AGENDA

KING & QUEEN COUNTY PLANNING COMMISSION

MONDAY, APRIL 7, 2025

6:00 P.M.

COURT ROOM

- 1. Call to Order
- 2. Roll Call/Determination of Quorum
- 3. Approval of Minutes
 - a. March 3, 2025 Regular Monthly Meeting
- 4. Citizens Comment Period Planning Related Issues Only (other than items on the agenda)
- 5. New Business
 - a. SP24-04 Mattaponi Sand & Gravel LLC Level 3 Site Plan (set public hearing)

Request for approval of a level 3 site plan to operation a surface mine on property located at the intersection of Spring Cottage Road and Eastern View Road, further identified as County Tax Map No. 1632-78R-680. Conditional Use Permit (CUP) approval was previously granted by the King & Queen County Board of Supervisors on December 9, 2002.

- 6. Old Business
- 7. Staff's Comments
 - a. Upcoming Application(s) (if any)
 - b. Other Comments/Updates (if any)
- 8. Commissioner's Comments
- 9. Meeting Schedule

The next meeting will be on <u>Monday, May S, 2025</u> at 6:00 p.m. in the Court Room of the Courts & Administrative Building.

10. Adjournment

ITEM #1:

Chairman calls the April 7, 2025, Planning Commission meeting to order.

Note: In the absence of the Chairman, the Vice-chair will lead the meeting. In the absence of both the Chairman and Vice-chair, the Secretary will call the meeting to order.

ITEM #2:

Chairman asks the Secretary to call the roll to determine if there is a Quorum.

ITEM #3:

Approval of Minutes:

Chairman will ask for a motion and a second to accept or not accept the March 3, 2025, minutes as presented.

Note: If you did not attend the meeting, when taking a roll call vote, you abstain.

If you have any corrections or additions, this is the time to note such and include in your motion.

King & Queen County Planning Commission Minutes March 3, 2025

The King & Queen County Planning Commission met on Monday, March 3, 2025, at 6:00 p.m. in the King & Queen County Courts and Administrations Building in the General District Courtroom for their regular monthly meeting.

Planning Commission Members Present:

Mac Bradley Robert Coleman, Jr. Hunter Richardson Edmond Wilson, Jr. David Campbell Jonathan Massey

Also in Attendance:

Vivan Seay, County Administrator/County Attorney Donna Elliott Sprouse, Director of Community Development Kelly Evko, Economic Development Director

Call to Order

Chairman, Mr. Richardson, called the meeting to order.

Roll Call/Determination of Quorum

In the absence of Mr. Jackson, Mr. Campbell took roll call and determined that a quorum was present.

Approval of Minutes February 3, 2025

After review of the revised February 3, 2025 minutes, a motion was made by Mr. Coleman to accept the revised minutes as presented, seconded by Mr. Wilson.

Voting For: Wilson, Coleman, Richardson, Campbell, Bradley, Massey

Voting Against: None

Abstain: None

Citizens Comment Period

Mr. Richardson opened the floor for citizens comment period.

Hearing none, citizens comment period was closed.

New Business

None.

Old Business

A. Zoning Text Amendment ZA24-02 – Article 4, Table 4.1 Energy Generation Facilities by Natural Resources & Computer Data Processing (deferred from 02/02/2025)

Mr. Richardson noted that the Commission held a public hearing for zoning text amendment ZA24-02 during their last meeting. The request was a county submitted text amendment request to consider amending the permitted use table found in Article 4. Specifically, the text amendment would allow energy generation facilities by natural resources by approved conditional use permit in the Agricultural zoning district. The text amendment also included a request to allow for computer data processing in the Agricultural zoning district by approved conditional use permit. Mr. Richardson added that during the time that the County was considering Walnut Solar, there were other solar developers looking at King and Queen. He noted that the Board decided to change the ordinance and have energy generation facilities by natural resources removed from the Agricultural zoning district by approved conditional use permit and have them instead in the Industrial zoning district by approved conditional use permit. He added that the County is now asking to revert back to allowing energy generation facilities in the Agricultural zoning district by approved conditional use permit. Mr. Richardson noted that the Commission, during their last meeting, decided to defer the request so that we could further research the request.

Mr. Coleman noted that the deferral was agreed to by the Commission at his request. He requested more time so that he could learn more about the text amendment and to have the opportunity to ask constituents what their thoughts were regarding the request. He noted that he had the opportunity to speak with some people about the request and the overall consensus was that the citizens were concerned about having these large parcels zoned for Industrial uses and the possibility of them being developed with an Industrial use in the future. The citizens would much rather such a use be placed in the Agricultural zoning district by approved conditional use permit rather than in the Industrial zoning district. Mr. Coleman further noted that the Commission and Board separately, will work hard to review the conditions, along with the site plan. This provides the opportunity to strengthen our position on the project.

Mr. Bradley stated that he was with Mr. Coleman when he spoke to some of the citizens. He further stated that he liked the thoughts of one of the citizens who spoke last month, Mr. Hart, who said that it was better to wait to see what happens with Walnut Solar while it is being constructed. He was for leaving it as is for now.

Mr. Massey noted that the solar developers are already speaking with citizens on Buena Vista going south to Gloucester County and north of Rt 360. Mr. Massey noted that whatever we decide, it is not going to stop the applications.

Mr. Richardson asked if Ms. Seay had any additional thoughts or comments.

Ms. Seay noted that though these conversations come up based on the anticipation of applications regardless of whether the County has them or if they are forthcoming, changes to the County ordinance should not be made with specific projects in mind. The Board should make such decisions based on land use planning for the County as a whole.

If the Commission is going to entertain allowing this use or not, they must determine what zoning district is the best fit for that use. She stated that she does not recommend placing solar in the Industrial zoning district. explained that mining could certainly be considered an Industrial use and the Commission could look at that. She clarified that she was not suggesting making changes to the mining use, just simply using it as an analogy.

Mr. Wilson stated that he went through the Comprehensive Plan. He explained that it is very grey because it states that the Commission should do what is right for the people of the County and also do what is right for the growth of the County. He said that this case was somewhere in the middle.

Ms. Seay stated that she also wanted to point out something that Mrs. Sprouse had also pointed out previously, regarding conditional use permits. She noted that it was her understanding that there was this thought by the Commission that the Commission could not deny a conditional use permit, that it was a by right use with conditions. She stated that this was not the case and that the Commission can deny a conditional use permit. She believes that this was the thought previously that if a conditional use permit application came in, and the County agreed to a set of conditions, that the Commission had to approve it. Ms. Seay said that is not the law.

Mr. Wilson said solar projects used to be allowed in the Agricultural district, but then it was changed to the Industrial district, which made it more difficult for the applicant. Ms. Seay agreed. Mr. Wilson then questioned why was the County considering changing it.

Ms. Seay further explained that the text amendment to allow solar projects in the Industrial district rather than the Agricultural district served more as a deterrent in hopes of slowing solar development. It was successful for some years, but now the County is finding that the developers are not backing down to the fact that they need to seek rezoning to Industrial to apply for solar. Then the applicant will proffer away all uses in the Industrial zoning district but solar. At that point, the Commission doesn't have a reason to not consider a rezone. The Commission could still consider the conditional use permit. However, the County is left with this Industrial parcel in a rural area.

Mr. Richardson noted that this is where it touches on him a bit, these little spots throughout the County that gets changed to Industrial. Then for whatever the reason, the project doesn't materialize; or technology changes or they become obsolete and the company starts pulling

up wires and tossing panels. The County is then left with this Industrial property in a random spot in the middle of nowhere. Someone could later come in and build some noisy industry in the middle of the County. At that point you are dealing with spot zoning.

Ms. Seay stated that could happen potentially, but what these developers often do is forgo all of those industrial uses other than solar if the rezoning is approved. Then you are left with an Industrial zoned parcel that can only have solar.

Mr. Coleman asked for clarification regarding if a parcel was zoned Agricultural and the County had an application for a solar project, with the applicant having their list of conditions and the Commission having their own set of conditions. If the Commission and the applicant couldn't come to an agreement on the conditions, the Board will get both the Commission's and applicant's conditions. Then the Board could have their own set of conditions that they feel is most appropriate.

Ms. Seay stated that Mr. Coleman is correct. She explained that the Board could deny the project all together.

Mr. Coleman then asked if there was no agreement on conditions or if the project was denied, would the applicants have to then go find another parcel for their project?

Ms. Seay noted that he was correct, but even if there is an agreement on conditions at the Planning Commission level, the Board could deny the conditional use permit all together. If the Board doesn't believe that this project is in the best interest of the health, safety, and welfare of the County citizens in the proposed area, provided that their reasons are not arbitrary or capricious, they could still deny the project.

Mr. Richardson noted that the comments received from the public was to slow it down and that they didn't want any more solar development. However, the Commission's best tool to make site specific decisions is the conditional use permit, not the zoning of the parcel. Should the Commission and Board choose to allow one panel per 100 acres or increase its buffers from other solar sites, they will then have to make it work or not.

Ms. Seay stated that she would be ingenuine if she did not agree that the rezoning is another barrier. However, it is one that the developers have navigated around. The rezoning is not the deterrent that it once was. Further, Ms. Seay stated that she does not recommend drafting you're the County's zoning ordinance in such a way to be the barrier or deterrent. If there is a use that the Commission just doesn't like or the Commission doesn't want, there are other ways to accomplish that, rather than messing with your zoning map.

Mr. Richardson stated that based on the interest that Mr. Massey made reference to, regardless if it is in the Plainview area or not, it is still there. Therefore, the zoning requirements for solar is not slowing it down.

Mr. Coleman echoed Mr. Richardson's comment, further stating that there is interest in the Newtown area as well. People have been contacted about solar in the area. He stated that it

is not just in the lower end of the County. Mr. Coleman stated that Rappahannock Electric has a high-powered line that runs through Newtown.

Mr. Wilson added that it is not just solar, it includes data centers as well.

Mr. Massey asked what surrounding localities were doing.

Mrs. Sprouse stated that she could not answer for all surrounding localities, but both Essex and Gloucester require a conditional use permit in their perspective agricultural districts.

Mrs. Sprouse stated that she had received minutes from the Essex County Planning Commission meeting regarding a proposed solar development in the Ozena area of the County. She stated that the Planning Commission recommended denial of the conditional use permit. They did not even approve conditions to pass to the Board. It is her understanding that the Planning Commission's recommendation is now with the Essex Board for consideration.

Mr. Campbell noted that he saw that there is a proposed solar development near Jim Hall store.

Ms. Seay noted that some localities have solar overlay districts. In a county like King & Queen, it is so long that solar development depends on where your power lines are and where there is capacity.

Mr. Campbell stated that he did not mind solar farms or windmills on top of a shopping center or courthouse roof. However, where they are placed now, we are the county losing a lot of acres that has been used for agricultural for 40 plus years.

Mr. Massey stated that he would like to see the current project through to see the implications or impact before considering another project. He noted that solar farms are not cost effective at all.

Mr. Richardson stated that at some point we need a motion and then someone that agrees to that motion to second that motion. Then the Commission will take a vote. He said that it sounds as if the Commission was fifty/fifty. He has heard comments that lean towards agreeing with staff's request for the change and he has heard comments that suggests the Commission leave it as it is. He encouraged the Commission to vote the way they feel and explain why they are voting the way that they are. He added that the Commissions comments will help the Board when it reaches their agenda.

Mrs. Sprouse stated that she wanted to make one other item clear before they vote. She asked if Mr. Massey's comment about waiting was referring to waiting on making a change to the zoning ordinance and leave it the way that it is or was referring to waiting on any future solar applications. She noted that she can not pause applications for solar. In fact, if an application came in next week, it will be processed per the adopted zoning ordinance. Ms. Seay stated this applies not just to the County zoning ordinance but also to state law.

Mr. Richardson added, to be clear, vote or motion is either the Commission keep the zoning code as it is and allow solar in Industrial zoning by approved conditional use permit and data centers in the commercial districts as a by-right use or allow solar and data centers in the Agricultural zoning by approved conditional use permit.

Mr. Richardson asked if the Commission would rather vote on them separately or together.

Mr. Wilson stated that data centers are not currently allowed in the Agricultural zoning district and that the request was to take both solar and data centers and allow them by approved conditional use permit in the Agricultural zoning district. Mr. Richardson said this was true.

Mrs. Sprouse noted for clarification purposes that the request was not to change what is in place now, but rather to add these uses in the permitted uses table in the Agricultural zoning district by approved conditional use permit. Data centers will still be by right in the commercial districts.

Mr. Wilson noted that it comes down to the conditional use permit regardless of whether the parcel is zoned Industrial or Agricultural.

Mr. Richardson stated that was the reason the County has submitted this proposed text amendment for a change.

Mr. Richardson asked again if the Commission would rather vote on them separately or together. He added that it was perfectly fine if they were not in an agreement and to vote how they felt was best.

Mr. Massey suggested that they break the proposed amendment up as two separate votes.

Mr. Richardson stated that they will take energy generation faculties by natural resources first.

Mr. Wilson noted that he simply wishes our Comprehensive Plan was a little clearer. Mr. Richardson stated that the Comprehensive Plan update just left the Commission's desk. Ms. Seay noted that the Comprehensive Plan is a good planning tool or reference, however it is not binding. Mr. Wilson noted that he and Mr. Bradley were just at the 116th PC training class and that is what they preached. If something is going on in your County, perhaps you should go back to your Comprehensive Plan for guidance.

A motion was made by Mr. Coleman to recommend approval of zoning text amendment ZA24-02 for allowing energy generation facilities by natural resources in the Agricultural zoning district by approved conditional use permit. He noted that he made the motion because he feels that the best tool that the Commission and Board of Supervisors has is the conditional use permit. Mr. Coleman's motion was seconded by Mr. Bradley.

Mr. Richardson asked if there was any further discussion before taking a roll call vote.

Mr. Bradley asked if this decision could be changed in the future. Ms. Seay noted that it could be changed though the same process, a text amendment.

Hearing no further comments, a roll call vote was taken.

Voting For: Wilson, Coleman, Richardson, Campbell, Bradley, Massey

Voting Against: None

Abstain: None

Mr. Richardson asked if there was a motion for ZA24-02, allowing computer data processing in the Agricultural zoning district by approved conditional use permit, or whether the Commission should leave it as is.

Mr. Coleman asked for clarification purposes, if computer data processing would still be a by right use in the Commercial zoning districts. Mrs. Sprouse stated that it would.

Mr. Richardson stated that a by right use means there are no conditions as there are in a conditional use permit. Mrs. Sprouse stated he was correct. Mrs. Sprouse added that staff is not looking to change what is already allowed, but simply adding computer data processing in the Agricultural zoning district by approved conditional use permit.

Ms. Seay stated that with data centers, they are limited to where they can be placed based on resources, in particular electricity. However, with new technology and power sources, it could possibly expand where they may go in the future.

Mr. Bradley asked about the size of these data centers.

Ms. Seay stated that it really depends on who is leasing the space. A relatively small one may be on about 20-30 acres when taking in to consideration its buffers, parking, etc. A campus proposal, which means more than one, could take up a few hundred acres.

Mr. Bradley noted that was what he was concerned about.

Ms. Seay said compared to a 1,700-acre solar farm, its relatively small. These structures are like very large office buildings.

Mr. Wilson asked what would a county get out of a data center.

Ms. Seay stated that a locality close by has revenue projections of 18 million a year. She noted that Chesterfield and Henrico have several. Loudon County has over 200 data centers now and their revenue is in the billions.

Mr. Coleman asked if the revenue comes from the infrastructure, such as the building and real estate. Ms. Seay noted it mostly comes from machinery and tools tax on their equipment.

She is going to propose a text amendment to the tax code, creating a new category for computers and such equipment separate from the business personal property tax. This is so it will position the County much better should the Board want a data center in the future.

Mr. Massey asked if there was a large environmental impact with data centers. He understood that they use a lot of water for cooling. Ms. Seay stated that water is a scarce commodity nationwide. The industry is looking at new technology which uses little to no water, which they call dry campuses. She noted that Mrs. Evko could speak more on this issue.

Mrs. Evko noted that things have changed so much over the last 18 months. The technology has come so far, especially regarding the water used. One reason there are so many in Virginia is because of the tax structure. There are 571 data centers in Virginia currently. The tax structure that was created for data centers is about to sunset, though it was brought up in the General Assembly this year. They did not push back the sunset date. She believed that the sunset date is 2035. Virginia was way ahead of the game. Atlanta and Georgia have been very aggressive in seeking data centers and have increased their numbers dramatically. There are two different things planned in Chesterfield. There are about 20 on tap for Henrico County presently and more in other counties around us. If you look at the map of data center construction, it is moving down from Loudon to Fredericksburg and south. She noted that there is a way to allow for these data centers and to do so in a manner that does not ruin the rural nature of the County, but yet creates the tax revenue. What is going to happen is, as everything continues to get more expensive, the County will have several solar farms, which are not a huge source of revenue to the County at all, and County's waste facility will eventually go away and then what will replace that revenue? The County will need to make up that lost revenue source. It is an investment and will not happen next week. One campus site would be ideal, but it has to be where your power is in your locality. Data centers cannot simply be placed anywhere. Usually there are large buffers and it is placed off the road, along with other conditions in the County's conditional use permit, so that they will not be offensive in the County.

Mr. Wilson noted that what he is hearing from all of this discussion is conditional use on any individual item that comes before the County.

Mr. Richardson added that when an application comes across their table, even a sand and gravel mine site, cat liter plant, or solar farm; the Commission has the ability to make these conditions. The staff will prepare recommended conditions for the Commission and will add, subtract, change, etc. and forward their recommendation to the Board. The Board then does the same.

Mrs. Sprouse stated that she has started some research on data centers and has pulled from other localities their conditions, ordinance requirements, and lessons learned. This is so that if the County were to receive a proposal for a data center, some of the work and research has been already done.

Mr. Richardson asked if the Commission is now ready to make a motion.

A motion was made by Mr. Coleman to recommend approval of ZA24-02, allowing for computer data processing in the Agricultural zoning district by approved conditional use permit. Mr. Coleman's motion was seconded by Mr. Massey.

Mr. Richardson asked if there was any discussion. Hearing none, Mr. Richardson asked for a roll call vote.

Voting For: Wilson, Coleman, Richardson, Campbell, Bradley, Massey

Voting Against: None

Abstain: None

Staff's Comments

No comments.

Commissioner's Comments

Mr. Wilson stated that they all try their best to make the best decisions for the County, as they all live here and do not want to make any mistakes in their decisions.

Adjournment

Mr. Richardson noted that the next meeting is set for Monday, April 7, 2025, at 6 p.m.

There being no further business, motion was made by Mr. Jackson to adjourn. The motion was ratified by all present members stating "Aye".

Hunter Richardson, Chairman

ITEM #4:

Citizen Comment Period:

Before opening the floor, advise the public that this is an opportunity to come before the Commission with comments that are not pertaining to the action items listed on the agenda.

Open the floor for citizen comment, ask that citizens state their name, address, the voting district in which they reside. If there's a full agenda, consider asking that they try to limit their time to 3-5 minutes so that everyone has an opportunity to speak.

After hearing all comments or if there are no comments, close citizen comment period.

ITEM #5:

New Business:

A. SP24-04 – Mattaponi Sand & Gravel LLC – Level 3 Site Plan – (set public hearing)

Request for approval of a level 3 site plan to operation a surface mine on property located at the intersection of Spring Cottage Road and Eastern View Road, further identified as County Tax Map No. 1632-78R-680. Conditional Use Permit (CUP) approval was previously granted by the King & Queen County Board of Supervisors on December 9, 2002.

Ask staff to review the request (if necessary).

Ask for a motion to set a public hearing for SP24-04, for May 5, 2025, ask is there a second.

Take a roll call vote or ask for all those in favor to say "Aye"

Keep in mind to not discuss details of the request until your public hearing; to allow for the application, agent, and the public an opportunity to participate.

GENERAL NOTES

 OWNER: MATTAPONI SAND & GRAVEL LLC. c/o KYLE MURRAY P.O. BOX 2000 GAMBRILLS, MD 21054

(443) 871-3440

(443) 871-3440

- 2. DEVELOPER: MATTAPONI SAND & GRAVEL LLC. c/o KYLE MURRAY P.O. BOX 2000 GAMBRILLS, MD 21054
- 3. THE LAND DELINEATED HEREON IS LOCATED ON COUNTY TAX MAP 1632-78R-680.
- 4. SITE IS ZONED: A (AGRICULTURAL, 181.27 AC. + / -) & I (INDUSTRIAL, 5.00 AC. + / -).
- 5. VERTICAL DATUM: NAVD 88.
- 6. THIS PARCEL LIES IN ZONE X, AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, ZONE A, AREA DETERMINED TO HAVE NO BASE FLOOD ELEVATION, AS DEFINED ON THE NATIONAL FLOOD INSURANCE RATE MAP PANEL NO. 51097 C 0075 C, DATED OCTOBER 21, 2021. THE ZONE LINES SHOWN ARE APPROXIMATE AND SCALED FROM SAID MAP.
- 7. PARCEL AREA TOTAL: 186.27± AC.
- 8. MINING PERMIT LIMIT AREA: 161.08± AC. (INCLUDES 300' AND 50' UNDISTURBED BUFFERS, EXCLUDES RPA AND 100' RPA BUFFER)
- 9. AREA OF UNDISTURBED BUFFERS: 55.82 AC. (INCLUDES 300' AND 50' UNDISTURBED BUFFERS, RPA AND 100' RPA BUFFER, 29% OF TOTAL PARCEL AREA)
- 10. APPLICABLE CONDITIONAL USE AREA: $186.27 \pm AC$.
- 11. TOTAL AREA OF NON-RESIDENTIAL USE: 186.27± AC.
- 12. TOTAL AREA OF RESIDENTIAL USE: 0.00 AC.
- 13. TOTAL AREA OF LAND DISTURBANCE: 127.56± AC. (CLEARING LIMIT=AREA OF MINING OPERATIONS, 69% OF PARCEL)
- 14. RESOURCE PROTECTION AREA: 25.19 AC.; NONE WITHIN 161.08 AC. MINE PERMIT LIMIT
- 15. RESOURCE MANAGEMENT AREA: 28.08 AC.
- 16. AREA OF SLOPES GREATER THAN 20-PERCENT: 2.11 AC. WITHIN 161.08 AC. MINE PERMIT LIMIT
- 17. AREA OF WETLANDS: 19.15 AC.; NONE WITHIN 161.08 AC. MINE PERMIT LIMIT
- 18. THERE ARE NO TIDAL OR NON-TIDAL WETLANDS IMPACTED BY THE PLANNED MINING OPERATIONS.

PROJECT DESCRIPTION

THE PURPOSE OF THIS LEVEL 3 SITE PLAN IS TO OBTAIN REGULATORY APPROVALS FOR SURFACE MINING OPERATIONS ON TAX PARCEL 1632—78R—680 IN ACCORDANCE WITH CONDITIONAL USE PERMIT CU02-08 APPROVED BY THE KING AND QUEEN COUNTY BOARD OF SUPERVISORS ON DECEMBER 9, 2002. THE AREA OF MINING OPERATIONS AND MINERAL SOIL EXTRACTION ON THE MATTAPONI SAND & GRAVEL MINE SITE WILL BE LOCATED OUTSIDE OF

DESIGNATED CHESAPEAKE BAY PRESERVATION AREA RESOURCE PROTECTION AREAS AND CU02-08 REQUIRED UNDISTURBED PERIMETER BUFFERS. FINAL SITE RECLAMATION GRADING WILL DIRECT STORM RUNOFF FROM THE MINING AREA TO THE PROJECT'S PERMANENT SEDIMENT BASIN FACILITY. THE PROJECT WILL BE SUBJECT TO THE CONDITIONS OF CONDITIONAL USE PERMIT CU02-08.

