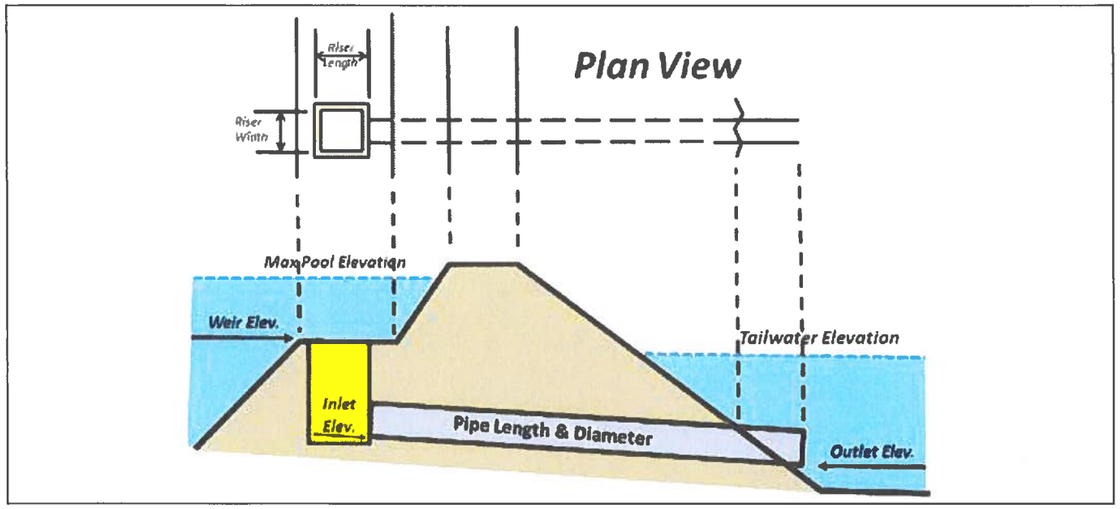
USDA United States Department of Agriculture
Natural Resources Conservation Service

Report Generated 03/26/2026
EFT Version4.0.8.1

Rectangular Riser Drop

Project Name: Ransom Young
Project Description: _____
Designed by: SL
Date:3/26

Location: Luzerene Co
Practice: Drop Box
Checked by: _____
Date:_____



Inputs

Riser Length : 4.00 ft
Riser Width : 2.00 ft
Manning's n : 0.012
Pipe Diameter : 12.00 in
Pipe Length : 344.00 ft
Max Pool Elevation : 1080.35 ft
Weir Elevation : 1079.85 ft
Inlet Elevation : 1075.85 ft
Outlet Elevation : 1061.55 ft

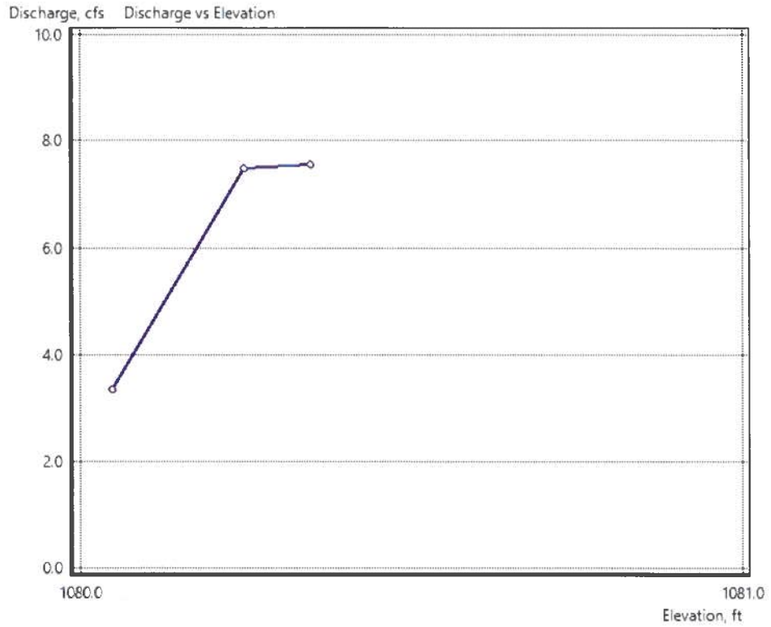
Outputs

Capacity : 7.56 cfs
Message : Lower orifice controls flow

USDA United States Department of Agriculture
Natural Resources Conservation Service

Report Generated 03/26/2026
EFT Version4.0.8.1

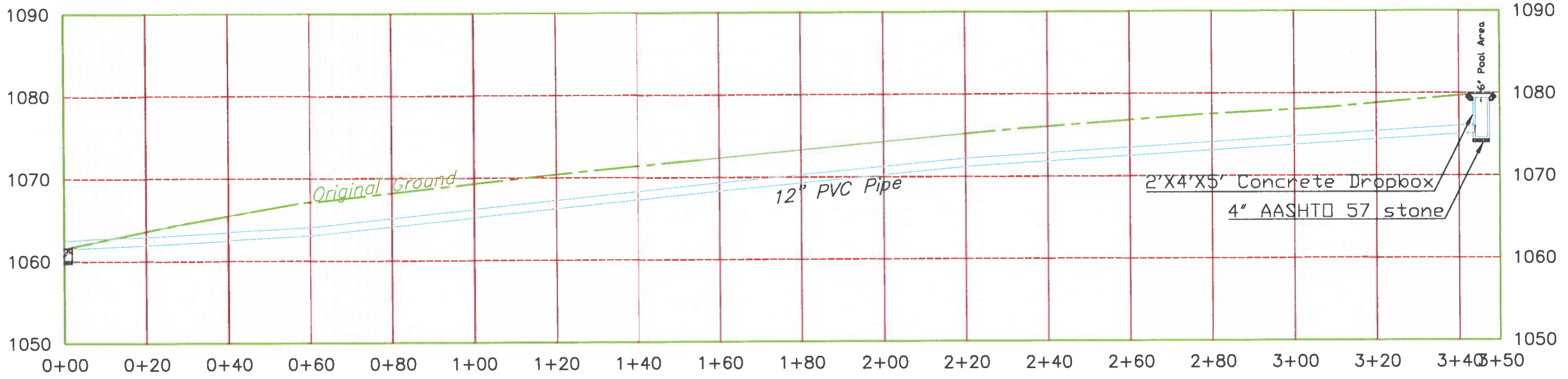
Rectangular Riser Drop



Stage, ft	Discharge, cfs
1080.05	3.33
1080.25	7.47
1080.35	7.56

SHEET OF	DRAWING NO.	FILE NO. DESIGN.DWG	USDA United States Department of Agriculture Natural Resources Conservation Service	RANSOM YOUNG Underground Outlet Plan View 1" = 50' Scale LUZERNE COUNTY, PA

		DATE
DESIGNED	SL	3/26
DRAWN	SL	
CHECKED		
APPROVED		



12 Inch UGO Profile PROFILE

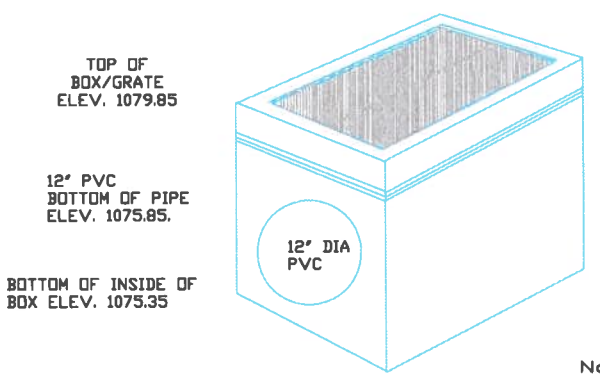
12" Sch 40 PVC or SDR 35 Pipe to have a 1% minimum grade and a minimum of 2.5' of cover until last 50' at the outlet

