

**Sidewinder Raw Water Line
Utility Plan 3138-0102
Stormwater Pollution Prevention Plan (SWPPP)
Permit No. WVR113389**

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This document is intended to provide information of general interest to the construction and development industry, based upon regulations currently effective, and which may change from time to time, and is not intended to provide advice about specific projects or issues. Advice should be sought from the project consultants and/or lawyers if there are any questions about the project's compliance with federal, state, or local laws.

Sidewinder Raw Water Line

**Utility Plan 3138-0102
Stormwater Pollution Prevention Plan (SWPPP)**

In compliance with:

**Stormwater Construction General Permit
West Virginia Department of Environmental Protection**

"I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I certify that the SWPPP has been prepared by a qualified professional and is my duly authorized representative for this Project".

Signature: _____ Date: _____

Name: _____

Title: _____

Legal Entity: _____

SIDEWINDER RAW WATER LINE
Stormwater Pollution Prevention Plan

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I Introduction

A) Purpose

This Stormwater Pollution Prevention Plan (Plan) has been developed as a requirement of the West Virginia Department of Environmental Protection Division of Water and Waste Management General NPDES Water Pollution Control Permit. The purpose of this Plan is to:

- 1) Identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges associated with construction activity.
- 2) To describe and ensure the implementation of practices that are to be used to reduce the pollutants in stormwater discharges associated with construction activity.
- 3) Comply with the terms and conditions stated in the General Permit.

Implementation of the components of this Plan is required as a condition of the General Permit. The Department of Environmental Protection (Department) has been granted authority to administer the NPDES program and is therefore the regulatory authority overseeing the implementation of this Plan.

B) Background

The Permit authorizes the discharge of stormwater from construction activities until the Permit's expiration date. To end permit coverage, the operator of the construction activity shall submit a Notice of Termination in accordance with the General Permit to the DEP.

II Plan Requirements

A) General Requirements

1) Plan Administration

Copies of the Plan shall be kept on-site and be made available to the Department, or other regulatory agencies having authority, upon request. The Plan must also be available to all operators identified as having responsibilities to carry out provisions contained in the Plan.

2) Plan Updates

The permittee shall modify, using forms provided by DWWM, the SWPPP whenever there is a change in design, construction, scope of operation, or maintenance, which has the potential to adversely impact the surface waters of the State, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activities. Should conditions warrant, the Director, or the Director's representative, may request changes to the SWPPP during a field inspection. The Director may review changes or modifications to the SWPPP in the same manner as above.

3) Potential Construction Site Stormwater Pollutants

The plan is focused upon limiting the pollution potential from the following:

Table 1. Potential Construction Site Stormwater Pollutants

Trade Name Material	Chemical/Physical Description	Stormwater Pollutants
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets, or grains	Chlorinated hydrocarbons, organophosphates, carbonates, arsenic
Fertilizer	Liquid or solid grains	Nitrogen, phosphorous
Plaster	White granules or powder	Calcium sulphate, calcium carbonate, sulfuric acid
Cleaning solvents	Colorless, blue, or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates
Asphalt	Black solid	Oil, petroleum distillates
Concrete	White solid	Limestone, sand
Glue, adhesives	White or yellow liquid	Polymers, epoxies
Paints	Various colored liquid	Metal oxides, stoddard solvent, talc, calcium carbonate, arsenic
Curing compounds	Creamy white liquid	Naphtha
Wastewater from construction equipment washing	Water	Soil, oil & grease, solids
Wood preservatives	Clear amber or dark brown liquid	Stoddard solvent, petroleum distillates, arsenic, copper, chromium
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE
Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes
Kerosene	Pale yellow liquid petroleum hydrocarbon	Coal oil, petroleum distillates
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)
Erosion	Solid Particles	Soil, Sediment

B) *Specific Requirements*

1) Site Description

This project is for the construction of +/- 8,890 linear feet of waterline. The total impervious area created by the development of the project area is 0 acres. Associated grading volumes for the proposed improvements are 6,000 CY cut and 6,000 CY fill (not to be used for bidding purposes).

The site is located in Middleway West Virginia with water line installation occurring through the trailer park along Russel Way which is on the south side of Middleway Pike (WV 51), then along the shoulder/paved surface of Middleway Pike (WV 51), Old Middleway Pike (C.R. 1/7), East Street (C.R. 1/8), and Grace Street (C.R. 1/8) to the old 3M/Kodak facility located along the west side of Brucetown Road (C.R. 1/8). The subject project area consists of a residential trailer park, paved roadways maintained by the West Virginia Department of Transportation, and a previously developed commercial site. The site consists of moderately steep and flat slopes ranging from approximately 1%-15%. The surface runoff drains to the south at the Russell Way trailer park and to the road shoulders along Middleway Pike, Old Middleway Pike, East street, and Grace Street.

The project area is bounded by residential and agricultural properties on all sides of the project area along Middleway Pike (WV 51), Old Middleway Pike (C.R. 1/7), East Street (C.R. 1/8), and Grace Street (C.R. 1/8). To the south of the Russell Way Trailer Park is Turkey Run which is approximately 300 feet south of the project limits. There is little potential for offsite erosion and sediment damage by this project as temporary erosion and sediment controls will be used during construction.

2) Controls and Measures to minimize pollutants

The Permit requires the implementation of various types of controls and measures that are implemented to control pollutants in stormwater discharges from the project site. The Permit specifically requires the implementation of erosion and sediment control practices (both structural and non-structural), stormwater management practices, and specific other controls to reduce pollutants. All E&S and SWM/BMP controls employed in this project were selected to meet and/or exceed State and local requirements and are detailed in the referenced design plans.

Several requirements of the Permit relating to controls are not included in the referenced design plans. A description of all the required items (including E&S and SWM/BMP) is presented below, along with how they are addressed in this Plan:

a) Erosion and Sediment Control

i. Sediment Barriers

1. Install silt fence and super silt fence as shown on the Erosion and Sediment Control Plan
2. Install and maintain Rock Construction Entrance

ii. Commence General Earthwork Activities

1. Conduct clearing and grubbing.
2. Remove topsoil from cut/fill areas and stockpile.
3. At the end of each day's production direct potential storm water runoff toward diversions and sediment traps.
4. Smooth roll and seal all fill areas at the end of each day's production.
5. Protect moderate to steepened sloped fill areas from erosion by rip rap or fabric reinforcing.

iii. Maintenance during Active Construction

1. At a minimum, inspections of all erosion and sediment controls will be conducted every 4 days and within 24 hours of a rain event of 0.25 inches or greater of rainfall in 24 hours. Additional requirements are as noted below:
 - a. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than four days after the construction activity in that portion of the site has permanently ceased.
 - b. Where the initiation of stabilization measures by the fourth day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as conditions allow.
 - c. Where construction activity will resume on a portion of the site within 14 days from when activities ceased, (e.g., the total time period that construction activity is temporarily halted is less than 14 days) then stabilization measures do not have to be initiated on that portion of the site by the fourth day after construction activities have temporarily ceased.
 - d. Areas where the seed has failed to germinate adequately (uniform perennial vegetative cover with a density of 70%) within 30 days after seeding and mulching must be reseeded immediately, or as soon as weather conditions allow.
 - e. Stabilization measures shall be initiated immediately after installation of pipe where construction disturbance activities have ceased. The maintenance and seeding of the pipeline should be completed each day when finished in the disturbance area.

iv. Vegetative Practices

1. Spread stockpiled topsoil across areas designated to receive grasses or vegetative cover.
2. Fertilize, seed and mulch as required to produce suitable, thick and healthy stand.
3. All disturbed areas must be permanently stabilized within 4 days of reaching final grade.
4. This work shall cover all operations incidental to the establishment of vegetation within the limits of construction including all other areas disturbed by the Contractor and access roads made prior to construction. This work also includes the furnishing and application of fertilizer, agricultural limestone and mulch and the furnishing and sowing of seed all in accordance with these specifications and as designed herein.
 - a. Areas outside the limits of construction, disturbed by the construction, shall be revegetated by the Contractor at no expense to the Owner.
 - b. All revegetation activities shall be conducted immediately following completion of final grade so as to utilize

the fine soil material as a seedbed before this material is lost via erosion from subsequent rainfall.

5. Seedbed Preparation

- a. On sites where appropriate equipment cannot operate, the seedbed shall be prepared by tracking in with a dozer or scarifying by other approved methods. Tracking in shall take place perpendicular to the regarded slope.
- b. Rocks larger than six (6) inches in diameter, trash, cleared and grubbed material, and other debris that will interfere with seeding or maintenance shall be legally removed or disposed of as directed by the Engineer or Owner.
- c. Seedbed preparation shall be suspended when soil moisture conditions are not suitable for the preparation of a satisfactory seedbed as determined by the Engineer.

6. Materials

The materials to be used for revegetation shall conform to the applicable requirements of these specifications.

- a. Fertilizer: The commercial fertilizer to be used shall consist of a 10-20-10 grade of uniform composition and furnished in standard containers. These containers, in accordance with applicable state and federal laws, must be clearly marked with the following information:
 - i. Weight
 - ii. Name of plant nutrients
 - iii. Guaranteed nutrient percentages
 - iv. Fertilizer rates shall be formulated from soil tests performed by the Contractor. As a minimum, a rate of 1000 lbs/acre will be required.
 - v. Fertilizer shall be applied immediately to all areas reaching final grade by one of the following methods:
 1. Apply and incorporate fertilizer during seedbed preparation
 2. Apply fertilizer in hydroseeding mixture following seedbed preparation.
- b. Limestone: The lime to be used will be an agricultural grade pulverized dolomitic limestone. Fineness will be such that not less than 75% will pass through a #100 sieve and 100% will pass through a #10 sieve.
 - i. Lime rate shall be formulated from soil test results as performed by the Contractor. As a minimum, a rate of 4 tons/acre will be required.

- ii. Lime shall be applied immediately to all areas reaching final grade by one of the two methods listed in Section A
- c. Seeding: All seeding operations shall be performed immediately following seedbed preparation in such a manner that the seed is applied in the specified quantities uniformly on the designated areas.
 - i. Seedbed preparation and seeding shall take place progressively as various regraded areas are brought to final grade.
 - ii. Seed application shall consist of approved hydroseeding methods where feasible. Any seed left in hydroseeder overnight shall be reinoculated before that seed shall be applied. Other methods of seed application may be utilized for site specific reasons when approved by the Engineer.
 - iii. Any areas failing to establish a vegetative stand due to weather or adverse soil conditions shall be reseeded, relimed, refertilized and remulched as directed by the engineer.
- d. Seed Mixtures: The variety of grass and legume seed furnished for the project shall bear a tag, in accordance with applicable state and federal laws, with the following information listed:
 - 1. Lot number
 - 2. Seed producers name
 - 3. Percent purity
 - 4. Percent germination
 - 5. Date of germination testing
 - 6. Weed seed content (should be < 0.25% by weight)

All leguminous seed shall be inoculated with the specified strain of rhizobia which shall be a pure culture of bacteria selected for maximum vitality. No rhizobia shall be a pure culture of bacteria selected for maximum vitality. No rhizobia shall be used which has passed the expiration date on each package. The inoculant shall be applied at five times the recommended rate except when used in a hydro seeding mixture which at that time the rate will be ten times the recommended rate.

- i. Temporary Seed Mixture: All stockpiles or other disturbed areas which will require further disturbance in which the additional disturbance will be delayed for a period of three weeks or longer shall be vegetated according to the guidelines shown on the plans.
 - 1. All areas to be temporarily seeded which are to be redistributed shall be fertilized with 500 lbs/acre of 10-20-10. All areas reaching final grade to be temporarily seeded shall be fertilized according to Section A. Lime shall be

applied according to Section B, and mulch according to Section E.

- ii. Permanent Seed Mixtures: Permanent vegetation shall be established on all areas reaching final grade or other areas not likely to be destroyed by further construction activities. Any areas which reach final grade between May 31-August 15 or October 15 - November 15 shall be seeded with the appropriate temporary seed mixture. These areas shall then be reseeded with a permanent seed mixture, without Annual Ryegrass, during the next defined seeding period according to this section. The actual date of permanent seeding will require the Engineer's approval. See plans for guidelines.
- e. Mulch: Mulching procedures shall take place immediately following seeding. Mulch material shall consist of straw, grass, hay, wood cellulose fiber or wood/bark chips. Mulch for lawn areas shall consist exclusively of straw.
- f. Straw: Straw mulch shall include baled wheat or oats straw or baled grass hay. Straw mulch shall be dry and reasonably free of weed seeds, sticks or other foreign material. Straw mulch shall be applied at a rate of 2 tons/acre. The straw mulch shall be anchored with 750 lbs/acre wood cellulose fiber.
- g. Wood Cellulose Fiber: This mulch should only be used on slopes steeper than 2H:1V. Wood cellulose fiber shall be applied at a rate of 1,500 lbs/acre. A mulch for use with the hydraulic application of seed, fertilizer and lime shall consist of wood cellulose fiber. It shall be processed in inhibiting factors and shall be dyed green. It shall be manufactured in such a manner that (1) after addition and agitation in suspended to form a homogeneous slurry and (2) the material, when hydraulically sprayed on the ground, will form a blotter-like ground cover impregnated uniformly with seed, will allow the absorption of moisture, and will allow rainfall to percolate to the underlying soil.
 - i. The wood cellulose fiber shall be supplied in packages having a gross weight not to exceed 100 pounds. Weight specifications of this material from suppliers, and for all applications, shall refer only to air dry weight of the fiber material. Air dry weight is based on the normal weight standard of the Technical Association of Pulp and Paper. Also considered applicable is the Industry for Wood Cellulose and is considered equivalent to 10% moisture. Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content.
- h. Water: Water for hydro seeding shall be reasonably free of injurious and other toxic substances harmful to plant life. The source of water is subject to the approval of the owner.
- i. Maintenance of Seeded Areas

- i. The Contractor shall maintain all seeded areas during construction and for the one-year maintenance period. All areas shall be protected from any further equipment traffic and any damaged areas shall be repaired and reseeded. Maintaining seeded areas shall consist of watering, refilling, refertilizing, reliming, reseeding and remulching erosion gullies and all bare areas.

- j. **Second and Third Step Seeding**

- i. A second and third seeding may be required. If the second and third step seeding are required, it shall be performed prior to the final inspection date and will be part of the contract. If additional seeding is required during the one year guarantee period, then the Contractor is responsible for this cost.

- 1. Second Step Seeding: The following shall be used as guide for second step seed application:

- a. For areas with less than a 50% stand or subject to sever erosion, apply the complete amount of seed, fertilizer, lime and mulch as specified.
 - b. For areas with over 50% stand apply one-half the original fertilizer, lime and seed. If erosion is a problem, apply one-half the original mulch specified in Section 5.

- 2. Third Step Seeding: The third step seeding shall consist of spot applications on areas not showing a satisfactory stand. This seeding shall take place at the next defined seeding period following the second step application. The quantity of material to be used shall be determined on the same basis as for the second step application in Section e(i)1.

- v. **Project Closure**

- 1. Drain and clear temporary sediment traps of accumulated sediment before removal.
 - 2. Provide suitable temporary downstream protection such as silt fence, etc.
 - 3. After stabilization of affected areas, remove temporary structures.

- vi. The design plans for this project, **Sidewinder Raw Water Line Utility Plan**, contains detailed information regarding erosion and sediment controls used in this project and is provided in this SWPPP.

- b) **SWM / BMP's**

The design plans for this project can be found in, **Sidewinder Raw Water Line Utility Plan**. SWM is being met through restoring ground cover back to original conditions, therefore not changing the CN factor. The plan is attached in this SWPPP.

c) Fuels and Oils

- i. On-site vehicle refueling will be conducted in a dedicated location away from access to surface waters. Since the location of fueling activities will periodically move during construction, the design plans do not contain a specific location. For each phase of work a location will be determined in the field and noted in the Site Inspection Log. Containment berms will be located adjacent to the refueling area that will contain any inadvertent spills until they can be cleaned up. Any on-site storage tanks will have a means of secondary containment. In the event of a spill, it will be cleaned up immediately and the material, including any contaminated soil, will be disposed of according to all federal, state, and local regulations.
- ii. All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- iii. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- iv. Spill kits will be included with all fueling sources and maintenance activities.
- v. Any asphalt substances used onsite will be applied according to the manufacturer's recommendation.

d) Solid Waste

No solid materials shall be discharged to surface water. Solid materials, including building materials, garbage, and debris shall be cleaned up daily and deposited into dumpsters, which will be periodically removed from the site and deposited into a landfill.

e) Fertilizer

- i. Fertilizers will be applied only in the minimum amounts recommended by the manufacturer.
- ii. Fertilizers will be worked into the soil to limit exposure to stormwater.
- iii. Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to avoid spills.

f) Paint and other Chemicals

- i. All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewers, but will be properly disposed according to the manufacturer's instructions.
- ii. Spray guns will be cleaned on a removable tarp.
- iii. Chemicals used on-site are kept in small quantities and stored in closed containers undercover and kept out of direct contact with stormwater. As with fuels and oils, any inadvertent spills will be cleaned up immediately and disposed of according to federal, state, and local regulations.

g) Concrete

- i. Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site, except in a specially designated concrete disposal area.
- ii. Form release oil used for decorative stonework will be applied over a pallet covered with an absorbent material to collect excess fluid. The absorbent material will be replaced and disposed of properly when saturated.

h) Water Testing

When testing/cleaning of water supply lines, the discharge from the tested pipe will be collected and conveyed to a completed stormwater pipe system for ultimate discharge into a sedimentation basin or SWM/BMP facility.

i) Sanitary Waste

Portable lavatories are located on-site and are serviced on a regular basis by a contractor. They will be located in upland areas away from direct contact with surface waters. Any spills occurring during servicing will be cleaned up immediately, including any contaminated soils, and disposed of according to all federal, state, and local regulations.

j) Grading and E & S Activities

A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained.

3) Spills

The permittee shall report any noncompliance which may endanger health or the environment immediately after becoming aware of the circumstances by using the Department's designated spill alert telephone number, (800) 642-3074. A written submission shall be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause the period of noncompliance, including exact dates and time, and if, the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

Materials and equipment necessary for oil or chemical spill cleanup will be kept in the temporary material storage trailer onsite. Equipment will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, and sand, saw dust, and plastic and metal trash containers.

All oil or other chemical spills will be cleaned up immediately upon discovery.

4) Maintenance

- a) The contractor shall provide a detailed plan and schedules for all elements of the erosion control plan. The plan should be posted at the job site and strictly followed. At a minimum, inspections of all erosion and sediment controls will be conducted every 4 days and within 24 hours of a rain event of 0.25 inches or greater of rainfall in 24 hours. Special attention should be given to areas of equipment fueling and cleaning. Mitigation

measures such as water diversion and containment, etc. should be employed to reduce to practical minimums the potential for contaminants to reach surface waters.

i. Silt Fence and Super Silt Fence

1. Silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required maintenance shall be made immediately. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the barrier still be necessary, the fabric shall be replaced promptly. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier. Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform with existing grade, prepared and seeded.

- b) The project area shall have, at a minimum, graveled access located at the main entrance to reduce the tracking of sediment onto public or private roads.
- c) During site preparation, dry periods may necessitate implementation of a fugitive dust control plan. Therefore, the contractor shall use water as needed to reduce the amount of fugitive dust created by construction activities.
- d) Maintenance of the erosion and sediment controls and the stormwater management/BMP facilities incorporated into this project must be maintained on a regular basis to assure their continued effectiveness. This includes repairs to all erosion and sediment controls, including cleanout of all sediment traps and stormwater management facilities at the required intervals. Those controls found to be ineffective during routine inspections (as described in the following section) shall be repaired before the next anticipated storm event or as soon as practicable.

5) Inspections

- a) The permittee shall ensure that all newly installed erosion and sediment control BMPs are inspected by a Qualified Person. "Qualified Person" means a person who is knowledgeable in the principles and practices of sediment and erosion controls, pollution prevention, and possesses the education and abilities to assess conditions at the proposed site that could impact stormwater quality and to assess the effectiveness of proposed stormwater controls to meet the requirements of the General Permit.
 - i. Any defective controls identified during the inspection must be repaired and/or installed correctly within 24 hours and corrections verified upon re-inspection by the Qualified Person.
 - ii. Construction activities may begin after the Qualified Person inspects and finds that all erosion and sediment control BMPs are installed properly in the areas where earth disturbing activities are planned to commence.
 - iii. Sediment control BMPs shall be constructed in accordance with the approved registration. All basins and traps not constructed in accordance with the approved registration shall be inspected and documented by a Qualified Person as affording the same trapping capacity and efficiency as the approved structures. Thereafter, routine inspections of the structures by a Qualified Person shall be conducted as follows until structure removal. All documentation of inspections shall be kept on site during construction on a form, prescribed by the Director for the length of the construction project.
- b) Inspections shall include the review of all disturbed areas, off-site areas covered by the permit, and areas used for storage of materials that are exposed to precipitation.

Examples include structural and non-structural control measures, material storage areas, and vehicular access points. Site inspections shall be conducted by a Qualified Person Inspections are to be performed at least once every **4 calendar days** and within **24 hours** of a precipitation event of 0.25 inches or greater, or the occurrence of runoff from snowmelt sufficient to cause a discharge.

- c) Reductions in inspection frequency may occur in accordance with the following:
 - i. Stabilized areas: The permittee may reduce the frequency of inspections to twice per month, no more than 14 calendar days apart, in any area of the site where final stabilization has been completed. If construction activity resumes in this portion of the site at a later date, the inspection frequency immediately increases to that required previous to the reduced frequency. The beginning and ending dates of this period must be recorded in the inspection report.
 - ii. Exceptions: For "linear projects", where disturbed portions have undergone final stabilization at the same time active construction continues elsewhere, the permittee may reduce the frequency of inspections to twice per month no more than 14 calendar days apart, in any area of the site where the final stabilization has been completed. Inspect once more within 24 hours of the occurrence of a precipitation event of 0.25 inches or greater. If there are no issues or evidence of stabilization problems, further inspections may be suspended. If "wash-out" of stabilization materials and/or sediment is observed, following re-stabilization, the reduced inspection frequency is suspended.
 - iii. Frozen conditions: If the permittee suspends construction activities due to frozen conditions, inspections on the site may be temporarily suspended until thawing conditions begin to occur if:
 - 1. Runoff is unlikely due to continuous frozen conditions that are likely to continue at the site for at least three (3) months based on historic seasonal averages. If unexpected weather conditions (such as above freezing temperatures or rain events) make discharges likely, the permittee must immediately resume the regular inspection frequency as applicable.
 - 2. Land disturbances have been suspended and all disturbed areas of the site have been stabilized.
 - 3. If still conducting construction activities during frozen conditions, the permittee may reduce the inspection frequency to once per month if:
 - a. Runoff is unlikely due to continuous frozen conditions that are likely to continue at the site for at least three (3) months based on historic seasonal averages. If unexpected weather conditions (such as above freezing temperatures or rain events) make discharges likely, the permittee must immediately resume the regular inspection frequency; and
 - b. Except for areas undergoing construction activities, disturbed areas of the site have been stabilized, the beginning and ending dates of this period must be documented in the inspection report.
- d) For any day of rainfall during normal business hours that measures 0.25 inches or greater, the total rainfall measure for that day must be recorded. To determine if a precipitation event of 0.25 inches or greater has occurred on the site, the permittee must either:

- i. Keep a properly maintained rain gauge on-site, or
 - ii. Obtain the precipitation event information from a NOAA weather station that is representative of the location.
- e) Areas That Must Be Inspected - During the site inspection, the following areas of the site must be inspected:
 - i. All areas that have been cleared, graded, or excavated and that have not yet completed stabilization;
 - ii. All stormwater controls (including pollution prevention controls) installed and procedures initiated must be listed in the inspection record;
 - iii. Material, waste, borrow, and equipment storage and maintenance areas that are covered by this permit;
 - iv. All areas where stormwater typically flows within the site, including drainageways designed to divert, convey, and/or filter stormwater;
 - v. All points of discharge from the site;
 - vi. All receiving waters to look for sediment laden stormwater entering the waterbody; and
 - vii. All locations where stabilization measures have been implemented.
 - viii. Areas that, at the time of the inspection, are considered unsafe to inspection personnel do not have to be inspected.
- f) Requirements for Self-inspections -During the site inspection, the Qualified Person shall:
 - i. Check whether all stormwater controls (i.e., erosion and sediment controls and pollution prevention controls) are properly installed, appear to be operational, and are working as intended to minimize pollutant discharges;
 - 1. This includes the requirement to inspect for sediment that has been tracked out from the site onto paved roads, sidewalks, or other paved areas.
 - ii. Check for the presence of conditions that could lead to spills, leaks, or other accumulations of pollutants on the site;
 - iii. Identify any locations where new or modified stormwater controls are necessary to protect waters of the state or meet other requirements of this NPDES General Permit;
 - iv. Check for signs of visible erosion and sedimentation (i.e., sediment deposits) that have occurred and are attributable to the discharge at points of discharge and, if applicable, the banks of any waters of the State flowing within or immediately adjacent to the site;
 - v. Identify any incidents of noncompliance observed;
 - vi. If a discharge is occurring during the inspection:
 - 1. Identify all discharge points at the site; and
 - 2. Observe and document the visual quality of the discharge and take note of the characteristics of the stormwater discharge, including color; odor; floating, settled, or suspended solids; foam; oil sheen; and other indicators of stormwater pollutants.
- g) Self-inspection Report - An inspection report must be completed by the inspector within 24 hours of completing any site inspection.
 - i. Each inspection report must include the following:
 - 1. The inspection date;
 - 2. Names and titles of personnel making the inspection;
 - 3. A summary of inspection findings, including the observations made during the inspections, and any necessary maintenance or corrective actions;
 - 4. A record of rainfall measuring 0.25 inches or greater and the source of the measurement (the applicable rain gauge or weather station readings); and

5. If it was determined unsafe to inspect a portion of the site, describe the reason it was found it to be unsafe and specify the locations to which this condition applies.
 - ii. Each inspection report must be signed in accordance with Appendix A.7 of this permit.
 - iii. Each inspection report must be maintained at the site or at an easily accessible location, so that it can be made available at the time of an on-site inspection or upon request by the Director.
 - iv. All inspection reports must be maintained for at least three (3) years from the date that permit coverage is terminated.
 1. The Qualified Person must re-inspect within 48 hours to verify repairs or replacements to the defective BMPs or pollution controls noted in the previous inspection.
- h) Requirement to Correct Deficiencies - Based on the results of the inspection, the permittee must complete any necessary maintenance and corrective action within 24 hours. The permittee shall have 24 hours after such notification to make changes relating to sediment and erosion controls to prevent loss of sediment from an active construction site, unless additional time is provided by the Director or an authorized representative in writing.
- i) Implement Additional BMPs to Protect Water Quality
 - ii. When an inspection indicates the BMPs are ineffective at protecting waters of the state, the permittee shall immediately implement additional controls and,
 1. Update the SWPPP and GPP to reflect the new BMPs, and
 2. Either obtain approval of the additional BMPs during a site visit conducted by the Director, or
 3. Submit a modification application in accordance with this permit.
 4. Permittees who find that the approved BMPs are ineffective at protecting receiving waters and who are unable to identify or employ BMPs capable of preventing sediment laden runoff from leaving the project site shall immediately cease further land disturbance until such time that the unauthorized discharge ceases.
 - iii. No sediment-laden water shall be allowed to leave the site without going through an appropriate BMP.
 - iv. The permittee shall modify the SWPPP, using forms provided by DWWM, whenever there is a change in design, construction, scope of operation, or maintenance of BMPs, which has the potential to adversely impact the surface waters of the State, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activities. Should conditions warrant, the Director may request changes to the SWPPP during a field inspection. The Director may request, review and approve or require the permittee to apply for a modification to the approved application.
 - v. The permittee shall amend the GPP whenever there is a change in design, construction, operation, or maintenance of BMPs which could reasonably be expected to have an impact on the potential contamination of groundwater.