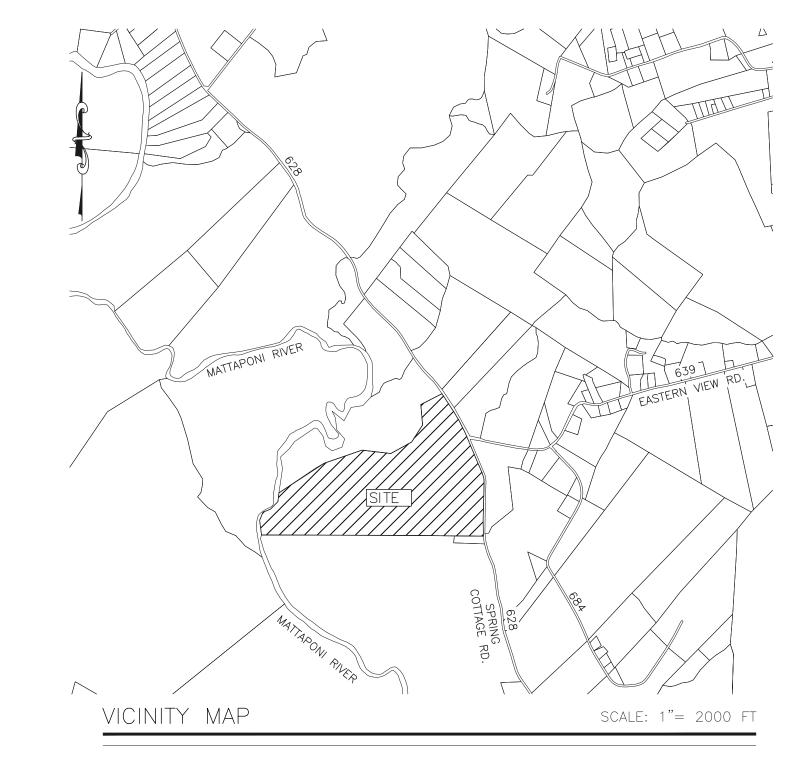
THE NEW OFFICE WILL BE SERVED BY A PRIVATE CLASS IIIB WATER SUPPLY WELL AND A PRIVATE ON-SITE SEPTIC DRAINFIELD SYSTEM DESIGNED TO ACCOMMODATE SEWAGE FLOWS OF UP TO 450 GALLONS PER DAY, EMPLOYMENT AT THE FACILITY IS EXPECTED TO INCLUDE UP TO 8-FULL TIME EMPLOYEES. PARKING FOR EMPLOYEES AND VISITORS WILL BE LOCATED ADJACENT TO THE OFFICE. THE PARKING AREA WILL INCLUDE 9-REGULAR 10'x20' 90-DEGREE PASSENGER VEHICLE PARKING STALLS AND 1-ADA 10'x20' PARKING STALL WITH A 9'x20' ADA ACCESS AISLE. ADA ACCESS TO THE OFFICE WILL BE ADA COMPLIANT. ILLUMINATION OF THE SITE WILL BE LIMITED TO THAT WHICH IS REQUIRED BY THE BUILDING CODE FOR INGRESS AND EGRESS, AND MINIMAL ILLUMINATION OF THE OFFICE PARKING AREA AS REQUIRED FOR PUBLIC SAFETY.

KEYNOTES:

- New VDOT WP-2 Mill and Overlay, 2" mill depth with 2" VDOT SM-9.5A bituminous asphalt overlay.
- New VDOT CG-13 Commercial Entrance, 50' entrance radii with 50' pavement tapers, 14' offset from existing edge of pavement on SR 628, no curb. Provide minimum 6' shoulder surfaced with permanent grass cover. Match existing grade at edge of existing SR 628 pavement.
- New Infiltration Basin No. 1 excavated to bottom elevation 44.78, 3-foot minimum storage depth, outlet crest elevation 47.78 matches existing SR 628 roadside ditch invert elevation. Basin bottom 32' (W) x 64'(L); 5:1 side slopes to elevation 47.78, 3:1 side slopes above elevation 47.78. Provide 2" thick surface layer of washed No. 3 to No. 5 gravel over basin bottom and 5:1 side slopes.
- New Infiltration Basin No. 2 excavated to bottom elevation 44.50, 3-foot minimum storage depth, outlet crest elevation 47.50 at upstream end of outlet channel (Kenote 6 below). Basin bottom 32' (W) x 64'(L); 5:1 side slopes to elevation 47.50, 3:1 side slopes above elevation 47.78. Provide 2" thick surface layer of washed No. 3 to No. 5 gravel over basin bottom and 5:1 side slopes.
- New Infiltration Basin No. 1 Outlet Exit Channel, see detail Sheet C8, 4' bottom width trapezoidal channel, slope is flat at elevation 47.78 to match existing SR 628 roadside ditch invert elevation.
- New Infiltration Basin No. 2 Outlet Exit Channel, see detail Sheet C8, 4' bottom width trapezoidal channel, slope is 0.0106 ft/ft for 32' length from basin outlet at crest elevation 47.50 to match existing SR 628 roadside ditch invert elevation of 47.16.
- [7] End new VDOT CG-13 concrete haul road surface (or alternate bituminous asphalt surface) and begin new haul road surfacing with VDOT No. 21A aggregate, STA 1+00.
- 8 End temporary stone construction entrance, end of new haul road surfacing with VDOT No. 21A aggregate, and begin new haul road surfacing with on-site mined sand and gravel surfacing, STA 3+50.
- 9 New entrance security gate as selected by the Owner.
- New Mine Site Identification sign as required by Virginia Department of Energy, Mineral Mining Division. Sign to be erected to conform with King and Queen County Code of Ordinances, Part II Unified Land Use Regulations, Article 16 - Signs. Sign shall be placed at least ten (10) feet interior to the site from the SR 628 right-of-way and at least 40-feet from either side property line. The site identification sign shall not exceed 10-square feet in surface area and shall not exceed 6-feet in height as measured from existing or finished grade at the base of the sign.
- New ADA van accessible parking stall with access aisle, concrete surfaced. See section details on Sheet C8.
- New ADA sign with additional towing penalty placard.
- New precast concrete wheel stop, 6" (H) x 72" (L)
- affixed with (2) No. 6 deformed steel bar dowels embedded 24" below wheel stop and driven flush with the top of the wheel stop.
- New parking area lighting with photocell control. Fixture to be Streetworks USSL LED fixture model number USSL A01 D U T3 SA BK or equal mounted at a height of 20-feet on a Cooper Lighting Square Straight Steel pole model number SSS 4A20S or equal.
- New trash receptacle enclosure on 4' (W) x 8'(L) x 4" (T) gravel pad. Screened on 3 sides with an access gate.
- New 500 gallon above ground diesel fuel tank, double wall on skids. Install pipe post bollards Type B to protect tank from vehicular intrusion. Above ground fuel storage tank including materials of construction, location and protection measures shall comply with applicable provisions of the NFPA 30 Flammable and Combustible Liquids Code, UL142, UL2080, UL2085, API Standard 650, local, state and federal codes. The fuel storage tank proposed on this site is regulated by the Virginia Department of Energy, and is not subject to regulation by the Virginia Department of Environmental Quality per 9VAC25-91-30. If it is determined that the locality can regulate the tank for secondary spill containment or require a roof covering, then such secondary spill containment system and/or roof covering system design and installation shall be coordinated with the County Emergency Services Coordinator and Building Official.
- New 12' 4" PVC SCH40 DWV building sanitary lateral at 0.0104 f/ft installed with a 4" sanitary cleanout, INV=57.00+/-.
- New Hanover Precast (or equal) mid seam 1000 gallon septic tank, with effluent filter. INV (in)=56.88, INV (out)=56.71
- New 392'-4" PVC SCH40 DWV sanitary lateral with 4" PVC SCH40 cleanouts at intervals not to exceed 75'. Install pipeline at minimum grade of 0.0104 ft/ft. Provide cleanouts with cast-iron frame and cover.
- New Hanover Precast (or equal) 8-hole concrete distribution box with flow equalization weirs.
- New primary septic drainfield. Install (4) 75' (L) x 36" (W) trenches with an installation depth of 24-inches. Trenches to be spaced 9-feet on center.
- Reserve septic drainfield area, 30' (W) x 75' (L). No storage of materials, equipment or vehicles permitted within the reserve area.
- New 66'+/- 1" PVC SCH40 waterline (SWJ) from new well to scale office. Install with 24" minimum depth of cover and affix 10 ga. plastic coated copper tracer wire to new pipeline. Terminate copper tracer wire in Snake Pit tracer wire termination boxes with one box adjacent to the building

FINAL SITE PLAN SP____APPROVED FOR CONSTRUCTION VIRGINIA DEPARTMENT OF TRANSPORTATION DATE VIRGINIA DEPARTMENT OF HEALTH DATE COUNTY ENVIRONMENTAL COMPLIANCE OFFICER DATE COUNTY ZONING ADMINISTRATOR DATE

NEWTOWN DISTRICT KING & QUEEN COUNTY, VIRGINIA



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CONDITIONAL USE PERMIT (CU02-08) CONDITIONS APPROVED BY KING & QUEEN COUNTY BOARD OF SUPERVISORS ON DECEMBER 9, 2002

- A. 300' SETBACK FROM ROUTE 628. B. 50' SETBACK FROM ALL PROPERTY LINES.
- C. 300' SETBACK/BUFFER FROM THE GARNETT PROPERTY LINE CONTINUING THE FULL LENGTH OF THAT PROPERTY LINE.
- D. NO IMPACT TO WETLANDS OR RPA
- A. 7AM-6PM MONDAY THROUGH FRIDAY WITH NO LOADED TRUCKS LEAVING THE SITE UNTIL AFTER MORNING SCHOOL BUS ROUTING

1. 25% OR MORE OF THE SITE WILL BE UNDISTURBED AND LEFT FOR BUFFERING INCLUDING THE FOLLOWING;

- B. 7AM-12PM SATURDAY
- 3. MAXIMUM OF 50 LOADS OF MATERIAL PER DAY DURING PEAK DEMAND PERIODS USUALLY JUNE-SEPTEMBER. NORMAL OPERATIONS WOULD BE MAXIMUM 30 LOADS PER DAY.
- 4. PAVED CONSTRUCTION/COMMERCIAL ENTRANCE TO VDOT STANDARDS AND STONED BACK 300-FEET FROM ROUTE 628 TO CONTROL DUST AND DEBRIS AT HIGHWAY.
- 5. ANY FUEL TANKS ON-SITE WILL HAVE SELF-CONTAINMENT SYSTEMS WITH ROOFS.
- 6. SEWAGE DISPOSAL FACILITIES WILL CONSIST OF PORTABLE TOILETS UNLESS OR UNTIL A SCALE HOUSE IS
- 7. THE PHASING AND BUFFERING OF THIS OPERATION ARE REPRESENTED ON THE ATTACHED SITE PLANS AND WILL BE HONORED.
- 8. DRAINAGE ISSUES, EROSION & SEDIMENTATION, AND SITE RECLAMATION WILL BE BONDED AND OVERSEEN AS PART OF THE DEPARTMENT OF MINES, MINERALS, AND ENERGY'S OWN PERMITTING PROCESS.
- 9. FILL MATERIAL CAN BE SOLD TO INDEPENDENT CONTRACTORS SUBJECT TO HOURS OF OPERATION AND AVAILABILITY OF MATERIAL