12" Sch 40 PVC or SDR 35 Pipe to outlet into R-4 Rock Apron/Rock Waterway @ 0+00

Drop box to have a minimum of a 6' diameter 6" deep stone lined pool area above it

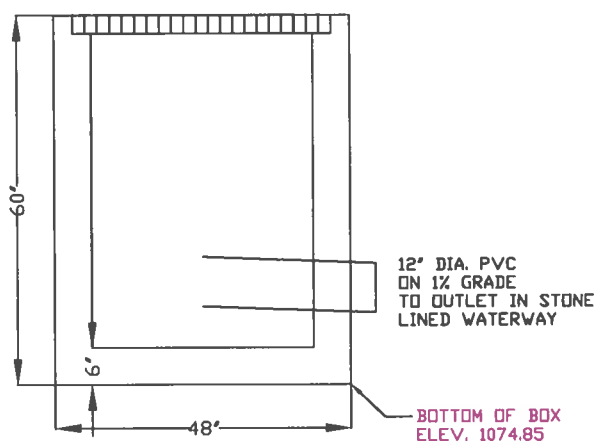
Bottom of pipe to be a minimum of 6" off the bottom of the drop box to allow for sediment

2'X4' PRECAST INLET BOX

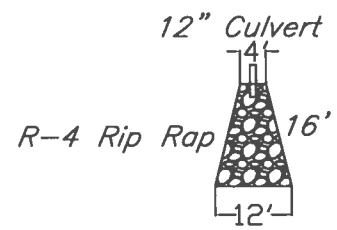


Not to Scale

* All components shall confirm to PA. Department of Transportation Publication 408.
* Standard Inlet Box with Type M Inlet and Grate



Rock Apron Detail



0 30 60 90 120

Scale in Feet

DESIGNED SL DATE 3/26
DRAWN SL
CHECKED
APPROVED

RANSOM YOUNG

Underground Outlet Profile

LUZERNE COUNTY, PA

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO. DESIGN.DWG

DRAWING NO.

4/14/26 12:06 PM

SHEET OF

Access Road

Design

Contract Name: Ransom Young **County:** Luzerne

Conservation Practice Design for: 560 Access Road

PROJECT NOTES:

REGULATIONS: All Federal, State, and Local Laws. Rules and Regulations governing the construction of this facility shall be strictly followed. The owner or operator is responsible for obtaining all construction permits, including DEP General Permits. Contact the local Conservation District for information on applying for a General Permit.

NRCS DESIGN: Failure to construct this facility in accordance with design or authorized modifications will result in withdrawal of NRCS technical assistance. Withdrawal of financial assistance will also be recommended to the appropriate agencies.

PA ACT 187: The contractor must comply with PA ACT 187 and notify PA One Call at 1-800-242-1776 prior to the start of any excavation. The PA One Call design serial number is 20260783179 dated 3/19/26.

CONTRACTOR NAME:	CONTACT INFORMATION:	ENGINEERING JOB CLASS:

NRCS PRACTICE CERTIFICATION

The practices listed below have been installed as per the attached drawings and specifications and meet all applicable NRCS standards and specifications and that the as-built documents are a true and correct record. Certification signatures listed below must have appropriate EJAA for the listed conservation engineering practice.

CIN	CPS #	Conservation Practice	Contracted Amount	Designed Amount	As-built Amount	Certification Signature	Date
	560	Access Road		~~745~~ 1			

As-Builts Completed By: Date:

Designed By:	Hannah Levan	Date:	3/26
Title:			
Checked By:		Date:	
Title:			
Approved By:		Date:	
Title:			

USDA

USDA United States Department of Agriculture

TABLE OF CONTENTS

Contract Name: Ransom Young

County: Luzerne

SHEET OF

DRAWING NO.

FILE NO. DESIGN.DWG

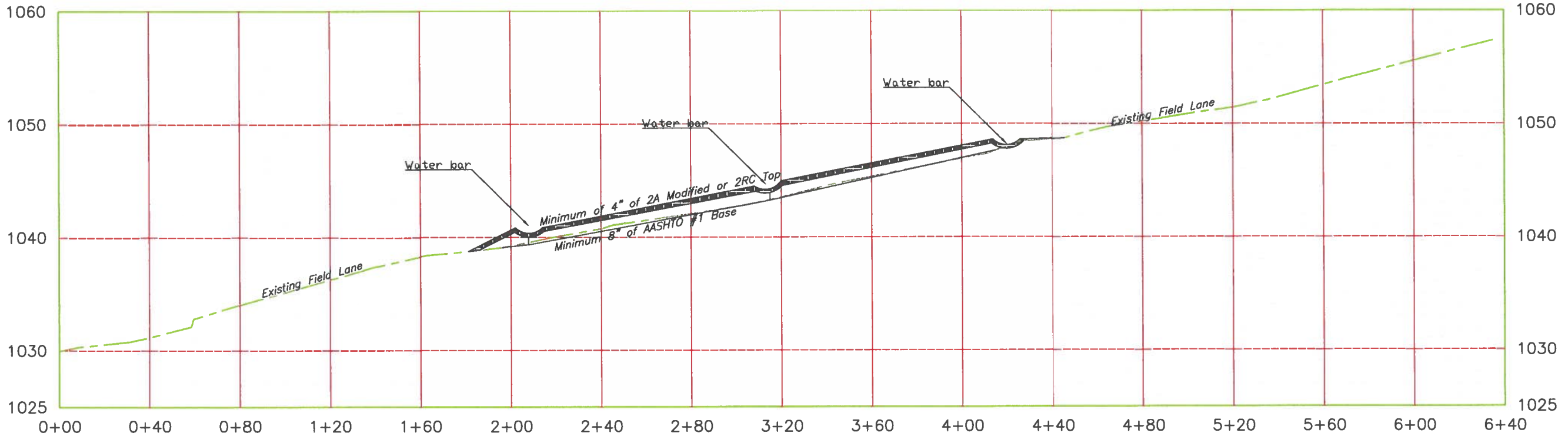
USDA United States Department of Agriculture

Natural Resources Conservation Service

RANSOM YOUNG
Access Road Plan View
Not to Scale

LUZERNE COUNTY, PA

		DATE
DESIGNED	SL	3/26
DRAWN	SL	
CHECKED		
APPROVED		



Access Road PROFILE

Approximately 245' of new Access Road with waterbars is needed

The existing field lane is ensized in some areas and will need some regrading / shaping and possible water bars to direct surface water into the stone lined waterway to the East

0+00 is where the field lane will cross the waterway

Geotextile meeting a minimum tensile strength of 200 lbs is required under the base stone

Road millings can be substituted as a top coat

Rock thickness is to be measured after compaction

0 50 100 150 200

Scale in Feet

DESIGNED SL DATE 3/26

DRAWN SL

CHECKED

APPROVED

RANSOM YOUNG

Access Road Profile

LUZERNE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

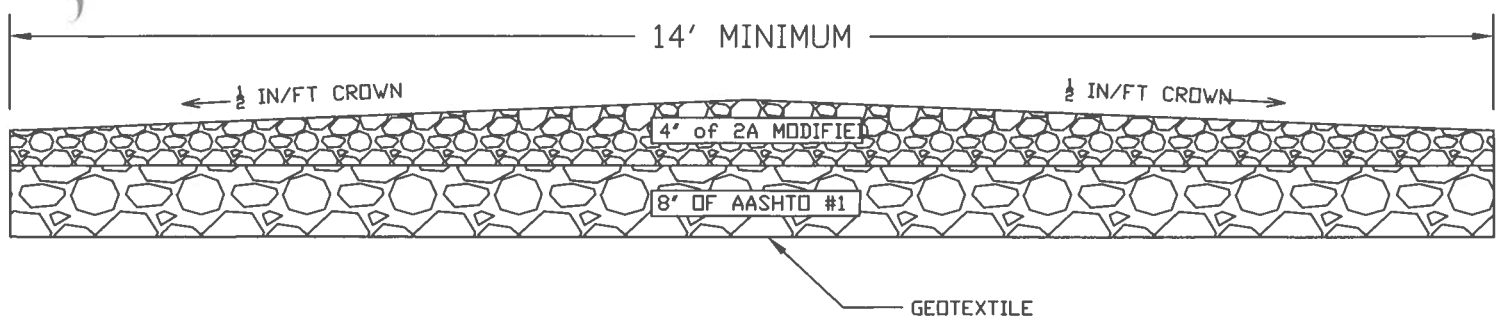
FILE NO. DESIGN.DWG

DRAWING NO.