6) Non-Stormwater Discharges

All discharges authorized by the general permit shall be composed entirely of stormwater.

The General Permit does not authorize the conveyance, diversion, channeling, directing or otherwise allowing the discharge of stormwater into a sinkhole without an Underground Injection Control Permit.

7) Training

- a) Employee Training – Employee training programs should inform personnel at all levels of responsibility the components and goals of the storm water pollution prevention plan. Topics such as spill response, good housekeeping, and material management practices should be discussed. Periodic dates for this training shall also be established.

APPENDIX A
U.S.G.S. TOPOGRAPHIC MAP



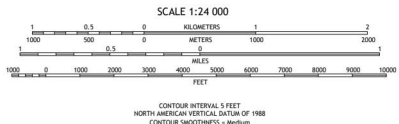
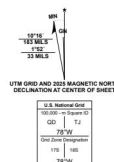
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



7.5-MINUTE TOPO QUADRANGLE
VIRGINIA - WEST VIRGINIA CUSTOM EXTENT
7.5-MINUTE TOPO



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid UNIVERSAL TRANSVERSE MERCATOR, ZONE 18S
Data is provided by The National Map (TM), is the best available at the time of map
generation, and includes data content from supporting themes of Elevation,
Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover,
and Orthorectification. Refer to associated Federal Geographic Data Committee (FGDC)
Metadata for additional source data information.
This map is not a legal document. Boundaries may be generalized for this map scale.
Private lands within government reservations may not be shown. Obtain permission
before entering private lands. Temporal changes may have occurred since these data
were collected and some data may no longer represent actual surface conditions.
Learn About The National Map: <https://thenationalmap.gov>



7.5-MINUTE TOPO, WV
2025

APPENDIX B
SOILS REPORT



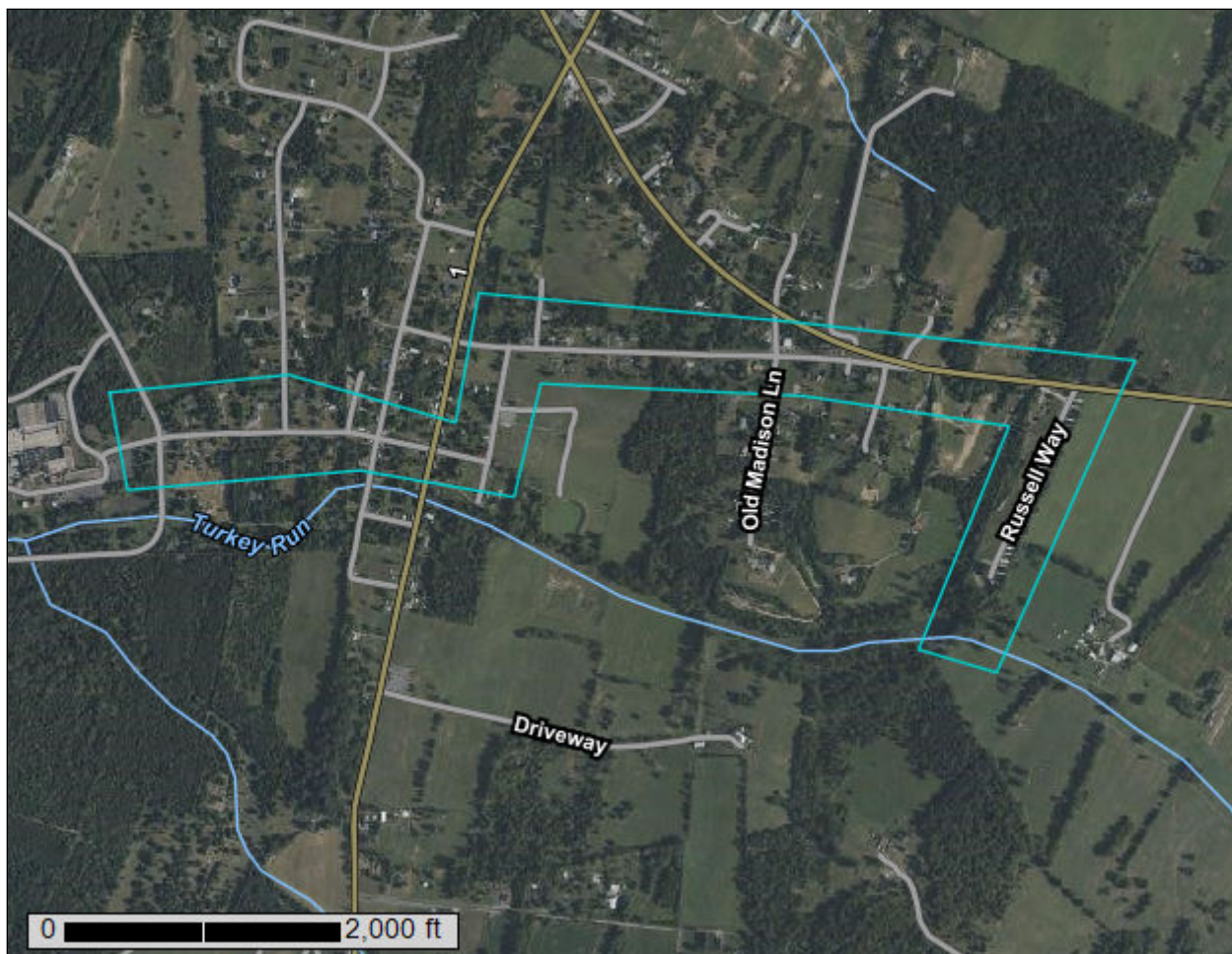
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Jefferson County, West Virginia**



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

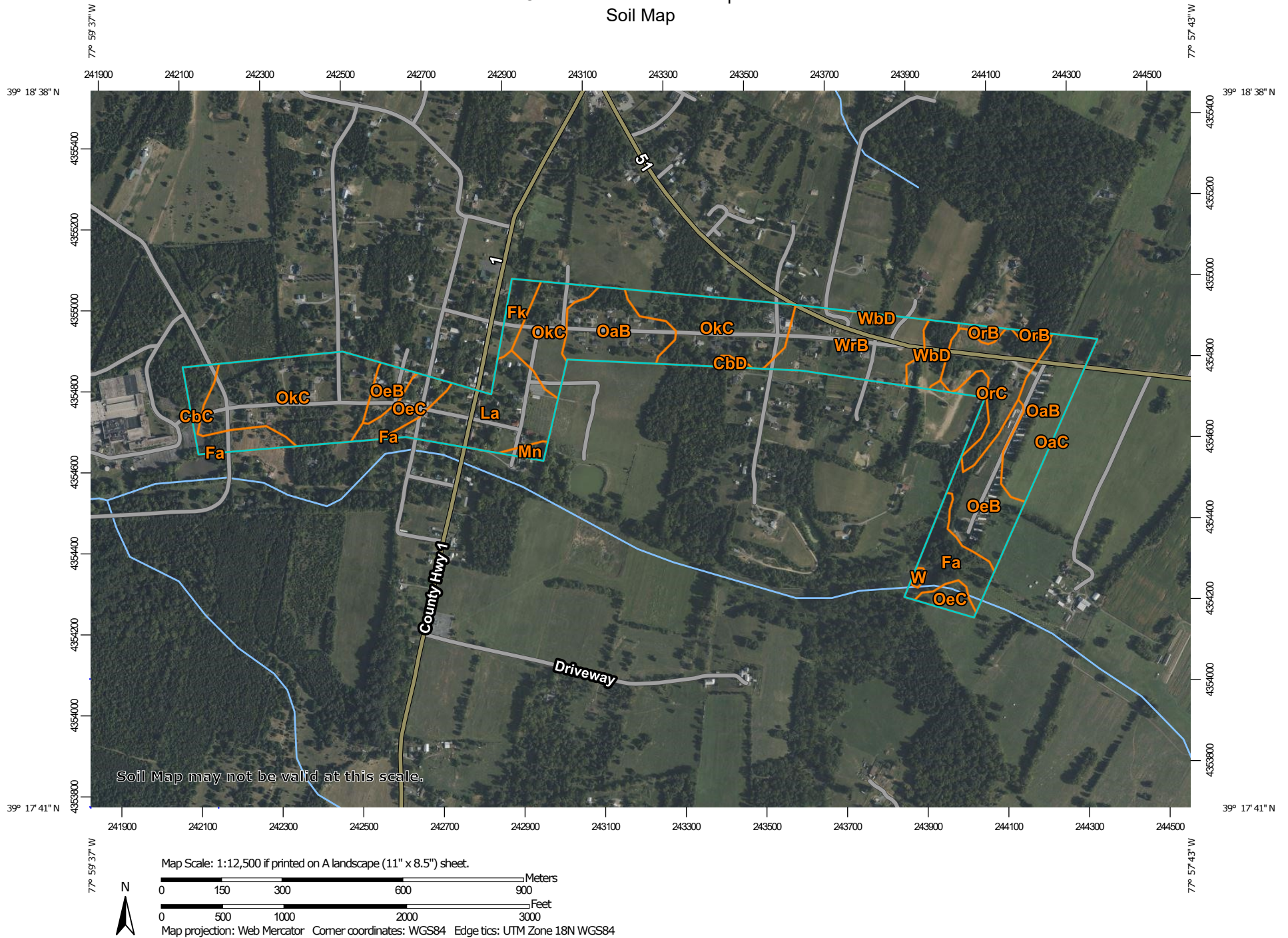
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



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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 1:24,000.

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: Jefferson County, West Virginia
Survey Area Data: Version 19, Sep 5, 2025

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

Date(s) aerial images were photographed: Sep 2, 2023—Oct 4, 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
CbC	Carbo-Rock outcrop complex, 3 to 15 percent slopes	4.7	3.6%
CbD	Carbo-Rock outcrop complex, 15 to 25 percent slopes	0.4	0.3%
Fa	Fairplay silt loam, 0 to 3 percent slopes	6.0	4.5%
Fk	Funkstown silt loam	2.4	1.8%
La	Lappans loam, 0 to 3 percent slopes	13.5	10.1%
Mn	Massanetta loam, 0 to 3 percent slopes	0.7	0.6%
OaB	Oaklet silt loam, 3 to 8 percent slopes	19.9	14.9%
OaC	Oaklet silt loam, 8 to 15 percent slopes	0.0	0.0%
OeB	Oaklet silt loam, 3 to 8 percent slopes, very rocky	13.6	10.2%
OeC	Oaklet silt loam, 8 to 15 percent slopes, very rocky	5.4	4.1%
OkC	Oaklet silty clay loam, 8 to 15 percent slopes, very rocky	39.5	29.6%
OrB	Oaklet-Rock outcrop complex, 3 to 8 percent slopes	1.1	0.8%
OrC	Oaklet-Rock outcrop complex, 8 to 15 percent slopes	9.3	6.9%
W	Water	0.3	0.2%
WbD	Weikert-Berks channery silt loams, 15 to 25 percent slopes	3.2	2.4%
WrB	Wharton-Clearbrook channery silt loams, 3 to 8 percent slopes	13.3	10.0%
Totals for Area of Interest		133.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic

class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

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An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Jefferson County, West Virginia

CbC—Carbo-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1vdpc
Elevation: 90 to 180 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 51 to 56 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Not prime farmland

Map Unit Composition

Carbo, silty clay loam, and similar soils: 60 percent
Rock outcrop: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carbo, Silty Clay Loam

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 34 inches: clay
R - 34 to 44 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F147XY003PA - Mixed Limestone Upland
Other vegetative classification: Very Rocky, Limy Soils (RL2)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)

CbD—Carbo-Rock outcrop complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 1vdpd

Elevation: 90 to 180 feet

Mean annual precipitation: 33 to 45 inches

Mean annual air temperature: 51 to 56 degrees F

Frost-free period: 141 to 168 days

Farmland classification: Not prime farmland

Map Unit Composition

Carbo, silty clay loam, and similar soils: 65 percent

Rock outcrop: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carbo, Silty Clay Loam

Setting

Landform: Hillslopes

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: silty clay loam

H2 - 9 to 34 inches: clay

R - 34 to 44 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: 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: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F147XY003PA - Mixed Limestone Upland
Other vegetative classification: Very Rocky, Limy Soils (RL2)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)

Fa—Fairplay silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y003
Elevation: 320 to 710 feet
Mean annual precipitation: 39 to 40 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 155 to 177 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Fairplay and similar soils: 80 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fairplay

Setting

Landform: Terraces, flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous loamy marl

Typical profile

Ap - 0 to 11 inches: silt loam
Ag - 11 to 15 inches: silt loam
Bkg - 15 to 20 inches: sandy loam
Agb - 20 to 27 inches: silt loam

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Bkb - 27 to 40 inches: sandy loam
A'gb - 40 to 47 inches: silt loam
B'kb - 47 to 53 inches: sandy loam
Bkmb - 53 to 60 inches: loamy sand
A''gb - 60 to 68 inches: sandy loam
B''kb - 68 to 79 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 48 to 58 inches to cemented horizon
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 99 percent
Available water supply, 0 to 60 inches: Very high (about 16.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F147XY013PA - Poorly Drained Calcareous Bottomland
Hydric soil rating: Yes

Minor Components

Melvin

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Histosols

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Fk—Funkstown silt loam

Map Unit Setting

National map unit symbol: 1vdqc

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Elevation: 80 to 180 feet
Mean annual precipitation: 33 to 46 inches
Mean annual air temperature: 40 to 64 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Not prime farmland

Map Unit Composition

Funkstown, silt loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Funkstown, Silt Loam

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy alluvium derived from limestone

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 29 inches: gravelly silt loam
H3 - 29 to 45 inches: silty clay loam
H4 - 45 to 80 inches: channery silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 20 to 28 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F147XY009PA - Loamy Mixed Floodplain
Other vegetative classification: Moist Loams (ML2)
Hydric soil rating: No

Minor Components

Toms, silt loam

Percent of map unit: 10 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Fertile Loams (FL2)

Hydric soil rating: Yes

Holly, loam

Percent of map unit: 5 percent

Landform: Drainageways

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Concave

Other vegetative classification: Wetlands (W1)

Hydric soil rating: Yes

La—Lappans loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y005

Elevation: 330 to 760 feet

Mean annual precipitation: 39 to 40 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 155 to 177 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Lappans and similar soils: 82 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lappans

Setting

Landform: Terraces, flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Calcareous loamy marl

Typical profile

Ap - 0 to 7 inches: loam

BA - 7 to 13 inches: sandy loam

A - 13 to 20 inches: sandy loam

Bk - 20 to 47 inches: loam

Ab - 47 to 54 inches: clay loam

Bkb1 - 54 to 71 inches: loam

Akb - 71 to 78 inches: clay loam

B'kb2 - 78 to 85 inches: loam

Ck - 85 to 115 inches: loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Custom Soil Resource Report

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)

Depth to water table: About 44 to 72 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum content: 99 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very high (about 19.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 1

Hydrologic Soil Group: A

Ecological site: F147XY012PA - Calcareous Loamy Bottomland

Hydric soil rating: No

Minor Components

Fairplay

Percent of map unit: 5 percent

Landform: Terraces, flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Mn—Massanetta loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y004

Elevation: 340 to 2,580 feet

Mean annual precipitation: 39 to 40 inches

Mean annual air temperature: 50 to 54 degrees F

Frost-free period: 155 to 177 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Massanetta and similar soils: 75 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Massanetta

Setting

Landform: Terraces, flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear

Parent material: Calcareous loamy marl

Typical profile

Ap1 - 0 to 4 inches: loam

Ap2 - 4 to 6 inches: silt loam

Bk1 - 6 to 14 inches: silt loam

Bk2 - 14 to 22 inches: silt loam

Bk3 - 22 to 33 inches: silt loam

Bk4 - 33 to 46 inches: silt loam

C - 46 to 70 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)

Depth to water table: About 21 to 44 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum content: 99 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Very high (about 16.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B

Ecological site: F147XY012PA - Calcareous Loamy Bottomland

Hydric soil rating: No

Minor Components

Fairplay

Percent of map unit: 5 percent

Landform: Terraces, flood plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

OaB—Oaklet silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1vdp7

Elevation: 90 to 180 feet

Mean annual precipitation: 33 to 45 inches

Mean annual air temperature: 51 to 56 degrees F

Custom Soil Resource Report

Frost-free period: 141 to 168 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Oaklet, silt loam, and similar soils: 70 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silt Loam

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam

H2 - 8 to 31 inches: clay

H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

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: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F147XY003PA - Mixed Limestone Upland

Other vegetative classification: Fertile Loams (FL2)

Hydric soil rating: No

OaC—Oaklet silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1vdp8

Elevation: 90 to 180 feet

Mean annual precipitation: 33 to 45 inches

Mean annual air temperature: 51 to 56 degrees F

Frost-free period: 141 to 168 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Oaklet, silt loam, and similar soils: 70 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silt Loam

Setting

Landform: Hillslopes

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam

H2 - 8 to 31 inches: clay

H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

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: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: F147XY003PA - Mixed Limestone Upland

Other vegetative classification: Fertile Loams (FL2)

Hydric soil rating: No

OeB—Oaklet silt loam, 3 to 8 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 1vdnh

Elevation: 90 to 180 feet

Mean annual precipitation: 33 to 45 inches

Mean annual air temperature: 51 to 56 degrees F

Frost-free period: 141 to 168 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Oaklet, silt loam, and similar soils: 65 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silt Loam

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam

H2 - 8 to 31 inches: clay

H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

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: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C

Ecological site: F147XY003PA - Mixed Limestone Upland

Other vegetative classification: Fertile Loams (FL2)

Hydric soil rating: No

OeC—Oaklet silt loam, 8 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 1vdk

Elevation: 90 to 180 feet

Mean annual precipitation: 33 to 45 inches

Mean annual air temperature: 51 to 56 degrees F

Frost-free period: 141 to 168 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Oaklet, silt loam, and similar soils: 65 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silt Loam

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 31 inches: clay
H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F147XY003PA - Mixed Limestone Upland
Other vegetative classification: Fertile Loams (FL2)
Hydric soil rating: No

OkC—Oaklet silty clay loam, 8 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 1vdnj
Elevation: 90 to 180 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 51 to 56 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Oaklet, silty clay loam, and similar soils: 65 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silty Clay Loam

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silty clay loam
H2 - 8 to 31 inches: clay
H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F147XY003PA - Mixed Limestone Upland
Other vegetative classification: Fertile Loams (FL2)
Hydric soil rating: No

OrB—Oaklet-Rock outcrop complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1vdp9
Elevation: 90 to 180 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 51 to 56 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Not prime farmland

Map Unit Composition

Oaklet, silt loam, and similar soils: 60 percent
Rock outcrop: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silt Loam

Setting

Landform: Hillslopes

Landform position (two-dimensional): Backslope, summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam

H2 - 8 to 31 inches: clay

H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

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: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C

Ecological site: F147XY003PA - Mixed Limestone Upland

Other vegetative classification: Very Rocky, Limy Soils (RL2)

Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)

OrC—Oaklet-Rock outcrop complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1vdpb

Custom Soil Resource Report

Elevation: 90 to 180 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 51 to 56 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Not prime farmland

Map Unit Composition

Oaklet, silt loam, and similar soils: 55 percent
Rock outcrop: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oaklet, Silt Loam

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 31 inches: clay
H3 - 31 to 74 inches: clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F147XY003PA - Mixed Limestone Upland
Other vegetative classification: Very Rocky, Limy Soils (RL2)
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)

W—Water

Map Unit Setting

National map unit symbol: 1v386
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 51 to 56 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WbD—Weikert-Berks channery silt loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2v4w1
Elevation: 340 to 4,040 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 47 to 56 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Weikert and similar soils: 50 percent
Berks and similar soils: 40 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weikert

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Gray and brown acid residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: channery silt loam
B_w - 4 to 10 inches: very channery silt loam
C - 10 to 16 inches: extremely channery silt loam
R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Shale Hills (SH2)
Hydric soil rating: No

Description of Berks

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: channery silt loam
Bw1 - 7 to 14 inches: very channery silt loam
Bw2 - 14 to 21 inches: extremely channery silt loam
C - 21 to 36 inches: extremely channery silt loam
R - 36 to 46 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Dry Uplands (DU2)
Hydric soil rating: No

Minor Components

Fluvaquents

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Other vegetative classification: Wetlands (W2)
Hydric soil rating: Yes

WrB—Wharton-Clearbrook channery silt loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1vdlq
Elevation: 130 to 190 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 51 to 56 degrees F
Frost-free period: 141 to 168 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Wharton, channery silt loam, and similar soils: 50 percent
Clearbrook, channery silt loam, and similar soils: 40 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wharton, Channery Silt Loam

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluvium
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loamy residuum weathered from shale and siltstone

Typical profile

H1 - 0 to 9 inches: channery silt loam
H2 - 9 to 52 inches: channery silty clay loam

Custom Soil Resource Report

H3 - 52 to 62 inches: extremely parachannery silty clay loam

Cr - 62 to 72 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 51 to 72 inches to paralithic bedrock

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.60 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C

Ecological site: F147XY002PA - Mixed Sedimentary Upland

Other vegetative classification: Acid Loams (AL2)

Hydric soil rating: No

Description of Clearbrook, Channery Silt Loam

Setting

Landform: Hills

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Gravelly residuum weathered from shale and siltstone

Typical profile

H1 - 0 to 9 inches: channery silt loam

H2 - 9 to 11 inches: very channery silty clay loam

H3 - 11 to 22 inches: extremely channery silty clay loam

Cr - 22 to 26 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Drainage class: Somewhat poorly 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 6 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Ecological site: F147XY002PA - Mixed Sedimentary Upland

Other vegetative classification: Acid Loams (AL2)

Custom Soil Resource Report

Hydric soil rating: No

Minor Components

Typic endoaqualfs

Percent of map unit: 2 percent

Landform: Depressions

Landform position (three-dimensional): Head slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

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Custom Soil Resource Report

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APPENDIX C
EROSION AND SEDIMENT CONTROL

UTILITY PLAN FOR: SIDEWINDER RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA



INTEGRITY

FEDERAL SERVICES

CIVIL ENGINEERING • LANDSCAPE ARCHITECTURE • PLANNING

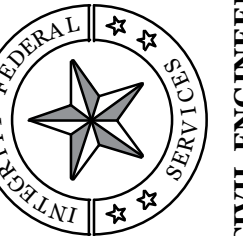
148 S. Queen Street, Suite 201 • Phone: 304-725-8456
Martinsburg, WV 25401 • www.ifs-ae.com

SYSTEM OWNER/OPERATOR
CHARLES TOWN UTILITY BOARD
661 S. GEORGE ST.
CHARLES TOWN, WV 25414
(304)724-3281



Know what's **below**.
Call before you dig

Sheet List Table	
Sheet Number	Sheet Title
01	COVER SHEET
02	GENERAL NOTES
03	WATER DETAILS
04	WVDOH NOTES AND DETAILS
05	PAVING DETAILS
06	OVERALL PLAN VIEW
07	WATER LINE PLAN AND PROFILE
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REAL:

[illegible]

COVER SHEET

SIDEWINDER RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

LIST OF APPROVALS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS:
PERMIT # _____
DATED: _____

WEST VIRGINIA DEPARTMENT OF HEALTH AND HUMAN RESOURCES
STATE HEALTH PERMITS BUREAU FOR PUBLIC HEALTH:
PERMIT # : 21,281
DATE: 04-25-2024

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
WV/NPDES PERMIT #: _____

REVISIONS

NO.	SHEET NUMBER AND REVISION DESCRIPTION	DATE
1.	ALL SHEETS-REVISIONS PER WVDOT COMMENTS	05/16/2023
2.	SHEETS 2, 6-12 - REVISIONS PER WVDOT COMMENTS	06/05/2023
3.	SHEETS 3, 7 - REVISIONS PER WVDOT COMMENTS	06/15/2023
4.	SHEETS 5, 6, 7 - REVISIONS PER WVDOT COMMENTS	08/29/2023
5.	SHEETS 1, 12-15 - REVISIONS FOR WVDOT RE-APPLICATION	11/13/2025

SCALE:	HORIZ.: N/A VERT.:
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DATE: AUGUST 2023

JOB: 3138-0102

DRAWN: RJP | CHECK: JPG

CADD: C-GI-001.DWG

NCS:

SHEET

01 OF 15

GENERAL NOTES:

1. THE PROPOSED SITE IMPROVEMENTS FOR 'SIDEWINDER RAW WATERLINE' INCLUDE, BUT ARE NOT LIMITED TO, THE CONSTRUCTION OF APPROXIMATELY 8,800' OF WATERLINE.
2. THE TOPOGRAPHIC CONTOUR INTERVAL IS TWO (2) FEET. TOPOGRAPHIC INFORMATION WAS COMPILED FROM A FIELD TOPOGRAPHIC SURVEY PERFORMED BY FOX AND ASSOCIATES IN MAY OF 2022.
3. CHANGES OR REVISIONS IN CONSTRUCTION PLANS AND SPECIFICATIONS SHALL NOT BE MADE UNLESS FIRST APPROVED BY CHARLES TOWN UTILITY BOARD AND/OR OTHER APPROPRIATE AGENCIES.
4. APPROPRIATE EASEMENTS SHALL BE GIVEN TO CHARLES TOWN UTILITY BOARD FOR THE PURPOSE OF MAINTAINING WATERLINES AND FACILITIES.
5. INSTALLATION AND MAINTENANCE OF WATERLINES SHALL BE IN ACCORDANCE WITH THE WEST VIRGINIA DEPARTMENT OF HEALTH AND CHARLES TOWN UTILITY BOARD REGULATIONS.
6. WATER LINES SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND UTILITY CONNECTION LOCATIONS.
7. ALL WATER LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4.0'.
8. SEE SHEET 01 FOR LEGEND OF SYMBOLS USED HERIN.