LEGEND

- IRON ROD FOUND (IRF) OR IRON PIPE FOUND (IPF)
- CONCRETE MONUMENT FOUND (CMF)
- IRON ROD OR PIPE SET
- CONCRETE MONUMENT SET
- --- POWER POLE (PP)
- TELEPHONE JUNCTION BOX (TJB)
- SIGN POST (SP)
- □ MAIL BOX (MB)
- N/F NOW OR FORMERLY R/W RIGHT-OF-WAY
- **EXISTING WOODLINE**
- —10— EXISTING CONTOUR
- —10— PROPOSED CONTOUR
- -C-C- LIMIT OF CUT
- -F-F- LIMIT OF FILL - - MINE LIMIT
- ~~~ CLEARING LIMIT
- USDA SOIL LINE
- XX USDA SOIL TYPES
- STONE CONSTRUCTION ENTRANCE, VEC 3.02
- CONSTRUCITON ROAD STABILIZATION, VEC 3.03
- SILT FENCE, VEC 3.05 '— '—
- INLET PROTECTION, VEC 3.07
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- SEDIMENT TRAP, VEC 3.13
- SEDIMENT BASIN, VEC 3.14
- OUTLET PROTECTION, VEC 3.18

RIPRAP, VEC 3.19

- ROCK CHECK DAM, VEC 3.20
- LEVEL SPREADER, VEC 3.21 PERMANENT SEEDING, VEC 3.32
- MULCHING, VEC 3.35
- BLANKET/MATTING, VEC 3.36
- TREE PROTECTION, VEC 3.38

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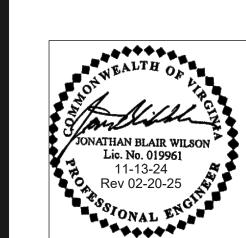
- **DESIGNED:** CAD:
- JBW CHECKED:
 - FILED:
- $\frac{1}{1}$ NOVEMBER 13, 2024
- REVISED: FEBRUARY 20, 2025
- REVISED:

WILSON ENGINEERS, LLC

Civil & Environmental Engineering P.O. Box 1269 West Point, VA 23181-1269

(804) 513-9564

jblairwilson@gmail.com



PROJECT:

MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA

SHEET NO:

SHEET:

See Virginia Department of Energy Mineral Mine Operator's Manual 2024 for temporary erosion and sediment

control details applicable to this project, and equivalent to the

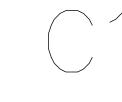
temporary erosion and sediment control measures identified on the

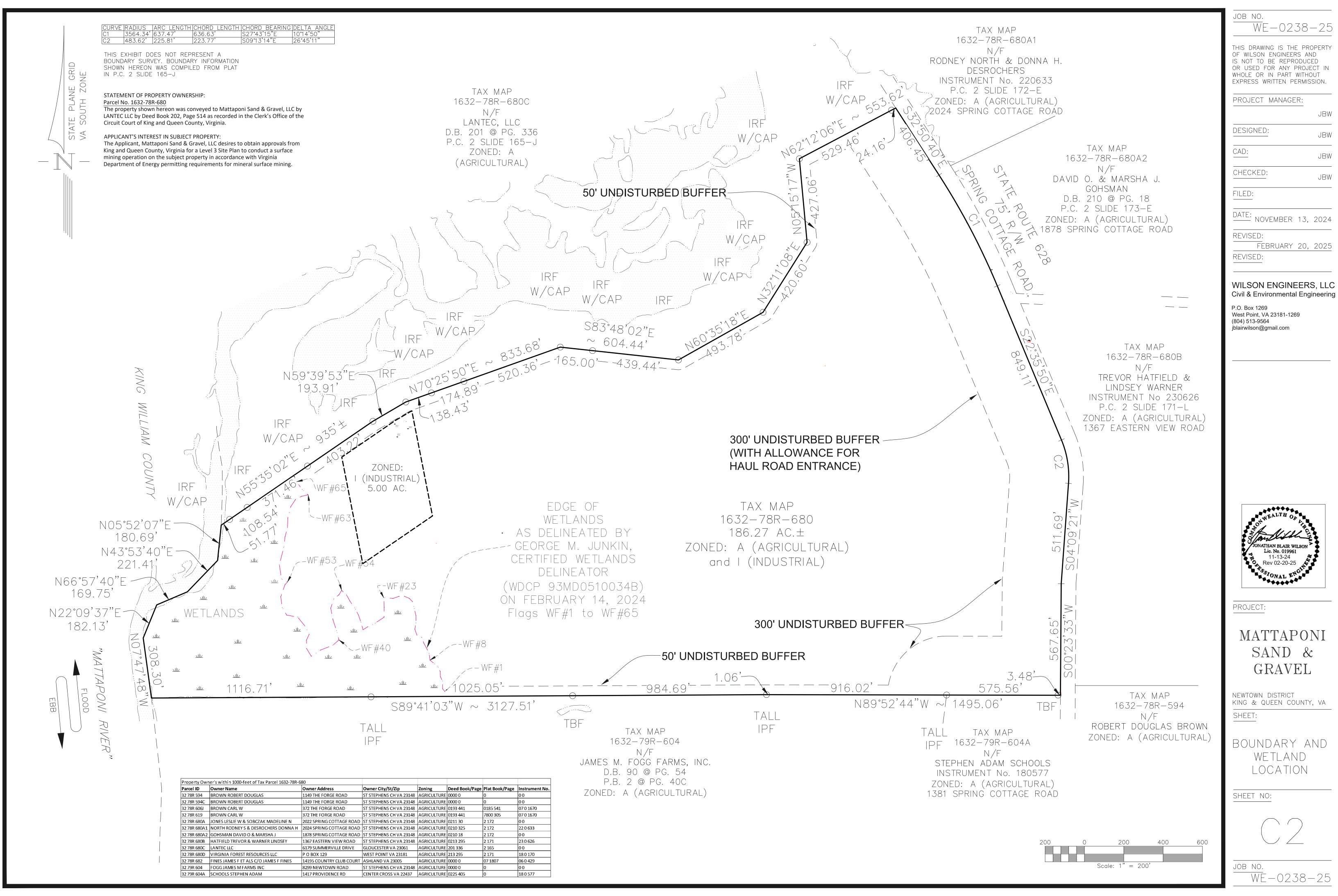
plans and adjacent legend based on

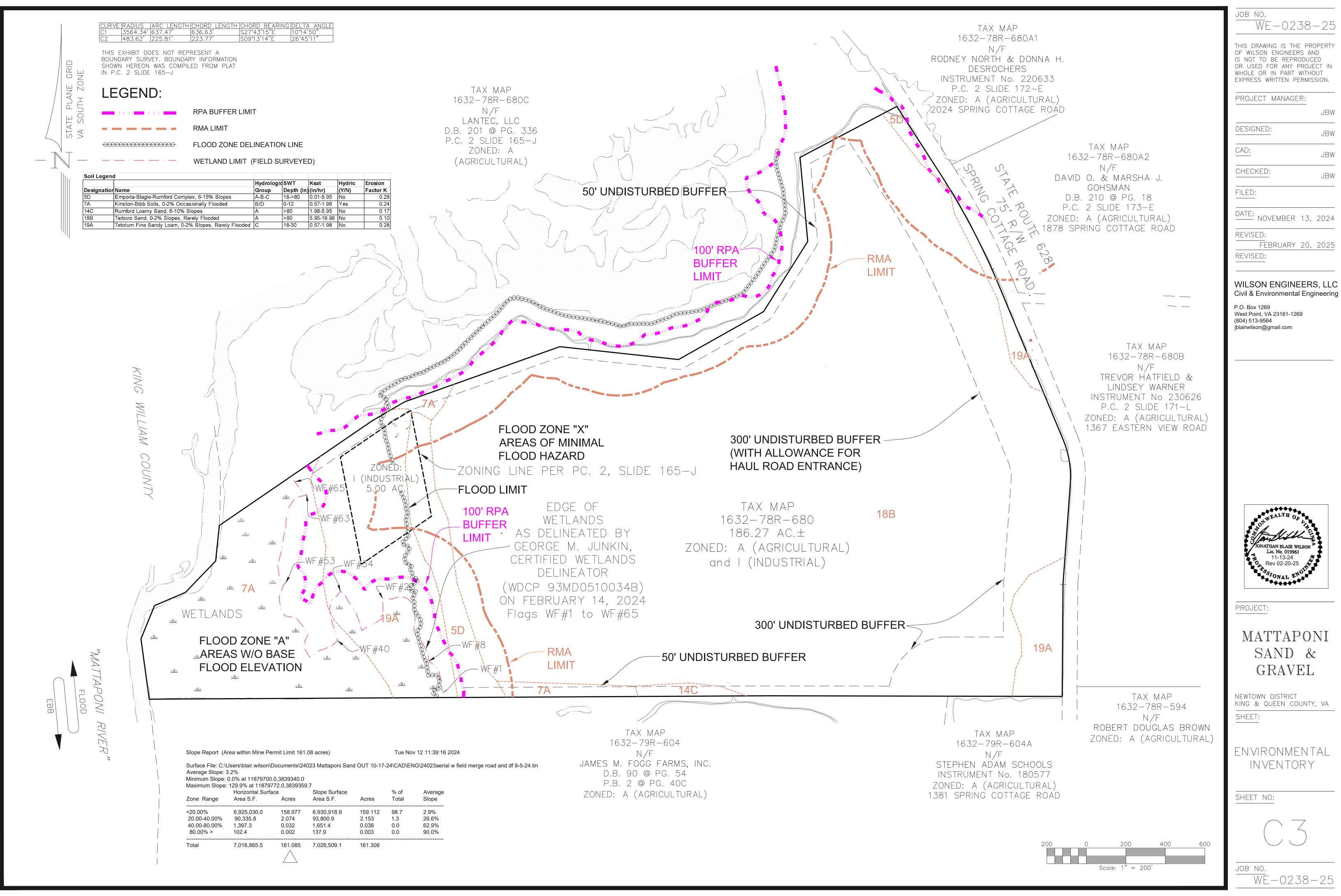
the Virginia Erosion and Sediment

Control Handbook (VEC).

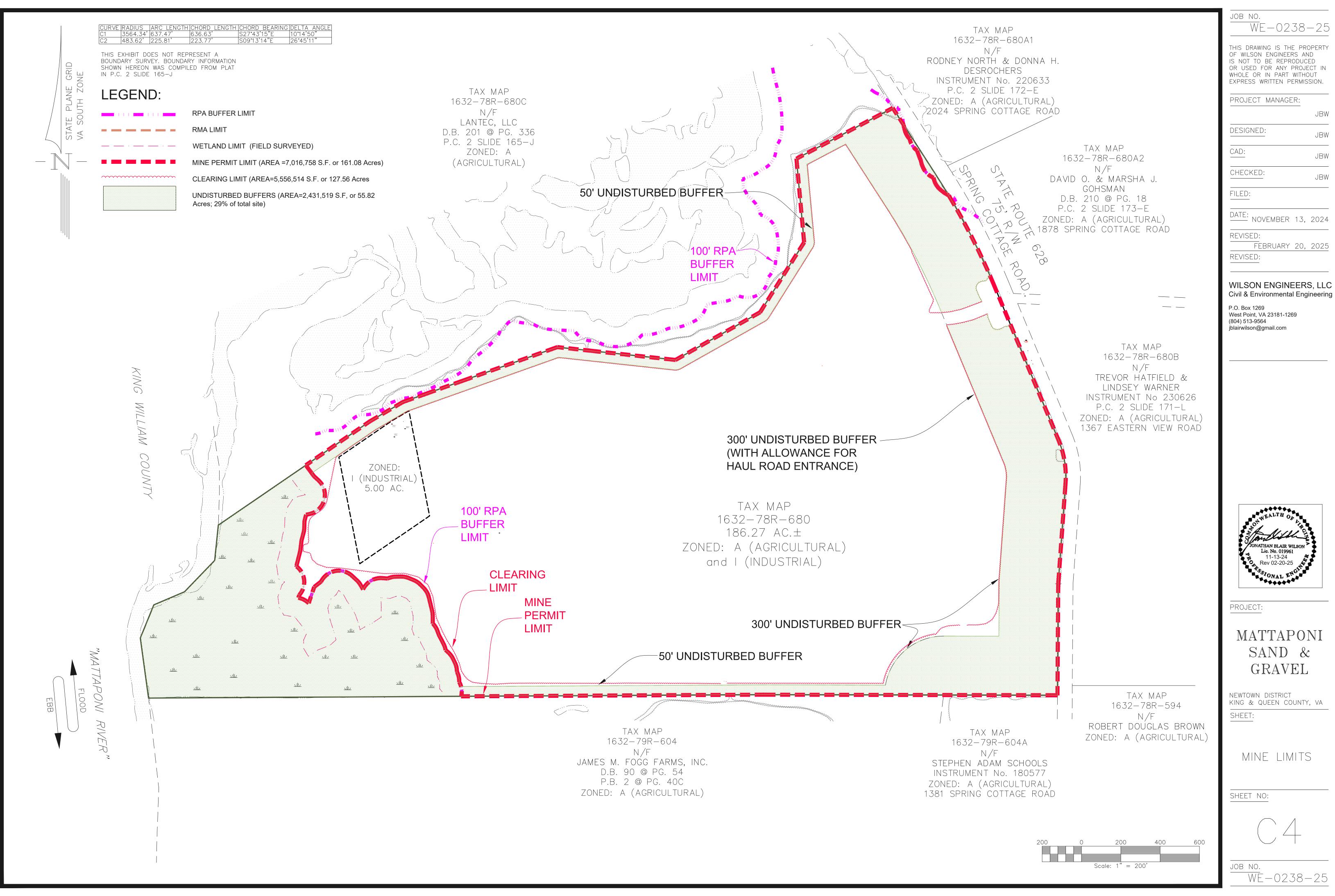
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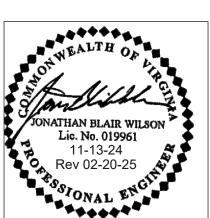


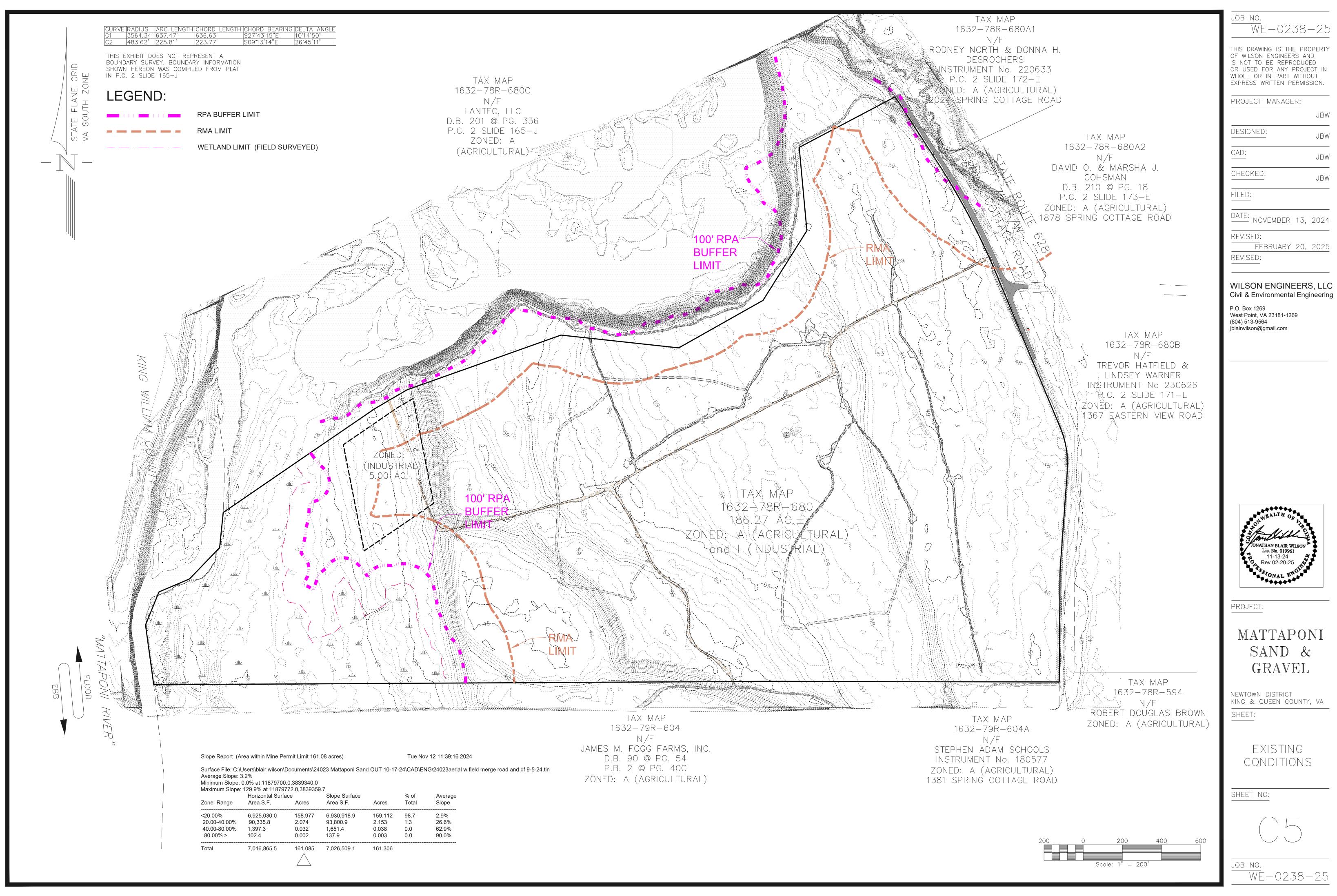


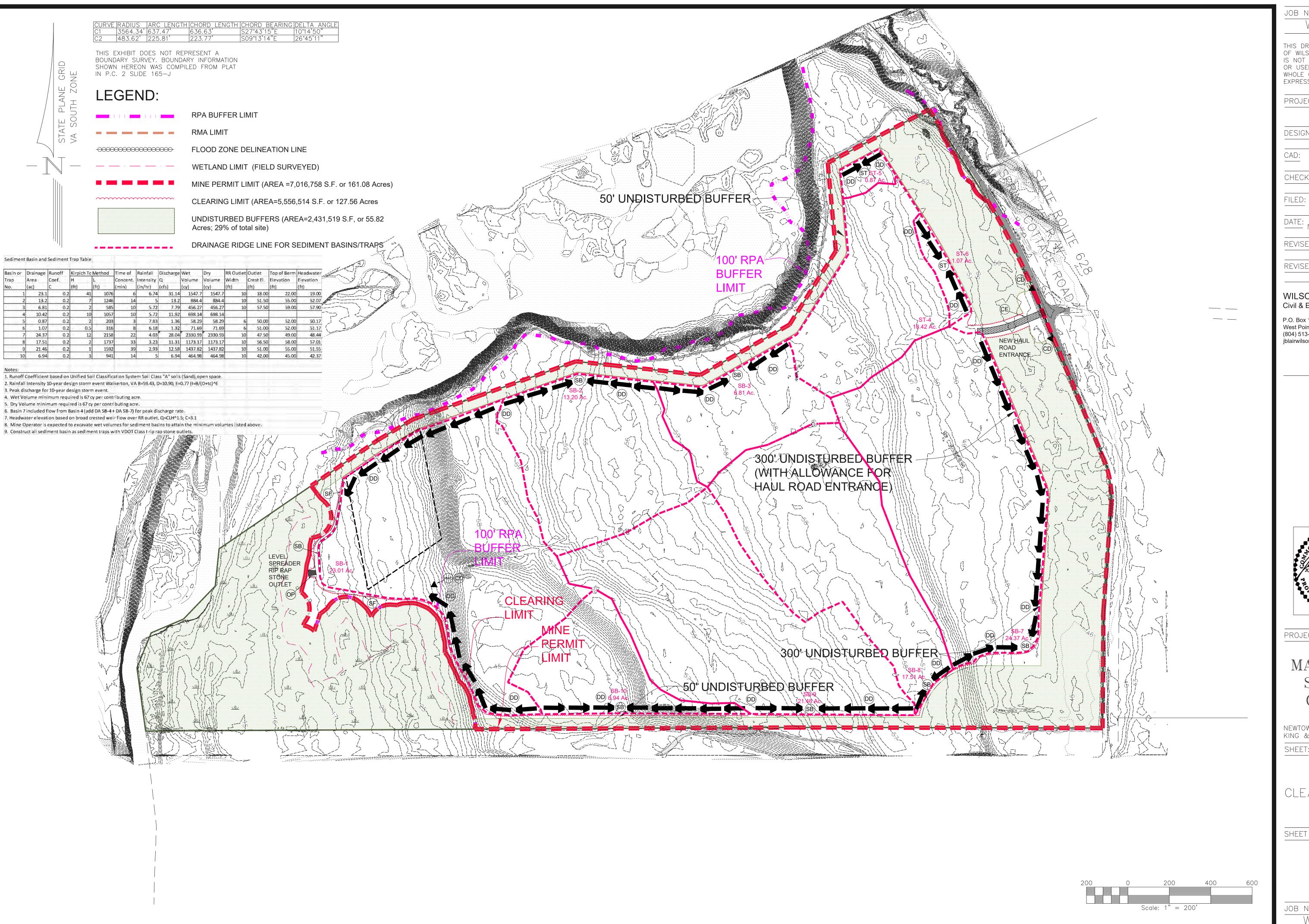
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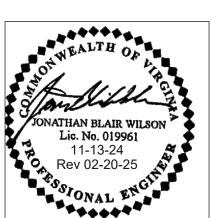
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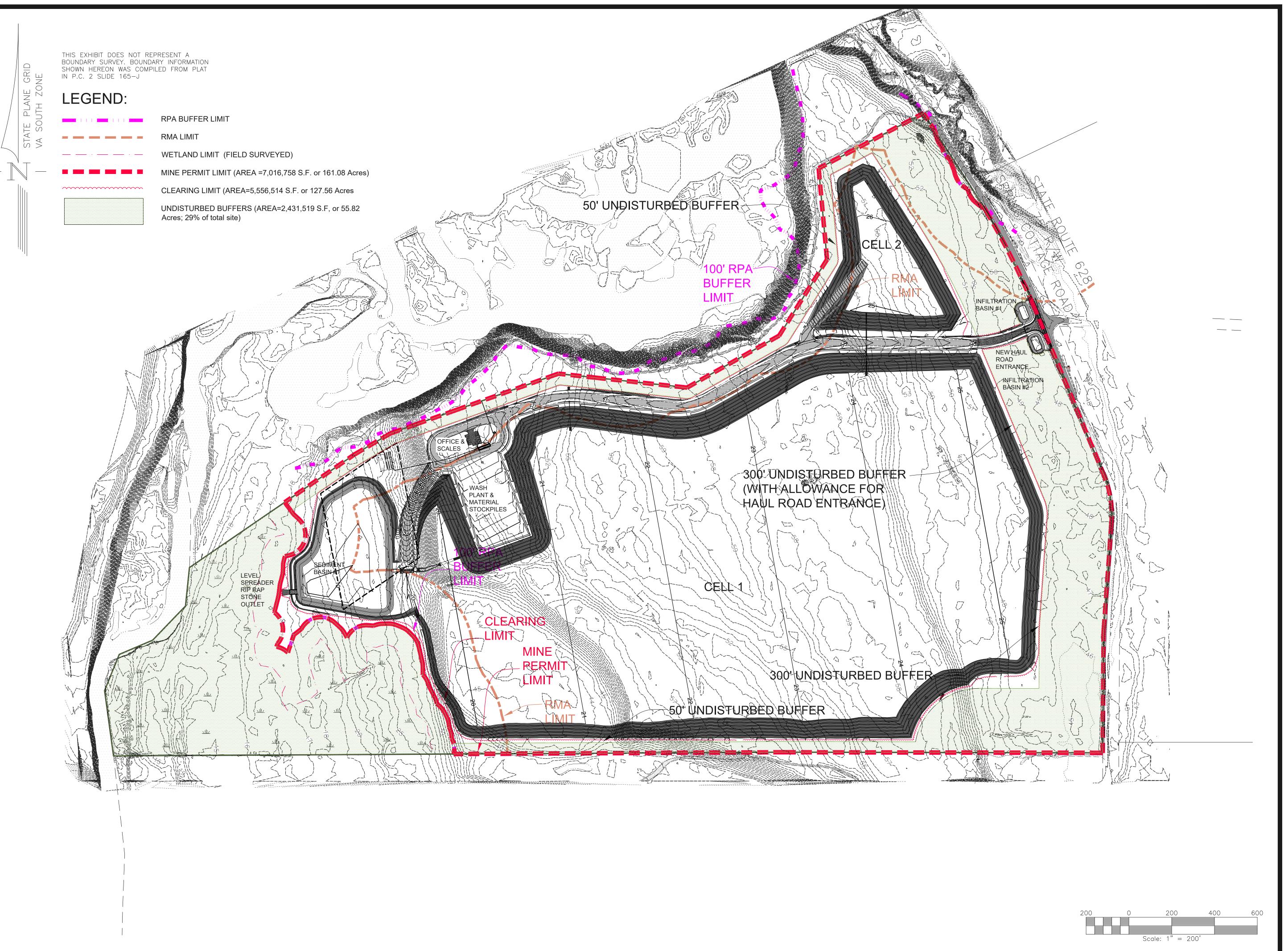
NEWTOWN DISTRICT KING & QUEEN COUNTY, VA SHEET:

CLEARING PLAN

SHEET NO:



JOB NO. WE-0238-25



JOB NO. WE-0238-25

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JBW

CHECKED:

FILED:

DATE: NOVEMBER 13, 2024

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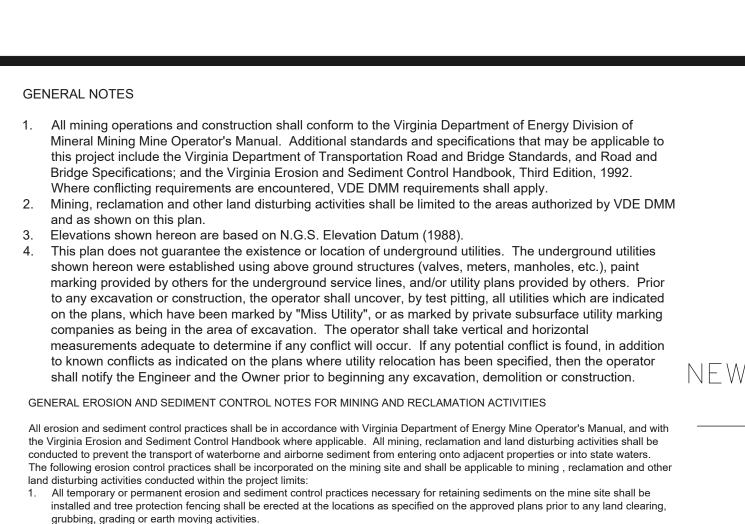
MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA SHEET:

RECLAMATION GRADING PLAN

SHEET NO:

JOB NO. WE-0238-25



N.T.S.

Land clearing shall be limited to areas of workable size. Periodic site inspections will be made of the erosion and sediment control measures to determine their condition and performance. Should any adjustments or repairs need to be made, the operator shall respond immediately in making necessary repair, adjustment and/or replacement. Any sediment which has been transported beyond the mine limits shall be removed and/or stabilized as directed by the VDE DMM. Clearing and grubbing debris shall be disposed of in accordance with local, state or federal law, as applicable.

Topsoil and overburden stockpiles shall be placed in the location(s) shown on these plans and/or as directed by the operator . Construction entrance (CE) stone pad(s) shall be installed concurrently with the initiation of clearing and grubbing operations. Where construction vehicle access routes intersect paved roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. Culvert Inlet protection (CIP) practices are to be installed at culvert inlets to prevent sediments from entering the structure.

3. Dewatering shall be accomplished by filtering or passing effluent through an approved sediment trapping device prior to being discharged. All pumped effluent shall be discharged in a manner that prevents erosion and does not result in adverse impacts to flowing streams, channels or off-site properties. All temporary or permanent earthen structures such as dams, dikes and diversion shall be stabilized (seeded) immediately after their construction. Stone outlet(s) shall be provided where shown on the plans.

10. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed at beginning of mining earthwork operations and shall be made functional before upslope land disturbance takes place. The basin(s) are to be kept clear of debris and sediments shall be cleaned out periodically during mining and reclamation activities. 11. Permanent or temporary soil stabilization shall be applied to denuded areas according to VDE DMM Mine Operator's Manual

requirements. 11. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.

12. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided. 13. When a live watercourse must be crossed by mining vehicles more than twice in any six-month period, a temporary stream crossing constructed of nonerodible material shall be provided.

14. All applicable federal, state and local regulations pertaining to mining in or crossing live watercourses shall be met. 15. Maintenance of all erosion and sediment control practices shall be scheduled on a weekly basis and after each rainfall producing runoff. Necessary repair, adjustment and/or replacement shall be performed immediately. Rainy seasons or wet periods will be of particular concern and the project shall be inspected daily.

16. Airborne sediments (dust) shall be controlled in accordance with Section 3.39 of the 1992 edition of the Virginia Erosion and Sediment Control Handbook.

GRADE

GRASS -

SHOULDER (TYP)

ROADSIDE DITCH

GRADE

-SEE SECTION DETAILS THIS SHEET

GRADE

NEW INFILTRATION BASIN OUTLET EXIT CHANNELS TO EXISTING SR 628

----7" PLAIN CONCRETE fc=3500 PSI Class A3 SURFACE COURSE Light broom finish Installation and materials per 0 0 0 VDOT Road & Bridge Specifications 0 0 0 0 ∼6" AGGREGATE BASE COURSE TYPE I, VDOT 21B - COMPACTED SUBGRADE

NEW HAUL ROAD ENTRANCE STA 0+00 to STA 1+00 VDOT CG-13 CONCRETE PAVEMENT SECTION

— 2" BITUMINOUS ASPHALT SURFACE COURSE VDOT SM-12.5D -5" BITUMINOUS ASPHALT BASE COURSE VDOT BM-25.0D 0 0 0 0 0 0 0 `—6" AGGREGATE BASE COURSE TYPE I, VDOT 21B -TENSAR BX 1100 GEOGRID or EQUAL - COMPACTED SUBGRADE

N.T.S.

NEW HAUL ROAD ENTRANCE STA 0+00 to STA 1+00 ALTERNATE BITUMINOUS ASPHALT PAVEMENT SECTION ON-SITE PARKING AREA AT SCALE OFFICE: 1. ADA parking space, adjacent ADA access aisle and walkway to be constructed using New Haul Road Entrance STA 0+00 to STA 1+00 7" thick concrete pavement section detail specifications. 2. Parking area at scale office to be constructed using On-Site Haul Road STA 1+00 to STA 3+50

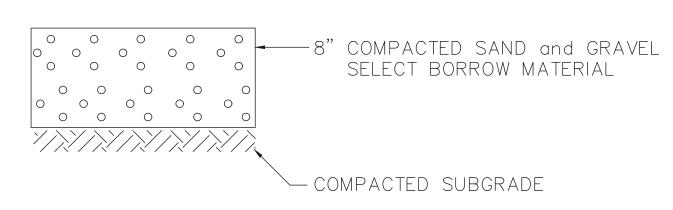
All-Weather Surface Pavement Section detail

specifications.

8" AGGREGATE BASE COURSE 0 0 0 0 0 TYPE I, VDOT 21A or 21B 0 0 0 0 0 0 0 -TENSAR BX 1100 GEOGRID or EQUAL (OPTIONAL)

- COMPACTED SUBGRADE

ON-SITE HAUL ROAD STA 1+00 to STA 3+50 ALL-WEATHER SURFACE PAVEMENT SECTION N.T.S.



ON-SITE HAUL ROAD STA 3+50 to TERMINATION ALL-WEATHER SURFACE PAVEMENT SECTION

N.T.S.

MINE RECLAMATION:

Mine site reclamation shall be in accordance with the Virginia Department of Energy Mineral Mining Operator's Manual. The site shall be reclaimed using techniques and specifications included in the manual, including but not limited to Section 3.12 Establishing Vegetation and Section 3.17 Forestry Reclamation Approach.

CONSERVATION AREA DO NOT DISTURB

CONSERVATION AREA SIGNS, 6"x8" ALUMINUM PLACARD MOUNTED TO 2" SQUARE GALVANIZED STEEL SIGN POST OR 4" x 4" P.T. TIMBER POST. FOREST GREEN LETTERING TO BE 0.6" ARIAL FONT, PLACED ON A WHITE BACKGROUND. PLACE SIGNS AT 500-FOOT INTERVALS ALONG UNDISTURBED BUFFER AND RESOURCE PROTECTION AREA LIMITS . PLACE 1-1/2" PVC SCH40 PIPE WITNESS POSTS AT 100-FOOT INTERVALS BETWEEN CONSERVATION SIGN POSTS ALONG RPA AND UNDISTURBED BUFFER LIMITS. SIGNS TO BE MOUNTED WITH BOTTOM OF THE PLACARD AT 48" ABOVE GRADE. SIGN POSTS TO HAVE A 30" MINIMUM EMBEDMENT DEPTH.

UNDISTURBED BUFFERS:

1. Minimum 300-foot width and 50-foot width buffer areas shall remain undisturbed along the property limits as specified with Conditional Use Permit CU02-08 approved December 9, 2002. These undisturbed buffers shall remain in their current vegetated condition, except as required to construct the VDOT approved commercial entrance to the property from Spring Cottage Road, State Route 628, mine site access haul road and drainage improvements.

2. Chesapeake Bay Preservation Area Resource Protection Area (RPA) 100-foot width buffers shall also remain undisturbed on this project.

PERMANENT SEEDING:

NATIVE GRASS MIX 35% Schizachyrium scoparium Little Bluestem Virginia Wild Rve 25% Elymus virginicus 18% Sorghastrum nutans Indiangrass Big Bluestem, "Niagara" 15% Andropogon gerqurdii 6% Panicum virgatum Switchgrass, "Shelter" 1% Agrostis perennans Autumn Bentgrass

SEEDING RATE SHALL BE 10-15 LBS/ACRE.

Fertilizer: Application shall be based on soil test results Lime: Application shall be based on soil test results See DE Mineral Mining Operator's Manual for other acceptable permanent seeding and ground cover establishment methods and materials.

> ONATHAN BLAIR WILSON Lic. No. 019961 11-13-24 Rev 02-20-25

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Civil & Environmental Engineering

FEBRUARY 20, 2025

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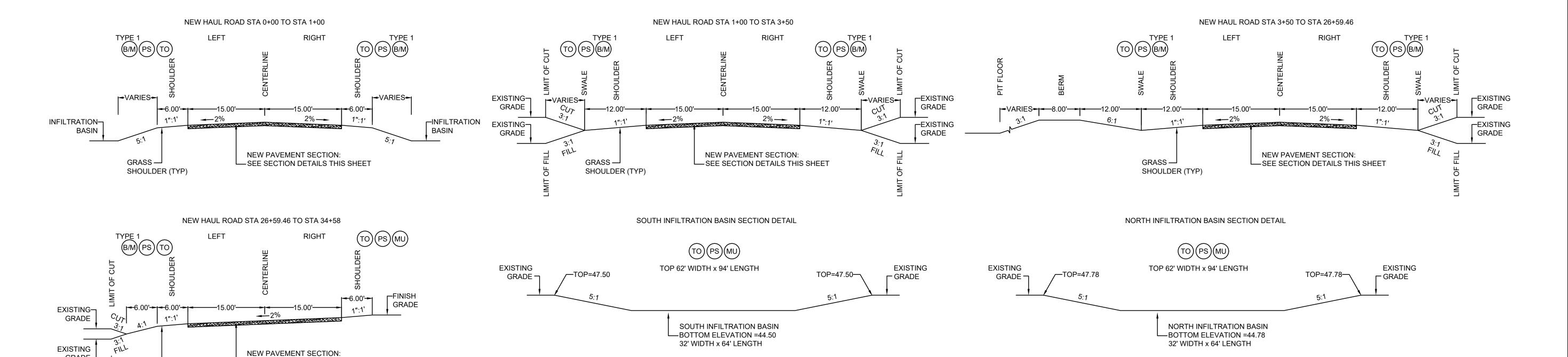
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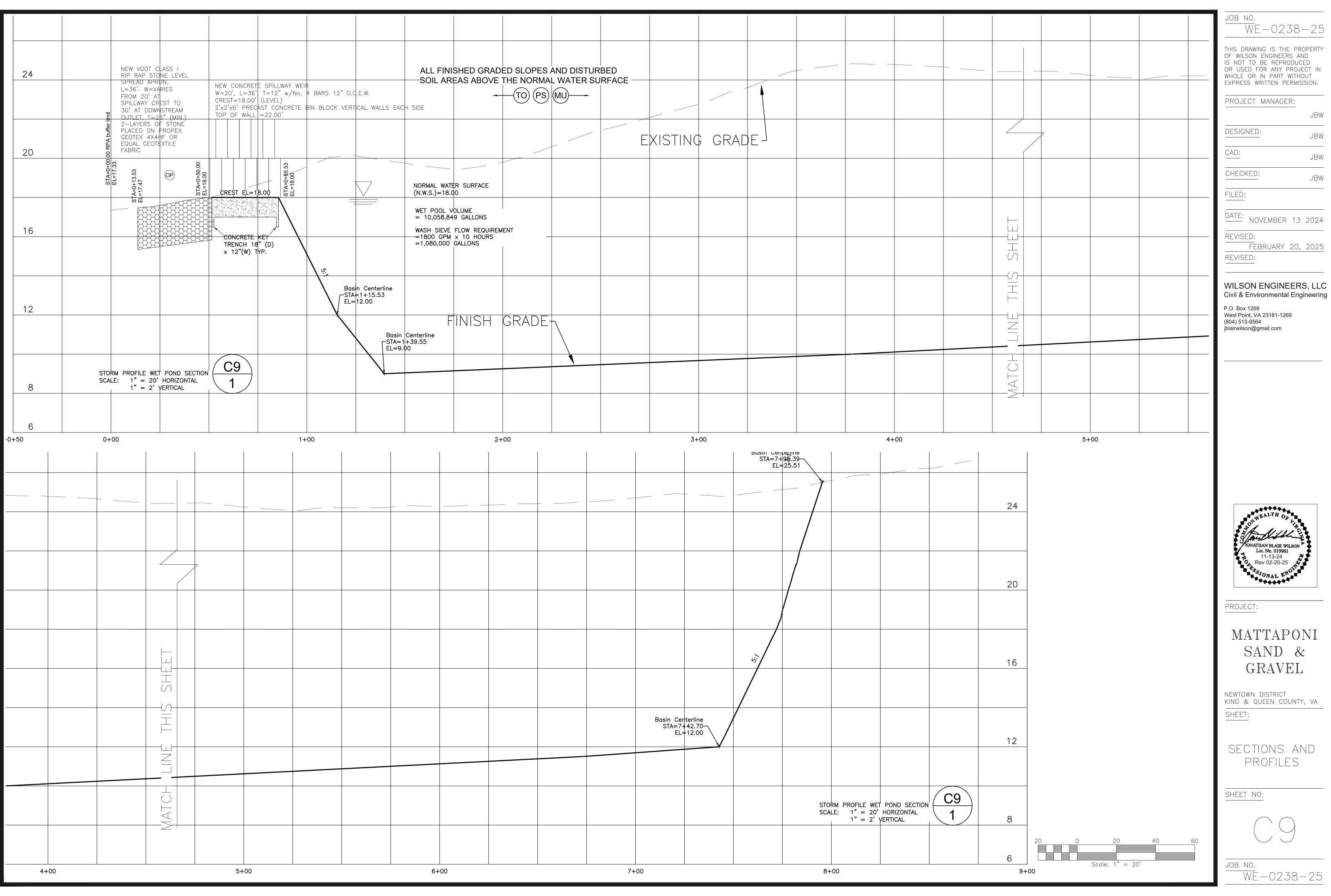
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TYPICAL SECTIONS AND DETAILS

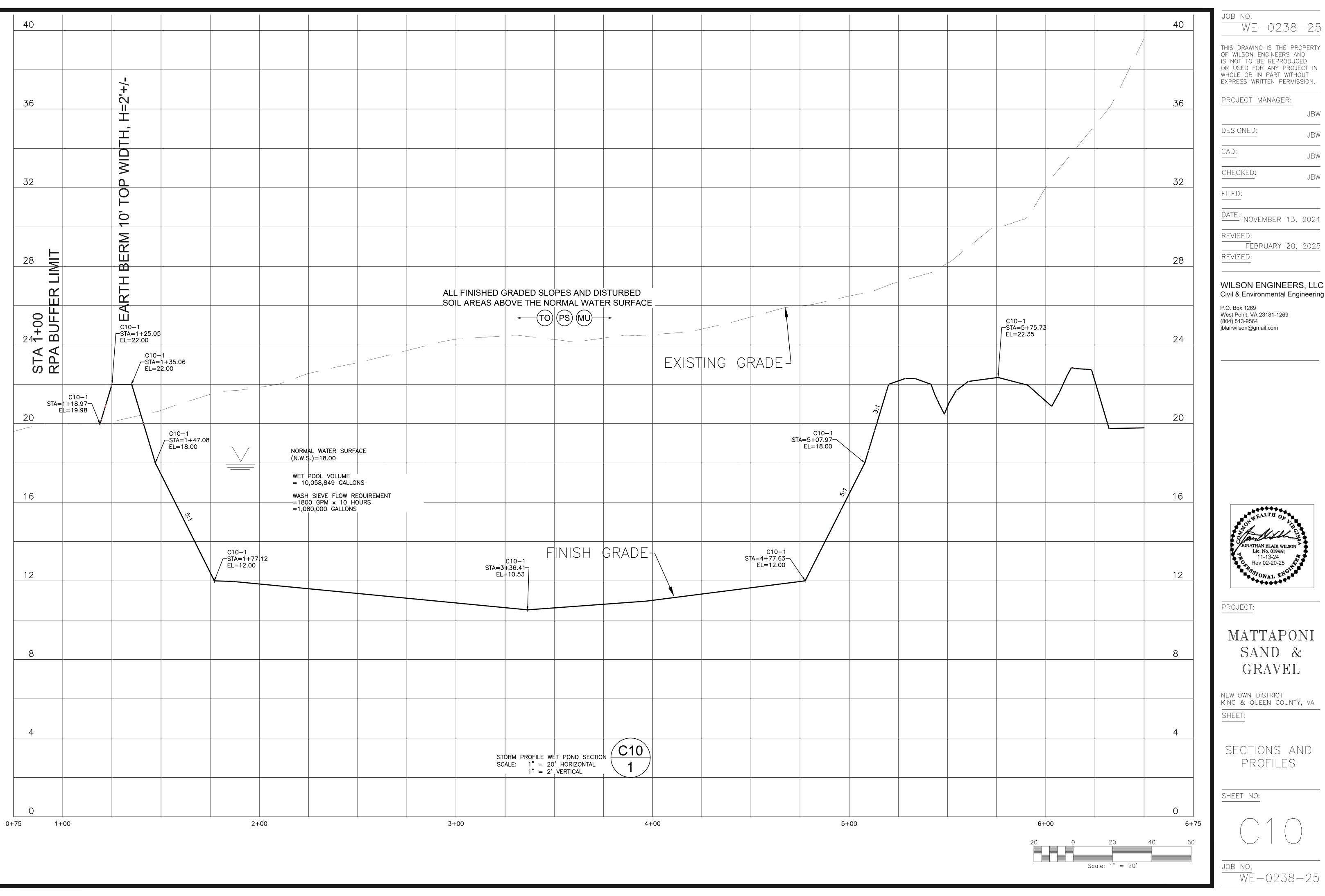
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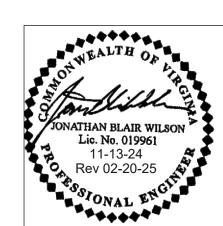
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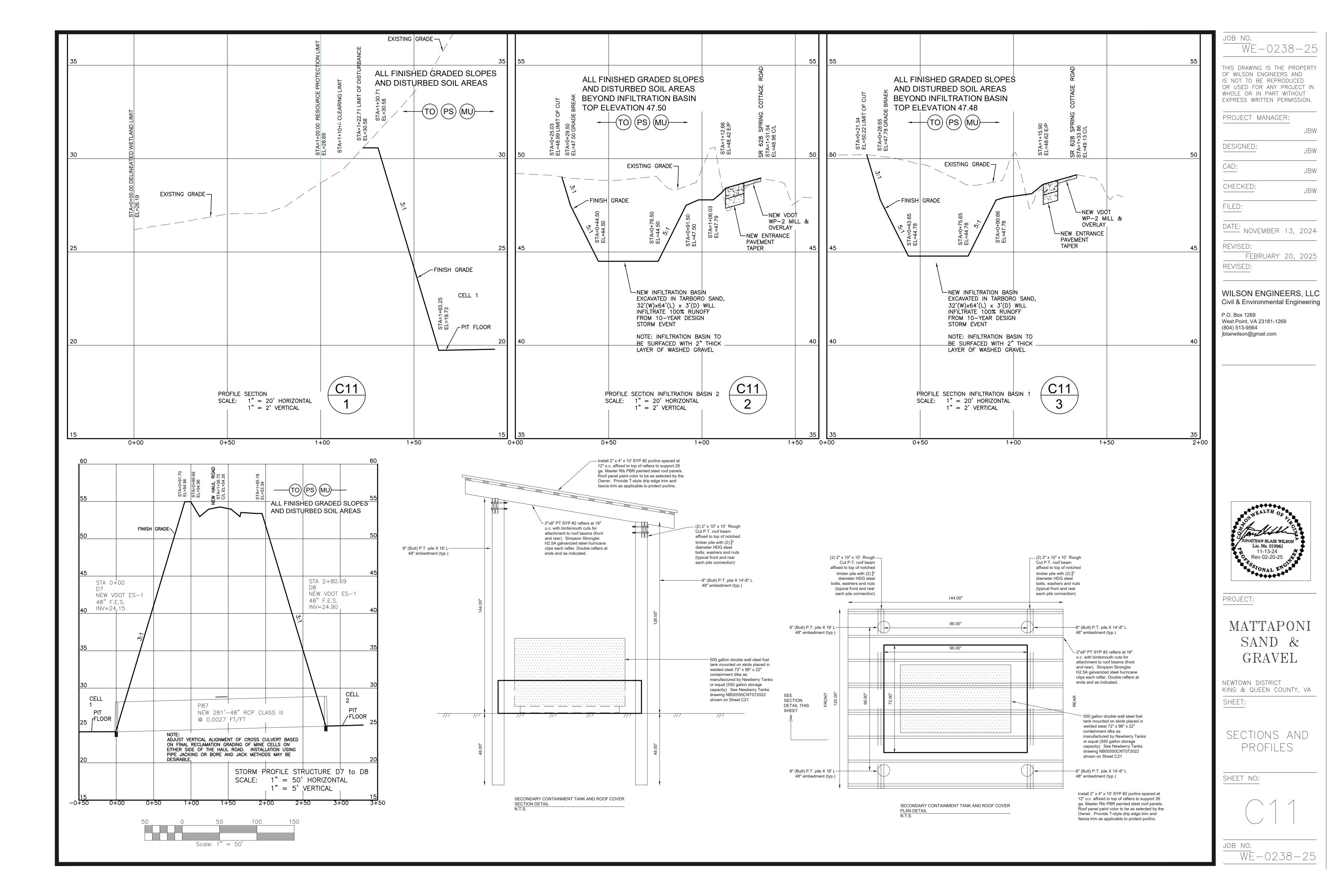


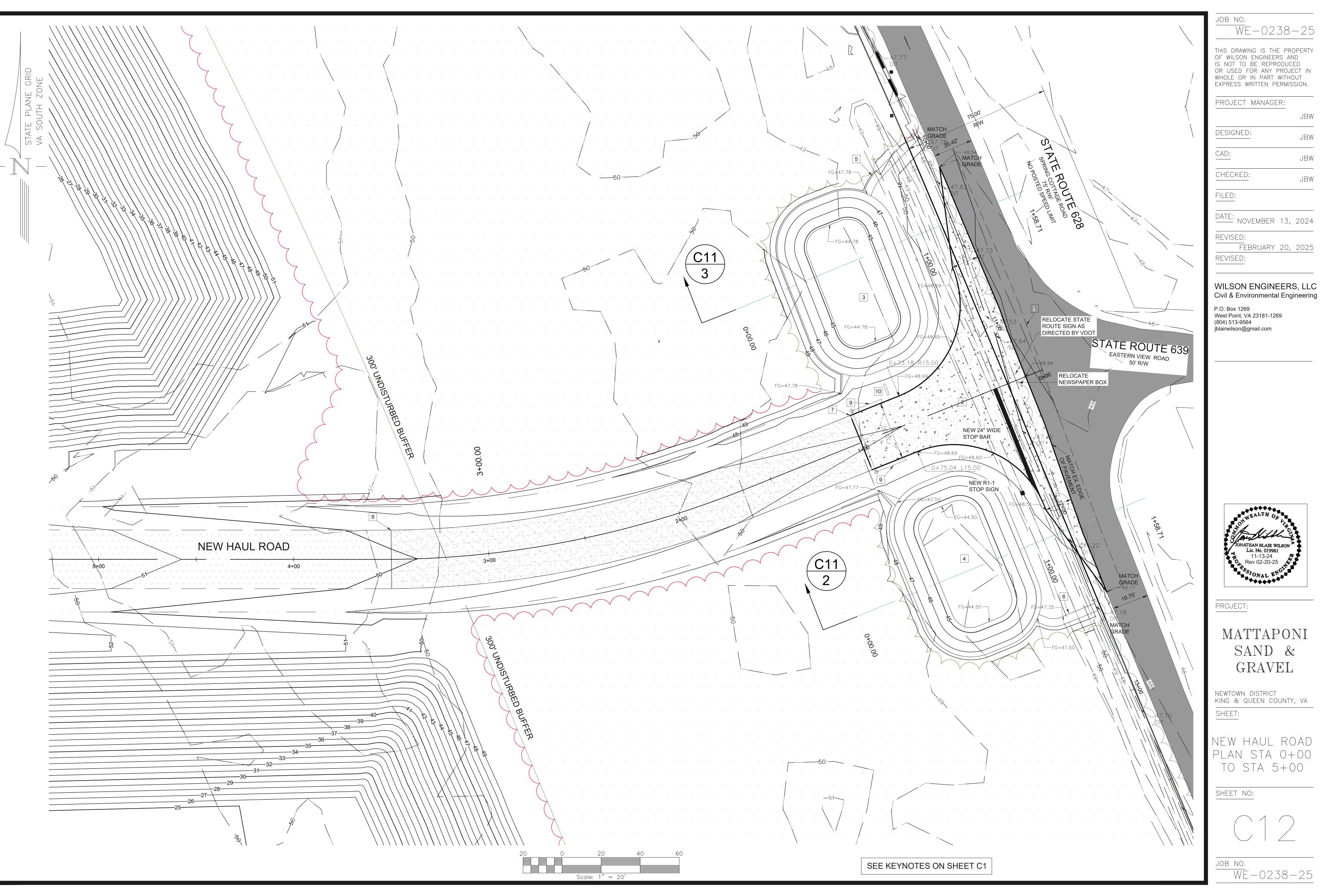
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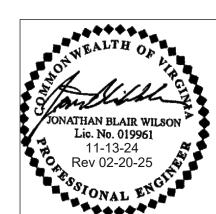
PROFILES

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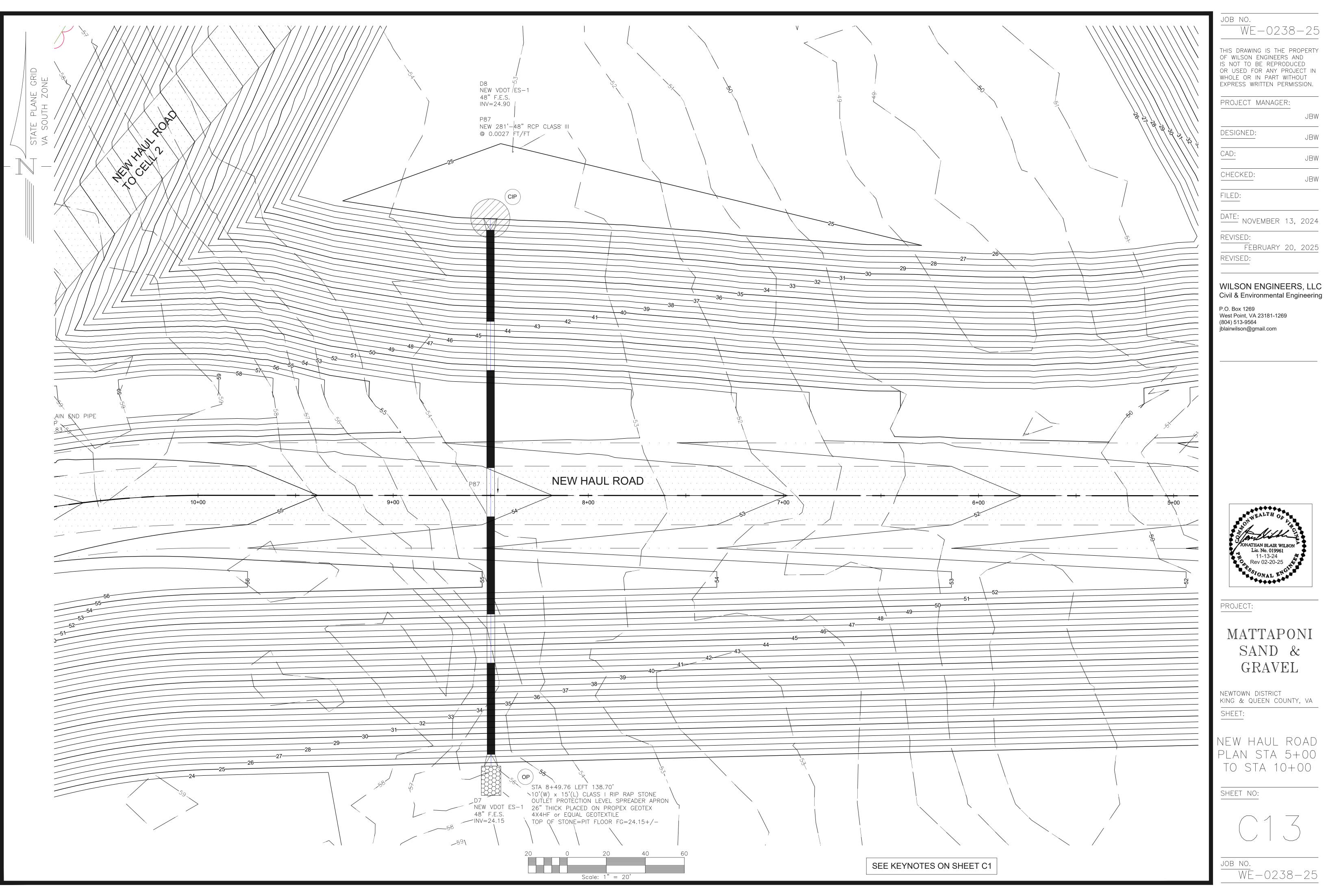




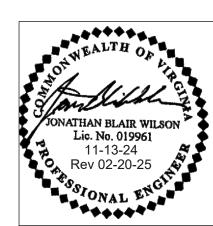
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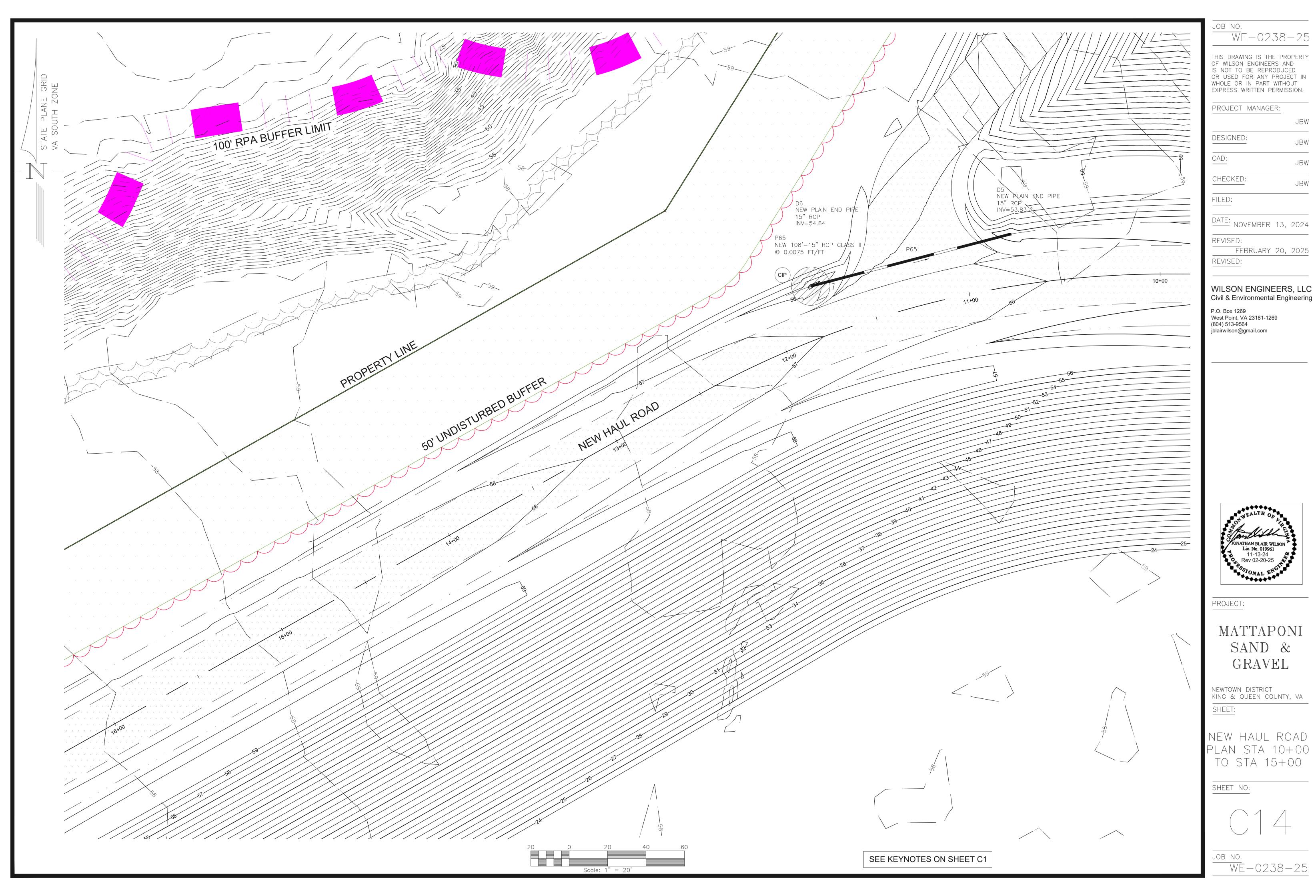


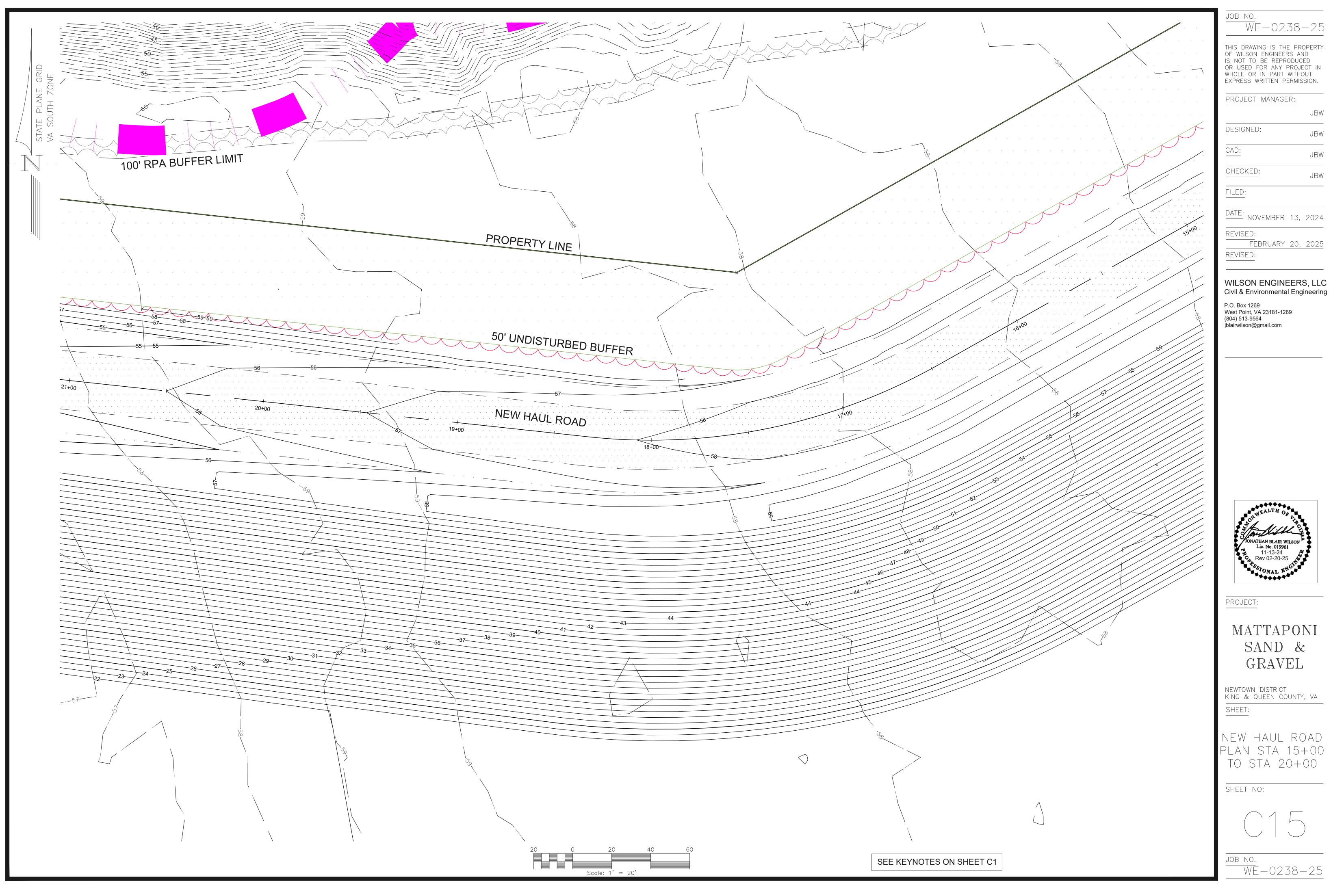
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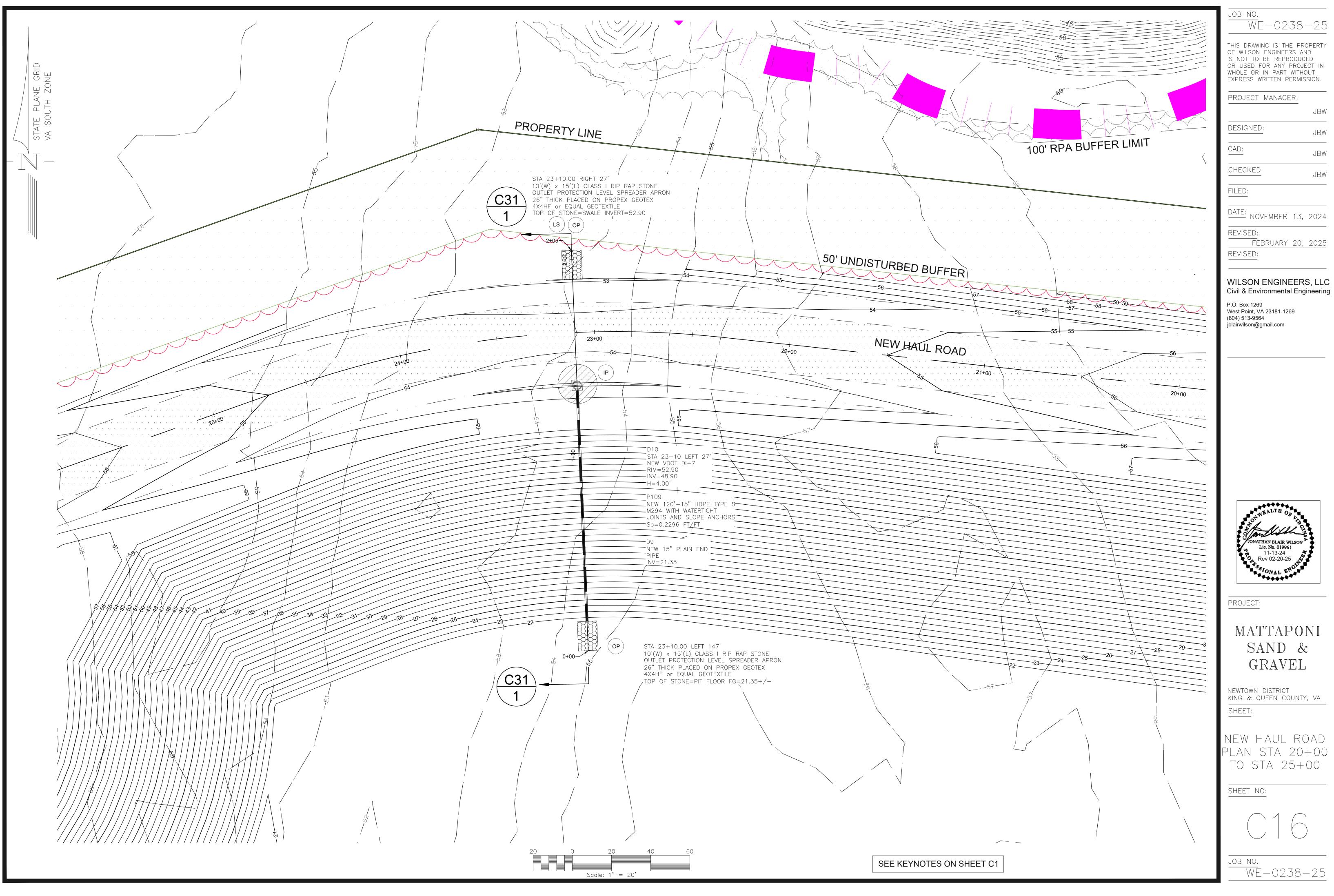
SAND & GRAVEL

NEW HAUL ROAD PLAN STA 5+00

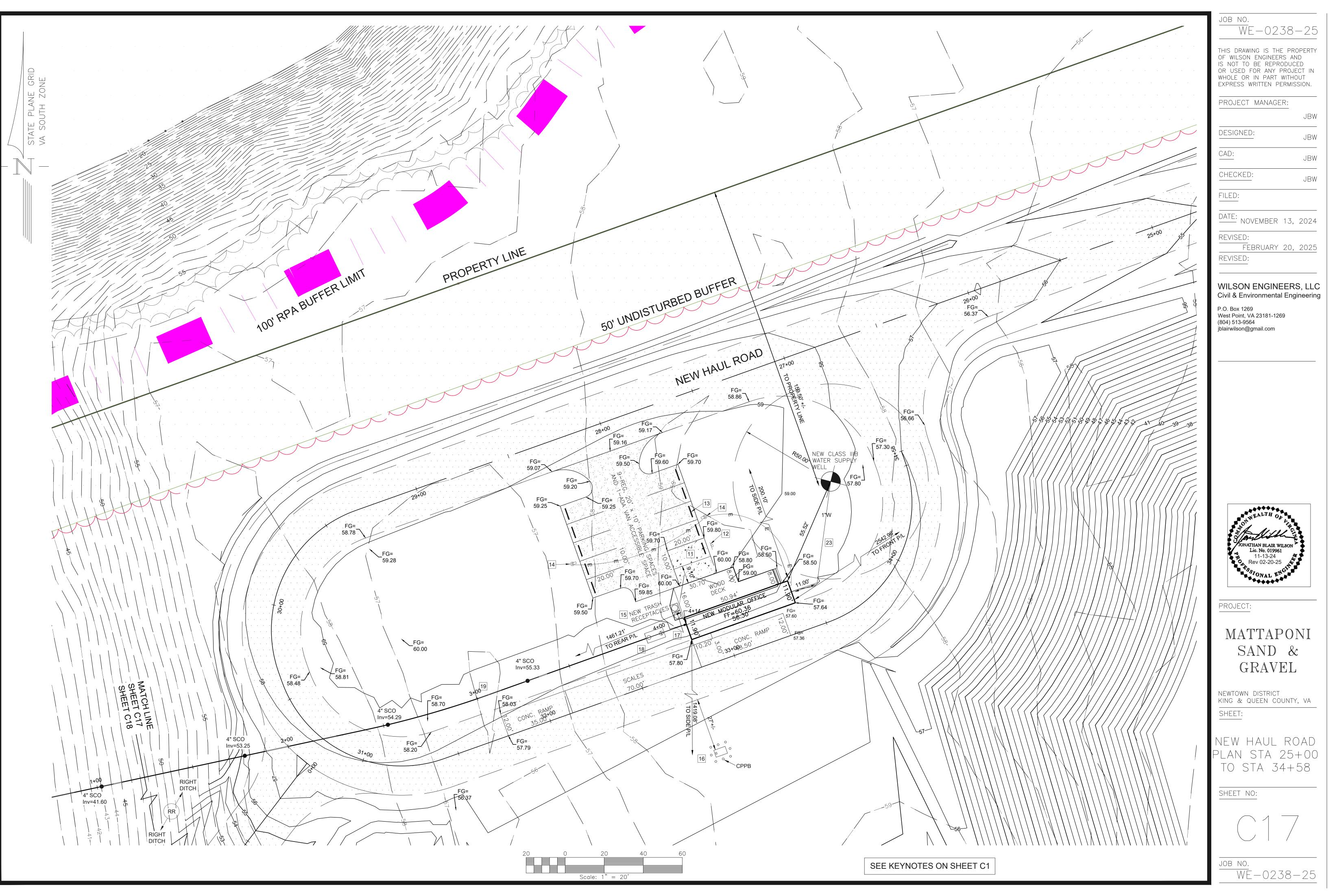




NEW HAUL ROAD



NEW HAUL ROAD

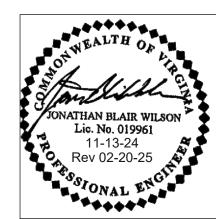


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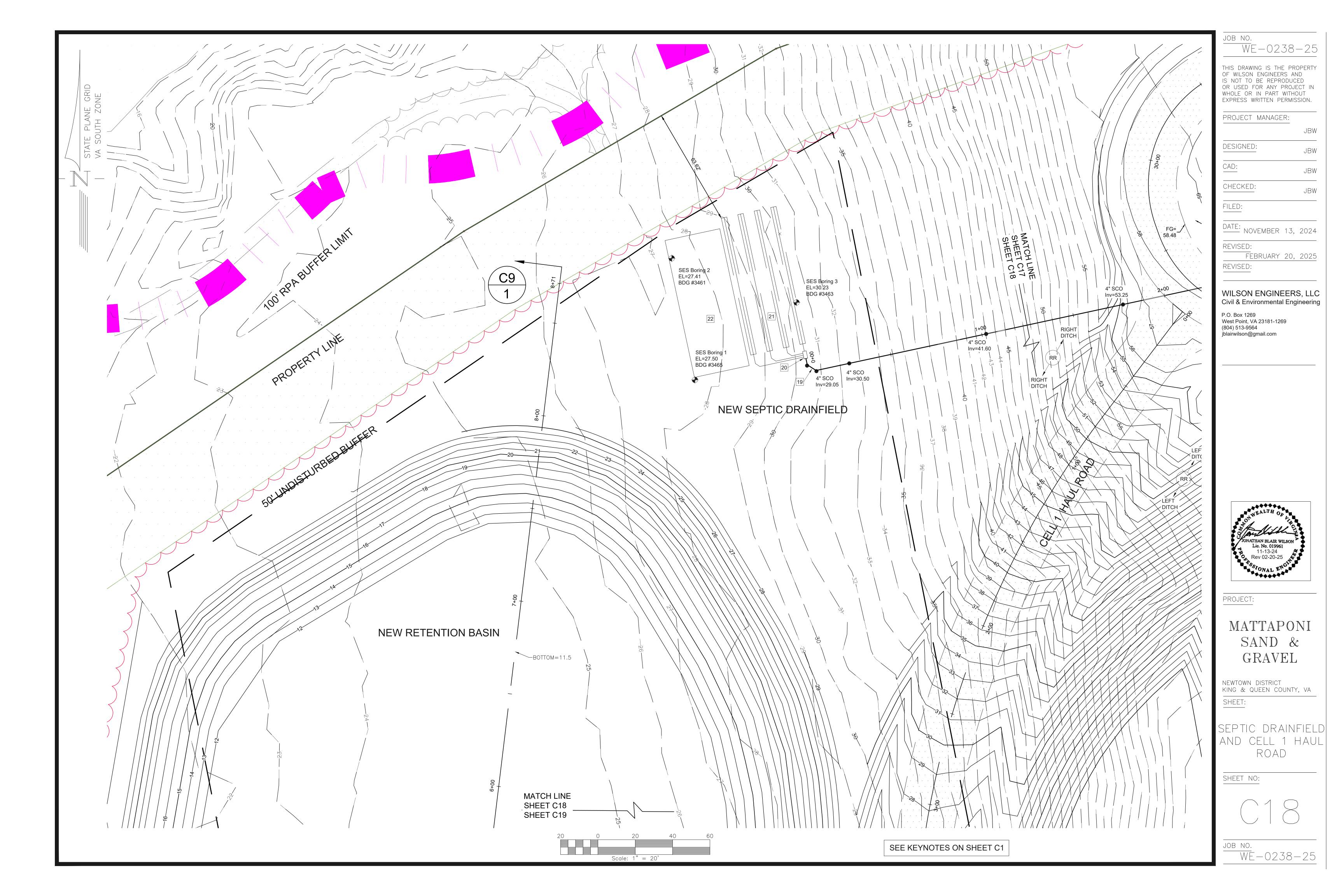
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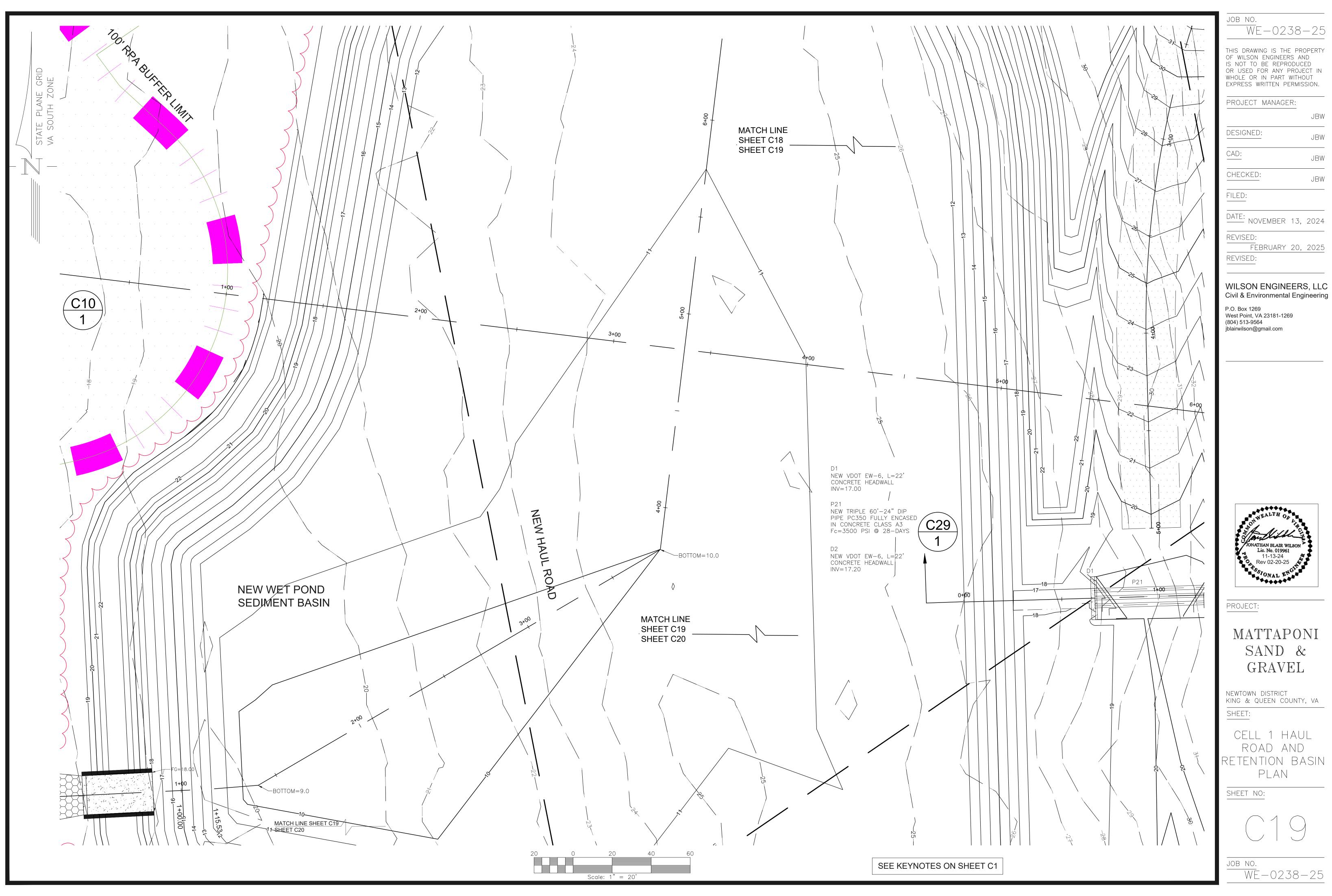


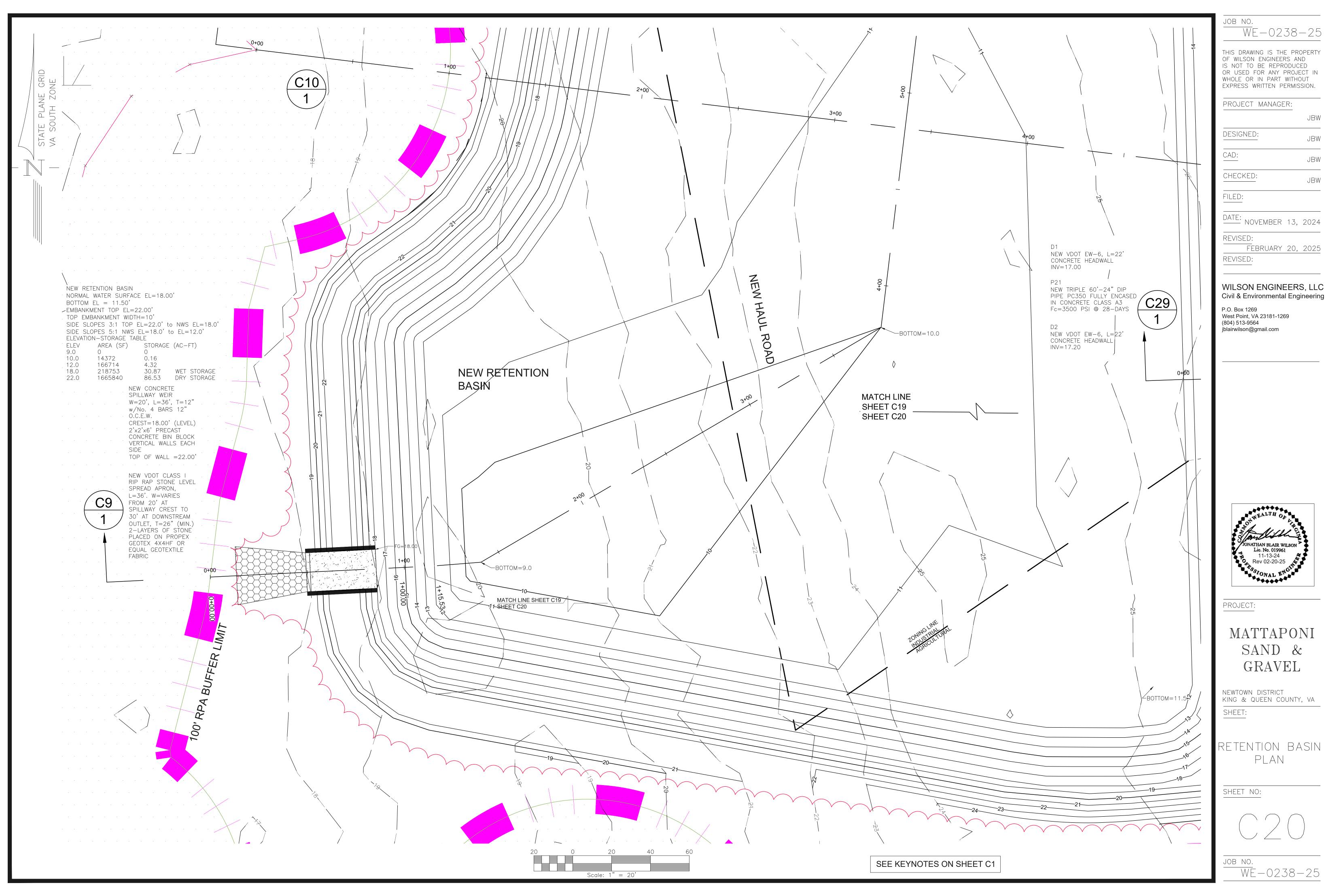
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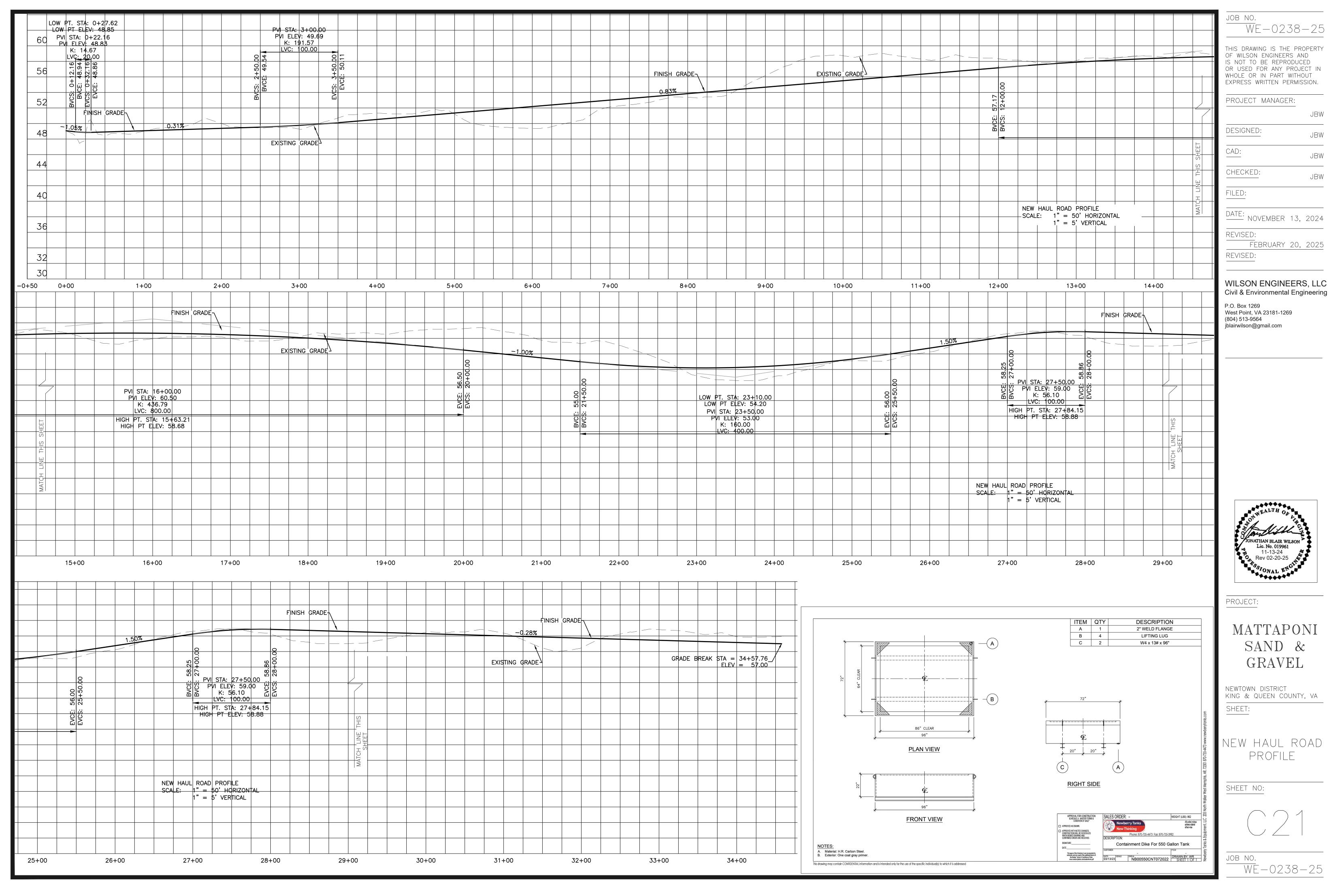
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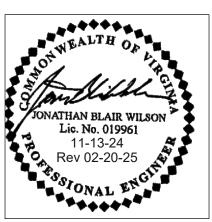
NEW HAUL ROAD TO STA 34+58

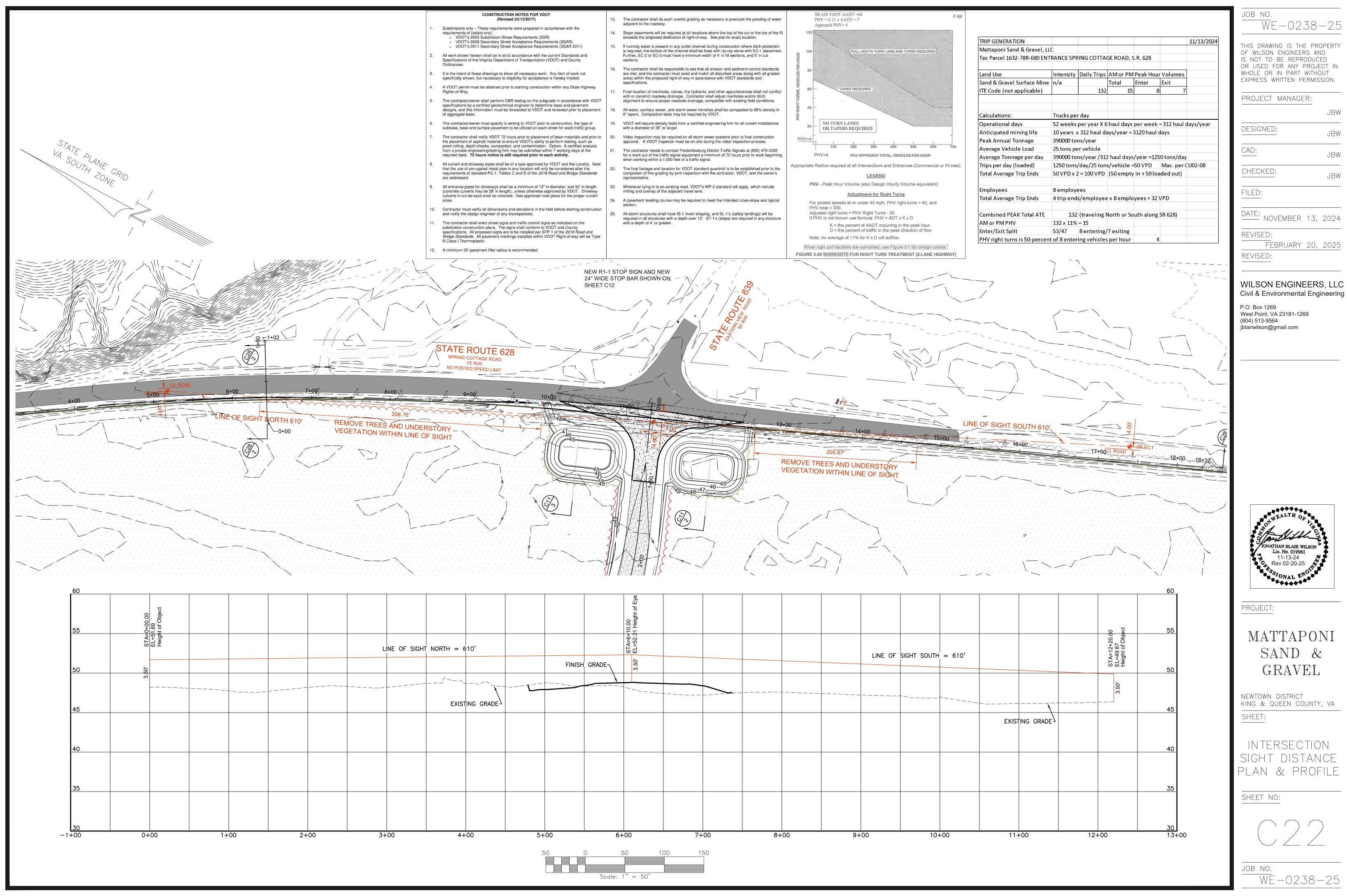












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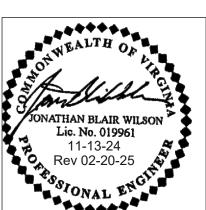
PROJECT MANAGER:

JBW

NOVEMBER 13, 2024

FEBRUARY 20, 2025

WILSON ENGINEERS, LLC



MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA