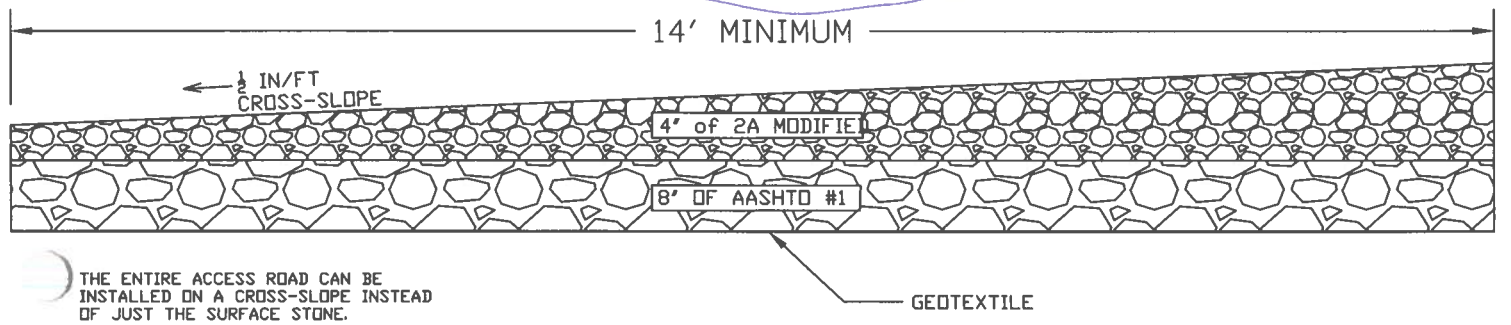
3/26/26 12:16 PM

SHEET OF

ACCESS ROAD DETAIL
CROWN OPTION



ACCESS ROAD DETAIL
CROSS-SLOPE OPTION



THE ENTIRE ACCESS ROAD CAN BE INSTALLED ON A CROSS-SLOPE INSTEAD OF JUST THE SURFACE STONE.

NOT-TO-SCALE

To grade to the east to the stone lined waterway

NOTES:

1. TOPSOIL SHALL BE REMOVED PRIOR TO ACCESS ROAD CONSTRUCTION.
2. STONE DEPTH SHALL BE MEASURED AFTER COMPACTION, THE MINIMUM DEPTHS ARE SHOWN.
3. ALL STONE SHALL BE COMPACTED WITH A SMOOTH DRUM VIBRATORY ROLLER.
4. AASHTO #1 CAN BE SUBSTITUTED WITH SHALE IF MATERIAL IS APPROVED BY THE NRCS INSPECTOR PRIOR TO PLACEMENT.
5. 2A MODIFIED CAN BE SUBSTITUTED WITH AN APPROVED EQUAL, AS PER THE NRCS INSPECTOR.
6. INSTALL ACCESS ROAD WITH A CROSS-SLOPE OR CROWN, AS SHOWN, TO ALLOW DRAINAGE OFF OF THE ROAD. LOCATIONS SHALL BE STAKED IN THE FIELD BY THE NRCS INSPECTOR.
7. GEOTEXTILE SHALL MEET THE REQUIREMENTS SHOWN BELOW.
   A. Geotextile for roads with normal farm machinery use shall be WOVEN or NON-WOVEN with a minimum tensile strength of 200 pounds. 343054
   B. Geotextile for roads with heavy equipment shall be WOVEN or NON-WOVEN with a minimum tensile strength of 315 pounds.
   C. Geotextile installed on slopes greater than 8% shall be NON-WOVEN.
   D. Geotextile installed where a wet subgrade is an issue shall be WOVEN or NON-WOVEN. The inspector shall have a discussion with the contractor to see which geotextile type the contractor recommends for the wet subgrade issues. The inspector shall then discuss with the design engineer.
   E. Allow 1' overlap between adjacent panels of geotextile where applicable.

Top 63 tons - 2A Mod /2RC

Base 153 tons - AASHTO #1s

USDA United States Department of Agriculture

Natural Resources Conservation Service

Ransom Young

Luzerne COUNTY, PA

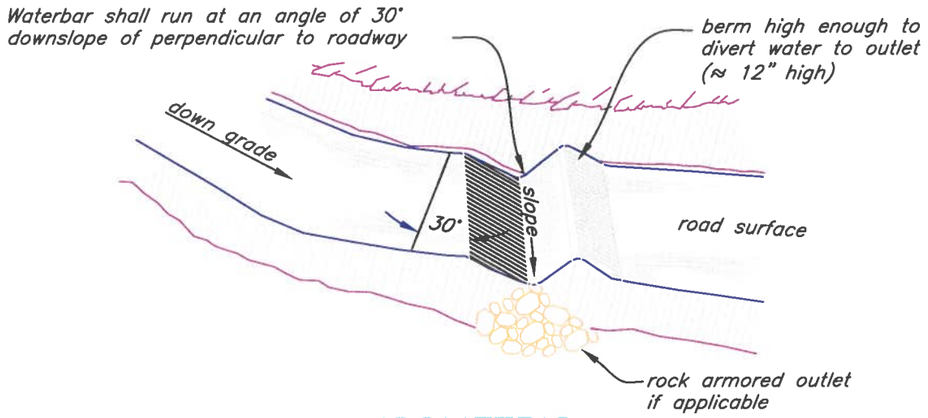
ACCESS ROAD DETAIL DRAWING

		Date
Designed	SL	3/26
Drawn		
Checked		
Approved		

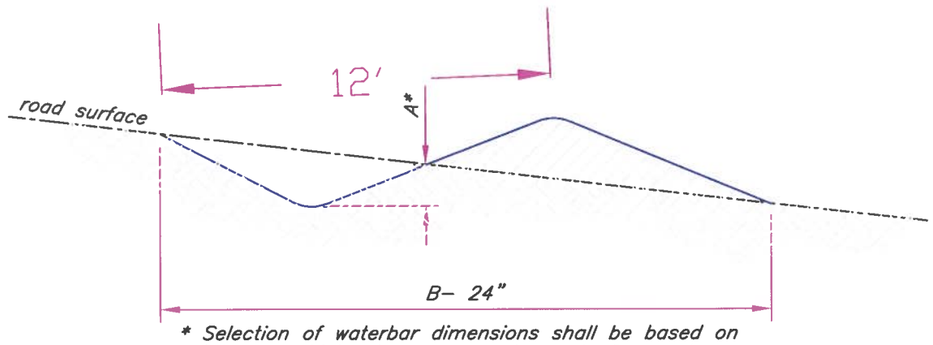
File Name

Drawing Name

Sheet ___ of ___



ISOMETRIC



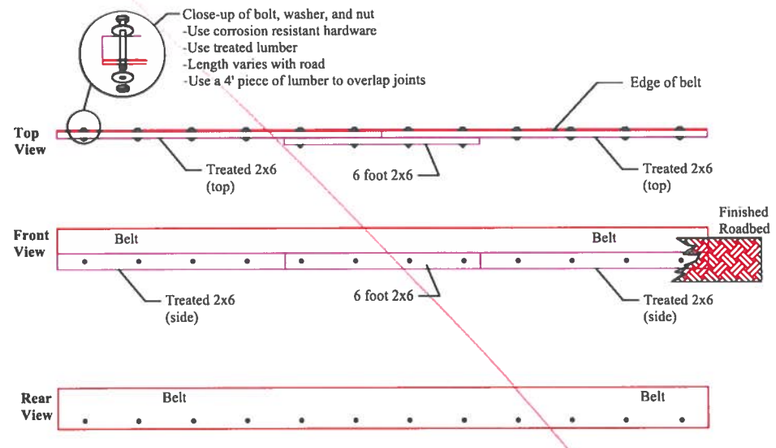
* Selection of waterbar dimensions shall be based on minimum vehicle clearance requirements for road users and volume of water that needs to flow through. Confirm that the chosen waterbar dimensions will be satisfactory for the landowner and handle the 10 year storm