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 OR 1-800-245-4848 A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR OTHER EARTH DISTURBING ACTIVITIES WITHIN PUBLIC RIGHT-OF-WAYS OR WITHIN AREAS SERVED BY UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE PRESENCE OF ANY UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
2. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE IS NO EVIDENCE OF ANY GRAVE, OBJECT OR STRUCTURE MARKING A PLACE OF BURIAL ON THIS PROPERTY. THERE ARE NO KNOWN CEMETERIES, ARCHEOLOGICAL SITES, NATURAL FEATURES, NOR HISTORIC SITES LISTED, OR DETERMINED TO BE ELIGIBLE, OR WHICH THE OWNER HAS REASON TO BELIEVE MAY BE ELIGIBLE FOR LISTING ON THE NATIONAL REGISTER OF HISTORIC PLACES WITHIN THE CONSTRUCTION LIMITS.
3. INTEGRITY FEDERAL SERVICES DOES NOT CERTIFY TO THE LOCATION OF OR THE EXISTENCE OF ANY EXISTING UNDERGROUND UTILITIES. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THIS DOES NOT CONSTITUTE A GUARANTEE OF THEIR ACTUAL LOCATIONS OR THAT THEY HAVE ALL BEEN SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY THEIR FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLAN, THEY SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND INSURE THE CONTINUANCE OF SERVICE. IF NECESSARY, THE SITE PLAN WILL BE MODIFIED TO ELIMINATE THE CONFLICT AT THE DEVELOPER'S EXPENSE.
4. INTEGRITY FEDERAL SERVICES DOES NOT CERTIFY TO THE SUB-SURFACE CONDITIONS OF THE SITE, THE LOCATION OF UNDERLYING ROCK, OR THE LOCATION OF POTENTIAL SINKHOLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIGGING OF TEST HOLES TO VERIFY SUB-SURFACE CONDITIONS PRIOR TO BEGINNING ANY CONSTRUCTION. IF SINKHOLES ARE FOUND IN THE FIELD, REMEDIATION WILL BE REQUIRED AS SPECIFIED BY THE WVDEP AND/OR A QUALIFIED GEOTECHNICAL ENGINEERING FIRM.
5. EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE IN PLACE PRIOR TO ANY CONSTRUCTION. REFER TO EROSION AND SEDIMENT CONTROL PLAN FOR PHASING AND DETAILS.
6. ALL LAND, ON OR OFF SITE, WHICH IS DISTURBED BY THIS DEVELOPMENT, AND WHICH IS NOT BUILT UPON OR SURFACED, SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION.
7. DEVELOPMENT OF THE SITE INCLUDING CONSTRUCTION AND MATERIALS SHALL BE IN CONFORMANCE TO CURRENT CHARLES TOWN UTILITY BOARD, AND THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STANDARDS AND SPECIFICATIONS.
8. ALL TESTS, STUDIES, ETC., REQUIRED DURING CONSTRUCTION WILL BE CARRIED OUT BY A THIRD PARTY ENGINEERING FIRM AND PAID FOR BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS REQUIRED FOR CONSTRUCTION.
10. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING THE RIGHT-OF-WAY, AND IT IS THE CONTRACTORS RESPONSIBILITY TO CLEAN STREETS OF MUD AND/OR ALLAY DUST AND TO TAKE WHATEVER MEASURES NECESSARY TO ENSURE THAT THE STREETS ARE KEPT IN A CLEAN AND DUST FREE CONDITION AT ALL TIMES.
11. THE CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN EXISTING UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.
12. THE CLIENT, CONTRACTOR, AND/OR SURVEYOR SHALL BE RESPONSIBLE FOR NOTIFYING INTEGRITY FEDERAL SERVICES OF ANY CONDITIONS FOUND IN THE FIELD THAT VARY FROM WHAT IS SHOWN ON THE APPROVED PLANS. OBSERVATIONS REGARDING APPARENT INCONSISTENCIES IN THE PLANS SHALL BE BROUGHT TO INTEGRITY FEDERAL SERVICES'S ATTENTION FOR VERIFICATION PRIOR TO TAKEOUT.
13. THE CLIENT AND CONTRACTOR ARE RESPONSIBLE FOR REVIEWING THE PLANS PRIOR TO CONSTRUCTION AND NOTIFYING INTEGRITY FEDERAL SERVICES OF ANY CIRCUMSTANCES FOUND WITHIN THESE PLANS IN NEED OF VERIFICATION SO THAT APPROPRIATE REVISIONS CAN BE MADE, IF WARRANTED.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH PERFORMANCE OF ITS WORK AND THE WORK OF ITS SUBCONTRACTORS. INTEGRITY FEDERAL SERVICES SHALL NOT HAVE CONTROL OVER, CHARGE OF, OR RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
15. THE CONTRACTOR SHALL VISIT THE SITE AND FIELD VERIFY EXISTING CONDITIONS AND GRADES PRIOR TO STARTING CONSTRUCTION.
16. THE CONTRACTOR SHALL CLEAR THE SITE OF ALL APPLICABLE VEGETATION, BUILDINGS, FOUNDATIONS, ETC. WITHIN THE LIMITS OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR COORDINATING ANY DISCONNECTION AND/OR ABANDONMENT OF EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND ABANDONING ALL EXISTING WELLS AND/OR SEPTIC DRAIN FIELDS AND COORDINATING THEIR ABANDONMENT WITH THE HEALTH DEPARTMENT
17. ALL PROPOSED GRADES AS SHOWN HEREIN ARE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE PLAN.
18. MAINTAIN A MINIMUM VERTICAL CLEARANCE OF ONE (1) FOOT SIX (6) INCHES BETWEEN CROSSINGS OF ALL UTILITY LINES UNLESS OTHERWISE NOTED.
19. THE APPROVAL OF THESE PLANS SHALL IN NO WAY GRANT PERMISSION BY THE APPROVING JURISDICTION FOR THE CONTRACTOR TO TRESPASS ON OFF-SITE PROPERTIES. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE OWNER OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
20. WHERE THE ORDINANCES DIFFER BETWEEN LOCAL, STATE, AND FEDERAL REQUIREMENTS, THE MOST RESTRICTIVE SHALL APPLY.
21. CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT OR A PROFESSIONAL ENGINEER OR CERTIFIED TECHNICIAN FOR SUITABLE BACKFILL MATERIAL REQUIREMENTS AND COMPACTION REQUIREMENTS. CBR TESTS SHALL BE PERFORMED PRIOR TO DETERMINATION OF FINAL SUBGRADE ELEVATION FOR PAVEMENT AREAS. SOILS TESTS OF SUBGRADE MUST BE SUBMITTED FOR ACTUAL DETERMINATION OF REQUIRED PAVEMENT SECTION THICKNESS PRIOR TO CONSTRUCTION. ALL SUBGRADE SHALL BE COMPACTED TO THE PERCENTAGES OF MAXIMUM DRY DENSITY (AASHTO T99C) UNLESS OTHERWISE DIRECTED BY AN APPROVED GEOTECHNICAL REPORT.

STANDARD W.V.D.O.H. NOTES:

1. ALL UTILITIES, INCLUDING ALL POLES, ARE TO BE RELOCATED AS NECESSARY AT EITHER THE DEVELOPER OR UTILITY OWNER'S EXPENSE PRIOR TO CONSTRUCTION.
2. THE DEVELOPER IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS AND UTILITIES WHICH OCCUR AS A RESULT OF PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO EXISTING RIGHT-OF-WAY.
3. OPEN CUTTING OF PAVED OR SURFACE TREATED STATE ROADS IS NOT PERMITTED UNLESS APPROVED BY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION.
4. THE DEVELOPER IS RESPONSIBLE FOR ALL TRAFFIC CONTROL.
5. IF APPLICABLE, A SMOOTH GRADE SHALL BE MAINTAINED FROM THE CENTERLINE OF THE EXISTING ROAD TO THE PROPOSED EDGE OF PAVEMENT TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR THE FONDING OF ANY WATER IN THE ROADWAY.
6. OVERLAY OF EXISTING PAVEMENT SHALL BE A MINIMUM OF 1.5". ANY COSTS ASSOCIATED WITH PAVEMENT OVERLAY, OR THE MILLING OF EXISTING PAVEMENT TO OBTAIN REQUIRED DEPTH, SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
7. STORMWATER DITCHES SHALL BE SEEDED AND MULCHED TO ACHIEVE STABILIZATION. ADDITIONAL DITCH LININGS SHALL BE PROVIDED IF WARRANTED TO ACHIEVE STABILIZATION.
8. ALL TRAFFIC CONTROL SIGNS AND THE MAINTENANCE OF TRAFFIC SHALL COMPLY WITH THE STANDARDS OF THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION.
9. IF APPLICABLE, ALL GUARDRAILS SHALL BE IN ACCORDANCE WITH WVDOH STANDARD DETAILS BOOK VOLUME 1. THE GUARDRAIL POST SHALL BE PRESSURE-TREATED.
10. CONTRACTOR SHALL CONTACT WVDOH AT LEAST 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN WVDOH RIGHT-OF-WAY.

GENERAL C.T.U.B. UTILITY NOTES:

1. REFER TO THE CHARLES TOWN UTILITY BOARD (CTUB) WATER SYSTEM SPECIFICATIONS DATED APRIL 2015, SANITARY SEWER SYSTEM SPECIFICATIONS DATED MAY 2016, AND THE LATEST MODIFICATIONS OR REVISIONS THERETO, FOR WATER MAIN AND SANITARY SEWER CONSTRUCTION METHODS, MATERIALS, FIELD QUALITY CONTROL, AND FOR ALL DETAILS AND SPECIFICATIONS FOR ALL WATER LINES AND SANITARY SEWER LINES TO BE SERVED BY THE CHARLES TOWN UTILITY BOARD.
2. SEPARATION OF WATER MAINS / SANITARY SEWERS: ALL NEW WATER MAINS SHALL CONFORM TO THE WEST VIRGINIA BUREAU FOR PUBLIC HEALTH, OFFICE OF ENVIRONMENTAL HEALTH SERVICES, ENVIRONMENTAL ENGINEERING DIVISION, PUBLIC WATER SYSTEM DESIGN STANDARDS 64CSR77 10.7 SEPARATION OF WATER MAINS, SANITARY SEWERS AND STORM SEWERS INCLUDING:
 - A. PARALLEL INSTALLATION - WATER MAINS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWER. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
 - B. CROSSINGS - WATER MAINS SHALL CROSS ABOVE SEWERS AND SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER MAIN AND TOP OF THE SEWER. AT CROSSINGS, ONE FULL LENGTH (20 FEET) OF WATER PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. SPECIAL STRUCTURAL SUPPORT FOR THE WATER AND SEWER PIPES MAY BE REQUIRED.
 - C. HORIZONTAL SEPARATION - A MINIMUM OF 10 FEET SEPARATION BETWEEN SEWER LINES AND WATER LINES MUST BE MAINTAINED. IN CASES WHERE THE 10 FEET MINIMUM CANNOT BE MAINTAINED, THE SEWER PIPE SHALL BE 18" LOWER THAN THE WATER LINE AND CONSTRUCTED OF A PRESSURE TYPE PIPE. WHEN LINES ARE PLACED WITHIN 5 FEET OF EACH OTHER, PERMANENT IDENTIFICATION TAPE MUST BE BURIED DIRECTLY ABOVE THE LINES DENOTING "SEWER LINE" OR POTABLE WATER LINE.
 - D. VERTICAL SEPARATION - A MINIMUM OF 18" OF SEPARATION BETWEEN THE TOP OF THE SEWER LINES AND THE BOTTOM OF WATER LINES MUST BE MAINTAINED. IN CASES WHERE THE 18" CANNOT BE MAINTAINED, THE SEWER LINE SHALL CROSS AT MIDPOINT OF A 20' LONG JOINT OF THE WATER LINE AND BE CONSTRUCTED OF PRESSURE TYPE PIPE. A SEWER LINE SHALL NOT BE CONSTRUCTED OVER TOP OF A WATER LINE. IF THE STANDARD VERTICAL INSTALLATION REQUIREMENTS CANNOT BE MAINTAINED, THE SEWER LINE SHALL BE ENCASED SO THAT THE CASING EXTENDS AT LEAST 15 FEET EACH SIDE OF THE CROSSING WITH A MINIMUM OF 18" VERTICAL SEPARATION.
3. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN THE WATER DISTRIBUTION SYSTEM AND A SANITARY SEWER SYSTEM; ANY PIPES, PUMPS, HYDRANTS OR TANKS WHEREBY UNSAFE WATER OR OTHER CONTAMINATING MATERIALS MAY BE DISCHARGED OR DRAWN INTO THE SYSTEM.
4. PIPE BEDDING - NO. 8 OR NO. 10 LIMESTONE SHALL BE USED FOR ALL PIPE BEDDING UNLESS OTHERWISE APPROVED BY CTUB. ALL WATER MAIN, SANITARY SEWER MAIN AND SANITARY LATERALS SHALL BE INSTALLED WITH MINIMUM 6" BEDDING BELOW PIPE AND 12" OVER PIPE.
5. REFER TO THE CTUB WATER SYSTEM & SEWER SYSTEM SPECIFICATIONS, AND THE LATEST MODIFICATIONS OR REVISIONS THERETO, FOR:
 - A LIST OF MATERIALS REPRESENTING THE MINIMUM REQUIREMENTS ACCEPTABLE FOR USE BY CTUB.
 - ALL PIPE, FITTINGS, AND OTHER RELATED MATERIALS USED IN THE CONSTRUCTION OF LINES
 - FIRE HYDRANT STANDARDS AND SPECIFICATIONS
 - DISINFECTING NEW AND REPAIRED WATER MAINS. (ALL NEW WATER MAINS SHALL BE DISINFECTED BEFORE THEY ARE PLACED IN SERVICE. ALL WATER MAINS TAKEN OUT OF SERVICE FOR INSPECTING, REPAIRING, OR OTHER ACTIVITY THAT MIGHT LEAD TO CONTAMINATION OF WATER SHALL BE DISINFECTED BEFORE THEY ARE RETURNED TO SERVICE)
 - GRAVITY SEWER CONSTRUCTION METHODS & PIPELINE TESTING.
 - MANHOLES SUBMITTALS, DELIVERY, STORAGE & HANDLING, INSPECTION, PREPARATION, CONSTRUCTION METHODS, AND VACUUM TESTING.
 - CAST IN-PLACE CONCRETE SPECIFICATIONS AND REQUIREMENTS.

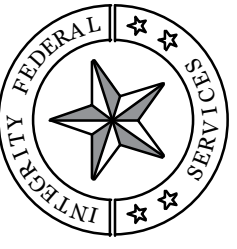
WATER:

1. INSTALLATION OF MAINS:
 - A. BEFORE ANY PIPE IS INSTALLED IN TRENCHES, IT SHALL BE INSPECTED FOR DAMAGE AND THE INSIDE OF THE PIPE SHALL BE SWABBED TO REMOVE LOOSE DIRT AND FOREIGN OBJECTS. NO DAMAGED PIPE WILL BE PERMITTED TO BE INSTALLED.
 - B. BEDDING: CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED IN THE TRENCH FOR ALL BURIED PIPE. BACKFILL MATERIAL SHALL BE TAMPED IN LAYERS AROUND THE PIPE AND TO A SUFFICIENT HEIGHT ABOVE THE PIPE TO ADEQUATELY SUPPORT AND PROTECT THE PIPE. STONES FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST 6" BELOW THE BOTTOM OF THE PIPE. SEE TYPICAL WATER LINE TRENCH DETAIL.
 - C. COVER: ALL WATER MAINS SHALL BE COVERED WITH A MINIMUM OF 48" OF EARTH COVERING TO PREVENT FREEZING. ALL MAINS LESS THAN 8" IN DIAMETER AND WITHIN 5 FEET OF A HEAVILY TRAVELED HIGHWAY SHALL HAVE A MINIMUM OF 42" OF COVERING.
 - D. BLOCK: ALL TEES, BENDS, PLUGS AND HYDRANTS SHALL BE PROVIDED WITH TIE RODS OR JOINTS DESIGNED TO PREVENT MOVEMENT.
 - E. PRESSURE AND LEAKAGE TESTING: ALL TYPES OF INSTALLED PIPE SHALL BE PRESSURE TESTED AND LEAK TESTED IN ACCORDANCE WITH AWWA STANDARD C600. DEVELOPER SHALL SUBMIT PLAN OF PROPOSED TESTING.
 - F. DISINFECTION: ALL NEW, CLEANED OR REPAIRED WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651. THE SPECIFICATIONS SHALL INCLUDE MICROBIOLOGICAL TESTING OF ALL WATER MAINS.
 - G. ALL NON-METALIC MAINS SHALL BE PROVIDED WITH TRACER WIRE OR METALLIC TAPE; AS DIRECTED BY CTUB.
2. WATER SERVICE LINES SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON BUILDING ARCHITECTURAL DRAWINGS AND UTILITY CONNECTION LOCATIONS.

GOV'T. AGENCIES/UTILITIES:

- WATER & SEWER
CHARLES TOWN UTILITY BOARD
661 S. GEORGE STREET, SUITE 101
CHARLES TOWN, WV 25414
(304) 725-2316
- ELECTRIC
THE POTOMAC EDISON COMPANY
18444 NORTHWESTERN TURNPIKE
AUGUSTA, WV 26704
(800) 686-0011
- TELECOMMUNICATIONS
FRONTIER COMMUNICATIONS
1108 N. MILDRED STREET
RANSON, WV 25438
(304) 728-8500
- GAS
MOUNTAINEER GAS
67 AERO STREET
MARTINSBURG, WV 25401
(800) 834-2070
- TRANSPORTATION
WEST VIRGINIA DIVISION OF HIGHWAYS,
DISTRICT FIVE
2120 NORTHWESTERN TURNPIKE
BURLINGTON, WV 26710
(304) 289-3521
- OTHER
MISS UTILITY
5608 MACCORKLE AVE. SW
SOUTH CHARLESTON, WV 25309
(800) 245-4848 OR 811

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SEAL:

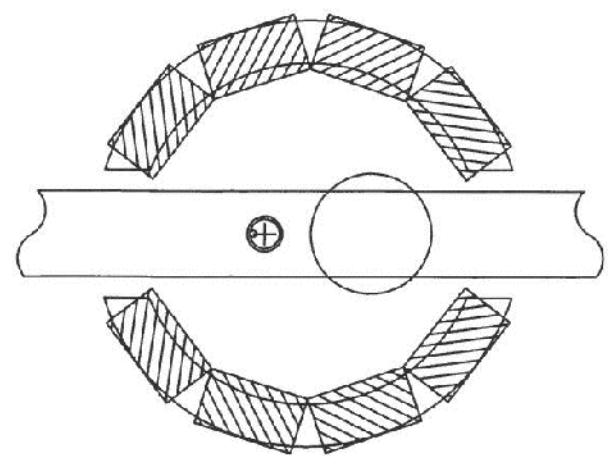
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2.	REVISIONS PER WVDOH COMMENTS					
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5.	REVISIONS FOR WVDOH RE-APPLICATION					

GENERAL NOTES

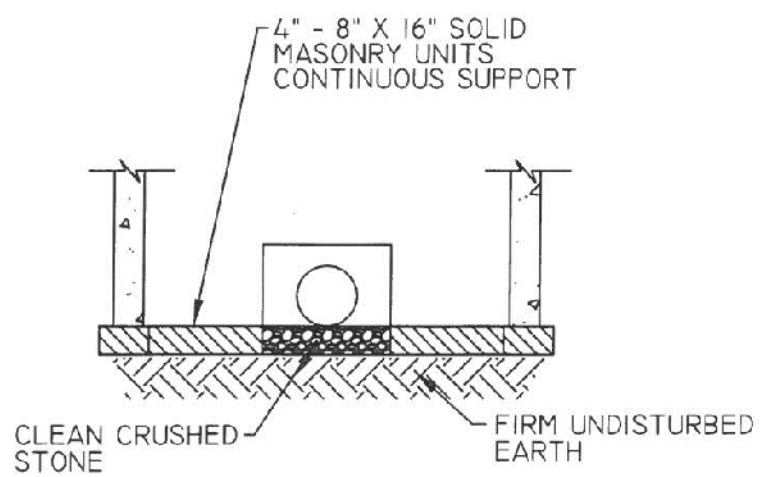
SIDEWINDER
RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

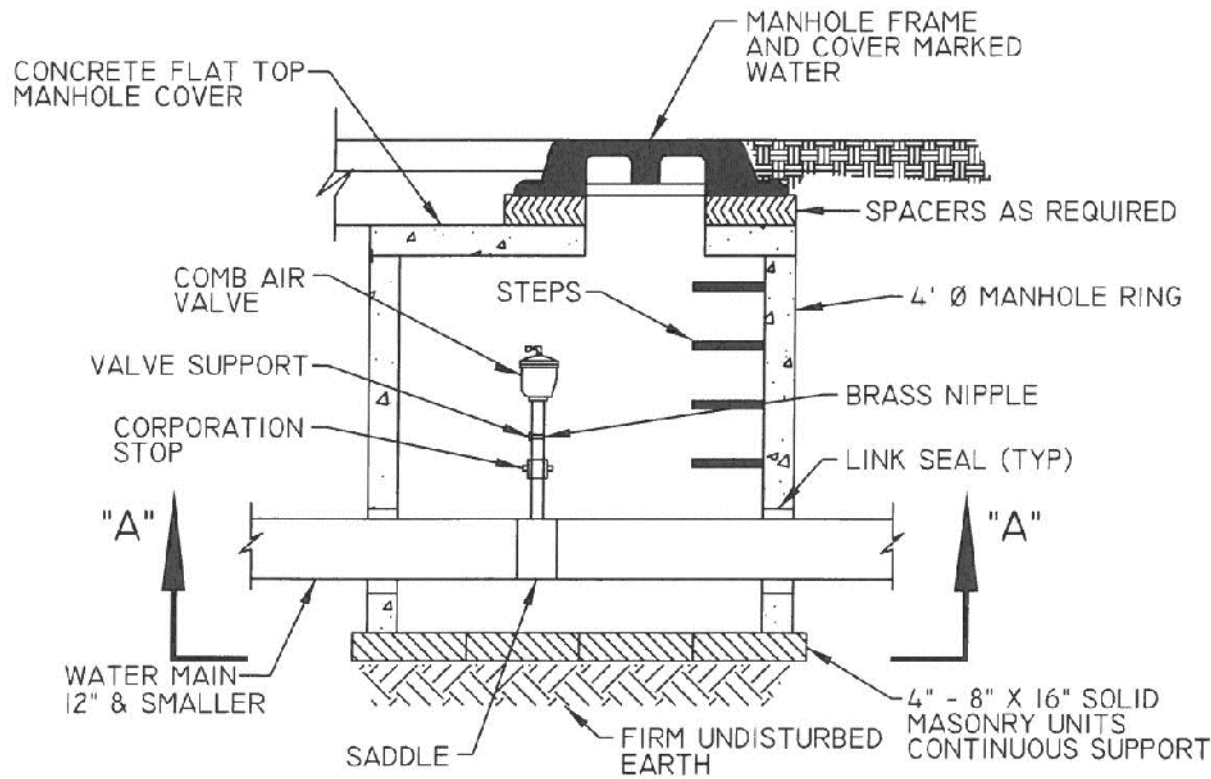
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PLAN



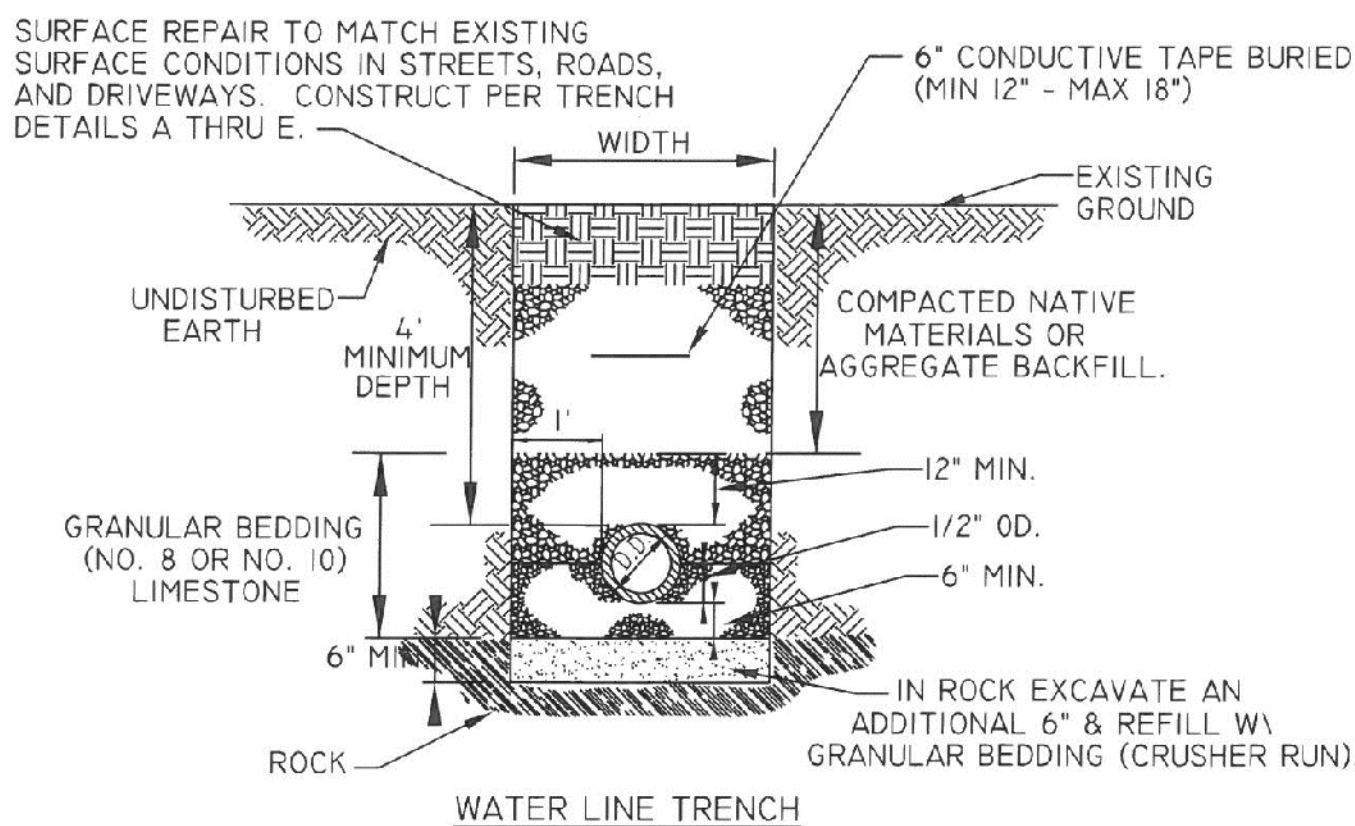
SECTION A - A



AIR RELEASE & VALVE
DETAIL

Charles Town Utility Board
832 S. GEORGE STREET, P.O. BOX 359, CHARLES TOWN, WV 25414
PHONE: (304) 725-2316 • FAX: (304) 725-4313

STANDARD DETAIL NO.
W-2
NOT TO SCALE
APRIL 2015



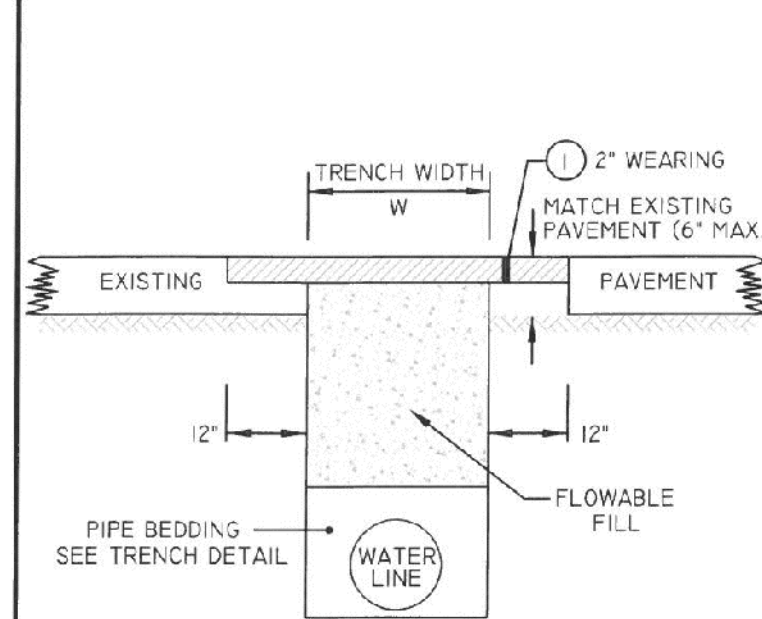
NOTES:

1. W = MAXIMUM PERMISSIBLE TRENCH WIDTH, BASED UPON, W = O.D. + 2L, UNLESS APPROVED BY THE ENGINEER.
2. TRENCHES TO BE SHEETED AND BRACED AS REQUIRED.
3. PROVIDE BEARING FOR FULL LENGTH OF BARREL, DIG HOLES FOR THE BELL.
4. BACKFILL TO BE COMPACTED IN 6" LAYERS TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE (+2%) IN ROADS AND STREETS. COMPACT TO MATCH EXISTING GROUND IN OTHER AREAS.
5. MAINTAIN MINIMUM OF 4' OF COVER TO THE TOP OF PIPE.
6. A CASING PIPE SHALL BE REQUIRED IN ROAD CROSSINGS WHERE SHOWN ON PLANS
7. ALL WATER LINES REQUIRE PERMIT FROM APPLICABLE REGULATORY ENTITIES. PERMIT REQUIREMENTS SUPERCEDE WHAT IS SHOWN ON THIS DETAIL.