INTERSECTION PLAN & PROFILE

LAND USE PERMIT LUP-SPG Special Provisions - General

VDOT Land Use Permit Required by Law

The General Rules and Regulations of the Commonwealth Transportation Board provide that no work of any nature shall be performed on any real property under the ownership, control, or jurisdiction of VDOT until written permission has been obtained from VDOT. Written permission is granted for the above-referenced activity through the issuance of a land use permit.

By issuing a permit, VDOT is giving permission only for whatever rights it has in the right-of-way; the permittee is responsible for obtaining permission from others who may also have an interest in the property.

The permittee will be civilly liable to the Commonwealth for expenses and damages incurred by VDOT as a result of violation of any of the rules and regulations of this chapter. Violators shall be guilty of a misdemeanor and, upon conviction, shall be punished as provided for ir §33.2-210 of the Code of Virginia.

Application Requirements

Application shall be made for VDOT land use permits through the local district permit office where the activity is to take place.

Application forms and general information regarding VDOT land use permitting can be obtained by contacting the central office permit manager or at the following VDOT web site: http://www.virginiadot.org/business/bu-landUsePermits.asp

The applicant shall provide a notarized affidavit indicating compliance with the registration and notification requirements outlined in § 2.2-1151.1 of the Code of Virginia.

The land use permit application shall include a check in an amount determined by the district administrator's designee based on the schedule found in 24VAC30-151-710 of the Land Use Permit Regulations.

A performance surety in the amount determined by the district administrator's designee is required to restore the right-of-way in the event

of damage or default. This surety may be in the form of cash, check or surety bond LUP-SB, or LUP-LC irrevocable letter of credit.

Cash Surety Refund Applicants owing the Internal Revenue Service or the Commonwealth of Virginia may not receive a refund of the cash guarantee provided for the issuance of a VDOT land use permit unless the amount owed is less than the amount of cash guarantee provided. Applicants providing cash guarantee for the issuance of a VDOT land use permit must provide an executed copy of the Commonwealth of Virginia's Substitute Form W-9 to receive a refund of the cash guarantee provided for the issuance of a VDOT land use permit.

Insurance Requirements (excluding County, Town or City)

The permittee or their agent shall secure and maintain insurance to protect against liability for personal injury and property damage that may arise from the activities performed under the authority of a land use permit and from the operation of the permitted activity up to one million dollars (\$ 1,000,000) each occurrence to protect the Board members and the Department's agents or employees; seventy-five housand dollars (\$75,000) each occurrence to protect the Board, the Department, or the Commonwealth in event of suit. Insurance must be obtained prior to start of the permitted work and shall remain valid through the permit completion date. VDOT staff may require a valid certificate or letter of insurance from the issuing insurance agent or agency prior to issuing the land use permit.

Any of the following provisions that may apply, shall apply:

1) Permittee acceptance and use of a Virginia Department of Transportation (VDOT) land use permit is prima facie evidence that the permittee has read and is fully cognizant of all required permit provisions, applicable traffic control plans and associated construction standards to be employed. All applicants to whom permits are issued shall at all times indemnify and save harmless the Commonwealth Transportation Board, members of the Board, the Commonwealth, and all Commonwealth employees, agents, and officers, from responsibility, damage, or liability arising from the exercise of the privileges granted in such permit to the extent allowed by law including any sums ordered to be paid or expended by VDOT by any governmental entity as a fine, penalty or damages for any violation of any applicable environmental law, or to remediate any hazardous or other material, including illicit discharge into VDOT maintained storm sewer systems.

- 2) The permittee assumes full responsibility for any and all (downstream flooding, erosion, siltation, etc.) damages that may occur as a result of the work performed under this permit. Furthermore, the Department will in no way be responsible for any damage to the facility being placed as a result of future maintenance or construction activities performed by the Department
- 3) The permittee agrees to move, remove, alter, or change any installation that interferes with the ultimate construction of the highway in alignment or grade at no cost to the Department unless otherwise stipulated and agreed to by the Department.
- 4) The permittee shall immediately correct any situation that may arise as a result of these activities that the district administrator's designee deems hazardous to the traveling public. 5) Any and all highway signs, right-of-way markers, etc., disturbed as a result of work performed under the auspices of a land use permit
- shall be accurately reset by the permittee immediately following the work in the vicinity of the disturbed facility. The services of a certified land surveyor with experience in route surveying may be required. 6) It shall be the permittee's responsibility to obtain any and all necessary permits that may be required by any other government
- agencies, i.e., U.S. Army Corp. of Engineers, Department of Environmental Quality, Department of Conservation and Recreation, etc. 7) A copy of the VDOT land use permit shall be maintained at the work site and made readily available for inspection when requested by authorized VDOT personnel. District administrator's designee may request the permittee to install on site a project information sign to
- help the public and VDOT personnel identify activities in the right of way (see LUP-IS). 8) The permittee shall notify the local district permit office at least 48 hours prior to commencement of any work requiring inspection and/or testing as stipulated in VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications
- (current edition). Failure to carry out this requirement may result in permit revocation. 9) The permittee or their agent must contact the VDOT Customer Service Center at 1-800-367-7623 a minimum of 48 hours prior to initiating any planned excavation within 1,000 feet of a signalized intersection and/or near VDOT ITS infrastructure. Excavation activities may proceed only after the VDOT regional utility location agent has notified the permittee that the utility marking has been

completed. Additional information can be found at: http://www.virginiadot.org/business/resources/IIM/TE-383 Request for Marking VDOT Utility Location.pdf Alternately, within all localities in the Northern Virginia Construction District, including the Counties of Arlington, Fairfax, Loudoun & Prince William, the Cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park, and the Towns of Clifton, Dumfries,

- Hamilton, Haymarket, Herndon, Hillsboro, Leesburg, Lovettsville, Middleburg, Occoquan, Purcellville, Quantico, Round Hill and Vienna, and on Interstate 95 in the counties of Stafford, Spotsylvania and Caroline, the permittee may request VDOT regional utility marking at: http://www.vdotutilitymarking.virginia.gov 10) The permittee shall to notify "Miss Utility" (or each operator of an underground utility where no notification center exists) of any
- and holidays) in advance of commencing with any planned excavation within state maintained right-of-way. Failure to carry out this 11) It is the duty of the district administrator's designee to keep all roads maintained in a safe and travelable condition at all times

planned excavation within state maintained right-of-way. This notification must be provided at least 48 hours (excluding weekends

Therefore, any permit may be denied, revoked or suspended when in the opinion of the district administrator's designee, the safety,

standards and invoice the permittee for the actual cost of such work. The permittee may be required to move, alter, change or

- use or maintenance of the highway so requires. 12) The permittee shall at all times give strict attention to the safety and rights of the traveling public, their employees and themselves. VDOT reserves the right to stop work at anytime due to safety problems and/or non-compliance with the terms of the permit. The Department may, at its discretion, complete any of the work covered in the permit or restore the right-of-way to the department's
- 13) All work authorized under the auspices of a VDOT land use permit shall be subject to VDOT's direction and be in accordance with VDOT's Road and Bridge Standards (current edition) and VDOT's Road and Bridge Specifications (current edition).

remove from state maintained right-of-way, in a satisfactory manner, any installation made under this permit.

14) Design changes, specified material changes and/or field changes from the approved plans shall be submitted to the appropriate district administrator's designee for review and approval prior to proceeding with the proposed changes. This submittal shall include written justification, supplemental documentation and/or engineering calculations that support the requested changes.

- 15) The permittee shall meet or exceed the existing pavement design and typical section when constructing pavement widening adjacent to an existing state maintained roadway. The proposed pavement design and typical section shall be approved by the district administrator's designee prior to commencing with any work within state maintained right-of-way. All pavement widening shall be in accordance with VDOT's Road and Bridge Standard 303.02.
- 16) Within the limits of a VDOT construction project it is the responsibility of the permit applicant to obtain the contractor's consent in writing prior to permit issuance. Information regarding current and/or planned VDOT construction and maintenance activities can be obtained at: http://www.virginiaroads.org/.

Traffic Control and Safety

- 1) The permittee shall at all times give strict attention to the safety and rights of the traveling public, their employees, and contractors. Any permit may be revoked or suspended when in the opinion of the district administrator's designee, the safety, use or maintenance
- 2) In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification, Special Provision 105.14, all activities performed under the auspices of a VDOT Land Use Permit involving the installation, maintenance and removal of work zone traffic control devices must have an individual on-site who, at a minimum, is accredited by VDOT in Basic Work Zone Traffic Control
- The accredited person must have their VDOT Work Zone Traffic Control accreditation card in their possession while on-site. 3) The individual accredited in Basic Work Zone Traffic Control is responsible for the placement, maintenance and removal of work zone traffic control devices within the project limits in compliance with the permit requirements and conditions, the approved plans and