A– DIMENSION IS TO BE A MINIMUM OF 3" (Half the total depth to top of berm)

Total channel to be 12' wide and 6" deep

PROFILE

Conveyer Belt Diversion Option



NOTES:

1. Waterbars are for light use roads and walkways only.
2. If road has drainage ditch, extend waterbar to intercept the runoff.
3. Protect outlet area of waterbar with riprap, stone, or appropriate vegetative cover.
4. All waterbars shall begin at the intersection of the roadbed and cut slope and shall extend the entire width of the roadbed. They shall be installed at an angle of 30° downslope of perpendicular to direction of road.

Drawing has been adapted from Oregon NRCS and the Forest Service

DATE

DESIGNED

DRAWN

CHECKED

APPROVED

Waterbar Options

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. WATERBAR OPTIONS.DWG

DRAWING NO.

SHEET OF

United States Department of Agriculture

Fact Sheet #9

January 2016

Agriculture Construction Safety

Compliance with safety regulations on agricultural projects is required by OSHA and by all construction insurance/ liability companies. The contractor is to maintain a safe working environment for themselves, their employees, subcontractors, and others who must have access to the site. Detailed knowledge and implementation of safety regulations is their responsibility. Those with more than ten employees must have written safety procedures and document implementation.

Imminent danger situations (hazards that could cause death or serious physical harm) require immediate action, including work stoppage. When NRCS and/or partner personnel observe or become aware of an imminent danger on the work site they will alert the contractor and landowner. They will also advise the landowner that funding and/or technical assistance will be withdrawn if the situation is not corrected. Work may continue after the imminent danger is resolved.

Effective January 1, 2015, all employers must report work-related fatalities, hospitalizations, amputations, and losses of an eye. They can contact the 24-hour OSHA hotline at 1-800-321-OSHA (6742) or their regional OSHA office. See OSHA standards 29 CFR 1904.39 for more information.

Soil Cave-In Protection

- Applies to all excavation over five feet in depth.
- OSHA has regulations set forth in Standards 29 CFR 1926 -Subpart P.
- Options include: sloping, shoring, or working from a safe distance.
- See "Fact Sheet" – SOIL CAVE IN – A FATAL SLIP for general information.

Fall Protection

- This applies to all areas where an individual could fall six feet or more.
- OSHA regulations in 29 CFR Parts 1910 for General Industry and 1926 for the Construction Industry apply to agricultural construction.
- OSHA 29 CFR 1926 subpart L deals with scaffolds and 29 CFR 1926 Subpart M deals with overall fall protection, including but not limited to cast-in-place concrete work, leading edge work, pre-cast concrete erection, tying reinforcement steel, truss installation, and roof construction.
- Options include: warning line system, safety monitors, mechanical equipment, controlled access area, covers, safety nets, scaffolding, guardrail system, and personal fall arrest.
- Selected method(s) shall be implemented at the start of construction.

Underground and Overhead Utility Protection

- Contractor is required to do their own utility check via PA-ONE Call system (811).
- Landowner and/or contractor shall contact any overhead utilities and prepare a procedure to avoid contact and/or schedule work with utility oversight.
- Landowner is to mark and locate any known private buried utilities within the work area.

NOTE: Critical safety measures may be highlighted in the Project Drawings and Specifications.

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Appendix

Access Road Design

- County, PA

OPERATION AND MAINTENANCE
ACCESS ROAD
CODE 560

Landowner/Operator Ransom Young

County Luzerne CD _____ Farm/Tract No. _____

NRCS Field Office Phone Number: 938-3024

Prepared By SL Date 3/26

Inspections and maintenance are required to achieve the intended function, benefits, and life of the practice. The landowner/operator is responsible to establish and implement an inspection and maintenance program. Items to inspect and maintain during the 10-year design life of the practice include, but are not limited to the following:

1. Inspect after significant storm events and at least annually to identify repair and maintenance needs.
2. The original constructed shape shall be maintained at original grade and designed stone base. Top dress and re-grade the road surface as needed to maintain an even road surface and the design thickness. Use road surfacing aggregate and stone that was designed for the road location to fill lows and/or replace lost paving. All replacement material shall be installed according to the original plans.
3. Inspect culverts, roadside ditches and outlets and restore flow capacity as needed.
4. Maintain vegetated areas adjacent to the access road to control erosion and runoff. Re-seed and mow as needed.
5. Limit use of road during times of extreme wetness.
6. Torn fabric should be repaired or replaced according to the manufacturer's specifications.
7. All water bars, road ditches and culverts should be free of debris or any foreign materials and maintained to the originally designed dimensions and grade.
8. All ditches, water bars, culvert inlets and outlets should be maintained to prevent excessive erosion.
9. Any other problems that arise with your access road not listed above should be brought to the local NRCS office.

Special Considerations: _____

Ransom Young FARM
ACCESS ROAD & SUPPORTING PRACTICES
Quality Assurance Plan

Landowner/Operator: Ransom Young Farm
Location: Luzerne County, Pa

Estimated Performance Time: 4 work days

Critical Items of Work and Timing of Inspection

Work	Inspection Requirements
Pre-Construction meeting	**full time**
E&S measures installation	daily as needed
Excavation	daily as needed
Access Road Stone	daily as needed
Waterbars	**full time**
Complete Final Grading	daily as needed
Seed all disturbed areas	once when done

General Items

1. The site will be checked at least once a day during the construction period when the contractor is working, expected to work, or could work. These visits should be unannounced and at random times.
2. Materials should match the specifications or values referenced within the construction package. A substitution should not be made without prior approval by the design engineer. If the contractor expects that a different product will be used, they will need to provide pertinent material information in order to provide adequate comparison.
3. All visits must be documented on SCS-CPA-6 or job diary. It is required that a continuous record of construction assistance be kept from the pre-construction conference to the final inspection. OSHA standards for trenches and other excavation must be followed. If safety violations are observed, notify the contractor and contact the NRCS supervisor or engineer assigned to the job.
4. **If the primary inspector can't meet the inspection responsibilities day to day or otherwise, they should contact the backup inspector and be sure the site is adequately inspected. It is the responsibility of the primary inspector to be sure there is adequate and continuous inspection throughout the project.** If a backup inspector agrees to inspect a project during a period of time when the primary inspector will be absent, it is then the backup's responsibility to find an inspector if they can't inspect the site.

Specific Items Needed:

1) Preliminary Information
   a) Document contractor names and associated work items
   b) Ensure that a PA-One Call Construction request has been submitted and that all lines are marked prior to beginning excavation

2) Erosion and Sedimentation Controls
   a) Document these practices

3) Reinforced Gravel Access Road Placement
   a) Verify dimensions and grades of Access Road
   b) Verify dimensions of waterbars
   c) Document material types
   d) Verify subgrade conditions

4) Seeding
   a) Document materials and locations

5) Final Documentation
   a) Make daily inspection documentation.
   b) Sufficient information should be taken to document against the original construction drawings.
   c) Final documentation of the completed project must be shown in red on the construction drawings.
   d) Take photos and include in the asbuilt plans, as needed, to show installation prcedures or materials used.
   e) Make notes of verifications and/or any changes in red as well.