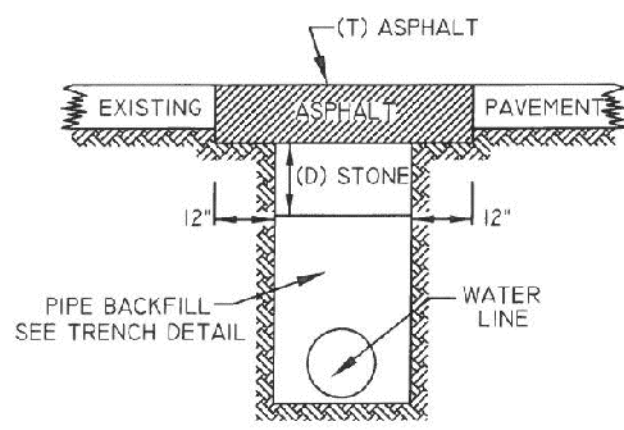
WATER LINE
TRENCH
DETAIL

Charles Town Utility Board
832 S. GEORGE STREET, P.O. BOX 359, CHARLES TOWN, WV 25414
PHONE: (304) 725-2316 • FAX: (304) 725-4313

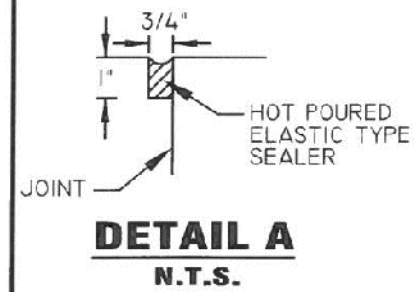
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W-9
NOT TO SCALE
APRIL 2015



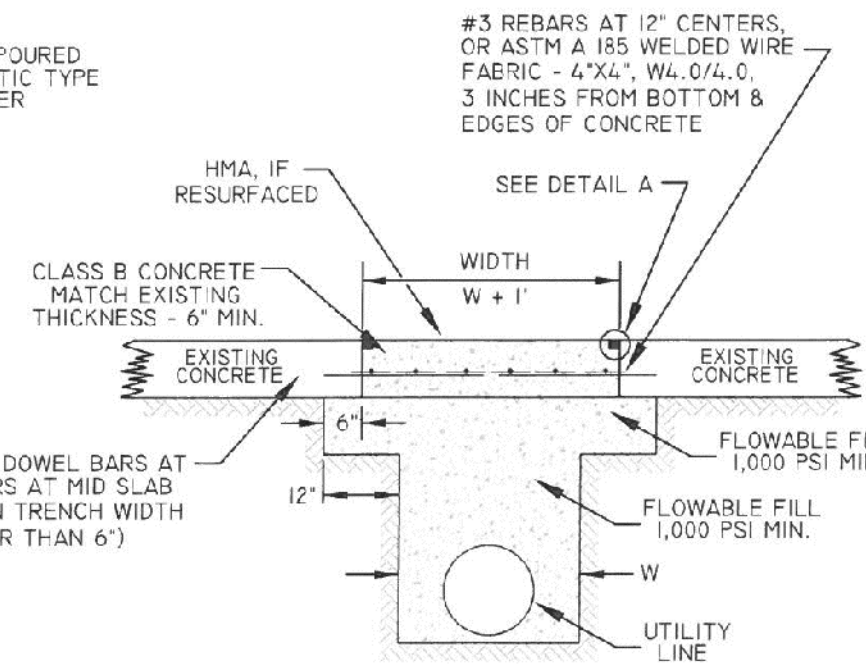
TYPE A TRENCH REPAIR
ASPHALT PAVEMENT
W/ FLOWABLE FILL



TYPE B TRENCH REPAIR
ASPHALT PAVEMENT



DETAIL A
N.T.S.



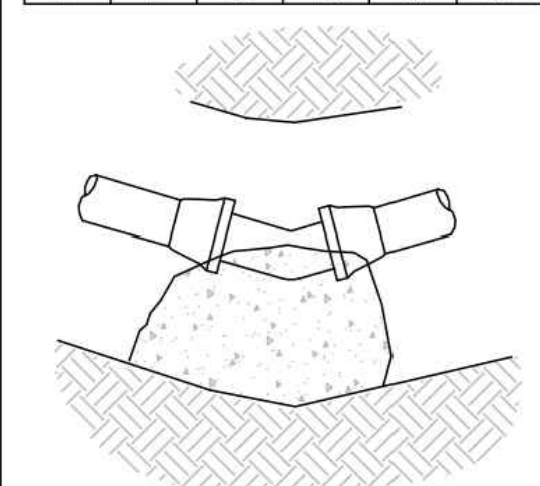
TYPE D TRENCH REPAIR
CONCRETE SIDEWALK OR
DRIVEWAY TRENCH REPAIR

Charles Town Utility Board
832 S. GEORGE STREET, P.O. BOX 359, CHARLES TOWN, WV 25414
PHONE: (304) 725-2316 • FAX: (304) 725-4313

TYPES A, B, & D
TRENCH REPAIR
DETAILS

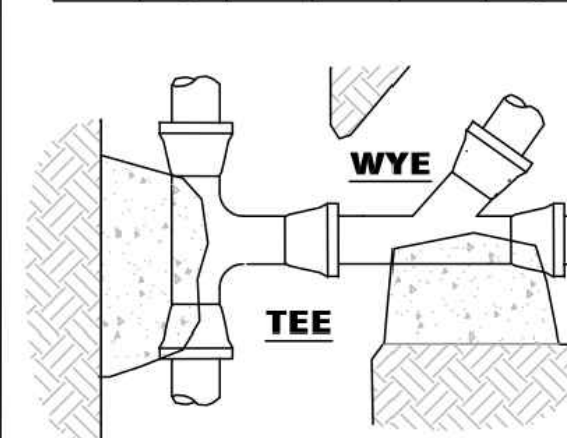
STANDARD DETAIL NO.
W-10
NOT TO SCALE
APRIL 2015

22.5 & 45 DEGREE CONTACT AREA (SF)					
PIPE SIZE	100	150	200	250	300
2	1	1	1	1	1
4	1	1	2	2	2
6	2	2	3	4	5
8	3	4	5	7	8
10	4	6	8	10	12
12	5	9	12	15	18
14	8	12	16	20	24



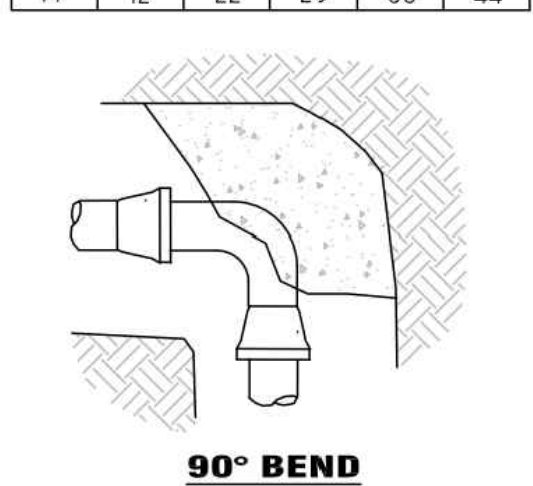
22.5° & 45° BENDS

TEE CONTACT AREA (SF)					
PIPE SIZE	100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31



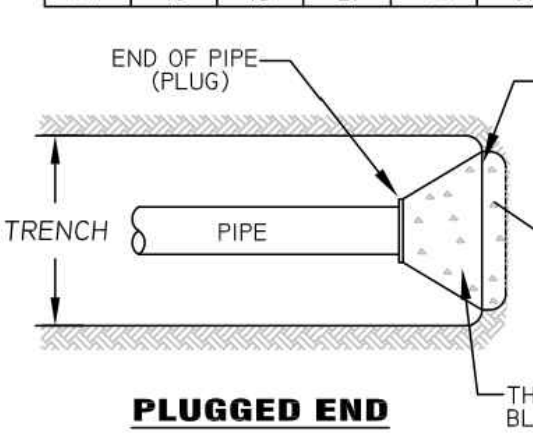
SAME CONTACT AREA AS TEE

90 DEGREE BEND CONTACT AREA (SF)					
PIPE SIZE	100	150	200	250	300
2	1	1	1	1	1
4	2	2	3	3	4
6	3	4	5	7	8
8	5	7	10	12	15
10	7	11	15	19	22
12	9	16	21	27	32
14	12	22	29	36	44



90° BEND

PLUGGED END CONTACT AREA (SF)					
PIPE SIZE	100	150	200	250	300
2	1	1	1	1	1
4	1	2	2	2	3
6	2	3	4	5	6
8	4	5	7	9	10
10	5	8	11	13	16
12	7	12	15	19	23
14	10	16	21	26	31



PLUGGED END

- THRUST BLOCK GENERAL NOTES**
1. ALL CONCRETE SHALL BE 3000 P.S.I. (AE)
 2. THRUST BLOCKS SHALL BE IMBEDDED IN UNDISTURBED SOIL.
 3. SOIL BEARING CAPACITY IS ASSUMED AT 3000 LB. SQ. FT. FOR WEAKER SOILS THRUST BLOCK AREAS SHALL BE INCREASED AS REQUIRED.
 4. WRAP PIPE WITH POLYETHYLENE TO PREVENT CONTACT BETWEEN PIPE AND THE CONCRETE.

PIPE BUTTRESS
DETAILS

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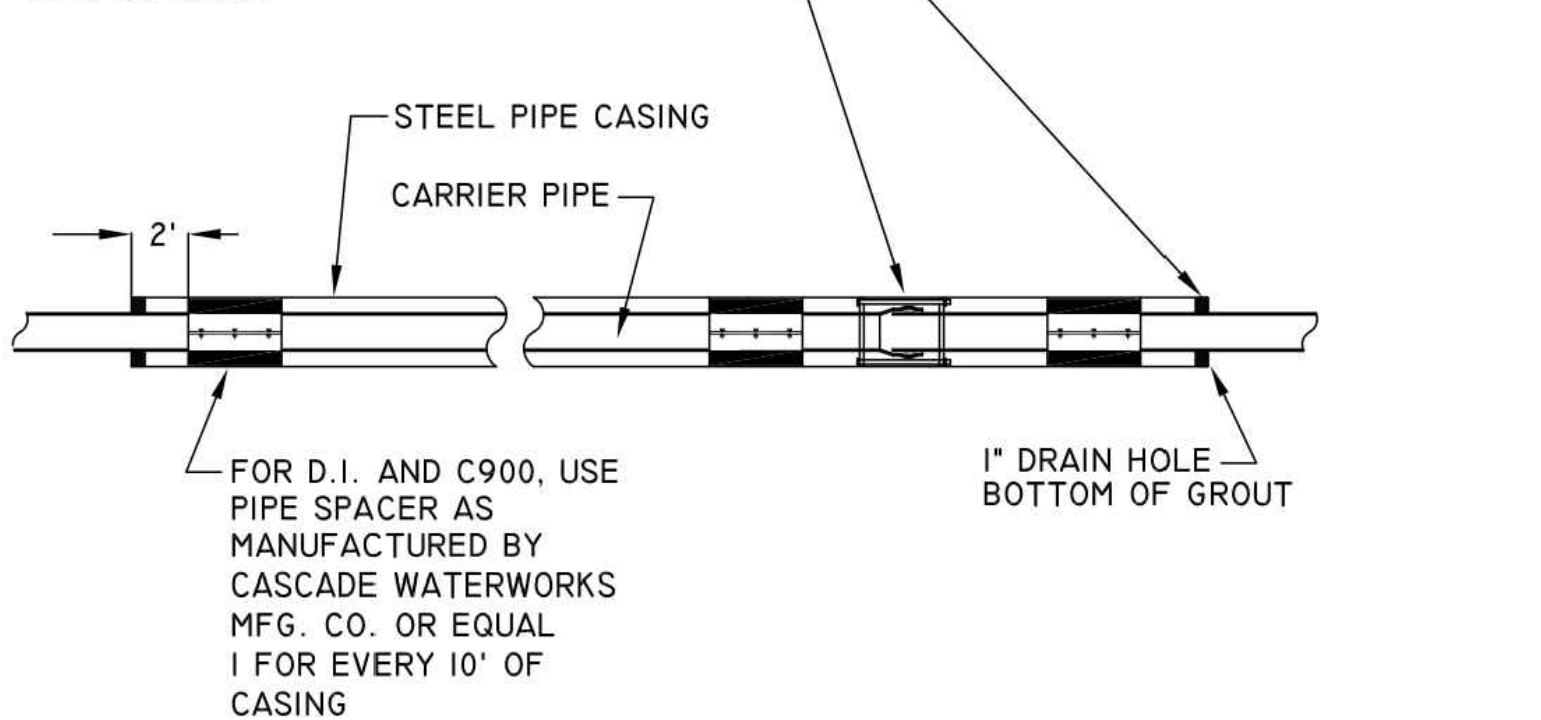
STANDARD DETAIL NO.
W-13
NOT TO SCALE
APRIL 2015

CASING SCHEDULE FOR C900, DI, OR
DI TR FLEX RESTRAINED JT 350 PSI

CARRIER PIPE DIA. (IN.)	MIN. CASING PIPE DIA. (IN.)	NOM. WALL THICKNESS
4	10	0.313
6	12	0.313
8	16	0.313
10	18	0.375
12	20	0.375

NOTE: SDR 35 PVC, CASING FOR 4" CARRIER IS 12" DIA. AND FOR 6" CARRIER IS 16" DIA. OTHER SIZE SDR 35 ARE SAME AS ABOVE. STEEL CASING SHALL BE USED WITH SPECIFIED MINIMUM YIELD STRENGTH OF AT LEAST 35,000 PSI.

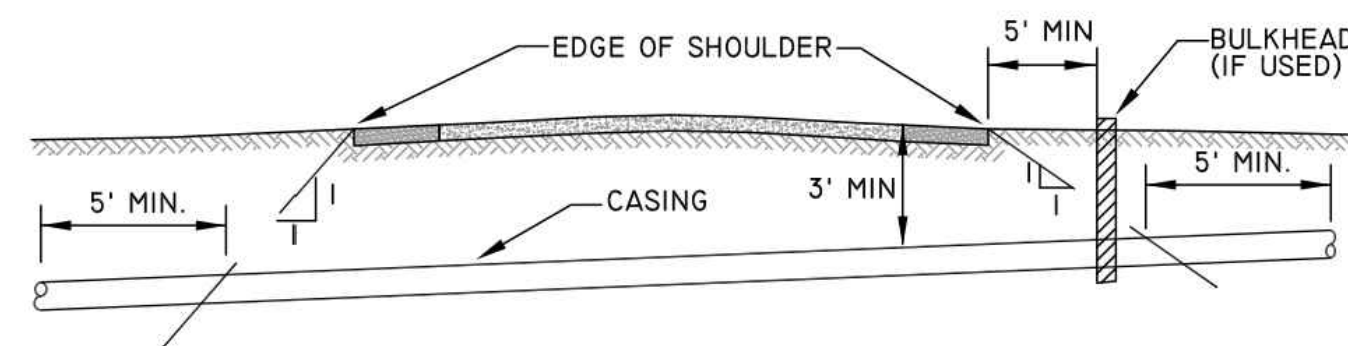
FOR C900 OR D.I. FORCEMAIN, USE EBBA 1500 TD OR UNFLANGE 1390 SERIES TYPICAL AT EACH JOINT. FOR SDR 35 PVC, USE FORD UFRCS 1390 HARNESS RESTRAINT WITH SPACERS.



PIPE CASING
DETAIL

Charles Town Utility Board
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STANDARD DETAIL NO.
W-14
NOT TO SCALE
APRIL 2015



NOTE: PERMIT REQUIRED FROM WV DEPARTMENT OF HIGHWAYS IF CROSSING UNDER STATE ROAD. PERMIT REQUIREMENTS SUPERCEDE WHAT IS SHOWN ON THIS DETAIL.

PIPE CASING
TYP. ROAD
CROSSING SECTION
DETAIL

Charles Town Utility Board
832 S. GEORGE STREET, P.O. BOX 359, CHARLES TOWN, WV 25414
PHONE: (304) 725-2316 • FAX: (304) 725-4313

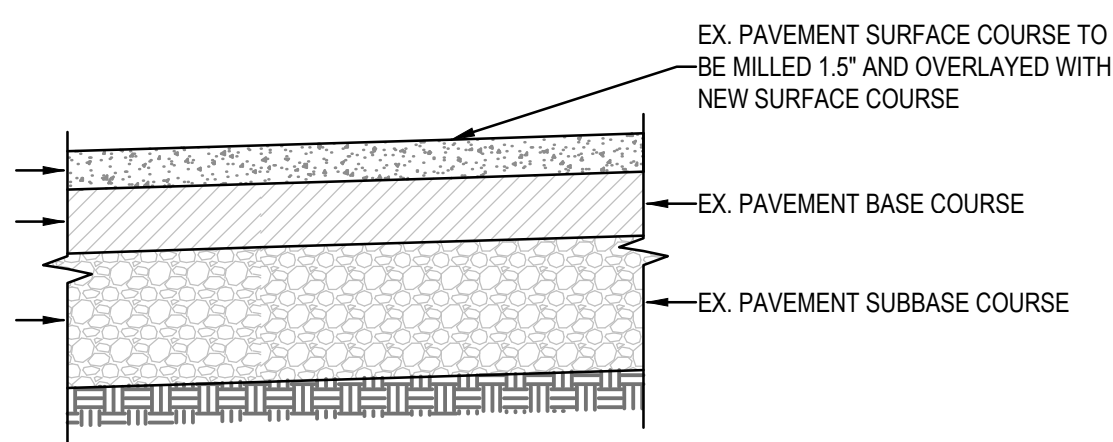
STANDARD DETAIL NO.
W-15
NOT TO SCALE
APRIL 2015

REVISIONS	
1.	REVISIONS PER WIDTH COMMENTS
2.	REVISIONS PER WIDTH COMMENTS
3.	REVISIONS PER WIDTH COMMENTS
4.	REVISIONS PER WIDTH COMMENTS
5.	REVISIONS PER WIDTH RE-APPLICATION

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MILL AND OVERLAY DETAIL:

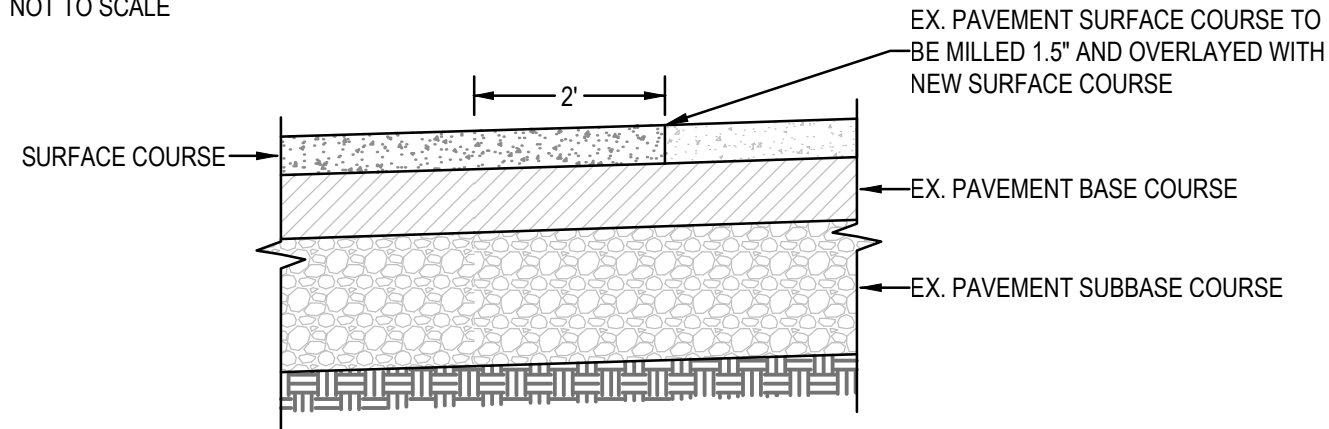
NOT TO SCALE



- NOTES:
1. MILL AND OVERLAY IS TO BE THE ENTIRE WIDTH OF THE ROAD.
 2. NEW PAVEMENT TO MATCH THE EXISTING CROSS SLOPE OF THE ROAD.

PAVEMENT WEDGING DETAIL:

NOT TO SCALE



- NOTES:
1. SAW CUT EX. PAVEMENT. BOTTOM AND ALL SIDES OF SAW CUT TO BE PAINTED WITH BITUMINOUS MATERIAL PRIOR TO PLACING PAVEMENT SURFACE.
 2. CONTRACTOR SHALL ENSURE THAT NO WATER IS TRAPPED BETWEEN EXISTING AND PROPOSED PAVEMENT AFTER THE CUTTING OPERATIONS HAVE BEEN PERFORMED.

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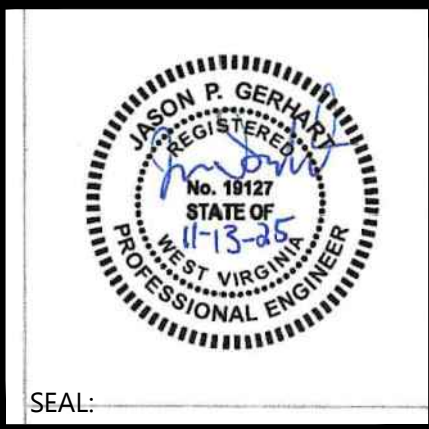
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SEAL:

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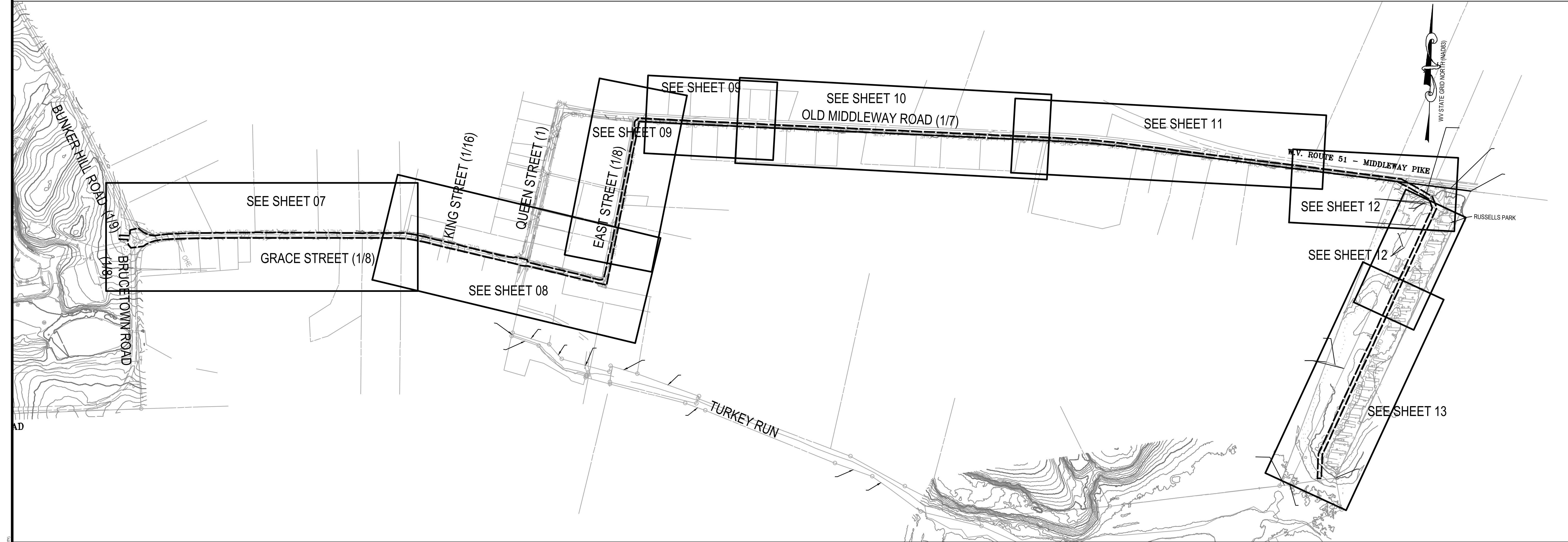
REVISIONS	
1.	REVISIONS PER WIDTH COMMENTS
2.	REVISIONS PER WIDTH COMMENTS
3.	REVISIONS PER WIDTH COMMENTS
4.	REVISIONS PER WIDTH COMMENTS
5.	REVISIONS FOR WIDTH RE-APPLICATION

PAVING DETAILS

SIDEWINDER
RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE:	HORIZ.: NTS VERT.:
DATE:	AUGUST 2023
JOB:	3138-0102
DRAWN: RJP	CHECK: JPG
CADD: C-CU-531.DWG	
NCS:	
SHEET:	05 OF 15



SCALE: HORIZ.: 1" = 250'
VERT.:

DATE: AUGUST 2023

JOB: 3138-0102

DRAWN: RJP CHECK: JPG

CADD: C-CS-001.DWG

NCS:
SHEET: 06 OF 15

OVERALL PLAN VIEW

**SIDEWINDER
RAW WATER LINE**

JEFFERSON COUNTY, WEST VIRGINIA

1. REVISIONS PER WDOH COMMENTS

2. REVISIONS PER WDOH COMMENTS

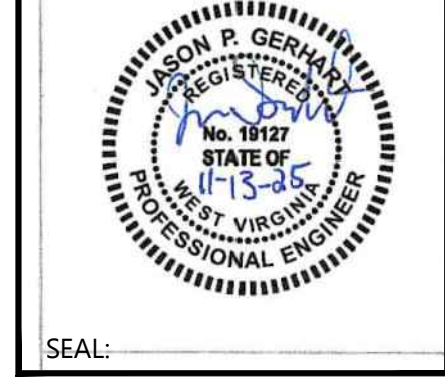
3. REVISIONS PER WDOH COMMENTS

4. REVISIONS PER WDOH COMMENTS

5. REVISIONS FOR WDOH RE-APPLICATION

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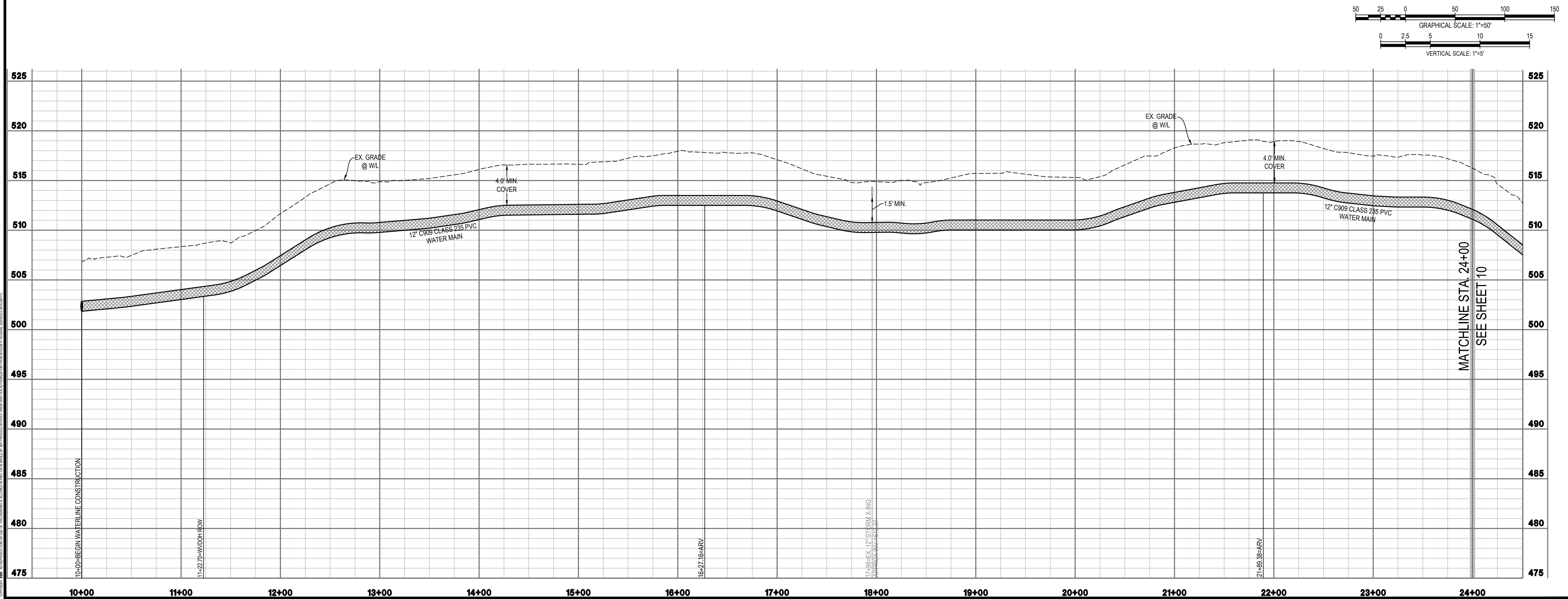
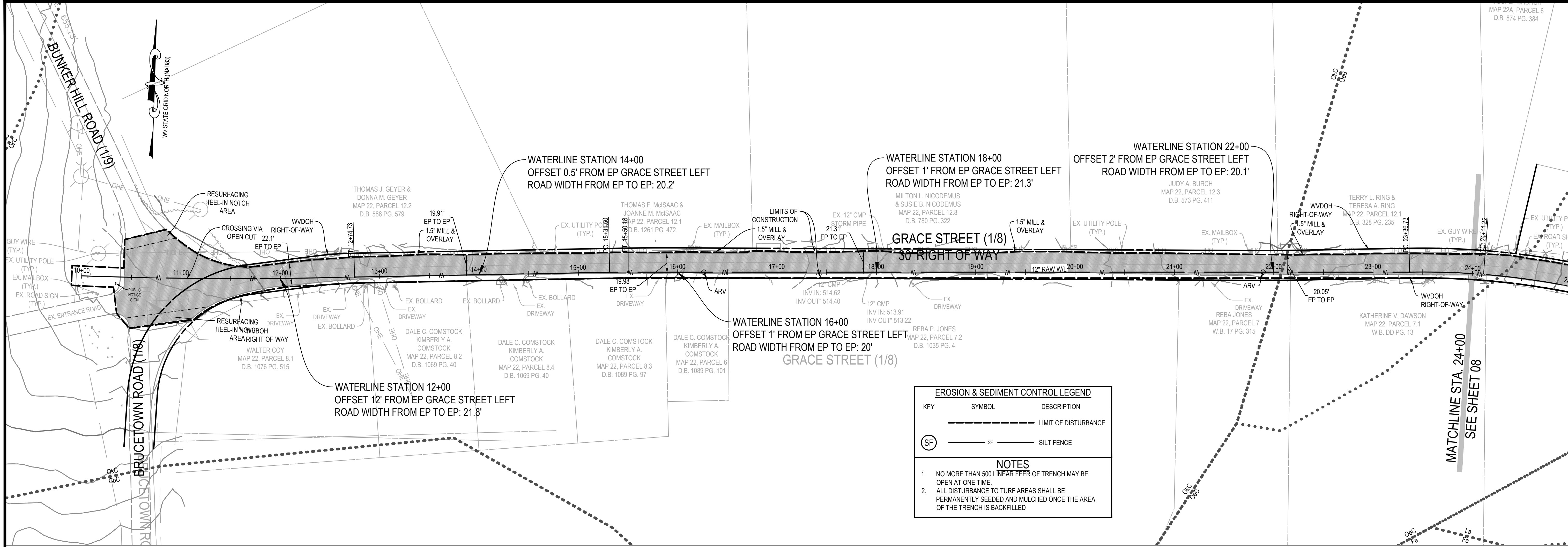


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APPROVED FOR CONSTRUCTION

SEAL:

REVISIONS	
1.	REVISIONS PER WDOH COMMENTS
2.	REVISIONS PER WDOH COMMENTS
3.	REVISIONS PER WDOH COMMENTS
4.	REVISIONS PER WDOH COMMENTS
5.	REVISIONS FOR WDOH RE-APPLICATION

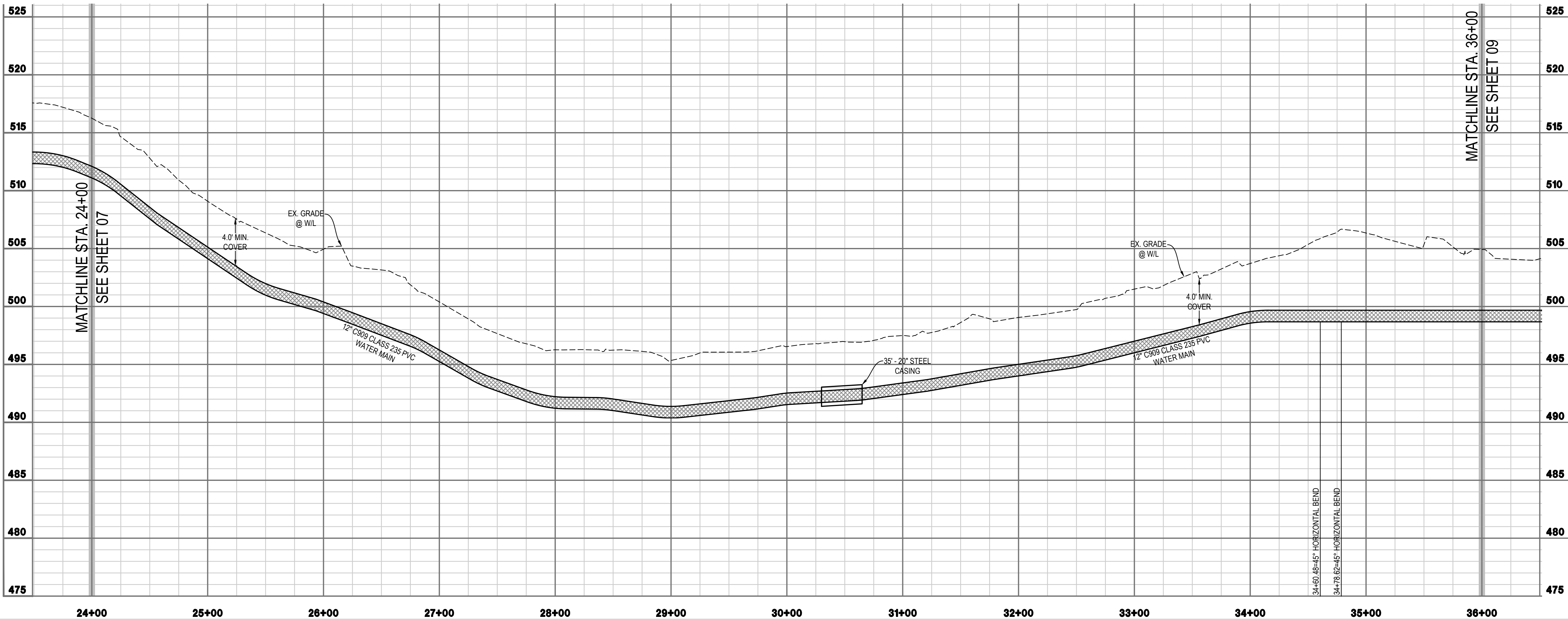
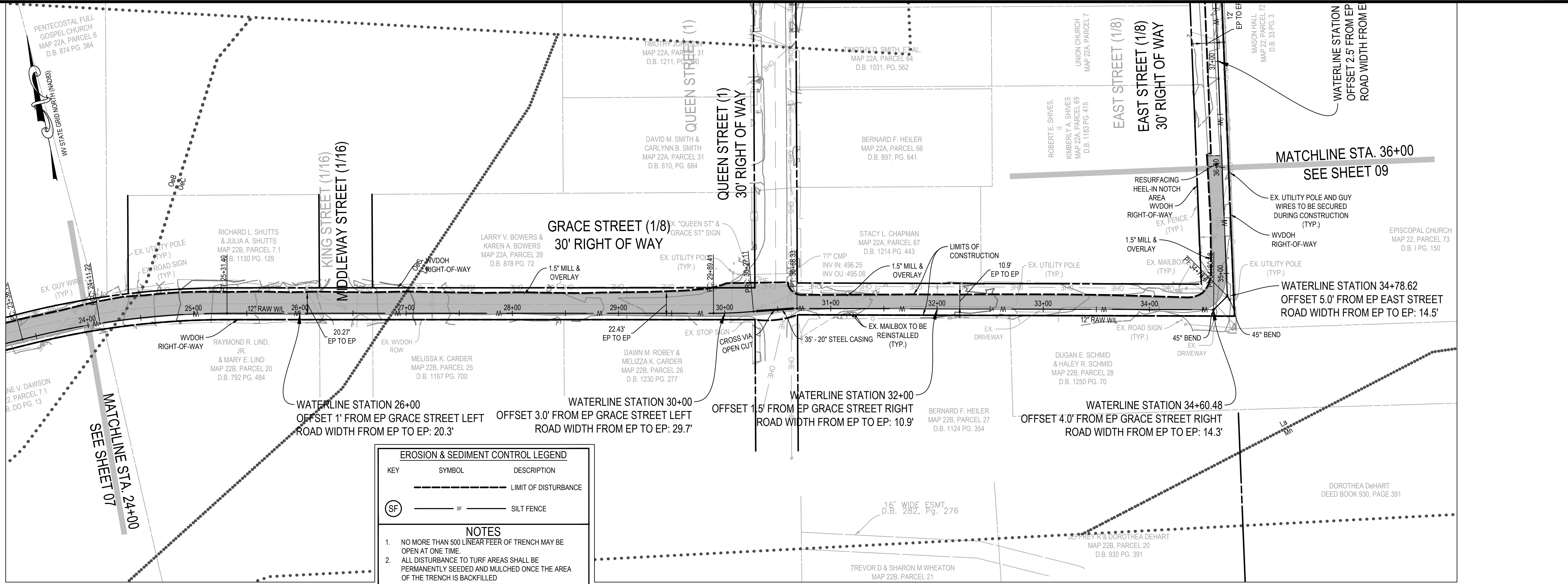
WATER LINE PLAN AND PROFILE

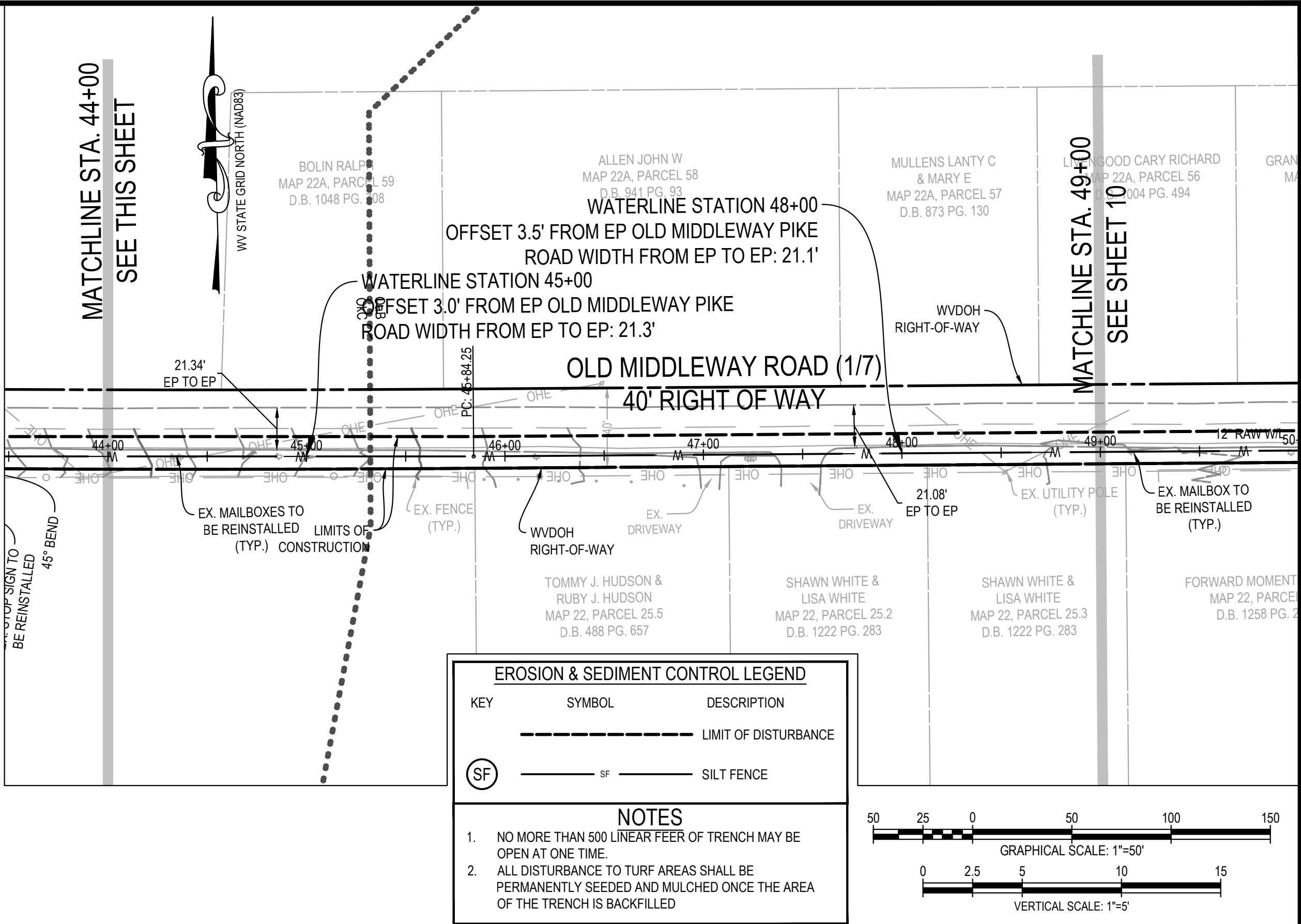
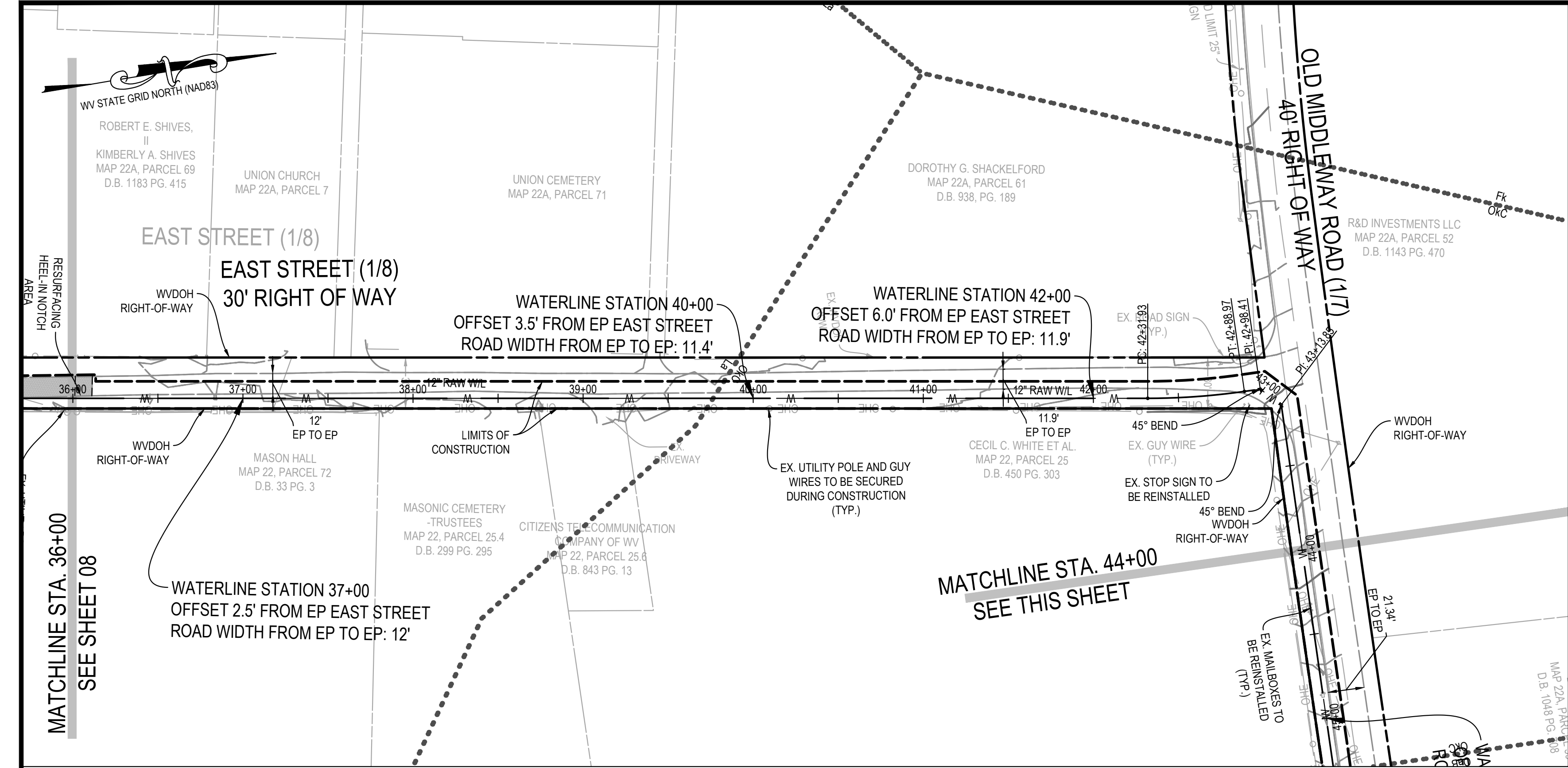
SIDEWINDER
RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE:	HORIZ.: 1" = 50'
	VERT.: 1" = 5'
DATE:	AUGUST 2023
JOB:	3138-0102
DRAWN:	RJP
CADD:	C-CU-231.DWG
NCS:	
SHEET:	07 OF 15

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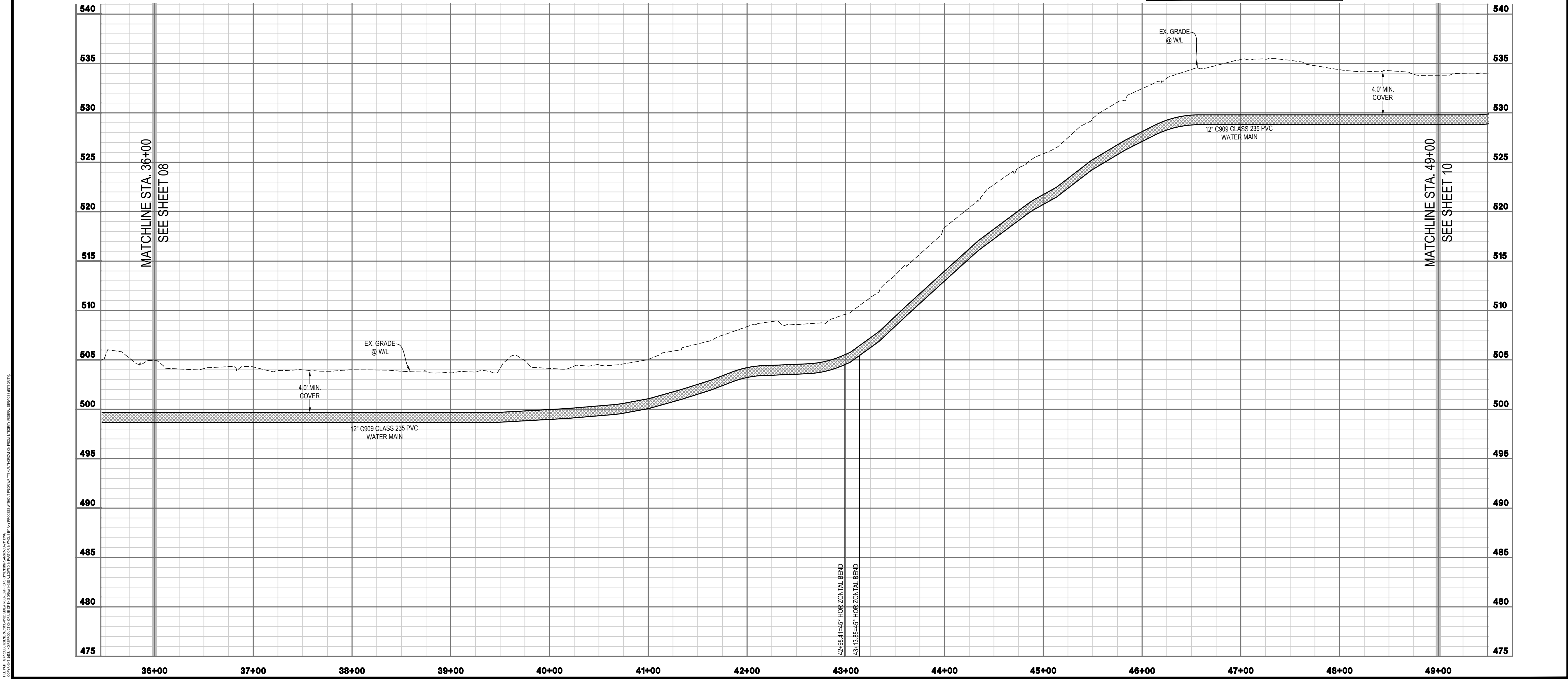
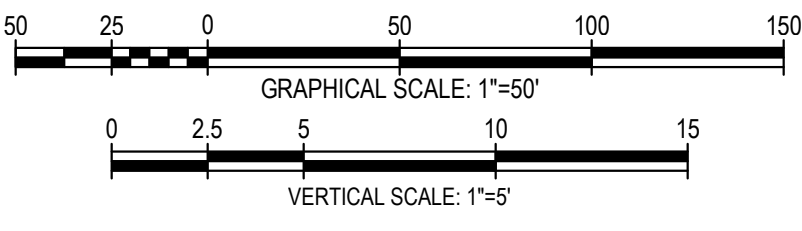


EROSION & SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
	---	LIMIT OF DISTURBANCE
(SF)	---	SILT FENCE

NOTES

- NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPEN AT ONE TIME.
- ALL DISTURBANCE TO TURF AREAS SHALL BE PERMANENTLY SEEDED AND MULCHED ONCE THE AREA OF THE TRENCH IS BACKFILLED.