- specifications, the Virginia Work Area Protection Manual, and the Manual of Uniform Traffic Control Devices 4) A person accredited by VDOT in Intermediate Work Zone Traffic Control must be on-site to provide supervision for adjustment to the
- approved layout of any standard Typical Traffic Control (TTC) layouts outlined in the Virginia Work Area Protection Manual.
- 5) All traffic control plans shall be prepared by a person verified by VDOT in Advanced Work Zone Traffic Control
- 6) Individuals responsible for implementation of work zone traffic control measures shall provide evidence of their accreditation upon 7) The permittee shall be exempt from the requirements of Virginia Department of Transportation (VDOT) Road and Bridge
- Specification, Special Provision 105.14 if the authorized activity is not within the roadway (as defined in 24VAC30-151) of a state 8) Non-compliance with the requirements outlined in VDOT Road and Bridge Specification, Special Provision 105.14 may result in a stop work order and / or permit revocation
- 9) All activities that require the disruption (stoppage) of traffic shall utilize VDOT certified flaggers. Flag persons shall be provided in sufficient number and locations as necessary for control and protection of vehicular and pedestrian traffic in accordance with the Virginia Work Area Protection Manual. All flaggers must have their certification card in their possession when performing flagging operations within state maintained right-of-way. Any flag person found not in possession of his/her certification card shall be removed from the flagging site and the district administrator's designee will suspend all permitted activities.
- 10) Any VDOT certified flag person found to be performing their duties improperly shall have their certification revoked.
- 11) All signs shall be in accordance with the current edition of the Manual of Uniform Traffic Control Devices (MUTCD).
- 12) The permittee shall immediately correct any situation that may arise as a result of these activities that the district administrator's designee deems hazardous to the traveling public
- 13) During authorized activities, the permittee shall furnish all necessary signs, flag persons and other devices to provide for the protection of traffic and workers in accordance with the Virginia Work Area Protection Manual or as directed by the district
- 14) Traffic shall not be blocked or detoured without permission, documented in writing or electronic communication, being granted by the district administrator's designee.

15) All lane or shoulder closures on highways in the Northern Virginia construction district classified as arterial or collector routes must be authorized, documented in writing or by electronic communication by the VDOT Transportation Operations Center (NRO/TOC)

- 16) If directed by the district, requests for the implementation of temporary lane closures must be entered into the VDOT Lane Closure Advisory Management System (LCAMS) and VaTraffic a minimum of one (1) week prior to the planned execution of lane closure activities on state maintained highways. The permittee or their contractor(s) may enter their requests directly or provide written requests to the VDOT Regional Operations Center as follows
- Lane closure requests in all the counties listed below are within the Northern Region and shall be sent to: nrolaneclosurerequests@vdot.virginia.gov.

Contact information: NRO- (703) 877-3401 Carlene McWhirt, Lane Closure Coordinator

carlene.mcwhirt@vdot.virginia.gov Counties: Arlington, Fairfax, Loudoun, Prince William, Spotsylvania, and Stafford

• Lane closure requests in all the counties listed below are within the Northwest Region and shall be sent to: StauntonTrafficManagementCenter@vdot.virginia.gov.

NWRO (540) 332-9500

Sandy WyricK, Lane Closure Coordinator

Sandy.Wyrick@VDOT.Virginia.gov,cathal.duffy@vdot.virginia.gov Counties: Albemarle, Alleghany, Augusta, Bath, Clarke, Culpeper, Fauquier, Fluvanna, Frederick, Greene, Highland. Louisa, Madison, Orange Page, Rappahannock, Rockbridge, Rockingham, Shenandoah and Warren

• Lane closure requests in all the counties listed below are within the Southwest Region and shall be sent to: SalemSmartTrafficCenter@VDOT.Virginia.gov.

SWRO- (540) 375-0170

Todd Martin, Lane Closure Coordinator todd.martin@vdot.virginia.gov,sharon.braden@vdot.virginia.gov

Counties: Amherst, Appomattox, Bedford, Bland, Botetourt, Buchanan, Buckingham, Campbell, Carroll, Charlotte, Craig, Cumberland, Dickenson, Floyd, Franklin, Giles, Grayson, Halifax, Henry, Lee, Montgomery, Nelson, Patrick, Pittsylvania Prince Edward, Pulaski, Roanoke, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe.

• Lane closure requests in all the counties listed below are within the Eastern Region and shall be sent to: HRPermits@vdot.virginia.gov

Contact information: ERO- (757) 424-9920 Michael Ambrose, Lane Closure Coordinator

michael.ambrose@vdot.virginia.gov

Counties: Accomack, Greensville, Isle of Wight, James City, Northampton, Southampton, Surry, Sussex and York

• Lane closure requests in all the counties listed below are within the Central Region and shall be sent to: RichmondDist.SmartTraffic@vdot.virginia.gov Contact information

CRO- 804-796-4520 Sheila Hicks, Lane Closure Coordinator shelia.hicks@vdot.virginia.gov

Counties: Amelia, Brunswick, Caroline, Charles City, Chesterfield, Dinwiddie, Essex, Gloucester, Goochland, Hanover, Henrico, King and Queen, King George, King William, Lancaster, Lunenburg, Mathews, Mecklenburg, Middlesex, New Kent, Northumberland, Nottoway, Powhatan, Prince George, Richmond, and Westmoreland

Written requests for implementation of temporary lane closures must be submitted to the appropriate VDOT Regional Operations Center by close of business on the preceding Wednesday for the upcoming week's planned lane closures. All requests being directly input into LCAMS and VaTraffic must be entered no later than 2:00 pm on the preceding Thursday for the upcoming week's lane closure activities. Any conflicts with other roadway work must be resolved by close of business on Thursday the week prior to the scheduled lane closure activities with documented resolution sent to the VDOT point of contact provided by the regional traffic operation center LCAMS Administrator. Any requests received after these time limitations will not be approved and the proposed work within VDOT right of way requiring lane closures must be rescheduled.

Lane closure requestors wanting direct access to LCAMS and VaTraffic must complete ITD-35E & ITD-36E forms and return to Ms. Carlene McWhirt at Carlene McWhirt@VDOT.Virginia.gov. Online training is available for LCAMS and VaTraffic and VDOT can accommodate any additional training needs. Please contact Ms. McWhirt at (571) 350-2078 to schedule training.

VIRGINIA WORK ZONE TRAFFIC CONTROL TRAINING OPTIONS

The following three options are available to receive Work Zone Traffic Control (WZTC) training based on an individual's job duties and responsibilities as required by the FHWA Final Rule on Work Zone Safety and Mobility and the Virginia Department of Transportation:

OPTION 1 - Have someone trained to become a qualified instructor in your company who can then instruct others, utilizing training material provided by VDOT. The following qualifications must be met in order to teach the VDOT Basic, Intermediate, or Advanced WZTC training courses:

- Basic Be flagger certified either by VDOT or by the American Traffic Safety Services Association (ATSSA); possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; and successfully complete the VDOT WZTC Intermediate or
- Intermediate Be flagger certified either by VDOT or by ATSSA; possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting raining courses; complete and possess the ATSSA Virginia Intermediate/TCS certification.

Advanced course or complete the ATSSA Virginia Intermediate/Traffic Control Supervisor (TCS) course.

Advanced - Be flagger certified either by VDOT or by ATSSA; possess two years of practical experience in Highway Design, Construction, Maintenance, or Traffic Operations; possess two years of documented experience in conducting training courses; complete and possess the ATSSA Virginia Advanced Traffic Control Design Specialist (TCDS) certification or ATSSA Virginia Intermediate TCS certification.

To become an approved instructor, an application must be completed listing the above qualifications and sent to the chairman of VDOT's WZST committee at the following location:

http://www.virginiadot.org/business/resources/wztc/wztc_inst_app_form.pdf Once a person has become an approved instructor, training material can be obtained from VDOT using the order form obtained from the following location (requires an approved instructor identification number

http://www.virginiadot.org/business/resources/wztc/WZTC_order_form.pdf OPTION 2 - Obtain the services of an approved instructor from VDOT's Approved WZTC Instructor List to teach the course or courses

The Approved WZTC Instructor's List can be obtained at the following location: http://www.virginiadot.org/business/resources/wztc/Approved WZTC Instructors.pdf

A list of Approved Providers of training can be obtained at the following location http://www.virginiadot.org/business/resources/wztc/wztc_training_sponsors.pdf

OPTION 3 - Send personnel to classes conducted by approved sources such as ATSSA Virginia or the Virginia Local Technical Assistance Program (LTAP).

Courses by ATSSA Virginia can be found at the following location:

you need for your employees.

http://atssa.com/cs/course_information/courses_by_state?state=50

Courses by the Virginia LTAP can be found at the following location http://ltap.cts.virginia.edu/2%20Page%20Calendar%20June%20-%20Sept%2009.pdf

Basic WZTC courses by the Virginia Rural Water Association can be found at the following location http://www.vrwa.org/ (See Training Schedule)

Training by the Virginia Transportation Construction Alliance (VTCA) can be found at the following location: http://vtca.org/

Visit the following site for additional information regarding Virginia's Work Zone Traffic Control training program: http://www.virginiadot.org/business/trafficeng-WZS.asp

Authorized Hours and Days of Work

Normal hours for work under the authority of a VDOT land use permit are from 9:00 a.m. to 3:30 p.m. Monday through Friday for all highways classified as arterial or collector. All highways classified as local roads will have unrestricted work hours and days.

The district administrator's designee may establish alternate time restrictions in normal working hours for single use permits. The central office permit manager may establish alternate time restrictions in normal working hours for district-wide permits

The classifications for all state maintained highways can be found at the following link: http://www.virginiadot.org/projects/fxn_class/maps.asp