This inspection plan was developed to insure the designer's objectives are met and quality workmanship is performed. This plan sets forth the minimum, but not necessarily all the inspection items and time needed. If additional inspection is needed, the assigned inspector shall inform the supervisor and note it on the SCS-CPA-6.

The inspector concurs in the content of this plan, inspection requirements, and obligations:

Inspector _____ Date _____

United States Department of Agriculture

Natural Resources Conservation Service
Practice Specification
Access Road (Code 560)

1. SCOPE

The work shall consist of construction of the Access Road at the location, and to the dimensions and grades, shown on the drawings and as staked in the field.

2. SITE PREPARATION

All trees, stumps, roots, brush, weeds, and other objectionable material shall be removed from the work area and disposed of as directed.

All unsuitable material shall be removed from the roadbed area prior to placing fill or surfacing materials.

The roadbed shall be graded to the required elevations. All areas which require filling will be scarified prior to placement of fill. All fill shall be compacted according to the specified method with the appropriate equipment or to the specified density.

3. SURFACING

Aggregate for the subbase shall be clean and free from deleterious substances.

GEOTEXTILE shall meet the requirements as outlined in NRCS Design Note 24 and NRCS Material Specification 592 or as otherwise stated in Section 6.

Gradation shall be such that a stable base will be formed. Placement of the surface course shall be in accordance with sound highway construction practices.

4. SEEDING

All disturbed areas shall be revegetated as designated on the drawings.

5. EROSION CONTROL

Construction operations shall be carried out in such a manner that erosion and air and water pollution will be minimized. State and local laws concerning pollution abatement must be followed.

6. ADDITIONAL CONDITIONS WHICH APPLY TO THIS PROJECT ARE:

United States Department of Agriculture

E & S PLAN

1. *It is the responsibility of the contractor to comply with the provisions of PA Code Title 25, Chapter 102 before performing any construction.*

2. *All construction permits are the responsibility of the landowner and their contractor.*

3. *Install straw bale barrier or silt fence on the contour at base of slope below the construction area, prior to construction.*

4. *Divert surface water from upslope of the construction site by installing a temporary diversion.*

5. *Minimize the disturbed area.*

6. *Upon completion of construction, all disturbed areas must be seeded and mulched according to NRCS construction specification PA-342 available at the local NRCS Field Office or online at https://efotg.sc.egov.usda.gov/ . Or the PSU agronomy guide seeding recommendations shall be followed.*

7. *In addition to the requirements set forth in the PA-342 specification, all state and local regulations shall be followed for seeding. Contact the local Conservation District for more information about the requirements.*

8. *Regrade and establish permanent seeding on all disturbed areas as soon as practical after completion of the job.*

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Levan, Shannon - FPAC-NRCS, PA

From: Michael Schlauch <mike@luzcd.org>
Sent: Thursday, March 19, 2026 2:53 PM
To: Levan, Shannon - FPAC-NRCS, PA
Subject: [External Email]Fwd: POCS 03/19/26 14:49:17 20260783179-000 WR# 369220260319 New Excavation Preliminary Design

Here you are good sir!

Michael K. Schlauch, Conservation Coordinator
Ag Conservation & Dirt, Gravel, Low-volume Roads Programs
Luzerne Conservation District
570.938.3018

---------- Forwarded message ---------
From: **POCS Web Ticket Confirmation** <Delivery@pa1call.net>
Date: Thu, Mar 19, 2026 at 2:49 PM
Subject: POCS 03/19/26 14:49:17 20260783179-000 WR# 369220260319 New Excavation Preliminary Design
To: <MIKE@luzcd.org>

WEBCFM 00000 POCS 03/19/26 14:49:17 20260783179-000 WR# 369220260319 NEW XCAV DSGN

==========PENNSYLVANIA UNDERGROUND UTILITY LINE PROTECTION REQUEST==========
Serial Number--[20260783179]-[000] Channel#--[1411AWEB][2251][2019-08]
Message Type--[NEW][EXCAVATION][PRELIMINARY DESIGN]

County--[LUZERNE] Municipality--[BUTLER TWP]
Work Site--[W BUTLER DR]
Nearest Intersection--[SUNSET DR]
Second Intersection--[S BEISELS RD]
At Intersection--[N] Between Intersections--[N]
Subdivision--[]
Location Information--
[LOCATION OF PROJECT IS SOUTH OF BARN AND OTHER DWELLINGS LOCATED AT THE FARM. EXISTING ACCESS ROAD THAT RUNS PARALLELL OF THE BUILDINGS IS WHERE THE PROJECT AREA STARTS AND EXTENDS SOUTH ALONG ACCESS LANE UNTIL IT REACHES WOODED AREA.]
Caller Lat/Lon--[]

Mapped Type--[P] Mapped Lat/Lon--
[41.009819/-76.012732,41.008297/-76.016080,41.003860/-76.012904,
41.005383/-76.009771,41.007675/-76.011260]
Attachments--[http://www.pa811.org/attachments/20260783179]
Type of Work--[WATERWAYS, DROP INLET AND UNDERGROUND OUTLET] Depth--[1-4FT]
Extent of Excavation--[24FTX1800FT] Method of Excavation--[GRADING]
Equip Type--[DOZER, EXCAVATOR]
Street--[ ] Sidewalk--[ ] Pub Prop--[ ] Pvt Prop--[X] Other--[]
Private Front--[ ] Rear--[X] Left--[ ] Right--[ ]

Project Dates--[ ] thru [ ] Response Due Date--[02-Apr-26]
Scheduled Excavation Date--[DESIGN]

Caller--[MIKE SCHLAUCH]
Caller Phone--[570-938-3018]
Excavator--[LUZERNE CONSERVATION DISTRICT]
Address--[911 W MAIN ST]
City--[PLYMOUTH] State--[PA] Zip--[18651]
FAX--[] Caller Type--[B]
Email--[MIKE@LUZCD.ORG]
Work For--[RANSOM YOUNG]
Project Contact--[MIKE SCHLAUCH]
Project Contact Phone--[570-938-3018]
Best Time to Call--[0730-1530]
Project Contact Email--[MIKE@LUZCD.ORG]
Job Number--[T190]

Prepared--[19-Mar-26] at [1448] by [MSCHLAUCH]
Remarks--
[***===MAP REVIEW KMMILKO WR#369220260319--SUBMITTED 3/19/2026 1411===***
PROJECT CONSISTS OF DROP INLET BOX TO COLLECT STORMWATER RUNOFF FROM ROOFS AND ACCESS ROAD, UNDERGROUND OUTLET TO CONVEY RUNOFF TO LINED WATERWAY AND DISCHARGE INTO ADDITIONAL LINED WATERWAY. ADDITIONALLY SUBSURFACE DRAINAGE (6 OR LESS PERFORATED PIPE) WILL BE INSTALLED TOWARDS THE END OF WATERWAY AND EXTEND ROUGHLY 800FT INTO CROPLAND FIELD. CAN PROVIDE PLAN VIEW MAP UPON REQUEST.]