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3.	REVISIONS PER WDOH COMMENTS
4.	REVISIONS PER WDOH COMMENTS
5.	REVISIONS FOR WDOH RE-APPLICATION

WATER LINE PLAN AND PROFILE

SIDEWINDER RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE: HORIZ.: 1" = 50'
VERT.: 1" = 5'

DATE: AUGUST 2023

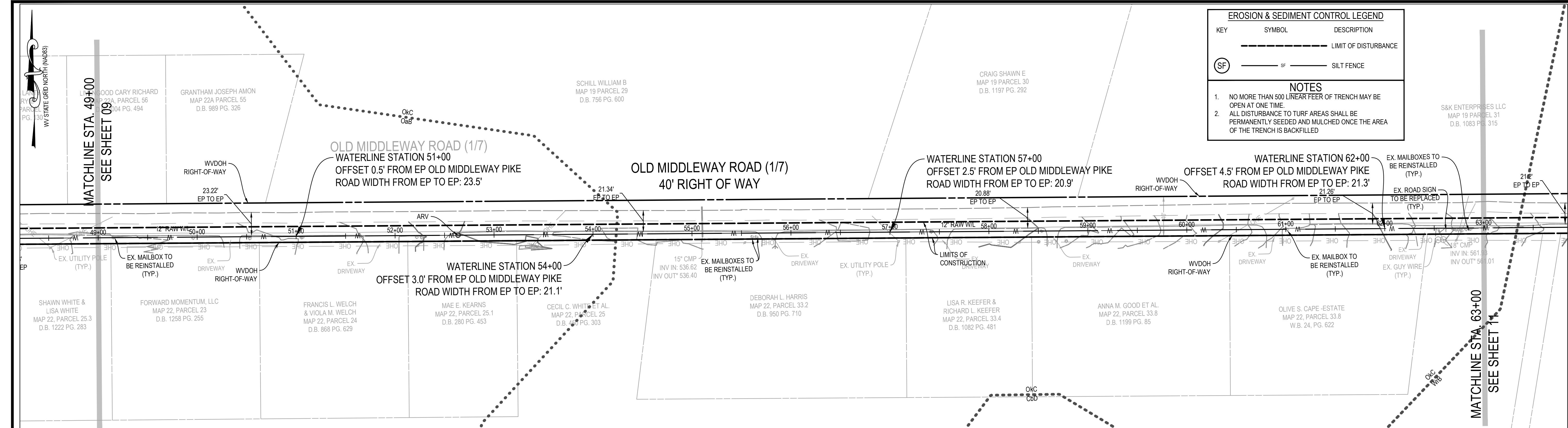
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CADD: C-CU-231.DWG

NCS:

SHEET: 09 OF 15



EROSION & SEDIMENT CONTROL LEGEND

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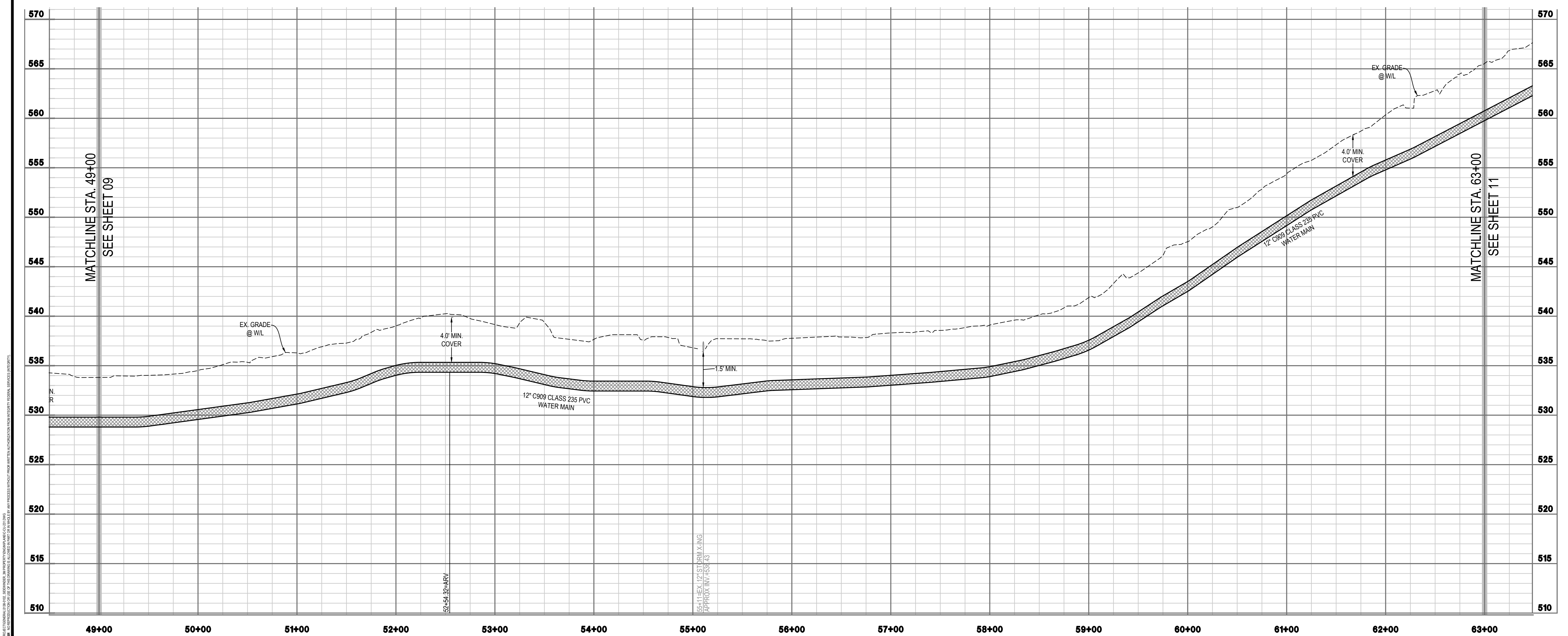
NOTES

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NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPEN AT ONE TIME.

2.

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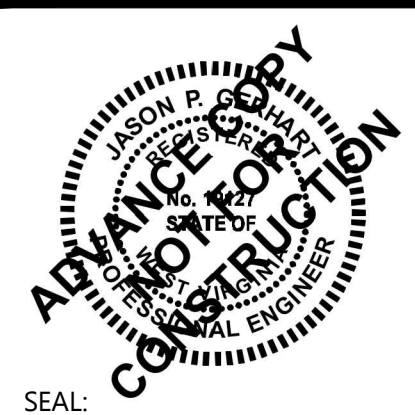
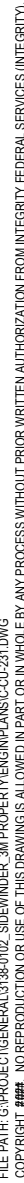
REVISIONS	
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3.	REVISIONS PER WVDOH COMMENTS
4.	REVISIONS PER WVDOH COMMENTS
5.	REVISIONS FOR WVDOH RE-APPLICATION

WATER LINE PLAN AND PROFILE

SIDEWINDER
RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE:	HORIZ.: 1" = 50'
	VERT.: 1" = 5'
DATE:	AUGUST 2023
JOB:	3138-0102
DRAWN:	RJP
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CADD:	C-CU-231.DWG
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1.	REVISIONS PER WIDTH COMMENTS
2.	REVISIONS PER WIDTH COMMENTS
3.	REVISIONS PER WIDTH COMMENTS
4.	REVISIONS PER WIDTH COMMENTS
5.	REVISIONS FOR WIDTH RE-APPLICATION
	REVISIONS

WATER LINE PLAN AND PROFILE	SIDEWINDER RAW WATER LINE JEFFERSON COUNTY, WEST VIRGINIA
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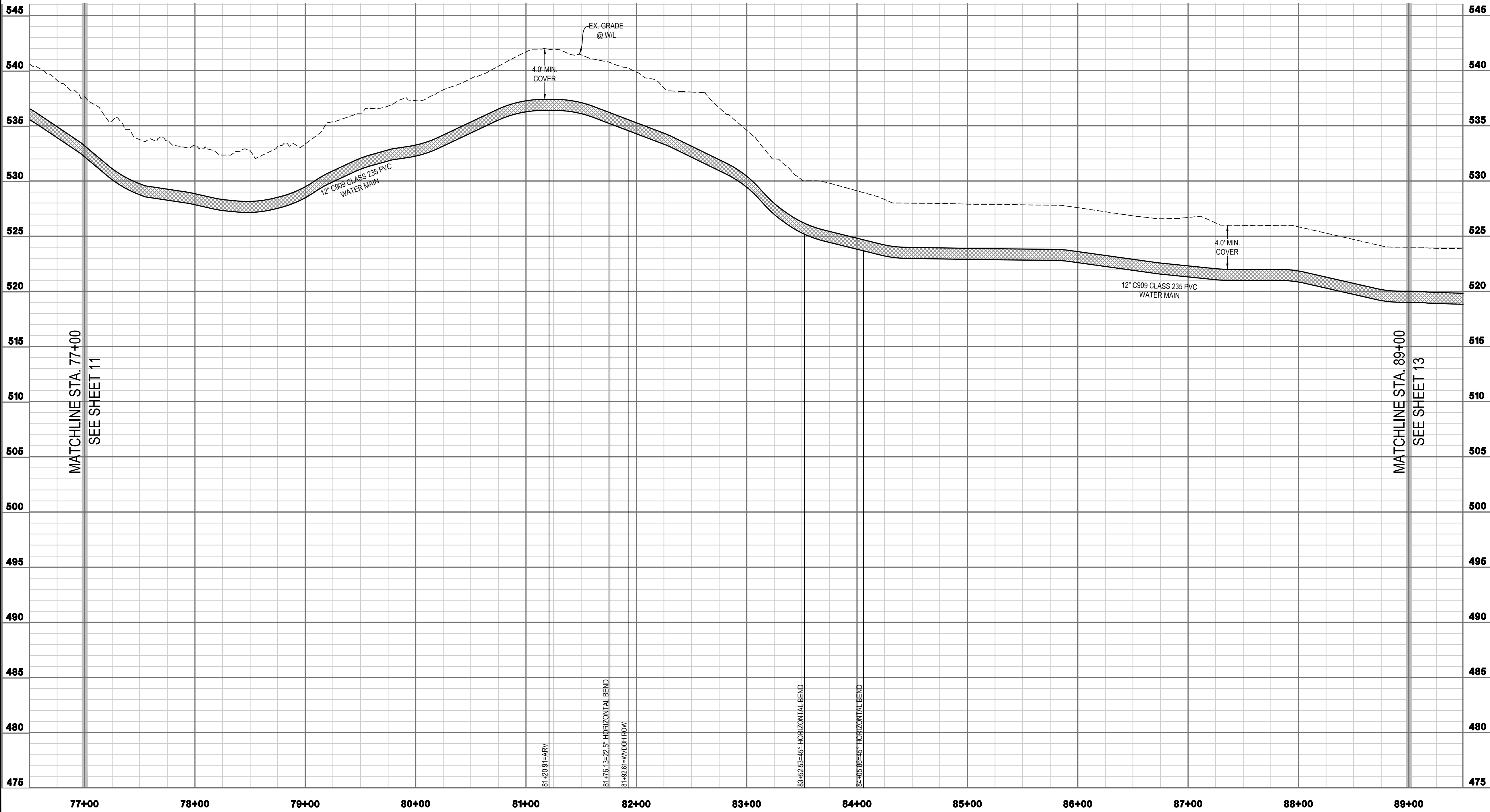
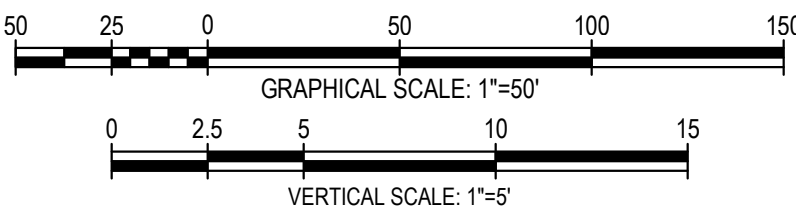
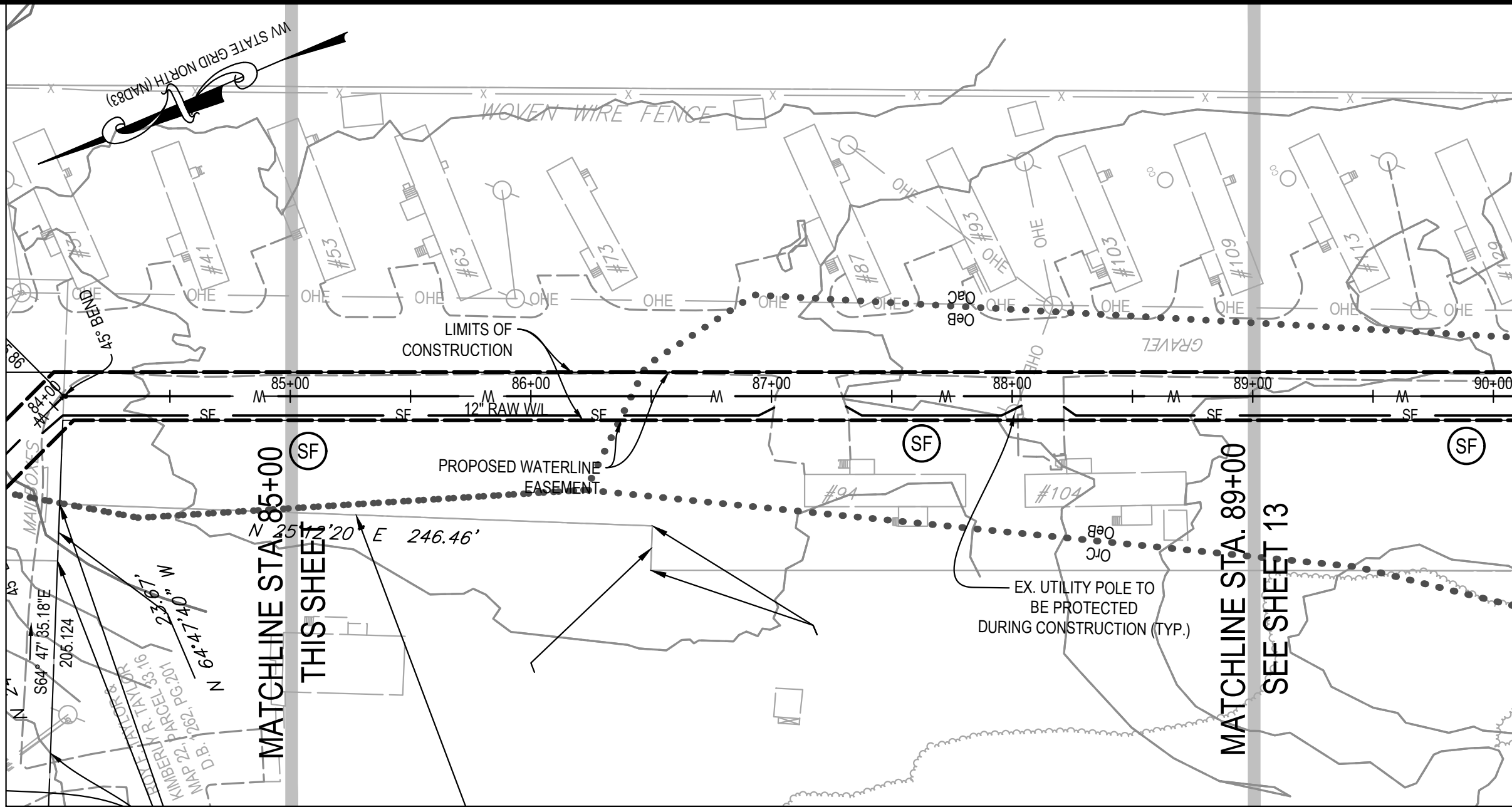
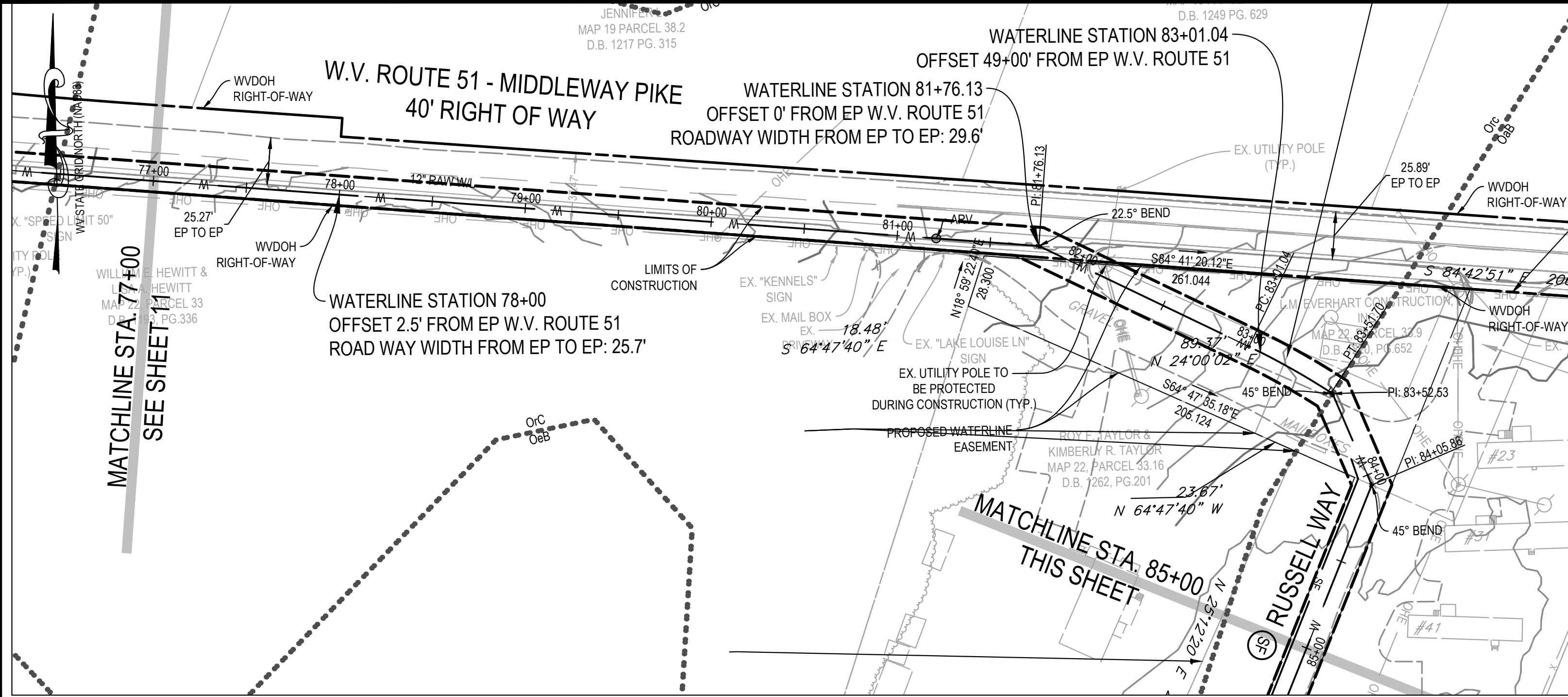
SCALE:	HORIZ.: 1" = 50'	
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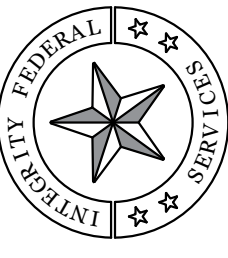
EROSION & SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
	---	LIMIT OF DISTURBANCE
(SF)	— SF —	SILT FENCE

NOTES

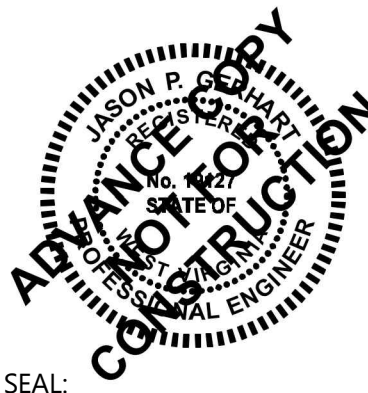
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ADVANCE DESIGN
CONSTRUCTION



SEAL:

REVISIONS	
1.	REVISIONS PER WDOH COMMENTS
2.	REVISIONS PER WDOH COMMENTS
3.	REVISIONS PER WDOH COMMENTS
4.	REVISIONS PER WDOH COMMENTS
5.	REVISIONS FOR WDOH RE-APPLICATION

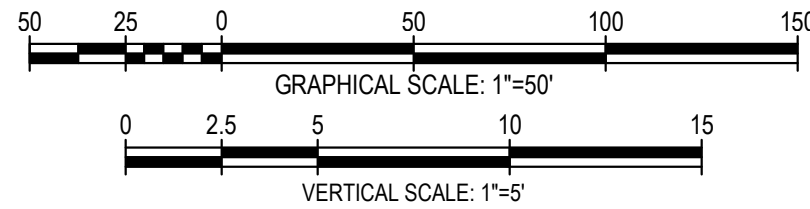
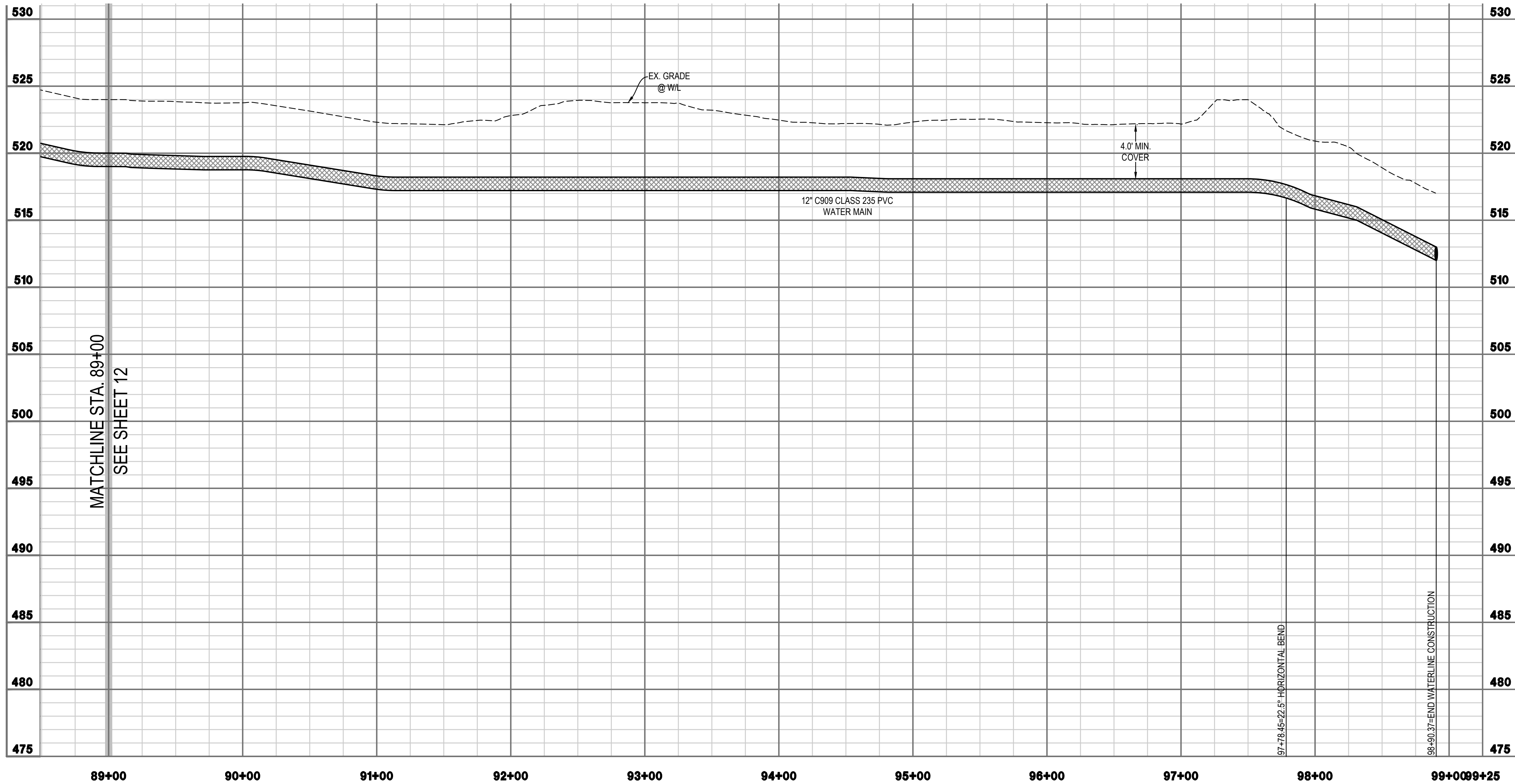
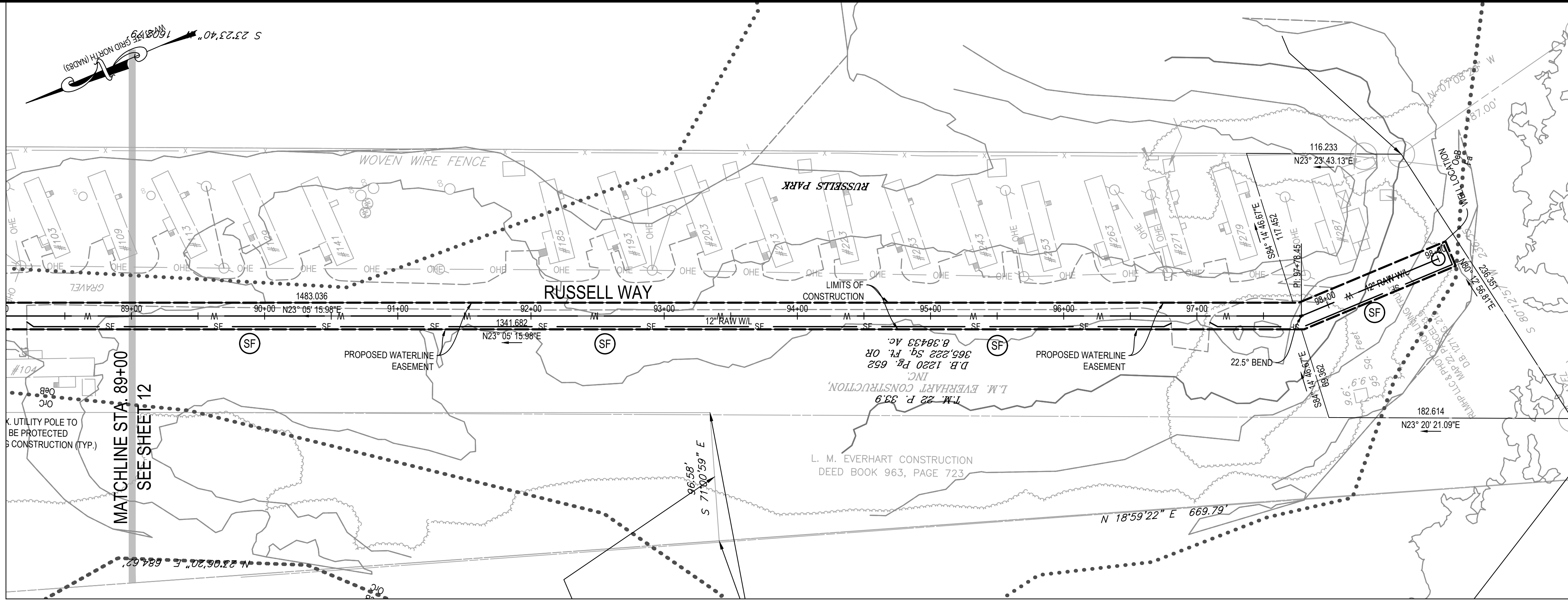
WATER LINE PLAN AND PROFILE

SIDEWINDER
RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE:	HORIZ.: 1" = 50' VERT.: 1" = 5'
DATE:	AUGUST 2023
JOB:	3138-0102
DRAWN:	RJP
CHECK:	JPG
CADD:	C-CU-231.DWG
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EROSION & SEDIMENT CONTROL LEGEND

KEY	SYMBOL	DESCRIPTION
	---	LIMIT OF DISTURBANCE
(SF)	SF	SILT FENCE

NOTES

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ADVANCED EROSION CONTROL

SEAL:

REVISIONS	
1.	REVISIONS PER WDOH COMMENTS
2.	REVISIONS PER WDOH COMMENTS
3.	REVISIONS PER WDOH COMMENTS
4.	REVISIONS PER WDOH COMMENTS
5.	REVISIONS PER WDOH RE-APPLICATION

WATER LINE PLAN AND PROFILE

SIDEWINDER RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE: HORIZ.: 1"=50'
VERT.: 1"=5'

DATE: AUGUST 2023

JOB: 3138-0102

DRAWN: RJP CHECK: JPG

CADD: C-CU-231.DWG

NCS: SHEET:

13 OF 15

EROSION AND SEDIMENT CONTROL NARRATIVE:

I. PROJECT DESCRIPTION:

THIS PROJECT IS FOR THE CONSTRUCTION OF A 12" WATER MAIN FROM THE TRAILER PARK LOCATED ALONG RUSSELL WAY TO THE OLD 3M FACILITY ALONG GRACE WAY IN MIDDLEWAY WEST VIRGINIA. IN ADDITION, PORTIONS OF GRACE STREET AND EAST STREET WILL BE RESURFACED. THE TOTAL PROJECT AREA IS APPROXIMATELY ±4.08 ACRES. THE TOTAL IMPERVIOUS AREA CREATED BY THE DEVELOPMENT OF THE SITE IS APPROXIMATELY ±0 ACRES. ASSOCIATED GRADING VOLUMES FOR THE PROPOSED SITE IMPROVEMENTS ARE APPROXIMATELY 6,000 C.Y. OF CUT AND 6,000 C.Y. OF FILL (NOT TO BE USED FOR BIDDING PURPOSES).