In the event of an emergency situation that requires immediate action to protect persons or property, work may proceed within the right-ofway without authorization from the district administrator's designee; however, the utility owner must contact the VDOT Emergency Operations Center as soon as reasonably possible but no later than 48 hours after the end of the emergency situation.

- The utility owner must apply for a separate land use permit from the local district permit office for any emergency work performed on state maintained right-of-way when the following actions are proposed:
- Stopping or impeding highway travel in excess of 15 minutes, or, Accessing facilities within limited access right-of-way, or,
- Cutting the highway pavement or shoulders. The district administrator's designee shall determine the applicable permit fee for emergency repair permits.

Holiday Restrictions

Permitted non-emergency work will not be allowed on arterial and collector highway classifications from noon on the preceding weekday through the following state observed holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. If the observed holiday falls on a Monday, the permit will not be valid from noon on the preceding Friday through noon on

Trenchless Construction

All excavation within state maintained rights-of-way shall comply with OSHA Technical Manual, Chapter 2, Title Excavation: Hazard Recognition in Trenching and Shoring. A professional engineer shall certify all shoring and/or trench boxes.

No excavated material is to be placed or tracked on the pavement without written permission from the District Administrator's designee When so authorized, the pavement shall be satisfactorily cleaned by a VDOT approved method. No cleated (track-mounted) equipment is to be used on the pavement without properly protecting the pavement from damage.

Site specific geotechnical sub-surface investigation reports, compiled in accordance with the provisions of VDOT Materials Division Manual of Instructions, shall be submitted to the district administrator's designee if the following trenchless installation(s) are proposed:

- The proposed pipe diameter is 24-inches or greater, and;
- The proposed pipe cover is less than 3 times the pipe diameter, and: The AADT of roadway is greater than 25,000, or:
- The proposed pipe diameter is 60-inches or greater, or Any situation where there is a significant risk identified.

Inspection and Restoration

1) Inspection and testing of all backfill and pavement sections shall be performed in accordance with all applicable sections of VDOT's Road and Bridge Specifications (current edition).

- 2) If during or before construction it is deemed necessary for the local district permit office to assign an inspector to the project, the permittee shall pay the Department an additional inspection fee in an amount that will cover the salary, expense allowance, and mileage allowance for the inspection(s) assigned by the Department for handling work covered by this permit. Said inspection fee for coordination and completion of all required remediation necessary to complete the permitted activities within the state maintained shall be paid promptly each month on invoices rendered by the Department. right-of-way. The permittee shall provide evidence of such compliance to the local district permit office prior to recommencement of
- 3) It shall be the decision of the district administrator's designee whether to assign an inspector to monitor the placement of all backfill and pavement restoration activities

with the approved plans, provisions of the attached permit, VDOT's Road and Bridge Standards (current edition) and VDOT's Road

and Bridge Specifications (current edition). 5) The permittee shall be responsible for any settlement of all backfill or pavement restoration necessitated by authorized excavation within the highway right-of-way. A one (1) year restoration warranty period may be considered, provided the permittee adheres to the

4) The absence of a VDOT inspector does not in any way relieve the permittee of their responsibility to perform the work in accordance

- The permittee retains the services of a professional engineer (or certified technician under the direction of the professional
- engineer) to observe the placement of all backfill and pavement restoratio • The professional engineer (or certified technician under the direction of the professional engineer) performs any required
- The professional engineer submits all testing reports for review and approval, and provides written certification that all restoration procedures have been completed in accordance with all applicable sections of VDOT's Road and Bridge Specifications prior to completion of the work authorized by the permit.

inspection and testing in accordance with all applicable sections of VDOT's Road and Bridge Specifications

6) Whenever existing pavement is permitted to be cut, not over one-half of the roadway width shall be disturbed at one time and the first open cut trench section shall be satisfactorily restored to allow for the passage of traffic prior to the second half of the roadway

7) All crossing of existing payement shall be bored, pushed or jacked an appropriate distance from the edge-of-payement so as not to

impede the normal flow of traffic or damage the existing pavement section. Existing pavement shall not be cut unless approved by

- the district administrator's designee and then only if justifiable circumstances prevail or proof is shown that a thorough attempt has been made to push, bore or jack.
- 8) Authorized daily trench excavation within pavement sections shall not exceed 500 feet in length. 9) Pavement restoration shall be in accordance with the VDOT LUP-OC Pavement Open Cut Special Provisions. This document can
- also be found at: http://www.virginiadot.org/business/bu-landUsePermits.asp 10) Where the pavement is disturbed or deemed weakened in its entirety or such portions as deemed desirable by the Department, the pavement shall be restored or replaced in a manner that is satisfactory to the district administrator's designed
- 1) In accordance with the Virginia Department of Transportation (VDOT) Road and Bridge Specification §107.16, all contractors performing regulated land disturbing activities within VDOT right-of-way must have at least one (1) employee that has successfully completed the VDOT Erosion & Sediment Control Contractor Certification training. This person shall be on site during all land

disturbance activities and will be responsible for insuring compliance with all applicable local, state and federal erosion and sediment control regulations during land disturbance activities. This person must have their certification card with them while on the project site. The land use permit will be suspended if proof of certification cannot be provided. Regulated land disturbing activities are defined as those activities that disturb 2.500 square feet or greater in Tidewater, Virginia or 10,000 square feet or greater in all other areas of the State. The Department will require evidence of this certification with any land use permit application that involves utility and/or commercial right of way improvement. Improper installation, maintenance and removal of erosion and sediment control devices may result in revocation of VDOT Erosion & Sediment Control Contractor Certification.

NOTE: Training for the VDOT Erosion & Sediment Control Contractor Certification can be obtained from any of the sources listed under "Upcoming Courses" at: http://www.virginiadot.org/business/locdes/ms4_stormwater_management.asp

- 2) The permittee is responsible for pursuing and obtaining any and all environmental permits which may be required to pursue the proposed activity prior to any work beginning within state maintained right-of-way. 3) In the event hazardous materials or underground storage tanks are encountered within state maintained right-of-way during authorized activities, the permittee shall suspend all work immediately then notify the local district permit office and other responsible parties, i.e., the local fire department, emergency services. Department of Environmental Quality, etc. The permittee is responsible
- 4) In the event cultural resources, archaeological, paleontological, and/or rare minerals are encountered within the right of way during authorized activities, the permittee shall suspend all work immediately then notify the local district permit office and the proper state authority charged with the responsibility for investigation and evaluation of such finds. The permittee will meet all necessary requirements for resolving any conflicts prior to continuing with the proposed activities within the state maintained right-of-way, and shall provide evidence of such compliance to the local district permit office
- dway drainage snail not de diocked or diverted. I ne snoulders, ditches, roadside, drainage tacilities and pa in an operable condition satisfactory to the Department. Necessary precautions shall be taken by the permittee to insure against siltation of adjacent properties, streams, etc., in accordance with VDOT's current standards or as prescribed by the Department's Environmental Manual and the district administrator's designee.

- 1) VDOT's authority to regulate highway entrances is provided in § \$33.2-240 and \$33.2-241 of the Code of Virginia and its authority to make regulations concerning the use of highways generally is provided in §33.2-210 of the Code of Virginia. Regulations regarding
- entrances are set forth in VDOT's regulations promulgated pursuant to §33.2-245 of the Code of Virginia 2) The permittee shall be responsible for the design and installation of a private entrance under the auspices of a VDOT land use permit however the permittee may request that VDOT forces install the private entrance at the permittee's expense
- 3) Street connections, private entrances, and construction entrances shall be kept in satisfactory condition during all activities authorized under the auspices of a VDOT land use permit. Entrances shall not be blocked. Ample provisions must be made to provide safe ingress and egress to adjacent properties at all times. Entrances that are disturbed shall be restored to the satisfaction of the property

owner and the district administrator's designee.

- 1) Prior to any excavation, the permittee shall comply with the terms of Title 56, Chapter 10.3 of the Underground Utility Damage Prevention Act and §56-265.14 through §56-265.20 of the Code of Virginia. This permit does not grant permission to grade on or near property of others, or, adjust or disturb in anyway existing utility poles or underground facilities within the permitted area. Permission to do so must be obtained from the impacted utility company and any expense involved shall be borne by the permittee.
- 2) All underground utility installations within limited access right-of-way shall have a minimum of 36 inches of cover. All underground utilities within non-limited access right-of-way will require a minimum of 36 inches of cover, except underground cables that provide telecommunications service shall be at a minimum of 30 inches of cover.

3) Where feasible, all aboveground installations (such as fire hydrants, telephone pedestals, markers, etc.) shall be located adjacent to