PWD0 PWD=PPL ELEC DESIGN SVE0 SVE=SVC ELEC HZLTN

Serial Number--[20260783179]-[000]

Attachment 2:

Pennsylvania Prevailing Wage Requirements

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project Name:	Ransom Young Cropland BMPs
General Description:	The Ransom Young Project will include a turf reinforced waterway and subsurface drain, stone lined waterway/outlets, underground outlet with drop box, and access road best management practices.
Project Locality	Butler Township, Luzerne Count
Awarding Agency:	Luzerne Conservation District
Contract Award Date:	11/26/2025
Serial Number:	26-05190
Project Classification:	Highway
Determination Date:	5/27/2026
Assigned Field Office:	Scranton
Field Office Phone Number:	(570)963-4577
Toll Free Phone Number:	(877)214-3962
Project County:	Luzerne County

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-05190 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	7/1/2024		$37.08	$24.92	$62.00
Asbestos & Insulation Workers	7/1/2025		$37.08	$28.17	$65.25
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2024		$36.71	$19.13	$55.84
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2026		$41.34	$19.23	$60.57
Boilermakers	1/1/2024		$52.10	$35.72	$87.82
Boilermakers	1/1/2026		$58.00	$36.57	$94.57
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/4/2025		$43.17	$18.76	$61.93
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/3/2026		$40.04	$23.74	$63.78
Carpenters - Piledriver/Welder	1/1/2025		$43.38	$22.72	$66.10
Carpenters - Piledriver/Welder	1/1/2026		$44.63	$23.47	$68.10
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	5/1/2025		$36.57	$20.29	$56.86
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	5/1/2026		$36.57	$22.29	$58.86
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	5/1/2027		$36.57	$24.29	$60.86
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	5/1/2028		$36.57	$26.29	$62.86
Cement Finishers & Plasterers	5/4/2025		$34.49	$20.01	$54.50
Cement Finishers & Plasterers	5/3/2026		$36.49	$20.01	$56.50
Cement Finishers & Plasterers	5/3/2027		$34.71	$23.79	$58.50
Cement Masons	6/1/2024		$37.78	$15.05	$52.83
Drywall Finisher	5/1/2024		$31.82	$24.75	$56.57
Drywall Finisher	5/1/2025		$33.24	$25.08	$58.32
Drywall Finisher	5/1/2026		$35.08	$25.49	$60.57
Electricians	6/1/2025		$45.08	$25.72	$70.80
Electricians	6/1/2026		$47.79	$26.32	$74.11
Elevator Constructor	1/1/2025		$61.41	$44.95	$106.36
Elevator Constructor	1/1/2026		$64.06	$46.01	$110.07
Glazier	5/1/2024		$32.46	$20.93	$53.39
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2025		$38.76	$33.38	$72.14
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2026		$40.51	$33.88	$74.39
Laborers (Class 01 - See notes)	5/1/2023		$24.25	$20.28	$44.53
Laborers (Class 01 - See notes)	5/1/2025		$27.75	$20.78	$48.53
Laborers (Class 01 - See notes)	5/1/2026		$28.60	$21.28	$49.88
Laborers (Class 02 - See notes)	5/1/2023		$26.25	$20.28	$46.53
Laborers (Class 02 - See notes)	5/1/2025		$29.75	$20.78	$50.53
Laborers (Class 02 - See notes)	5/1/2026		$30.60	$21.28	$51.88
Laborers (Class 03 - See notes)	5/1/2023		$26.72	$20.28	$47.00
Laborers (Class 03 - See notes)	5/1/2025		$29.77	$20.78	$50.55
Laborers (Class 03 - See notes)	5/1/2026		$30.77	$21.28	$52.05
Laborers (Class 04 - See notes)	5/1/2023		$28.22	$20.28	$48.50

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-05190 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 04 - See notes)	5/1/2025		$31.27	$20.78	$52.05
Laborers (Class 04 - See notes)	5/1/2026		$32.27	$21.28	$53.55
Laborers (Class 05 - See notes)	5/1/2023		$28.72	$20.28	$49.00
Laborers (Class 05 - See notes)	5/1/2025		$31.77	$20.78	$52.55
Laborers (Class 05 - See notes)	5/1/2026		$32.77	$21.28	$54.05
Laborers (Class 06 - See notes)	5/1/2023		$27.02	$20.28	$47.30
Laborers (Class 06 - See notes)	5/1/2025		$30.52	$20.78	$51.30
Laborers (Class 06 - See notes)	5/1/2026		$31.37	$21.28	$52.65
Marble Mason	5/1/2025		$38.55	$19.13	$57.68
Marble Mason	5/1/2026		$40.50	$19.13	$59.63
Millwright	6/1/2025		$43.00	$22.95	$65.95
Millwright	6/1/2026		$44.97	$22.95	$67.92
Operators (Building, Class 01 - See Notes)	5/1/2025		$44.89	$30.92	$75.81
Operators (Building, Class 01 - See Notes)	5/1/2026		$46.05	$31.76	$77.81
Operators (Building, Class 01A - See Notes)	5/1/2025		$47.14	$31.58	$78.72
Operators (Building, Class 01A - See Notes)	5/1/2026		$48.30	$32.42	$80.72
Operators (Building, Class 02 - See Notes)	5/1/2025		$44.61	$30.83	$75.44
Operators (Building, Class 02 - See Notes)	5/1/2026		$45.77	$31.67	$77.44
Operators (Building, Class 02A - See Notes)	5/1/2025		$46.86	$31.50	$78.36
Operators (Building, Class 02A - See Notes)	5/1/2026		$48.02	$32.34	$80.36
Operators (Building, Class 03 - See Notes)	5/1/2025		$41.88	$30.03	$71.91
Operators (Building, Class 03 - See Notes)	5/1/2026		$43.04	$30.87	$73.91
Operators (Building, Class 04 - See Notes)	5/1/2025		$40.74	$29.70	$70.44
Operators (Building, Class 04 - See Notes)	5/1/2026		$41.90	$30.54	$72.44
Operators (Building, Class 05 - See Notes)	5/1/2025		$40.30	$29.56	$69.86
Operators (Building, Class 05 - See Notes)	5/1/2026		$41.45	$30.41	$71.86
Operators (Building, Class 06 - See Notes)	5/1/2025		$39.42	$29.30	$68.72
Operators (Building, Class 06 - See Notes)	5/1/2026		$40.58	$30.14	$70.72
Operators (Building, Class 07A- See Notes)	5/1/2025		$54.56	$35.21	$89.77
Operators (Building, Class 07A- See Notes)	5/1/2026		$56.03	$36.14	$92.17
Operators (Building, Class 07B- See Notes)	5/1/2025		$54.22	$35.10	$89.32
Operators (Building, Class 07B- See Notes)	5/1/2026		$55.69	$36.03	$91.72
Painters Class 1 (see notes)	5/1/2024		$30.36	$24.15	$54.51
Painters Class 1 (see notes)	5/1/2025		$31.32	$24.44	$55.76
Painters Class 1 (see notes)	5/1/2026		$32.69	$24.82	$57.51
Painters - Line Stripping	12/1/2024		$44.12	$27.91	$72.03
Painters - Line Stripping	12/1/2025		$45.12	$29.41	$74.53
Painters Class 2 (see notes)	5/1/2023		$33.58	$23.58	$57.16
Painters Class 2 (see notes)	5/1/2025		$35.58	$25.08	$60.66
Painters Class 3 (see notes)	5/1/2023		$40.18	$23.58	$63.76
Painters Class 3 (see notes)	5/1/2025		$42.67	$25.09	$67.76
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		$62.82	$22.72	$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		$64.70	$23.47	$88.17
Piledrivers	1/1/2025		$41.88	$22.72	$64.60