II. EXISTING SITE CONDITIONS:

THE SITE IS LOCATED IN MIDDLEWAY WEST VIRGINIA WITH WATERLINE INSTALLATION OCURING THROUGH THE TRAILER PARK ALONG RUSSELL WAY WHICH IS ON THE SOUTHERN SIDE OF MIDDLEWAY PIKE (WV 51), THEN ALONG THE SHOULDERPAVED SURFACE OF MIDDLEWAYT PIKE (WV 51), OLD MIDDLEWAY PIKE (C.R. 17), EAST STREET (C.R. 18), AND GRACE STREET (C.R. 18) TO THE OLD 3MKODACK FACILITY LOCATED ALONG THE WEST SIDE OF BRUCETOWN ROAD (C.R. 18). THE SUBJECT PROJECT AREA CONSISTS OF A RESIDENTIAL TRAILER PARK, PAVED ROADWAYS MAINTAINED BY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, AND A PREVIOUSLY DEVELOPED COMMERCIAL SITE. THE SITE CONSISTS OF MODERATELY STEEP AND FLAT SLOPES RANGING FROM APPROXIMATELY 1%-15%. THE SURFACE RUNOFF DRAINS TO THE SOUTH AT THE RUSSELL WAY TRAILER PARK AND TO THE ROAD SHOULDERS ALONGS MIDDLEWAY PIKE, OLD MIDDLEWAY PIKE, EAST STREET, AND GRACE STREET.

III. ADJACENT AREAS:

THE PROJECT AREA IS BOUNDED BY RESIDENTIAL AND AGRICULTURAL PROPERTIES ON ALL SIDES OF MIDDLEWAY PIKE, OLD MIDDLEWAY PIKE, EAST STREET, AND GRACE STREET. TO THE SOUTH OF THE RUSSELL WAY TRAILER PARK IS TURKEY RUN WHICH IS APPROXIMATELY 300 FEET SOUTH OF THE PROJECT LIMITS. THE PROPERTY TO THE EAST OF THE RUSSELL WAY TRAILER PARK IS AGRICULTURAL LAND. THERE IS LITTLE POTENTIAL FOR OFFSITE EROSION AND SEDIMENT DAMAGE BY THIS PROJECT AS TEMPORARY EROSION AND SEDIMENT CONTROLS WILL BE USED DURING CONSTRUCTION.

IV. CRITICAL AREAS:

CRITICAL AREAS CONSIST OF TURKEY RUN TO THE SOUTH OF THE RUSSELL WAY TRAILER PARK. THERE WILL BE NO IMPACTS TO THIS AREA DURING CONSTRUCTION. THE LIMITS OF THIS PROJECT ARE ENTIRELY LOCATED OUTSIDE OF THE WETLAND/STREAM BUFFER FOR TURKEY RUN. DISTURBED AREAS WILL BE PROTECTED WITH SILT FENCE AND/OR OTHER CONTROL MEASURES.

V. SOILS:

SOIL NAME	MAPPING UNIT	HSG	DEPTH TO WATER TABLE	DEPTH TO BEDROCK
CARBO-ROCK OUTCROP COMPLEX, 3-5% SLOPES	CsC	D	20"-40"	>80"
CARBO-ROCK OUTCROP COMPLEX, 15-25% SLOPES	CsD	D	20"-40"	>80"
FAIRPLAY SILT LOAM, 0-3% SLOPES	Fa	A/D	48"-58"	0"-12"
FUNKTOWN SILT LOAM	Fk	C	>80"	20"-28"
LAPPANS LOAM, 0-3% SLOPES	La	A	>80"	44"-72"
MASSANETTA LOAM, 0-3%	Mn	B	>80"	21"-44"
OAKLET SILT LOAM, 3-8% SLOPES	OaB	C	>80"	>80"
OAKLET SILT LOAM, 8-15% SLOPES	OaC	C	>80"	>80"
OAKLET SILT LOAM, 3-8% SLOPES, VERY ROCKY	OaB	C	>80"	>80"
OAKLET SILT LOAM, 8-15% SLOPES, VERY ROCKY	OaC	C	>80"	>80"
OAKLET SILTY CLAY LOAM, 8-15% SLOPES, VERY ROCKY	OkC	C	>80"	>80"
OAKLET-ROCK OUTCROP COMPLEX, 3-8% SLOPES	OrB	C	>80"	>80"
OAKLET-ROCK OUTCROP COMPLEX, 8-15% SLOPES	OrC	C	>80"	>80"
WATER	W			
WEIKERT-BERKS CHANNERY SILT LOAMS, 15-25% SLOPES	WbD	D	10"-20"	>80"
WHARTON-CLEARBROOK CHANNERY SILT LOAMS, 15-25% SLOPES	WhB	C/D	51"-72"	18"-30"

NOTES:

- SOILS INFORMATION PROVIDED BY THE USDA SOIL SURVEY OF JEFFERSON COUNTY, WEST VIRGINIA.

VI. POTENTIAL EROSION PROBLEM AREAS:

PER THE SOILS DATA SHOWN ABOVE, THE EXISTING SOILS LOCATED ONSITE HAVE A MODERATE-SLIGHT ERODABILITY POTENTIAL.

VII. EROSION AND SEDIMENT CONTROL ELEMENTS:

UNLESS OTHERWISE NOTED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN STRICT COMPLIANCE WITH THE LATEST EDITION OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL AND APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

1. MARK CLEARING LIMITS:

PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA. PLASTIC, METAL, OR STAKE WIRE FENCE MAY BE USED TO MARK CLEARING LIMITS. SAFETY FENCE SHOULD BE INSTALLED TO PREVENT PUBLIC ACCESS TO POTENTIALLY HAZARDOUS AREAS OF THE SITE AND TO PREVENT ACCESS TO EROSION AND SEDIMENT CONTROL MEASURES.

2. ESTABLISH CONSTRUCTION ACCESS:

ALL CONSTRUCTION VEHICLES ENTERING THE RUSSELL WAY TRAILER PARK SHALL UTILIZE THE WEST GRAVEL ENTRANCE. ALL WORK OUTSIDE OF THE RUSSELL WAY TRAILER PARK IS TO TAKE PLACE WITHIN THE WDOOH RIGHT-OF-WAY.

3. INSTALL SEDIMENT CONTROLS:

THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION SHALL REMAIN IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICABLE. PRIOR TO LEAVING THE CONSTRUCTION SITE, SURFACE RUNOFF FROM DISTURBED AREAS SHALL PASS THROUGH AN APPROPRIATE SEDIMENT CONTROL MEASURE. BMP'S INTENDED TO TRAP SEDIMENT ON SITE SHALL BE CONSTRUCTED AS ONE OF THE FIRST STEPS IN GRADING. THESE BMP'S SHALL BE FUNCTIONAL PRIOR TO LAND DISTURBING ACTIVITIES TAKING PLACE. EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS SHALL BE SEEDED AND MULCHED AS PER TEMPORARY AND PERMANENT SOIL STABILIZATION MEASURES.

SILT FENCE:

SILT FENCE SHALL BE INSTALLED ALONG THE DOWN-SLOPE SIDES OF DISTURBED AREAS TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT DURING CONSTRUCTION OPERATIONS IN ORDER TO PREVENT SEDIMENT FROM LEAVING THE SITE.

4. STABILIZE SOILS:

THE GENERAL PERMIT REQUIRES THAT:

- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOUR (4) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED.
- APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, EROSION CONTROL FABRICS AND MATTING, SURFACE ROUGHENING, SURFACE WATER CONTROL, AND DUST CONTROL.
- SELECTED SOIL STABILIZATION MEASURES SHALL BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, AND ESTIMATED DURATION OF USE.
- ALL SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES.
- LINEAR CONSTRUCTION ACTIVITIES SUCH AS RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL BE CONDUCTED TO MEET THE SOIL STABILIZATION TIMEFRAME REQUIREMENTS. CONTRACTORS SHALL INSTALL THE BEDDING MATERIALS, ROADBEDS, STRUCTURES, PIPELINES, OR UTILITIES AND RE-STABILIZE THE DISTURBED SOILS SO THAT THE FOUR (4) DAY REQUIREMENTS ARE MET.

TEMPORARY SEEDING:

TEMPORARY STABILIZATION SHALL BE INITIATED WITHIN FOUR (4) DAYS TO AREAS THAT WILL NOT BE RE-DISTURBED FOR MORE THAN FOURTEEN (14) DAYS. AREAS INCLUDE DENUDED AREAS, SOIL STOCKPILES, DIKES, DAMS, SIDES OF SEDIMENT BASINS, TEMPORARY ROAD BANKS, ETC.

PERMANENT SEEDING:

PERMANENT STABILIZATION SHALL BE INITIATED WITHIN FOUR (4) DAYS OF REACHING FINAL GRADE AND WITHIN FOUR (4) DAYS AFTER CONSTRUCTION HAS BEEN COMPLETED. AREAS INCLUDE DISTURBED AREAS WHERE PERMANENT, LONG-LIVED VEGETATIVE COVER IS NEEDED TO STABILIZE THE SOIL AND ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR SIX MONTHS OR MORE.

MULCHING:

THE APPLICATION OF STRAW, HAY OR OTHER SUITABLE MATERIALS TO THE SOIL SURFACE TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROP IMPACT AND REDUCING THE VELOCITY OF OVERLAND FLOW. AREAS THAT HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHOULD BE MULCHED IMMEDIATELY FOLLOWING SEEDING. AREAS THAT CANNOT BE SEEDED BECAUSE OF THE SEASON SHOULD BE MULCHED TO PROVIDE SOME PROTECTION TO THE SOIL SURFACE.

TOPSOILING:

TOPSOILING IS THE SPREADING OF TOPSOIL OF A SUITABLE QUALITY OVER AN AREA TO BE STABILIZED BY ESTABLISHING VEGETATION. IF TOPSOIL IS TO BE STOCKPILED AT SITE, IT SHALL BE IN A LOCATION THAT WILL NOTE ERODE, BLOCK DRAINAGE, OR INTERFERE WITH WORK ON THE SITE. ALL SOIL STOCKPILES SHALL BE STABILIZED BY TEMPORARY SEEDING AND MULCHING AND PROTECTED WITH SEDIMENT TRAPPING MEASURES. TOPSOIL SHALL BE SPREAD AT A LIGHTLY COMPACTED DEPTH OF 2 TO 4 INCHES. 4 INCHES OR GREATER IS RECOMMENDED FOR AREAS WHERE FINE-TEXTURED (CLAYEY) SUBSOIL OR OTHER ROOT LIMITING FACTORS ARE PRESENT.

6. PROTECT STORM DRAIN INLETS:

STORM DRAIN INLETS OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SURFACE WATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT. INLET PROTECTION SHALL BE PLACED ON ALL STORM INLETS TO PROTECT AGAINST SEDIMENT-LADEN RUNOFF ENTERING THE SYSTEM AT THE INLETS.

CULVERT INLET PROTECTION:

CULVERT INLET PROTECTION SHALL BE PLACED ON ALL STORM CULVERT INLETS TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN, AND BEING TRANSFERRED BY THE CULVERT AND ASSOCIATED DRAINAGE SYSTEM. CULVERT INLET PROTECTION MAY ALSO PROVIDE EROSION CONTROL AT STORM CULVERT INLETS DURING THE PHASE OF A PROJECT WHERE ELEVATION AND DRAINAGE PATTERNS CHANGE, CHANGING ORIGINAL CONTROL MEASURES TO BE INEFFECTIVE OR IN NEED OF REMOVAL.

7. CONVEY STORMWATER IN A NON-EROSIVE MANNER:

POINTS OF DISCHARGE AND RECEIVING STREAMS SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN THE VOLUME, VELOCITY, AND PEAK FLOW RATE OF SURFACE WATER RUNOFF FROM THE PROJECT SITE. ALL STORMWATER CONVEYANCE CHANNELS SHALL BE STABILIZED FOR EXPECTED FLOWS.

OUTLET PROTECTION:

OUTLET PROTECTION SHALL BE INSTALLED AT ALL CULVERT OUTLETS OF ALL TYPES, PIPE CONDUITS FROM ALL SEDIMENT BASINS, SWM PONDS, AND NEW CHANNELS CONSTRUCTED AS OUTLETS FOR CULVERTS AND CONDUITS. OUTLET PROTECTION SHALL BE PROVIDED IN THE FORM OF A RIP-RAP-LINED APRON CONSTRUCTED AT A ZERO OR MINIMUM SLOPE TO SLOW THE OUTLET VELOCITY AND ADEQUATELY PROTECT SOILS FROM SCOUR BY REDUCING FLOW.

8. CONTROL OTHER POLLUTANTS:

ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF SURFACE OR GROUND WATER. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE. COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NON-HERT WASTES PRESENT ON SITE. ALL MATERIALS USED ON THE SITE SHALL BE PROPERLY STORED, HANDLED, DISPENSED AND DISPOSED OF FOLLOWING ALL APPLICABLE LABEL DIRECTIONS. FLAMMABLE AND COMBUSTIBLE LIQUIDS SHALL BE STORED AND HANDLED ACCORDING TO APPLICABLE REGULATIONS, AND, AT A MINIMUM, ACCORDING TO OSHA STANDARDS 29 CFR 1926.152. ONLY APPROVED CONTAINERS AND PORTABLE TANKS SHALL BE USED FOR STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS.

- MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DE-GREASING CLEANING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO SURFACE WATER RUNOFF MUST BE CONDUCTED USING SPILL PREVENTION MEASURES. SUCH AS DRIP PANS. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT.

- WHEEL WASH OR TIRE BATH WASTEWATER SHALL BE DISCHARGED TO A SEPARATE ON-SITE TREATMENT SYSTEM OR TO THE SANITARY SEWER.

- APPLICATION OF AGRICULTURAL CHEMICALS INCLUDING FERTILIZERS AND PESTICIDES SHALL BE CONDUCTED IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO SURFACE WATER RUNOFF. MANUFACTURERS RECOMMENDATIONS FOR APPLICATION RATES AND PROCEDURES SHALL BE FOLLOWED.

- IN THE EVENT OF AN ACCIDENTAL SPILL, IMMEDIATE ACTION SHALL BE TAKEN BY THE CONTRACTOR TO CONTAIN AND REMOVE THE SPILLED MATERIAL. THE SPILL SHALL BE REPORTED TO THE APPROPRIATE AGENCIES IN THE REQUIRED TIME FRAMES, AS REQUIRED UNDER PROVISIONS OF THE CLEAN WATER ACT, ANY SPILL OR DISCHARGE ENTERING WATERS OF THE UNITED STATES SHALL BE PROPERLY REPORTED.

9. CONTROL DEWATERING:

FOUNDATION, VAULT, AND UTILITY TRENCH DEWATERING WATER SHALL BE DISCHARGED INTO A CONTROLLED CONVEYANCE SYSTEM PRIOR TO DISCHARGE TO A SEDIMENT POND. CHANNELS RECEIVING THE DISCHARGED WATER MUST BE STABILIZED. HIGHLY TURBID OR CONTAMINATED WATER FROM CONSTRUCTION EQUIPMENT OPERATIONS, WORK INSIDE A COFFERDAM, SHALL BE HANDLED SEPARATELY FROM SURFACE WATER. IF DEWATERING IS REQUIRED FOR SMALL VOLUMES OF LOCALIZED DEWATERING ON THIS SITE, A PUMP AND DEWATERING FILTER BAG SHALL BE UTILIZED. THE FILTER BAG SHALL DISCHARGE TO A DITCH OR SWALE WITH A WELL ESTABLISHED VEGETATIVE AREA.

10. MAINTAIN BMP'S:

TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMP'S SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH THE BMP'S. AT A MINIMUM, ALL SEDIMENT CONTROL BMP'S SHALL BE INSPECTED AT LEAST ONCE EVERY FOUR (4) CALENDAR DAYS AND WITHIN 24 HOURS OF THE OCCURRENCE OF A PRECIPITATION EVENT OF 0.25 INCHES OR GREATER, OR THE OCCURRENCE OF RUNOFF FROM SNOWMELT SUFFICIENT TO CAUSE A DISCHARGE. TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMP'S ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL RESULTING FROM THE REMOVAL OF BMP'S OR VEGETATION SHALL BE PERMANENTLY STABILIZED.

11. MANAGE THE PROJECT:

A SEQUENCE OF CONSTRUCTION HAS BEEN PROVIDED ON THIS SHEET TO DESCRIBE AN OVERALL CONSTRUCTION SEQUENCE AS IT RELATES TO EROSION AND SEDIMENT CONTROL. BMP'S AND CONSTRUCTION OF VARIOUS ELEMENTS OF THE PROJECT. IN GENERAL, THE PROJECT IS TO BEGIN CONSTRUCTION IN JANUARY 2026 AND END APPROXIMATELY IN JANUARY 2027. THE CONTRACTOR IS RESPONSIBLE FOR THE DETAILS OF THE DAY TO DAY OPERATIONS.

- THE PRIMARY PROJECT MANAGER SHALL EVALUATE, WITH INPUT FROM UTILITIES AND OTHER CONTRACTORS, THE SURFACE WATER MANAGEMENT REQUIREMENTS FOR THE ENTIRE PROJECT, INCLUDING THE UTILITIES. WHEN PREPARING THE SEDIMENT CONTROL PLAN, ALL BMP'S SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMP'S IDENTIFIED IN THE SEDIMENT CONTROL PLAN ARE INADEQUATE, THE SEDIMENT CONTROL PLAN SHALL BE MODIFIED, AS APPROPRIATE, IN A TIMELY MANNER.

- CONTRACTOR SHALL REPORT SPILLAGE OR DISCHARGE OF POLLUTANTS WITHIN 24 HOURS. THE SEDIMENT CONTROL PLAN SHALL BE RETAINED ON SITE. THE SEDIMENT CONTROL PLAN SHALL BE MODIFIED WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP. THE WVDEP MUST BE NOTIFIED OF ANY CHANGES TO THE CONSTRUCTION SWPP.

12. STABILIZATION:

THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER COMPLETION. ESTABLISHMENT OF FINAL COVER MUST BE INITIATED WITHIN FOUR (4) DAYS AFTER REACHING FINAL GRADE. A NOTICE OF TERMINATION MUST BE FILED WITH THE WVDEP WHEN THE SITE REACHES FINAL STABILIZATION. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT EITHER A PERMANENT VEGETATIVE COVER OF 70% OR GREATER HAS BEEN ESTABLISHED OR THAT THE SURFACE HAS BEEN STABILIZED BY HARD COVER SUCH AS PAVEMENT OR BUILDINGS. (THE 70% REQUIREMENT REFERS TO THE TOTAL VEGETATED AREA AND NOT JUST A PERCENT OF THE SITE).

VIII. EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN STRICT COMPLIANCE WITH THE LATEST EDITION OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL AND APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
2. AREAS OF DEVELOPMENT SHALL BE PLANNED IN PHASES AND STAGES IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT FROM THE DEVELOPMENT SITE DURING CONSTRUCTION AND MINIMIZE EXPOSURE TO DISTURBED GROUND. RE-VEGETATION OF EXPOSED AREAS AND THE MAINTENANCE OF THAT VEGETATION SHALL BE AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.
3. NO DISTURBED AREA IS TO REMAIN DENUDED FOR MORE THAN FOUR (4) DAYS EXCEPT FOR MATERIAL STORAGE AREAS OR FOR THOSE AREAS ON WHICH ACTUAL CONSTRUCTION ACTIVITIES ARE CURRENTLY BEING PERFORMED UNLESS AUTHORIZED BY JEFFERSON COUNTY AND/OR THE EASTERN PANHANDLE CONSERVATION DISTRICT.
4. ALL SOIL STOCKPILES SHALL BE STABILIZED BY TEMPORARY SEEDING AND MULCHING AND PROTECTED WITH PERIMETER SEDIMENT CONTROLS SUCH AS SILT FENCE TO PREVENT CONSTRUCTION WITH STORMWATER RUNOFF. ALL STOCKPILES MUST BE LOCATED OUTSIDE OF ANY VEGETATED BUFFER AREAS AND SHOULD BE LOCATED AS FAR AS PRACTICABLE FROM STORMWATER CONVEYANCE SYSTEMS AND WATER BODIES.
5. ALL SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING SITE GRADING OPERATIONS TO REDUCE RUNOFF VELOCITIES AND EROSION. TEMPORARY AND/OR PERMANENT STABILIZATION MEASURES SHALL BE APPLIED TO ALL SLOPES AS SPECIFIED IN THE SOIL STABILIZATION MEASURES.
6. DURING CONSTRUCTION, PROTECT ALL FILLS SO THAT RUNOFF DOES NOT GO DOWN THE FACE OF THE HILL. UTILIZE BERMS, TEMPORARY SLOPE DRAINS, OR OTHER METHODS TO DIVERT RUNOFF AWAY FROM THE FILL AND INTO A SEDIMENT TRAPPING STRUCTURE. AS MORE FILL IS ADDED, SLOPE THE TOP (OR BERM IT) TO DIRECT WATER AWAY FROM THE SLOPE AND TO A STABLE CONVEYANCE SYSTEM. SEED & MULCH EVERY FOUR (4) DAYS OR 15' OF FILL.
7. NO OFF-SITE SOURCE OF BORROW MATERIALS IS ANTICIPATED FOR THIS PROJECT. IN THE EVENT THAT AN OFF-SITE SOURCE OF BORROW MATERIALS IS USED, AN EROSION AND SEDIMENT CONTROL PLAN SHALL BE PROVIDED FOR THE BORROW PIT AND THE BORROW PIT SHALL MEET ALL APPLICABLE REQUIREMENTS AND PERMITS OF THE WVDEP.
8. DUE TO GRADE CHANGES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION AND SEDIMENT CONTROL MEASURES (I.E. SILT FENCES, ETC.) TO PREVENT EROSION AND POLLUTANT DISCHARGE OFF-SITE.

IX. SOIL STABILIZATION:

EXCEPT AS NOTED BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOUR (4) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED OR FOUR (4) DAYS FOR SITES REQUIRED TO USE ENHANCED BMP'S.

- WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 4TH DAY, AS APPLICABLE AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY NATURAL CAUSES, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW.

- WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED, (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 14 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE 4TH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.

- AREAS WHERE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER OF 70% OR GREATER) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.

TEMPORARY STABILIZATION:

SEED MIXTURES OF TEMPORARY SEED MIXTURE SHALL DEPEND ON THE TIME OF YEAR DURING APPLICATION. SELECT PLANTS APPROPRIATE TO THE SEASON AND SITE CONDITIONS. REFER TO TABLE 3.10.1 TEMPORARY SEEDINGS OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL FOR A LIST OF COVER PLANTS, APPROVED PLANTING DATES, AND APPLICATION RATES.

PERMANENT STABILIZATION:

SEED MIXTURES INCLUDE THE FOLLOWING:

COMMON NAME	APPLICATION RATE	PREFERRED PLANTING DATES
KENTUCKY 31 FESCUE	45 LBS./ACRE	3/1-6/15 & 8/15-9/15
RED FESCUE	20 LBS./ACRE	3/1-6/15 & 8/15-9/15
KENTUCKY BLUEGRASS	25 LBS./ACRE	3/1-6/15 & 8/15-9/15
WHITE DUTCH CLOVER	5 LBS./ACRE	3/1-6/15 & 8/15-9/15
FERTILIZER: DETERMINED BY SOIL TEST		
LIME: 90 LBS./1,000 SQ. FT. PULVERIZED AGRICULTURAL GRADE LIMESTONE		
MULCH: 70-90 LBS./1,000 SQ. FT. STRAW OR HAY MULCH		

ALTERNATIVE SEED MIXTURES MAY BE SUBSTITUTED AS APPROVED BY INTEGRITY FEDERAL SERVICES. SELECT PLANTS APPROPRIATE TO THE SEASON AND SITE CONDITIONS. REFER TO TABLE 3.11.1 PERMANENT SEEDING OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL FOR A LIST OF COVER PLANTS APPROVED PLANTING DATES, AND APPLICATION RATES.

X. UNDERGROUND UTILITY LINE INSTALLATION:

1. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
2. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS. WHERE UTILITY EXCAVATION OCCURS ADJACENT TO / WITHIN PAVED ROADS, EXCAVATED MATERIAL SHALL BE LOADED INTO TRUCKS.
3. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
4. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
5. ALL TRENCHES SHALL BE SEEDED AND MULCHED WITHIN 4 DAYS AFTER BACKFILLING.
6. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

XI. SEQUENCE OF CONSTRUCTION:

- PHASE I:

PHASE I OPERATIONS SHALL INCLUDE EROSION CONTROL MEASURES NEEDED TO DIVERT MAJOR OFF-SITE CLEAN WATER AND ON-SITE DRAINAGE FLOWS AROUND THE WORK AREAS AND CONTROL EROSION AND SEDIMENTATION ASSOCIATED WITH INITIAL CLEARING AND GRADING OPERATIONS.

1. CONTACT WEST VIRGINIA MISS UTILITY AT 800-245-4848, AT LEAST THREE WORKING DAYS PRIOR TO BEGINNING WORK. LOCATE ALL UTILITIES.
2. CONTACT JEFFERSON COUNTY ENGINEERING AT 304-728-3257 AT LEAST FIVE WORKING DAYS PRIOR TO BEGINNING WORK.
3. WITHIN 72 HOURS OF FILING AN APPLICATION WITH THE WVDEP DIVISION OF WATER AND WASTE MANAGEMENT (DWWM), INSTALL PUBLIC NOTICE SIGN NEAR THE ENTRANCE OF THE PROJECT OR NEAR AN OTHER PART OF THE CONSTRUCTION PROJECT, THAT IS ACCESSIBLE BY THE PUBLIC. THE PUBLIC NOTICE SIGN MUST REMAIN DISPLAYED FOR THE DURATION OF THE PROJECT. (SEE PUBLIC NOTICE SIGN DETAIL, SHEET 15).
4. STAKE/FLAG LIMITS OF CONSTRUCTION, SENSITIVE AREAS, AND TREES THAT ARE TO BE PRESERVED. LIMITS OF CONSTRUCTION MUST REMAIN MARKED THROUGHOUT THE ENTIRE SITE DEVELOPMENT.
5. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE AND ESTABLISH A PROTECTED STAGING AND EQUIPMENT PARKING AREA.
6. CLEAR AND GRUB AREAS FOR THE INSTALLATION OF PERIMETER CONTROLS. ONLY THE MINIMUM AREAS NECESSARY TO INSTALL PERIMETER EROSION CONTROL MEASURES SHALL BE CLEARED AND GRUBBED.
7. INSTALL PERIMETER CONTROLS SUCH AS SILT FENCE, STABILIZE ALL EROSION AND SEDIMENT CONTROL MEASURES IMMEDIATELY AFTER INSTALLATION. STABILIZE AREAS BETWEEN PERIMETER SEDIMENT CONTROL MEASURES AND THE LIMITS OF CONSTRUCTION.
8. CLEAR AND GRUB THE REMAINDER OF THE SITE. ALL UNSUITABLE MATERIAL (LOGS, BRUSH, VEGETATIVE MATTER, ETC.) WHICH WILL INTERFERE WITH THE GRADING AND/OR STABILITY OF FILL AREAS SHALL BE REMOVED AND/OR DISPOSED OF PROPERLY. PHASE CLEARING AND GRUBBING TO THE EXTENT POSSIBLE TO MINIMIZE THE AMOUNT OF DISTURBED AREA AT ANY POINT IN TIME.
9. ESTABLISH SOIL STOCKPILES AND PROTECT WITH SILT FENCE. STRIP AND STOCKPILE TOPSOIL TO USE IN THE FINISH GRADING OPERATIONS. STOCKPILES SHALL BE SEEDED AND MULCHED IF THEY ARE TO REMAIN UNDISTURBED FOR 14 DAYS OR LONGER.