the outside edge of the right-of-way line and in accordance with minimum clear zone requirements. All manhole covers, valve box,

Any conflicts with existing utility facilities must be resolved between the permittee and the utility owner(s) involved.

etc., shall be installed two inches below existing ground line and shall conform to existing contours.

- 4) No poles, guys, anchors, etc., are to be placed on state maintained right-of-way unless authorized under the auspices of a VDOT land use permit. At no time will any such facilities be allowed between the ditch line and the traveled roadway.
- 5) All overhead installations crossing non-limited access highways shall provide a minimum of 18 feet of vertical clearance or at a minimum height as established by the National Electric Safety Code, whichever is greater. All overhead utility installations within limited access right-of-way shall maintain a minimum of 21 feet of vertical clearance. The vertical clearance for all new overhead parallel installations within non-limited access rights-of-way shall be in compliance with standards as specified in the National Electric

Final Inspection and Completion of Permit

Upon completion of the work covered by this permit all disturbed areas outside of the roadway prism shall be restored to their original

condition as found prior to starting such work. Completion of this permit is contingent upon the permittee's completion of the authorized work in accordance with the approved plan and

compliance with all governing bodies involved in the total completion of work on state maintained right-of-way. Upon completion of the work under permit, the permittee shall provide notification, documented in writing or electronic communication, to the district administrator's designee requesting final inspection. This request shall include the permit number, county name, route number

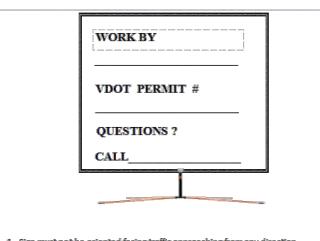
and name of the party or parties to whom the permit was issued. The district administrator's designee shall promptly schedule an inspection of the work covered under the permit and advise the permittee of any necessary corrections.

At the discretion of the district administrator's designee, a land use permit may be revoked upon written finding that the permittee was not

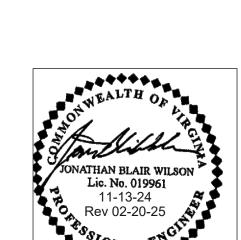
Permittee Notice The preceding provisions are intentionally condensed in format and should not be loosely interpreted by the permittee without consultation

regulating activities within the right-of-way. In addition VDOT may apply additional penalties in accordance with §33.2-1221.

with the central office permit manager and affirmation from the Land Use Permit Regulations.



- 1. Sign must not be oriented facing traffic approaching from any direction
- 2. Sign must be non-reflective 3. Sign must use Times New Roman font and should not use MUTCD sign fonts (or Clearview)
- 4. Sign must not show any logos 5. Sign must not contain the contractor's name (unless the contractor is the per-
- 6. Sign must be installed outside clear zone within 50' of work area
- 7. Sign must remain on site until final restoration of right of way 8. For multiple work locations within subdivisions, at least one sign may be installed at
- the main work area 9. Sign must be at least 36"X36" and made of water-resistant material and firmly se-
- 10.Sign must be blue with white 3" lettering 11. Sign shall not be installed on existing VDOT sign posts and should not impede pe-



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PROJECT MANAGER:

DESIGNED:

CHECKED

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REVISED:

P.O. Box 1269

(804) 513-9564

West Point, VA 23181-1269

jblairwilson@gmail.com

CAD:

EXPRESS WRITTEN PERMISSION.

JBW

JBW

JBW

JBW

NOVEMBER 13, 2024

FEBRUARY 20, 2025

WILSON ENGINEERS, LLC

Civil & Environmental Engineering

OR USED FOR ANY PROJECT IN

PROJECT:

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA

SHEET:

SHEET NO:

JOB NO.

TMP TYPE A, CATEGORY I

SHOULDER TAPER: N/A

TAPFR: N/A

BUFFER: N/A

AADT: 60

END TAPER: N/A

ADVANCE WARNING SIGN SPACING: 500'

ERW SIGN: NOT REQUIRED THIS PROJECT

FOTAL NUMBER OF SOUTHBOUND LANES: 1

FOTAL NUMBER OF NORTHBOUND LANES:

CONSTRUCTION EQUIPMENT WITHIN R/W: NO

WORK HOURS RESTRICTED: NO

MATERIAL STORAGE WITHIN R/W: NO

USERS: RESIDENTS AND DELIVERIES

WORK ZONE LOCATION: BEYOND SHOULDER, OUTSIDE OF CLEAR ZONE

TOTAL NUMBER OF SOUTHBOUND LANES CLOSED TO TRAFFIC: O

TOTAL NUMBER OF NORTHBOUND LANES CLOSED TO TRAFFIC: O

TOTAL NUMBER OF SOUTHBOUND LANES OPEN TO TRAFFIC: 1

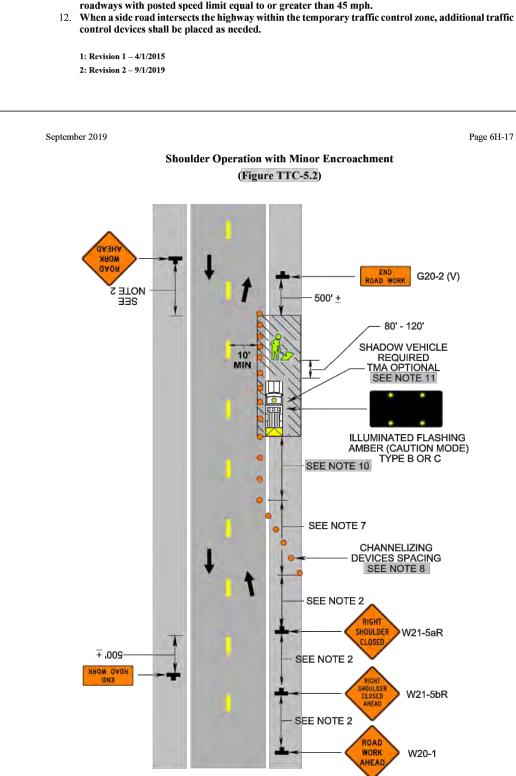
TOTAL NUMBER OF NORTHBOUND LANES OPEN TO TRAFFIC: 1

S.R. 628 NORTHBOUND LANE, SPEED LIMIT NOT POSTED: 55 MPH; CLEAR ZONE=25'

S.R. 628 SOUTHBOUND LANE, SPEED LIMIT NOT POSTED: 55 MPH; CLEAR ZONE=25'

RWA SIGNS: 500' IN ADVANCE OF WORK AREA, RIGHT SIDE OF DIRECTIONAL LANE

ENTRANCES, INTERSECTIONS, OR PEDESTRIAN ACCESS POINTS AFFECTED: NONE



Page 6H-16

Typical Traffic Control

Shoulder Operation with Minor Encroachment

(Figure TTC-5.2)

2. Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign

3. When work takes up part of a lane on a high volume roadway; vehicular traffic volumes, vehicle mix,

4. The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers

emerging from that roadway will encounter another advance warning sign prior to this activity area.

5. A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-

6. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber

intensity amber rotating, flashing, or oscillating light shall be parked 80' - 120' in advance of the

rotating, flashing, or loscillating lights. Vehicle hazard warning signals can be used to supplement

Limit (mph) 9 10 11 12 Remarks (limit (mph) 9 10 11 12 Remarks (state of the control of the cont

 30
 135
 150
 165
 180
 L=S²W/60
 55
 495
 550
 605
 660
 L=SW

 35
 185
 205
 225
 245
 L=S²W/60
 60
 540
 600
 660
 720
 L=SW

 40
 240
 270
 295
 320
 L=S²W/60
 65
 585
 650
 715
 780
 L=SW

Location Speed Limit

Spacing (mph) 0 -35 | 36 +

9. On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be

10. The buffer space length The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for

11. A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane

used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain

 Transition
 20'
 40'
 Travelway
 40'
 80'
 *Construction Access
 80'
 120'

Location Spacing (mph) 0 -35 36 +

| 40 | 240 | 270 | 295 | 320 | L=S²W/60 | 65 | 585 | 650 | 715 | 780 | L=SW | 45 | 405 | 450 | 495 | 540 | L=SW | 70 | 630 | 700 | 770 | 840 | L=SW | Limited Access highways shall use a 1000' merging taper regardless of the posted speed, a 750' shifting taper for posted speeds < 65 mph and a 1000' shifting taper for posted speeds ≥ 65 mph.²

the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.

spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where

speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless

the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If

1. For required sign assemblies for multi-lane roadways see Note 1, TTC-4.1

high-intensity amber rotating, flashing, or oscillating lights.

8. Channelizing device spacing shall be at the following:

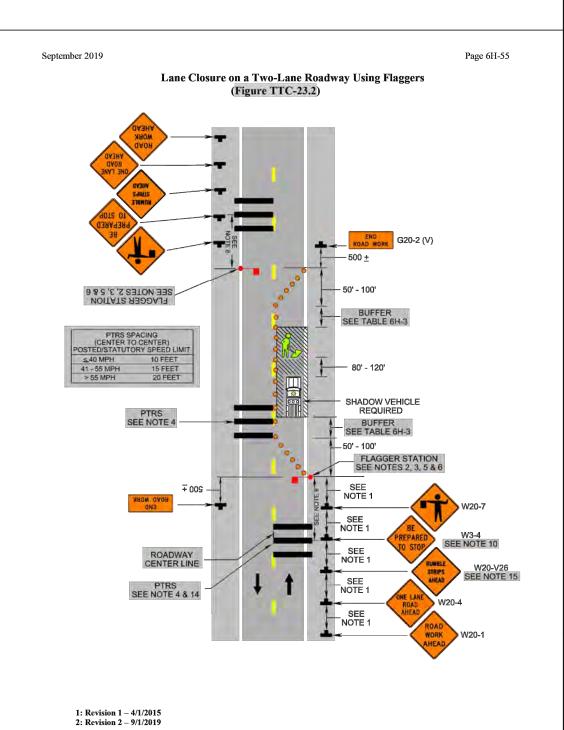
Spacing

within the traveled way.²

the posted speed limit.

. Taper length (L) and channelizing device spacing shall be at the following:

the posted speed limit is 45 mph or less.



Page 6H-54

TEMPORARY TRAFFIC CONTROL GENERAL NOTES:

September 2019

Typical Traffic Control

1. Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800'

2. Care should be exercised when establishing the limits of the work zone to insure maximum possible sight

3. To maintain efficient traffic flow in a flagging operation on a two-lane roadway, the maximum time

5. Flagging stations shall be located far enough in advance of the work space to permit approaching

6. All flaggers shall be state certified and have their certification card in their possession when

8. A shadow vehicle with at least one high intensity amber rotating, flashing, or oscillating light shall

8. A SLOW (W21-V10) sign² may be required in this area to give advance warning of the operation ahead

9. If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the

10. When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the

12. Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet

13. For low-volume situations with short work zones on straight roadways where the flagger is visible to road

14. When used2, three portable temporary rumble (PTRS) strips shall be installed across the entire

users approaching from both directions, a single flagger, positioned to be visible to road users approaching

travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble

strips shall be monitored and adjusted as necessary during the work shift to ensure proper

placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-

temporary traffic control zone should be extended so that the transition area precedes the highway-rail

7. Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.1

traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for

departing traffic in the left lane to return to the right lane before reaching opposing traffic (see

distance in advance of the flagger station and transition, based on the posted speed limit and at least

notorists should be stopped at a flagger station is 8 minutes for high volume roadways (average daily

raffic of 500 or more vehicles per day) to a maximum of 12 minutes for low volume roadways (less than

equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line

Lane Closure on a Two-Lane Roadway Using Flaggers

(Figure TTC-23.2)

where the posted speed limit is greater than 45 mph.

Table 6H-3 on Page 6H-5).

of sight from the graphic flagger symbol sign to the flagger.

be parked 80'-120' in advance of the first work crew.

PTRS¹ should be readjusted at greater distances.

from both directions, may be used (see Chapter 6E).

V26) sign shall also be utilized.

1: Revision 1 - 4/1/2015

500 vehicles per day). For additional information see Section 6E.07.2

4. Portable Temporary Rumle Strips (PTRS) shall be used as noted in Section 6F.99.

performing flagging duties (see Section 6E.01, Qualifications for Flaggers).

by slowing approaching traffic prior to reaching the flagger station or queued traffic

crossing (see Figure TTC-56 for additional information on highway-rail crossings).

11. At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).

- THE WORK ZONE OF THE CONTRACT IS LOCATED ALONG SPRING COTTAGE ROAD, STATE ROUTE 628 AT THE INTERSECTION OF EASTERN VIEW RD., S.R. 639 WITH SPRING COTTAGE ROAD, S.R. 628. THIS IS A TYPE "A" TRAFFIC MANAGEMENT PLAN. OFF SITE DETOURS ARE NOT NEEDED.
- . UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER (VDOT), THE CONTRACTOR SHALL PLAN AND PROSECUTE THE WORK IN ACCORDANCE WITH THE
- A. GENERALLY, CONSTRUCTION ACTIVITIES WILL BE CONDUCTED WHILE HIGHWAY TRAVEL

IS TEMPORARILY LIMITED. NOTIFICATION SHALL BE IN ACCORDANCE WITH THE VDOT

POSTED. IN ADDITION, "ROAD WORK AHEAD" SIGNS SHALL BE PLACED IN ADVANCE

- B. IT IS ANTICIPATED THAT THE FOLLOWING 2011 VIRGINIA WORK PROTECTION MANUAL REVISION 2 TYPICAL TRAFFIC CONTROL APPLICATIONS WILL BE USED TO PERFORM THE CONTRACT WORK: TTC-1.1, TTC-5.2, AND TTC-23.2. DURING PERIODS THAT OPERATIONS ARE PERFORMED UNDER TRAFFIC, THE SPEED LIMIT SHALL BE, AS