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-05190 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Piledrivers	1/1/2026		$43.13	$23.47	$66.60
Plasterers	6/1/2024		$38.46	$14.45	$52.91
Plumbers and Steamfitters	12/1/2024		$51.49	$24.67	$76.16
Plumbers and Steamfitters	12/1/2025		$51.69	$27.67	$79.36
Roofers	5/1/2024		$34.25	$21.89	$56.14
Roofers	5/1/2025		$36.10	$21.89	$57.99
Roofers	5/1/2026		$37.90	$22.09	$59.99
Sheet Metal Workers	5/1/2024		$36.13	$31.23	$67.36
Sheet Metal Workers	5/1/2025		$37.30	$32.31	$69.61
Sheet Metal Workers	5/1/2026		$39.42	$33.94	$73.36
Sign Makers and Hangars	7/15/2024		$32.32	$25.82	$58.14
Sign Makers and Hangars	7/15/2025		$33.48	$26.41	$59.89
Sprinklerfitters	4/1/2024		$46.45	$28.62	$75.07
Sprinklerfitters	4/1/2025		$49.75	$29.21	$78.96
Sprinklerfitters	4/1/2026		$52.82	$30.56	$83.38
Terrazzo Finisher	5/1/2024		$35.66	$20.76	$56.42
Terrazzo Finisher	5/1/2025		$36.32	$21.68	$58.00
Terrazzo Finisher	5/1/2026		$37.12	$22.76	$59.88
Terrazzo Grinder	5/1/2024		$36.42	$20.76	$57.18
Terrazzo Grinder	5/1/2025		$37.10	$21.68	$58.78
Terrazzo Grinder	5/1/2026		$37.93	$22.76	$60.69
Terrazzo Mechanics	5/1/2024		$36.44	$22.51	$58.95
Terrazzo Mechanics	5/1/2025		$37.17	$23.43	$60.60
Terrazzo Mechanics	5/1/2026		$38.06	$24.51	$62.57
Tile & Marble Finisher	5/1/2025		$36.64	$17.63	$54.27
Tile & Marble Finisher	5/1/2026		$38.59	$17.63	$56.22
Tile Setter	5/1/2025		$38.55	$19.13	$57.68
Tile Setter	5/1/2026		$40.50	$19.13	$59.63
Truckdriver class 1(see notes)	5/1/2025		$41.87	$0.00	$41.87
Truckdriver class 2 (see notes)	5/1/2025		$41.94	$0.00	$41.94
Truckdriver class 3 (see notes)	5/1/2025		$42.43	$0.00	$42.43
Window Film / Tint Installer	6/1/2024		$26.37	$14.83	$41.20
Window Film / Tint Installer	6/1/2025		$27.42	$15.13	$42.55

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-05190 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter	5/1/2025		$36.87	$20.49	$57.36
Carpenter	5/1/2026		$37.63	$21.18	$58.81
Carpenter Welder	5/1/2025		$37.62	$20.49	$58.11
Carpenter Welder	5/1/2026		$38.38	$21.18	$59.56
Carpenters - Piledriver/Welder	1/1/2024		$36.87	$19.79	$56.66
Carpenters - Piledriver/Welder	1/1/2025		$37.62	$20.49	$58.11
Carpenters - Piledriver/Welder	1/1/2026		$38.38	$21.18	$59.56
Cement Finishers	6/1/2016		$32.43	$11.35	$43.78
Electric Lineman	1/1/2025		$66.33	$30.40	$96.73
Electric Lineman	9/1/2025		$68.06	$32.29	$100.35
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2024		$37.26	$32.63	$69.89
Laborers (Class 01 - See notes)	5/1/2024		$25.61	$19.49	$45.10
Laborers (Class 01 - See notes)	5/1/2025		$26.61	$19.99	$46.60
Laborers (Class 01 - See notes)	5/1/2026		$27.61	$20.44	$48.05
Laborers (Class 02 - See notes)	5/1/2024		$32.23	$19.49	$51.72
Laborers (Class 02 - See notes)	5/1/2025		$33.23	$19.99	$53.22
Laborers (Class 02 - See notes)	5/1/2026		$34.23	$20.44	$54.67
Laborers (Class 03 - See notes)	5/1/2024		$29.22	$19.49	$48.71
Laborers (Class 03 - See notes)	5/1/2025		$30.22	$19.99	$50.21
Laborers (Class 03 - See notes)	5/1/2026		$31.22	$20.44	$51.66
Laborers (Class 04 - See notes)	5/1/2024		$29.57	$19.49	$49.06
Laborers (Class 04 - See notes)	5/1/2025		$30.57	$19.99	$50.56
Laborers (Class 04 - See notes)	5/1/2026		$31.57	$20.44	$52.01
Laborers (Class 05 - See notes)	5/1/2024		$30.24	$19.49	$49.73
Laborers (Class 05 - See notes)	5/1/2025		$31.24	$19.99	$51.23
Laborers (Class 05 - See notes)	5/1/2026		$32.24	$20.44	$52.68
Laborers (Class 06 - See notes)	5/1/2024		$29.66	$19.49	$49.15
Laborers (Class 06 - See notes)	5/1/2025		$30.66	$19.99	$50.65
Laborers (Class 06 - See notes)	5/1/2026		$31.66	$20.44	$52.10
Laborers (Class 07 - See notes)	5/1/2024		$29.95	$19.49	$49.44
Laborers (Class 07 - See notes)	5/1/2025		$30.95	$19.99	$50.94
Laborers (Class 07 - See notes)	5/1/2026		$31.95	$20.44	$52.39
Laborers (Class 08 - See notes)	5/1/2024		$30.43	$19.49	$49.92
Laborers (Class 08 - See notes)	5/1/2025		$31.43	$19.99	$51.42
Laborers (Class 08 - See notes)	5/1/2026		$32.43	$20.44	$52.87
Millwright	6/1/2025		$45.46	$23.33	$68.79
Millwright	6/1/2026		$47.52	$23.33	$70.85
Operators (Heavy, Class 01 - See Notes)	5/1/2024		$42.30	$29.66	$71.96
Operators (Heavy, Class 01 - See Notes)	5/1/2025		$43.46	$30.50	$73.96
Operators (Heavy, Class 01 - See Notes)	5/1/2026		$44.61	$31.35	$75.96
Operators (Heavy, Class 01A - See Notes)	5/1/2024		$44.55	$30.32	$74.87
Operators (Heavy, Class 01A - See Notes)	5/1/2025		$45.71	$31.16	$76.87
Operators (Heavy, Class 01A - See Notes)	5/1/2026		$46.86	$32.01	$78.87
Operators (Heavy, Class 02 - See Notes)	5/1/2024		$42.02	$29.57	$71.59