- PHASE II:

THE PHASE II EROSION AND SEDIMENT CONTROL MEASURES ARE INTENDED FOR THE FINAL STAGES OF SITE DEVELOPMENT. PHASE I CONTROL MEASURES, WHICH ARE NOT IN CONFLICT WITH FINAL CONSTRUCTION AND PROVIDE EFFECTIVE CONTROL, SHALL REMAIN IN PLACE FOR FINAL DEVELOPMENT. THE CONTRACTOR SHALL FOLLOW THE COUNTY ENGINEERING DEPARTMENT'S DIRECTION IN PROVIDING ADDITIONAL CONTROL MEASURES NEEDED DURING THE DEVELOPMENT PROCESS, TO ENSURE THAT SEDIMENT IS PREVENTED FROM POLLUTING OFF-SITE AREAS, STREAMS AND/OR PROTECTED ON-SITE AREAS. THE FOLLOWING SEQUENCE OF CONSTRUCTION IS SUGGESTED.

1. THROUGHOUT CONSTRUCTION, INITIATE TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY FOLLOWING THE COMPLETION OF THE MOST RECENT LAND DISTURBING ACTIVITY. DISTURBED AREAS SHALL BE SEEDED AND MULCHED IF THEY ARE TO REMAIN UNDISTURBED FOR 14 DAYS OR LONGER. COMPLETION MUST BE WITHIN 7 DAYS.
2. INSTALL WATER LINE
3. INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS NEEDED THROUGHOUT CONSTRUCTION.
4. FINAL GRADE ALL AREAS OF THE SITE LEAVING SEDIMENT CONTROLS IN PLACE AS NEEDED. SPREAD TOPSOIL OVER AREAS TO BE SEEDED.
5. PERMANENTLY STABILIZE ALL AREAS NOT COVERED BY HARD COVER SUCH AS PAVEMENT OR BUILDINGS.
6. RESURFACE ROAD WHERE DICTATED ON PLANS.
7. OBTAIN JEFFERSON COUNTY ENGINEERING APPROVAL PRIOR TO THE REMOVAL OF ANY EROSION AND SEDIMENT CONTROLS. NO EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED UNTIL ALL UP-SLOPE AREAS THAT DRAIN TO THEM HAVE BEEN STABILIZED.
8. REMOVE REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF TEMPORARY BMP'S.
9. CONTRACTOR SHALL CONTACT WVDEP TO FILE A NOTICE OF TERMINATION (NOT) OF THE NPDES PERMIT.

XII. MAINTENANCE PROGRAM:

1. AT A MINIMUM, INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CONDUCTED ONCE EVERY FOUR (4) CALENDAR DAYS AND WITHIN 24 HOURS OF THE OCCURRENCE OF A PRECIPITATION EVENT OF 0.25 INCHES OR GREATER, OR THE OCCURRENCE OF RUNOFF FROM SNOWMELT SUFFICIENT TO CAUSE A DISCHARGE, BY THE SITE SUPERINTENDENT OR HIS REPRESENTATIVE. REPAIRS OR MAINTENANCE TO BMP'S SHALL BE PERFORMED WITHIN 24 HOURS, HOWEVER, PERMITTEES MUST IMPLEMENT ALTERNATE BMP'S DURING STORM EVENTS WHILE AWAITING REPAIR OF THE PRIMARY BMP.
2. TO DETERMINE IF A PRECIPITATION EVENT OF 0.25 INCHES OR GREATER HAS OCCURRED, THE APPLICANT MUST EITHER KEEP A PROPERLY MAINTAINED RAIN GAUGE ON THE SITE OR OBTAIN THE PRECIPITATION EVENT INFORMATION FROM A NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION (NOAA) WEATHER STATION THAT IS REPRESENTATIVE OF THE PROJECT LOCATION.
3. SILT FENCING AND SUPER SILT FENCING SHOULD BE CLEANED AT 50% CAPACITY AND SPREAD ON SITE WHERE PRACTICAL. SEDIMENT REMOVAL SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS.
4. EROSION AND SEDIMENT CONTROL STRUCTURES SHALL NOT BE REMOVED UNTIL ALL AREAS ABOVE THEM HAVE BEEN STABILIZED AND SEEDED AREAS ESTABLISHED. NO CONTROL SHALL BE REMOVED WITHOUT APPROVAL FROM JEFFERSON COUNTY ENGINEERING.
5. DEVICES SHOWN ARE TO BE CONSIDERED MINIMUM EROSION AND SEDIMENTATION CONTROLS. ADDITIONAL CONTROLS MAY BE NECESSARY DUE TO CONTRACTOR'S PHASING OR OTHER UNANTICIPATED CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADDITIONAL DEVICES AS NECESSARY IN ORDER TO CONTROL EROSION AND SEDIMENTATION.
6. THE CONTRACTOR IS TO PROVIDE ADEQUATE MEANS OF CLEANING AND REMOVING ALL LAYING DUST AS NECESSARY BY APPLYING EITHER MOISTURE, CALCIUM CHLORIDE, OR OTHER APPROVED MATERIALS ALONG THOSE SECTIONS OF THE PROJECT ADJACENT TO EXISTING DWELLINGS OR PUBLIC ACCESS.
7. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH WORKING DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO STOCKPILE AREAS. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED AS MUCH AS POSSIBLE BY SHOVELING OR SWEEPING.
8. AREAS WHERE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER OF 70% OR GREATER) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.
9. FOR THIS PROJECT, THE APPLICANT WILL OBTAIN THE PRECIPITATION EVENT INFORMATION FROM A NOAA WEATHER STATION. THE NEAREST NOAA WEATHER STATION IS AS FOLLOWS:

WEATHER STATION NAME: KEARNEYSVILLE, WEST VIRGINIA

SITE ID: 46-4763

LATITUDE: 39.3568°

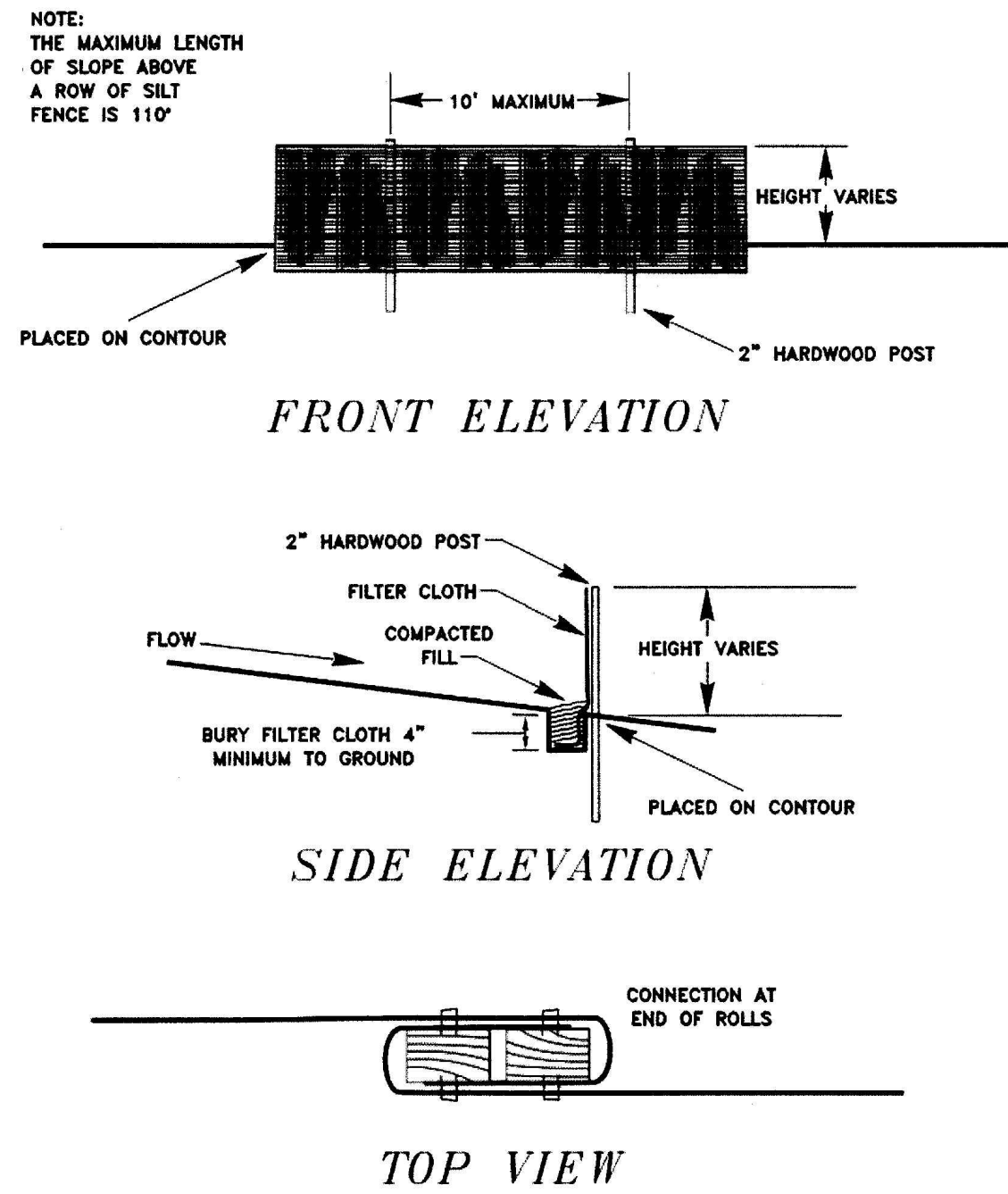
LONGITUDE: -77.8633°

ELEVATION: 571.25 FT.

JEFFERSON COUNTY EROSION & SEDIMENT CONTROL NOTES:

1. ANY AREA OF EXPOSED SOIL WHERE NO CONSTRUCTION IS ANTICIPATED FOR A PERIOD OF LONGER THAN THREE WEEKS OR WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR THREE WEEKS SHALL BE TEMPORARILY STABILIZED.
2. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT STABILIZATION SHALL BE COMPLETED WITHIN FOUR (4) CALENDAR DAYS AFTER COMPLETION OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND FOUR (4) CALENDAR DAYS AFTER REACHING FINAL GRADE FOR ALL OTHER DISTURBED OR GRADED AREAS.
 - THESE PROVISIONS DO NOT APPLY TO THOSE AREAS THAT ARE SHOWN ON THE PLAN FOR MATERIAL STORAGE OR FOR THOSE AREAS ON WHICH ACTUAL CONSTRUCTION ACTIVITIES ARE CURRENTLY BEING PERFORMED.
 - THESE TIME REQUIREMENTS MAY BE EXTENDED AS DEEMED NECESSARY BY THE JEFFERSON COUNTY ENGINEER IN THE EVENT THAT ADVERSE CONDITIONS PREVENT COMPLIANCE WITH THE STATED TIME LIMITATIONS FOR THE COMPLETION OF PERMANENT OR TEMPORARY STABILIZATION.
3. STABILIZATION WILL BE CONSIDERED ADEQUATE WHEN THE FOLLOWING CONDITIONS ARE MET:
 - A) WATER COURSES, STREAM BANKS, AND DRAINAGE EASEMENTS SHALL BE 100% STABILIZED AND FREE FROM EROSION AND DEPOSITION.
 - B) SLOPES STEEPER THAN 10% SHALL HAVE AT LEAST 98% STABLE GROUND COVER, AS DETERMINED BY THE JEFFERSON COUNTY ENGINEER.
 - C) ALL OTHER AREAS SHALL HAVE AT LEAST 85% STABLE GROUND COVER, AS DETERMINED BY THE JEFFERSON COUNTY ENGINE

SILT FENCE



(SF)

NOT TO SCALE

1. SECTION G.4.b.5 OF THE GENERAL PERMIT STATES THAT "WITHIN 72 HOURS OF FILING AN NOI (ONE TO LESS THAN THREE ACRES) OR A SITE REGISTRATION APPLICATION (THREE ACRES OR MORE) WITH THE DIVISION OF WATER AND WASTE MANAGEMENT (DWM), ALL PROJECTS SHALL DISPLAY A SIGN FOR THE DURATION OF THE CONSTRUCTION PROJECT NEAR THE ENTRANCE OF THE PROJECT OR, FOR LINEAR PROJECTS, AT A LOCATION NEAR AN ACTIVE PART OF THE PROJECT THAT IS ACCESSIBLE BY THE PUBLIC CONTAINING THE FOLLOWING INFORMATION:

- THE APPLICANT'S NAME OR THE NAME OF THE CONTACT PERSON, A TELEPHONE NUMBER AND ADDRESS WHERE THE APPLICANT CAN BE REACHED;
- A BRIEF DESCRIPTION OF THE PROJECT;
- A STATEMENT INDICATING THAT THE APPLICATION HAS BEEN SUBMITTED TO THE DIRECTOR;
- A STATEMENT THAT ANY PERSON MAY REVIEW THE APPLICATION BY USING PUBLIC QUERY FUNCTION OF THE ELECTRONIC SUBMISSION SYSTEM (ESS) LOCATED AT: http://apps.dep.wv.gov/WebApp_dev/Search/ePermitting/ePermittingApplication/SearchPage.dfm;
- ADDITIONALLY, THE SIGN SHALL NOTIFY THE PUBLIC THAT COMMENTS ABOUT THE PROPOSED PROJECT MAY BE SUBMITTED AT Dep.Comments@wv.gov;
2. THE SIGN SHALL BE A MINIMUM OF TWO FEET BY TWO FEET AND BE AT LEAST THREE FEET ABOVE GROUND LEVEL, CLEARLY VISIBLE AND LEGIBLE FROM A PUBLIC ROADWAY OR RIGHT-OF-WAY.
3. IF IT IS NOT FEASIBLE TO DISPLAY A SIGN AT OR NEAR THE PROJECT, THE APPLICANT MAY POST, WITHIN 72 HOURS OF FILING THE APPLICATION NOTICE CONTAINING THE FOREGOING INFORMATION AT A LOCAL PUBLIC BUILDING, INCLUDING, BUT NOT LIMITED TO, A TOWN HALL OR PUBLIC LIBRARY.
4. THE APPLICANT SHALL PROVIDE THE LOCATION WHERE THE SIGN OR NOTICE IS TO BE POSTED.
5. WITHIN 7 DAYS OF ASSIGNMENT OF THE PERMIT REGISTRATION NUMBER, THE APPLICANT SHALL AFFIX SUCH NUMBER TO THE SIGN OR TO THE POSTED NOTICE.

A TEMPLATE FOR THE SIGN IS AS FOLLOW

- THE TOP PART OF THE SIGN, DOWN TO THE WORDS "APPLICATION DATE", SHALL BE WORDED AND FORMATTED AS SHOWN. REMAINING TEXT SHALL BE FILLED IN BY THE APPLICANT (DATE, NAME OF REGISTRANT OR CONTACT, PROJECT DESCRIPTION, AND PHONE) IN THE SIZE AND FORMAT SHOWN. HIGH CONTRAST COLORS MUST BE USED.
 - THE SIGN SHALL BE A MINIMUM 24" x 24" WITH 1.6" AND 0.8" LETTERS
 - THE SIGN SHALL BE A MINIMUM 36" ABOVE GROUND LEVEL.
- ① 1.6" LETTERS

② 0.8" LETTERS

① For Info on NPDES

- ① For Info on NPDES
- ① Stormwater Permit
- ② To comment on Sediment Control Plans
- ① Call: 800-654-5227

or

② DEP.Comments@wv.gov
② DEP 601 57th Street SE, Charleston WV 25304

② Application Date: **04/15/26**

① REF ID: **SIDEWINDER**

① **RAW WATERLINE**

CHARLES TOWN UTILITY BOARD 304-725-2316

② **Permit ID:** WV113389

PLANTING DATES	APPLICATION RATE
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PLANT NAMES		PLANTING DATES	APPLICATION RATE LBS/ACRES
COMMON	SCIENTIFIC		
Annual Ryegrass	<i>Lotum multiflorum</i>	2/16 - 5/15 8/1 - 11/1	40
Field Bromegrass	<i>Bromus ciliatus</i>	3/1 - 6/15 8/1 - 9/15	40
Spring Oats	<i>Avena sativa</i>	3/1 - 6/15	100
Winter Rye	<i>Secale cereale</i>	8/15 - 2/28	170
Winter Wheat	<i>Triticum aestivum</i>	8/15 - 2/28	180
Japanese Millet	<i>Echinochloa crusgalli</i>	5/15 - 8/15	30
Redtop	<i>Agrostis alba</i>	3/1 - 6/15	10
Annual Ryegrass and Spring Oats	<i>Lotum multiflorum</i> <i>Avena sativa</i>	3/1 - 6/15	30 70
German/Foxtail Millet	<i>Setaria italica</i>	5/1 - 8/1	40
Hairy Vetch	<i>Vicia villosa</i>	8/15 - 4/1	60

*Inoculation is required. If a hydroseeder is utilized, the application rate is 5 times the recommended rate

RATE LBS/ACRE

	COMMON	SCIENTIFIC	DATE PLANTED
	Kentucky 31 Fescue	<i>Festuca arundinacea</i>	65
A	Red Fescue	<i>Festuca rubra</i>	20
	Birdfoot Trefoil	<i>Lotus corniculatus</i>	5
	Switchgrass	<i>Panicum virgatum</i>	15
B	Perennial Ryegrass	<i>Lolium perenne</i>	20
	Redtop	<i>Agrostis alba</i>	5
	Birdfoot Trefoil	<i>Lotus corniculatus</i>	15
	Red Fescue	<i>Festuca rubra</i>	20
C	Kentucky Bluegrass	<i>Poa pratensis</i>	40
	Merion Bluegrass	<i>Poa pratensis</i>	30
	Kentucky 31 Fescue	<i>Festuca arundinacea</i>	45
D	Red Fescue	<i>Festuca rubra</i>	20
	Kentucky Bluegrass	<i>Poa pratensis</i>	25
	White Dutch Clover	<i>Trifolium repens</i>	5
	Perennial Ryegrass	<i>Lolium perenne</i>	30
E	Switchgrass	<i>Panicum virgatum</i>	15
	Crownvetch or perennial Pea	<i>Coronilla varia</i>	20
		<i>Lathyrus latifolius</i>	30
F	Orchardgrass	<i>Dactylis glomerata</i>	20
	Ladino Clover	<i>Trifolium repens</i>	5
	Redtop	<i>Agrostis alba</i>	15
	Birdfoot Trefoil	<i>Lotus corniculatus</i>	15
G	Weeping Lovegrass	<i>Eragrostis curvula</i>	45
	Perennial Ryegrass	<i>Lolium perenne</i>	10
H	Crownvetch	<i>Coronilla varia</i>	25
	Orchardgrass	<i>Dactylis glomerata</i>	20
I	Crownvetch	<i>Coronilla varia</i>	25
	Perennial Ryegrass	<i>Lolium perenne</i>	30
J	Perennial Pea	<i>Lathyrus latifolius</i>	30
	Orchardgrass	<i>Dactylis glomerata</i>	30
	Deerfongue	<i>Panicum clandestinum</i>	30
K	Birdfoot Trefoil	<i>Lotus corniculatus</i>	15
	Weeping Lovegrass	<i>Eragrostis curvula</i>	5
	Orchardgrass	<i>Dactylis glomerata</i>	30
L	Serecia Lespedeza	<i>Lespedeza cunata</i>	40
	Ladino Clover	<i>Trifolium repens</i>	5
	Perennial Ryegrass Ladino	<i>Lolium perenne</i>	50
M	Clover	<i>Trifolium repens</i>	5
	Redtop	<i>Agrostis alba</i>	15
	Crownvetch	<i>Coronilla varia</i>	15
N	Orchardgrass	<i>Dactylis glomerata</i>	30
	Redtop	<i>Agrostis alba</i>	5

Cont'd

SEED MIX	PLANT NAMES		APPLICATION RATE LBS/ACRE
	COMMON	SCIENTIFIC	
O	Perennial Ryegrass	Lolium perenne	40
	Birdsfoot Trefoil	Lotus corniculatus	15
	Redtop	Agrostis alba	5
P	Serecia Lespedeza	Lespedeza cunata	40
	Orchardgrass	Dactylis glomerata	30
	Redtop	Agrostis alba	5
Q	Orchardgrass	Dactylis glomerata	25
	Reed Canarygrass ¹	Phalaris arundinacea	30
	Redtop	Agrostis alba	5
	Ladino Clover	Trifolium repens	5
R	Kentucky Bluegrass	Poa pratensis	30
	Redtop	Agrostis alba	5
	White Clover or Birdsfoot Trefoil	Trifolium repens	5
		Lotus corniculatus	15
S	Reed Canarygrass ¹	Phalaris arundinacea	40
	Weeping Lovegrass	Eragrostis curvula	5
T	Perennial Ryegrass	Lolium perenne	30
	Reed Canarygrass ¹	Phalaris arundinacea	15
	Birdsfoot Trefoil	Lotus corniculatus	5
U	Timothy	Phluem pratense	10
	Alfalfa	Medicago sativa	18
V	Timothy	Phluem pratense	10
	Birdsfoot Trefoil	Lotus corniculatus	15
W	Redtop	Agrostis alba	5
	Perennial Ryegrass	Lolium perenne	30
	Orchardgrass	Dactylis glomerata	25
X	Reed Canarygrass ¹	Phalaris arundinacea	30
	Birdsfoot Trefoil	Lotus corniculatus	20
	Redtop	Agrostis alba	5
Y	Switchgrass	Panicum virgatum	30
	Birdsfoot Trefoil	Lotus corniculatus	20
Z	Switchgrass	Panicum virgatum	15
	Serecia Lespedeza	Lespedeza cunata	30
A-1	Orchardgrass	Dactylis glomerata	30
	Red Clover	Trifolium pratense	10
A-2	Switchgrass	Panicum virgatum	15
	Big Bluestem	Andropogon gerardi	5
	Indiangrass	Sorghastrum nutans	5
	Little Bluestem	Andropogon scoparius	5
	Sideoats Grama ²	Bouteloua curtipendula	5
A-3	Switchgrass	Panicum virgatum	20
	Eastern Canaggrass ³	Tripsacum dactyloides	15

NOTE: When utilizing a properly prepared seedbed, the rates of application can be reduced by 30 percent except for seed mixes A-2 & A-3.

- 1 Reed Canarygrass shall not be used east of I-79 and/or south of Charleston.
2 Use north and east of I-64 and I-79.
3 Use south and west of I-64 and I-79.

CROPS

PLANT NAMES		PLANTING DATES	APPLICATION RATE LBS/ACRE
COMMON	SCIENTIFIC		
Annual Ryegrass	<i>Lolium multiflorum</i>	2/16 – 5/15 8/1 – 11/1	25
Field Bromegrass	<i>Bromus ciliatus</i>	3/1 – 6/15 8/1 – 9/15	20
Spring Oats	<i>Avena sativa</i>	3/1 – 6/15	50
Winter Rye	<i>Secale cereale</i>	8/15 – 2/28	85
Winter Wheat	<i>Triticum aestivum</i>	8/15 – 2/28	90
Japanese Millet	<i>Echinochloa crusgalli</i>	5/15 – 8/15	15
Redtop	<i>Agrostis alba</i>	3/1 – 6/15	10
Annual Ryegrass and Spring Oats	<i>Lolium multiflorum</i> <i>Avena sativa</i>	3/1 – 6/15	15 35
German/Foxtail Millet	<i>Setaria italica</i>	5/1 – 8/1	25
Hairy Vetch*	<i>Vicia villosa</i>	8/15 – 4/1	30

* Inoculation is required. If a hydroseeder is utilized, the application rate is five times the recommended rate

application rates

Mulches:	Rates:		Notes:
	Per acre	Per 1,000 ft ²	
Straw or hay	1½ - 2 tons (minimum 2 tons for winter cover)	70 - 90 lbs	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber mulch	Minimum 1,500 lbs	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Cornstalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs. nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark chips or Shredded bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2,000 lbs./ac. or 45 lbs./1,000 sq. ft.

From VA DGWC

SEED PREFERRED	FINE LAWN	COARSE LAWN	LOW MAINT.	NO MAINT.	PASTURE	SENSITIVE NATURAL AREAS	pH RANGE	DRAINAGE	SHADE TOLERANCE	PREFERRED PLANTING DATES				
										3/1-6/15	6/16-8/14	8/15-9/15	9/16-2/28	
A			✓ 1				6.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
B				✓			5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
C	✓ 1						6.0-7.5	MOD. WELL	FULL SUN	✓		✓		
D		✓ 1					6.0-7.5	MOD. WELL	FULL SUN	✓		✓		
E				✓ 1			6.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
F			✓	✓	✓		5.5-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
G				✓	✓		5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
H			✓	✓ 1	✓		5.0-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
I			✓	✓ 1	✓		5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
J			✓	✓ 1	✓		4.0-8.0	MOD. WELL	TOLERANT	✓	*	✓	*	
K				✓			4.0-7.0	MOD. WELL	FULL SUN	✓	*	✓	*	
L					✓		4.5-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
M			✓	✓	✓		5.0-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
N			MOD	✓ 1	✓		5.0-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
O			✓	✓	✓		5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
P			✓	✓	✓		4.5-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
Q			✓	✓	✓		4.5-7.5	POOR. WELL	TOLERANT	✓	*	✓	*	
R				✓	✓		5.5-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
S			✓	✓	✓		4.5-7.5	POOR. WELL	FULL SUN	✓	*	✓	*	
T					✓		5.5-7.5	POOR. WELL	FULL SUN	✓	*	✓	*	
U					✓		6.5-8.0	MOD. WELL	FULL SUN	✓	*	✓	*	
V					✓		5.5-7.5	POOR. WELL	FULL SUN	✓	*	✓	*	
W			✓	✓	✓		5.0-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
X					✓		5.5-7.5	POOR. WELL	FULL SUN	✓	*	✓	*	
Y			✓	✓	✓		5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
Z			✓	✓	✓		5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
A-1				✓	✓		4.5-7.5	MOD. WELL	TOLERANT	✓	*	✓	*	
A-2				✓	✓		5.0-7.5	MOD. WELL	FULL SUN	✓	*	✓	*	
A-3				✓	✓	✓	5.0-7.5	POOR. WELL	FULL SUN	✓	*	✓	*	

- Nurse crop required – See Table B

1 Urban areas only

EROSION AND SEDIMENT CONTROL NOTES & DETAILS

SIDEWINDER RAW WATER LINE

JEFFERSON COUNTY, WEST VIRGINIA

SCALE:	HORIZ.: N/A	
	VERT.:	
DATE: AUGUST 2023		
JOB: 3138-0102		
DRAWN: RJP		CHECK: JPG
CADD: C-CG-001.DWG		
NCS:		
SHEET:		