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-05190 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Heavy, Class 02 - See Notes)	5/1/2025		$43.18	$30.41	$73.59
Operators (Heavy, Class 02 - See Notes)	5/1/2026		$44.34	$31.25	$75.59
Operators (Heavy, Class 02A - See Notes)	5/1/2024		$44.27	$30.24	$74.51
Operators (Heavy, Class 02A - See Notes)	5/1/2025		$45.43	$31.08	$76.51
Operators (Heavy, Class 02A - See Notes)	5/1/2026		$46.59	$31.92	$78.51
Operators (Heavy, Class 03 - See Notes)	5/1/2024		$39.11	$28.70	$67.81
Operators (Heavy, Class 03 - See Notes)	5/1/2025		$40.26	$29.55	$69.81
Operators (Heavy, Class 03 - See Notes)	5/1/2026		$41.43	$30.38	$71.81
Operators (Heavy, Class 04 - See Notes)	5/1/2024		$37.96	$28.38	$66.34
Operators (Heavy, Class 04 - See Notes)	5/1/2025		$39.12	$29.22	$68.34
Operators (Heavy, Class 04 - See Notes)	5/1/2026		$40.28	$30.06	$70.34
Operators (Heavy, Class 05 - See Notes)	5/1/2024		$37.51	$28.25	$65.76
Operators (Heavy, Class 05 - See Notes)	5/1/2025		$38.67	$29.09	$67.76
Operators (Heavy, Class 05 - See Notes)	5/1/2026		$39.83	$29.93	$69.76
Operators (Heavy, Class 06 - See Notes)	5/1/2024		$36.64	$27.98	$64.62
Operators (Heavy, Class 06 - See Notes)	5/1/2025		$37.80	$28.82	$66.62
Operators (Heavy, Class 06 - See Notes)	5/1/2026		$38.96	$29.66	$68.62
Operators (Heavy, Class 07A - See Notes)	5/1/2024		$51.39	$33.77	$85.16
Operators (Heavy, Class 07A - See Notes)	5/1/2025		$52.85	$34.71	$87.56
Operators (Heavy, Class 07A - See Notes)	5/1/2026		$54.32	$35.64	$89.96
Operators (Heavy, Class 07B - See Notes)	5/1/2024		$51.04	$33.67	$84.71
Operators (Heavy, Class 07B - See Notes)	5/1/2025		$52.51	$34.60	$87.11
Operators (Heavy, Class 07B - See Notes)	5/1/2026		$53.97	$35.54	$89.51
Operators (Highway, Class 01 - See Notes)	5/1/2024		$41.41	$29.39	$70.80
Operators (Highway, Class 01 - See Notes)	5/1/2025		$42.56	$30.24	$72.80
Operators (Highway, Class 01 - See Notes)	5/1/2026		$43.72	$31.08	$74.80
Operators (Highway, Class 01a - See Notes)	5/1/2024		$43.66	$30.07	$73.73
Operators (Highway, Class 01a - See Notes)	5/1/2025		$44.81	$30.92	$75.73
Operators (Highway, Class 01a - See Notes)	5/1/2026		$45.97	$31.76	$77.73
Operators (Highway, Class 02 - See Notes)	5/1/2024		$40.24	$29.04	$69.28
Operators (Highway, Class 02 - See Notes)	5/1/2025		$41.39	$29.89	$71.28
Operators (Highway, Class 02 - See Notes)	5/1/2026		$42.55	$30.73	$73.28
Operators (Highway, Class 03 - See Notes)	5/1/2024		$39.55	$28.83	$68.38
Operators (Highway, Class 03 - See Notes)	5/1/2025		$40.70	$29.68	$70.38
Operators (Highway, Class 03 - See Notes)	5/1/2026		$41.87	$30.51	$72.38
Operators (Highway, Class 04 - See Notes)	5/1/2024		$39.10	$28.70	$67.80
Operators (Highway, Class 04 - See Notes)	5/1/2025		$40.26	$29.54	$69.80
Operators (Highway, Class 04 - See Notes)	5/1/2026		$41.41	$30.39	$71.80
Operators (Highway, Class 05 - See Notes)	5/1/2024		$38.58	$28.56	$67.14
Operators (Highway, Class 05 - See Notes)	5/1/2025		$39.73	$29.41	$69.14
Operators (Highway, Class 05 - See Notes)	5/1/2026		$40.89	$30.25	$71.14
Operators (Highway, Class 06 - See Notes)	5/1/2024		$41.64	$29.46	$71.10
Operators (Highway, Class 06 - See Notes)	5/1/2025		$42.80	$30.30	$73.10
Operators (Highway, Class 06 - See Notes)	5/1/2026		$43.95	$31.15	$75.10

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-05190 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Highway, Class 06/A - See Notes)	5/1/2024		$43.89	$30.12	$74.01
Operators (Highway, Class 06/A - See Notes)	5/1/2025		$45.05	$30.96	$76.01
Operators (Highway, Class 06/A - See Notes)	5/1/2026		$46.21	$31.80	$78.01
Operators (Highway, Class 07/A - See Notes)	5/1/2024		$50.32	$33.45	$83.77
Operators (Highway, Class 07/A - See Notes)	5/1/2025		$51.79	$34.38	$86.17
Operators (Highway, Class 07/A - See Notes)	5/1/2026		$53.25	$35.32	$88.57
Operators (Highway, Class 07/B - See Notes)	5/1/2024		$48.91	$33.03	$81.94
Operators (Highway, Class 07/B - See Notes)	5/1/2025		$50.37	$33.97	$84.34
Operators (Highway, Class 07/B - See Notes)	5/1/2026		$51.84	$34.90	$86.74
Painters - Line Stripping	12/1/2024		$44.12	$27.91	$72.03
Painters - Line Stripping	12/1/2025		$45.12	$29.41	$74.53
Painters Class 2 (see notes)	5/1/2024		$34.16	$24.75	$58.91
Painters Class 2 (see notes)	5/1/2026		$37.19	$25.47	$62.66
Painters Class 3 (see notes)	5/1/2024		$41.01	$24.75	$65.76
Painters Class 3 (see notes)	5/1/2026		$44.04	$25.47	$69.51
Piledrivers	5/1/2025		$36.87	$20.49	$57.36
Piledrivers	5/1/2026		$37.63	$21.18	$58.81
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2024		$52.74	$42.93	$95.67
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2025		$54.39	$44.73	$99.12
Truckdriver class 1(see notes)	5/1/2025		$41.87	$0.00	$41.87
Truckdriver class 2 (see notes)	5/1/2025		$41.94	$0.00	$41.94
Truckdriver class 3 (see notes)	5/1/2025		$42.43	$0.00	$42.43

Attachment 3:
Quote Sheets

QUOTE FORM

Ransom Young Cropland BMPs
Butler Township, Luzerne County

Location: **56 West Butler Drive, Drums PA 18222**
(41.0095809, -76.0137200)

Quotes for this project must be submitted only on this document in a sealed envelope labeled "**Ransom Young Cropland BMPs Project".** One lump-sum quote shall be submitted for all items as described in the instructions and design/specification documents. Contractors shall provide quote details as request in the Quote Schedule. All instructions, project design, and specifications for this project in the documents provided on the Luzerne Conservation District website (https://luzernecd.org/programs/agricultural-conservation/ag-bmp-projects/young/) must be followed.

Interested contractors are required to attend a **mandatory site showing** to gather information to submit an informed quote. The site showing will be **Monday, June 29, 2026 at 11:00 a.m.**

Specify the performance time (in days) for the completion of the project, given that all work must be completed prior to November 30, 2026 and with construction beginning within 30 days of the contract being awarded.

The performance time specified for this project (in days): _____

Having received clarifications on all items of conflict or upon which doubt arose, the undersigned proposes to furnish all labor, materials, and equipment called for by the Proposal Documents for the entire work, in accordance with said documents, for the stipulated sum shown below.

The undersigned agrees to indemnify and hold harmless the Landowners, the Luzerne Conservation District, Luzerne County, the PA Department of Environmental Protection, and all of their officers, employees, agents, and representatives against any and all claims for damages to persons asserted by any person, partnership, corporation, or other organization, arising out of services performed or undertaken by said contractor, it's agents, employees, or subcontractors, except for claims for damages directly caused by the sole fault or negligence of the parties hereto, their officers, or employees.

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Submit sealed quote by 3:00 PM on July 13, 2026:

Luzerne Conservation District
325 Smiths Pond Road
Shavertown, PA 18708

Contractor's Name: _____

Address: _____

Federal EIN: _____ Phone Number: _____

Email Address: _____

Total Quote: _____

_____ _____
Signature Date

QUOTE SCHEDULE

Ransom Young Cropland BMPs
Butler Township, Luzerne County

Project Summary:
Install a turf reinforced waterway and subsurface drain, stone lined waterways, underground outlet with drop box, and access road.

	*Item	Expected Days to Complete Item	Cost
1	Mobilization/Demobilization		$
2	Erosion & Sediment Control		$
3	Turf Reinforced Waterway and Subsurface Drain		$
4	Stone Lined Waterway		$
5	Underground Outlet with Drop Box		$
6	Access Road		$
7	Site Stabilization		$
Total Project Length (days)			----------
****Total Cost**		----------	$

*To adhere to the specifications identified within the attached design documents
**Include Pennsylvania Prevailing Wage Requirements if total is greater than $25,000.00 *(see Attachment 2)*

The undersigned agrees to meet all requirements stated in the quote instructions, drawings, and specifications.

Contractor Name: _____

Signature: _____ **Date: _____**