- OF THE WORK ZONE. C. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC SCHEDULE, INCLUDING ALL PROPOSED LANE AND SHOULDER CLOSURES, AT LEAST TWO WEEKS PRIOR THE ACTUAL CLOSURES ARE TO BEGIN FOR REVIEW AND APPROVAL.
- D. THE CONTRACTOR SHALL SUBMIT THE FINAL PLAN OF ALL PROPOSED LANE AND SHOULDER CLOSURES BY CLOSE OF BUSINESS WEDNESDAY FOR WORK IN THE FOLLOWING WEEK REQUIRING THE LANE OR SHOULDER CLOSURES IN ORDER FOR THE DEPARTMENT TO NOTIFY THE GENERAL PUBLIC, APPROPRIATE PUBLIC ENTITIES,
- TRAFFIC MANAGEMENT CENTER, AND THE REGIONAL TRAFFIC ENGINEER. E. AN ON-SITE REVIEW OF THE PROJECT'S WORK ZONE TRAFFIC CONTROL BY THE PROJECT MANAGEMENT TEAM, REGIONAL TRAFFIC ENGINEER AND CONTRACTOR SHALL BE CONDUCTED WITHIN 24 HOURS OF ANY FATAL INCIDENT/CRASH WITHIN THE WORK
- F. PERIODIC WORK ZONE REVIEWS SHALL BE CONDUCTED JOINTLY BY THE PROJECT MANAGEMENT TEAM, REGIONAL TRAFFIC ENGINEER AND CONTRACTOR.
- G. ALL TRAFFIC CONTROL DEVICES AND SIGNS NECESSARY FOR THE MAINTENANCE OF TRAFFIC ARE TO BE SUPPLIED, INSTALLED, MAINTAINED, AND REMOVED BY THE CONTRACTOR
- H. ALL TRAFFIC CONTROL DEVICE LOCATIONS SHALL BE MARKED BY THE CONTRACTOR AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.
- CONSTRUCTION SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION, STANDARD HIGHWAY SIGN MANUAL 2011 EDITION, VIRGINIA WORK AREA PROTECTION MANUAL 2011 EDITION REVISION 2, 2016 ROAD AND BRIDGE STANDARDS AND THE 2020 ROAD AND BRIDGE SPECIFICATIONS.
- ALL SIGNS WILL BE EITHER REMOVED FROM THE ROADWAY WHEN NOT NEEDED OR COVERED PER SECTION 6F.04 OF THE VIRGINIA WORK AREA PROTECTION MANUAL, 2011 EDITION REVISION 2.

REFERENCE ONLY.

- L. TRAFFIC CONSISTS OF RESIDENTS, MATERIAL TRANSPORTATION TRUCKS, DELIVERY TRUCKS, AND SCHOOL BUSES.
- M. SIDEWALK CLOSURES SHALL BE IN ACCORDANCE WITH TTC-35.0 AND TTC-36.1, IF
- 3. GROUP 2 CHANNELIZING DEVICES ARE TO BE PLACED AS DIRECTED BY HE VA WAPM,
- WORK ACTIVITY IN THE ROADWAY WILL BE ALLOWED FROM 9:00AM AND 3:30PM MONDAY THRU FRIDAY. FOR ALTERNATE WORK HOURS THE CONTRACTOR MUST SUBMIT IN WRITING THE PROPOSED ALTERNATE HOURS TO THE FREDERICKSBURG DISTRICT PERMIT OFFICE FOR REVIEW AND APPROVAL. HOLIDAY RESTRICTIONS OUTLINED IN THE 2020 ROAD AND BRIDGE SPECIFICATIONS SECTION 108.02.
- 5. LANE CLOSURES WILL NOT BE PERMITTED, EXCEPT DURING S.R. 628 PAVEMENT RECONSTRUCTION OPERATIONS.
- 6. TEMPORARY LANE WIDTHS ARE NOT TO BE LESS THAN THE EXISTING LANE WIDTH (DESIRABLE 11' MIN.) WITHOUT CONCURRENCE OF THE REGIONAL TRAFFIC ENGINEER
- . NO OBJECTS, EQUIPMENT, OR STORED MATERIALS MAY INTERFERE WITH SIGHT DISTANCE OF ENTRANCES AND INTERSECTIONS.
- 8. PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PLACED PER THE VIRGINIA WORK AREA PROTECTION MANUAL OR AS DIRECTED BY THE ENGINEER.
- 9. VDOT WILL NOT ASSIST CONTRACTOR IN SECURING STAGING AREA FOR EQUIPMENT AND MATERIALS WITHIN THE STATE R/W.
- 10. CONTRACTOR SHALL MAINTAIN ACCESS TO PRIVATE ENTRANCES DURING OPERATIONS. 1. THE CONTRACTOR NEEDS TO CONTACT CENTRAL REGION OPERATIONS TRAFFIC SIGNALS AT (804) 524-6592 FOR A MARK OUT OF THE TRAFFIC SIGNAL EQUIPMENT A MINIMAL
- TRAFFIC SIGNAL. 12. ALL AREAS EXCAVATED BELOW EXISTING PAVEMENT SURFACES AT THE CONCLUSION OF EACH WORKDAY SHALL BE BACKFILLED TO FORM A 4:1 WEDGE AGAINST PAVEMENT

OF 72 HOURS PRIOR TO WORK BEGINNING WHEN WORKING WITHIN 1,000 FEET OF A

- SURFACE FOR THE SAFETY AND PROTECTION OF VEHICULAR TRAFFIC. 13. THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE AS REQUIRED TO PREVENT PONDING OF WATER ON THE ROADWAY AND ADJACENT PROPERTIES AT NO COST TO
- 4. CONTRACTOR SHALL PROTECT ANY EXISTING GUARDRAIL AND SUPPORTS WITHIN CONSTRUCTION AREA FROM DAMAGE. ANY GUARDRAIL OR SUPPORTS DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO PRE-CONSTRUCTION CONDITIONS BY THE CONTRACTOR.
- 5. MAINTENANCE OF TRAFFIC SHALL BE DONE IN ACCORDANCE WITH THE 2011 VIRGINIA WORK AREA PROTECTION MANUAL REVISION 2 AND THE 2009 EDITION FO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- FREDERICKSBURG DISTRICT LAND USE PERMITS OFFICE. THE CONTACT NUMBERS ARE: MARCIE PARKER, VDOT (FREDERICKSBURG DISTRICT LAND USE ENGINEER)
- 7. THIS TRAFFIC MANAGEMENT PLAN WAS PREPARED BY JONATHAN BLAIR WILSON, P.E. (VERIFICATION NO. 012821174).

PUBLIC COMMUNICATIONS PLAN

NOTIFICATION OF CONSTRUCTION START/END DATES AND WORK ZONE INFORMATION WILL BE ENTERED INTO THE VA TRAFFIC SYSTEM.

- TRANSPORTATION OPERATIONS PLAN . THE PROCESS TO NOTIFY THE REGIONAL TRAFFIC OPERATION CENTER TO PLACE LANE
- CLOSURE INFORMATION ON THE 511 SYSTEM AND VA, TRAFFIC WILL BE: A. CONTRACTOR IS TO ADVISE VDOT PROJECT INSPECTOR AND/OR CONSTRUCTION MANAGER OF PLANNED LANE CLOSURES A MIN. OF 24 HOURS IN ADVANCE OF
- B. CONSTRUCTION MANAGER IS TO ADVISE THE RESIDENCY MAINTENANCE MANAGER OF PROPOSED LANE/ROAD CLOSURE. RMA IS TO HAVE (VA, TRAFFIC) OPERATOR ENTER DATA INTO (VA, TRAFFIC) AND ALSO ADVISE TOC.
- 2. THE FOLLOWING IS A LIST OF LOCAL EMERGENCY CONTRACT AGENCIES:
- A. VIRGINA STATE POLICE-800-572-2260
- B. HAZ-MAT CENTER (IF SPILL INVOLVED) 911

PROPOSED LANE CLOSURE.

- 5. PROCEDURES TO RESPOND TO TRAFFIC INCIDENTS THAT MAY OCCUR IN THE WORK
- A. CONTRACTOR TO NOTIFY VIRGINIA STATE POLICE AND VDOT INSPECTOR IN CHARGE AND REGIONAL TRAFFIC OPERATIONS CENTER.
- B. DEPENDING UPON SEVERITY OF INCIDENT, CONTRACTOR MAY HAVE TO SHUT DOWN
- C. UPON ARRIVAL ON SCENE, VIRGINIA STATE POLICE WILL DETERMINE RESPONSE NECESSARY TO ALLOW TRAVELING PUBLIC AROUND INCIDENT.
- D. INSPECTOR TO NOTIFY CONSTRUCTION MANAGER/RESIDENCY ADMINISTRATOR OF INCIDENT AND TAKE PICTURES AS NECESSARY, ESPECIALLY PICTURES OF CONTRACTOR'S WORK ZONE TO VERIFY THE PROPER SETUP.
- PROCESS OF NOTIFICATION OF INCIDENT TO FOLLOWED IS: CONTRACTOR TO CALL:
- A. REGIONAL TRAFFIC OPERATIONS CENTER: SHIFT SUPERVISOR 804-796-4520
- B. DISTRICT WORK ZONE SAFETY COORDINATOR: JEFFREY STONE 540-899-4547 OR 540-907-8621
- C. REGIONAL TRAFFIC ENGINEER ROBERT VILAK 804-524-6119
- D. KING AND QUEEN COUNTY SHERIFF'S OFFICE 804-785-7400
- THE VIRGINIA STATE POLICE REPORT OF THE INCIDENT WILL BE REVIEWED BY THE RESIDENCY ADMINISTRATOR TO DETERMINE IF ANY MODIFICATION OF THE TEMPORARY CONTROL PLAN IS NECESSARY. IF IT IS NECESSARY TO ALTER THE PLAN, THEN A MEETING WILL BE CALLED WITH THE CONTRACTOR, VDOT PERSONNEL, VDOT SAFETY REPRESENTATIVES AND THE VIRGINIA STATE POLICE (IF NECESSARY) TO DISCUSS MODIFICATION AND IMPLEMENTATION OF AN APPROVED TRAFFIC CONTROL PLAN

<u>ADDITIONAL LOCAL NON-EMERGENCY NUMBERS:</u>

FIRE	(804)-785-5975
LOCAL POLICE	(804)-785-7400
RESCUE	(804)-785-5975
COUNTY ADMINISTRATION	(804)-785-5975
VDOT SALUDA RESIDENCY ADMINISTRATOR	(804)-758-232

SHEET NO:

JOB NO.

CERTIFICATE OF CERTIFIED VDOT ADVANCED WORK ZONE OFFICIAL:

AND COMPLIES WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND THAT I HAVE THE REQUIRED VDOT ADVANCED WORK ZONE CERTIFICATION.

TRAFFIC MANAGEMENT PLAN DESIGNER: JONATHAN BLAIR WILSON, P.E. ADVANCED WORK ZONE TRAFFIC CONTROL VERIFICATION No. 121724155

VWAP REFERENCES: TTC-5.2

WORK ZONE LOCATION: ON SHOULDER, WITHIN CLEAR ZONE

ADVANCE WARNING SIGN SPACING: 500' RWA SIGNS: 500' IN ADVANCE OF WORK AREA, RIGHT SIDE OF DIRECTIONAL LANE

SHOULDER TAPER: 182' TAPER: 500'

BUFFER: 500' END TAPER: N/A

1: Revision 1 - 4/1/2015 2: Revision 2 – 9/1/2019

> TOTAL NUMBER OF SOUTHBOUND LANES: 1 TOTAL NUMBER OF NORTHBOUND LANES: 1

TOTAL NUMBER OF SOUTHBOUND LANES CLOSED TO TRAFFIC: O TOTAL NUMBER OF NORTHBOUND LANES CLOSED TO TRAFFIC: O

TOTAL NUMBER OF NORTHBOUND LANES OPEN TO TRAFFIC: 1 WORK HOURS RESTRICTED: NO MATERIAL STORAGE WITHIN R/W: NO

CONSTRUCTION EQUIPMENT WITHIN R/W: NO

AADT: 60

USERS: RESIDENTS AND DELIVERIES

NEW HAUL ROAD ENTRANCE INSTALLATION

SHOULDER OPERATION WITH MINOR ENCROACHMENT TMP TYPF A. CATEGORY L

S.R. 628 NORTHBOUND LANE, SPEED LIMIT NOT POSTED: 55 MPH; CLEAR ZONE=25' S.R. 628 SOUTHBOUND LANE, SPEED LIMIT NOT POSTED: 55 MPH; CLEAR ZONE=25'

ERW SIGN: 500'

TOTAL NUMBER OF SOUTHBOUND LANES OPEN TO TRAFFIC: 1

ENTRANCES, INTERSECTIONS, OR PEDESTRIAN ACCESS POINTS AFFECTED: NO

S.R. 628 PAVEMENT SECTION RECONSTRUCTION/VDOT WP-2 MILLING AND OVERLAY VWAP REFERENCES: TTC-23.2 LANE CLOSURE ON A TWO-LANE ROADWAY USING FLAGGERS TMP TYPE A, CATEGORY I

WORK ZONE LOCATION: SOUTHBOUND TRAVEL LANE S.R. 628 NORTHBOUND LANE, SPEED LIMIT NOT POSTED: 55 MPH; CLEAR ZONE=25'

S.R. 628 SOUTHBOUND LANE, SPEED LIMIT NOT POSTED: 55 MPH; CLEAR ZONE=25' ADVANCE WARNING SIGN SPACING: 500' RWA SIGNS: 500' IN ADVANCE OF WORK AREA, RIGHT SIDE OF DIRECTIONAL LANE

SHOULDER TAPER: 182'

TAPER: 550' BUFFER: 500' END TAPER: 100'

ERW SIGN: 500' TOTAL NUMBER OF SOUTHBOUND LANES: 1 TOTAL NUMBER OF NORTHBOUND LANES: 1

TOTAL NUMBER OF SOUTHBOUND LANES CLOSED TO TRAFFIC: ALTERNATING TOTAL NUMBER OF NORTHBOUND LANES CLOSED TO TRAFFIC: ALTERNATING TOTAL NUMBER OF SOUTHBOUND LANES OPEN TO TRAFFIC: ALTERNATING

TOTAL NUMBER OF NORTHBOUND LANES OPEN TO TRAFFIC: ALTERNATING WORK HOURS RESTRICTED: YES, SEE GENERAL NOTE #4 THIS SHEET MATERIAL STORAGE WITHIN R/W: NO CONSTRUCTION EQUIPMENT WITHIN R/W: YES

ENTRANCES, INTERSECTIONS, OR PEDESTRIAN ACCESS POINTS AFFECTED: NONE AADT: 60

USERS: RESIDENTS AND DELIVERIES

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS PLAN IS CORRECT

EXPIRATION DATE:

12-31-2028

Rev 02-20-25 PROJECT:

> **MATTAPONI** SAND & **GRAVEL**

ONATHAN BLAIR WILSO

Lic. No. 019961

11-13-24

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REVISED:

P.O. Box 1269

(804) 513-9564

West Point, VA 23181-1269

jblairwilson@gmail.com

EXPRESS WRITTEN PERMISSION.

NOVEMBER 13, 2024

WILSON ENGINEERS, LLC

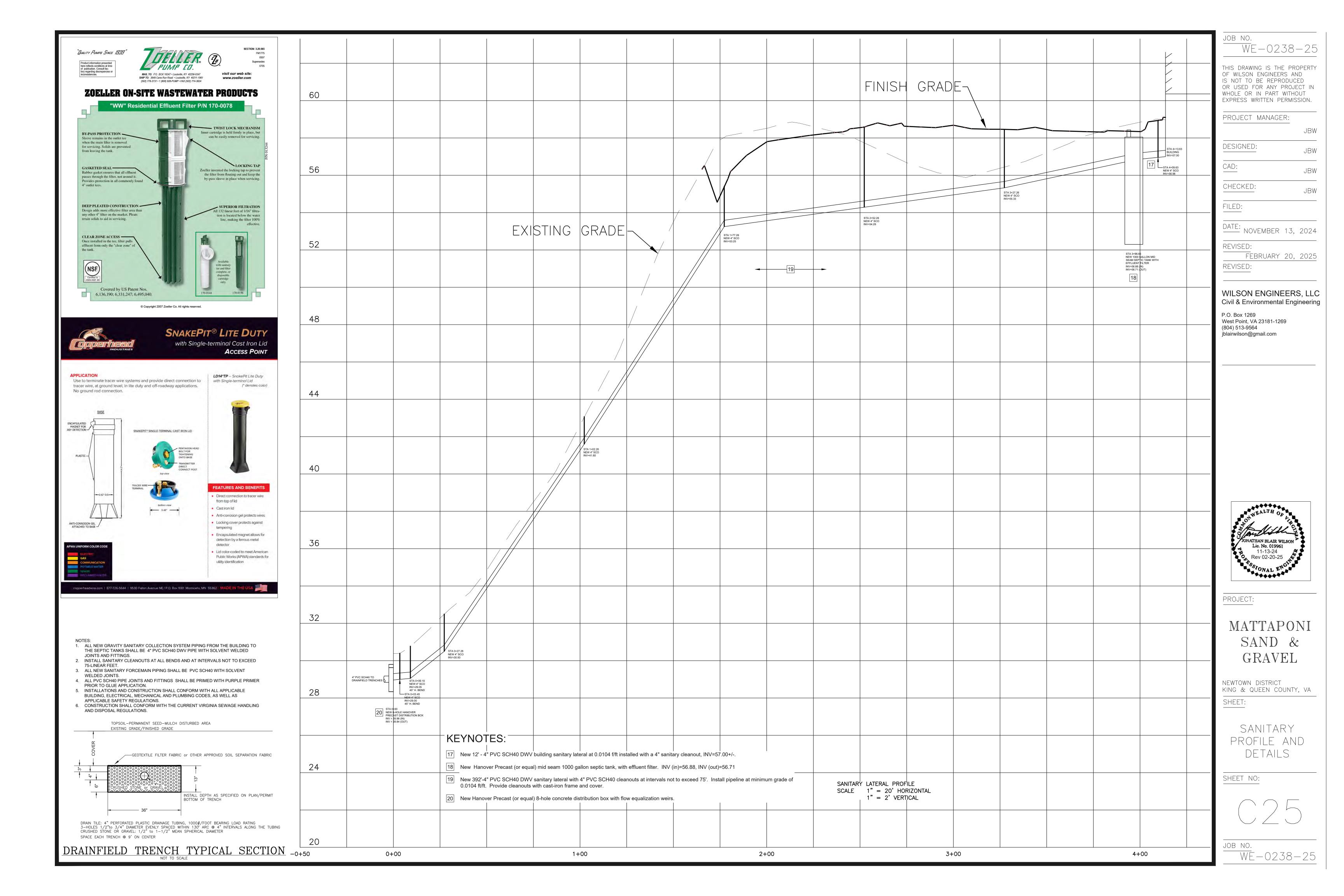
Civil & Environmental Engineering

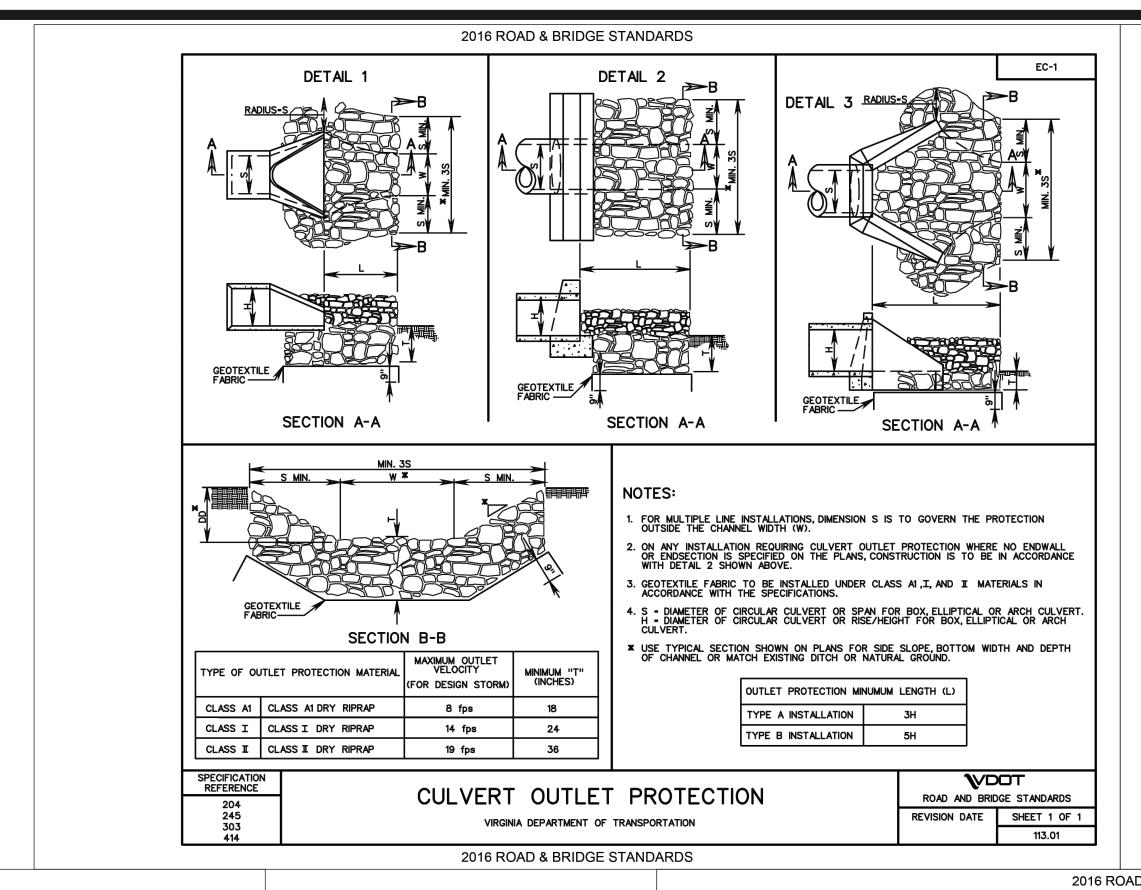
FEBRUARY 20, 2025

JBW

JBW

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA





embedded a minimum of 24" below

the pavement surface. Bars shall be

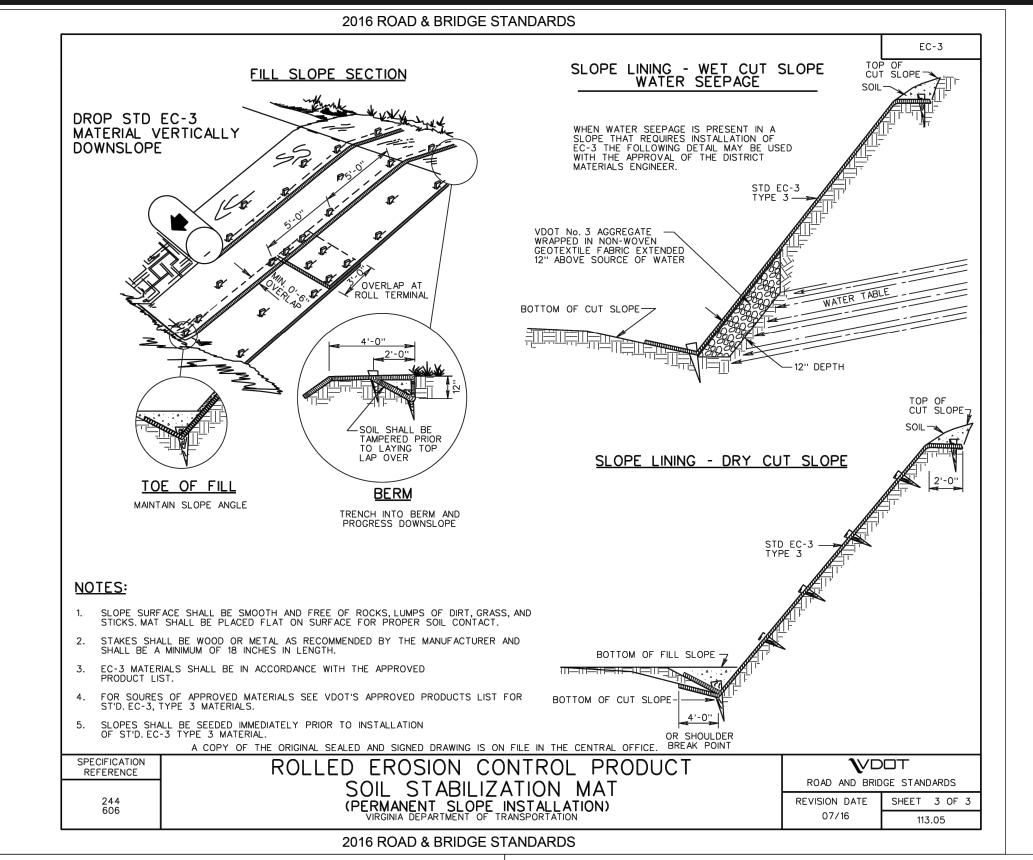
stops and driven flush with the top

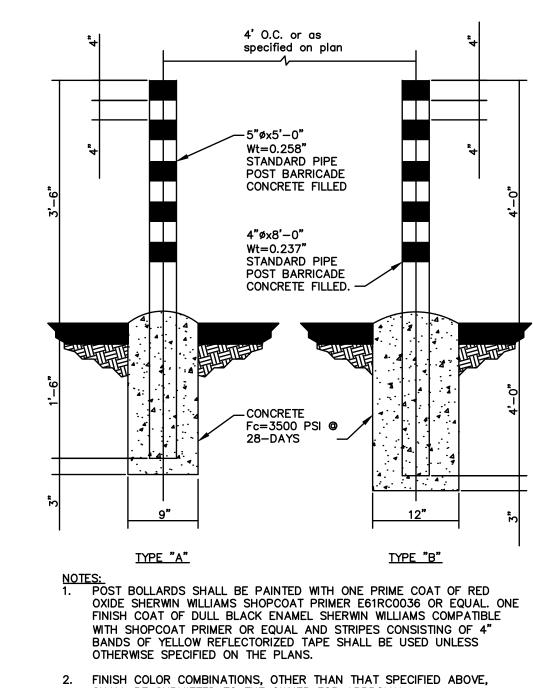
of the wheel stops.

WHEEL STOP DETAIL

N.T.S.

inserted in $\frac{3}{4}$ " diameter holes in wheel





Civil & Environmental Engineering SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL. P.O. Box 1269 CONCRETE PIPE POST BOLLARDS

West Point, VA 23181-1269 (804) 513-9564 jblairwilson@gmail.com

 $\overline{W}E-0238-25$

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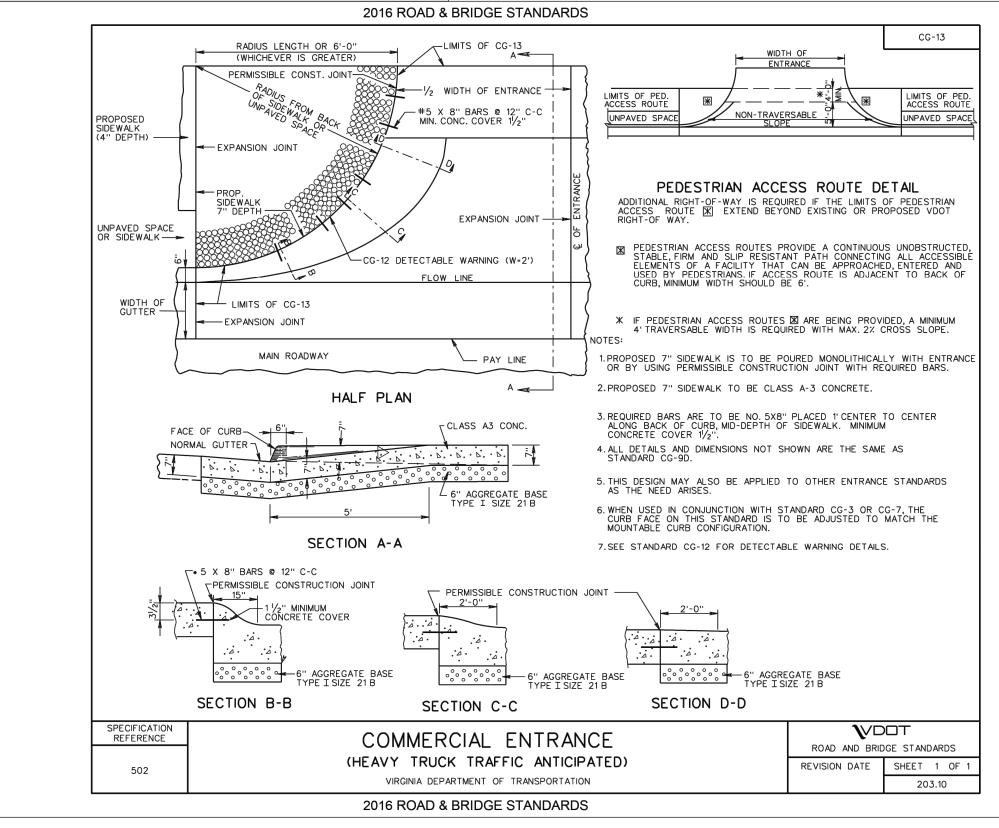
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 $\frac{\text{DATE}}{\text{NOVEMBER}}$ 13, 2024

WILSON ENGINEERS, LLC

FEBRUARY 20, 2025

2016 ROAD & BRIDGE STANDARDS PG-3 MINIMUM THICKNESS "T RIP RAP CLASS MINIMUM CLASS AI CLASS I 26" CLASS II 38" CLASS III 53" TYPE I RIPRAP DITCH PROTECTION RIP RAP BEDDING MATERIAL * SEE TYPICAL SECTION SHOWN ON PLANS FOR SIDE SLOPE, BOTTOM WIDTH AND DEPTH OF CHANNEL AND RIPRAP THICKNESS. TYPE II RIPRAP SLOPE PROTECTION **V**DOT SPECIFICATION REFERENCE STANDARD RIP RAP DITCH & SLOPE PROTECTION ROAD AND BRIDGE STANDARDS PG-3 245 414 SHEET 1 OF 1 REVISION DATE VIRGINIA DEPARTMENT OF TRANSPORTATION 109.02 2016 ROAD & BRIDGE STANDARDS





JONATHAN BLAIR WILSON Lic. No. 019961

11-13-24

Rev 02-20-25

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA

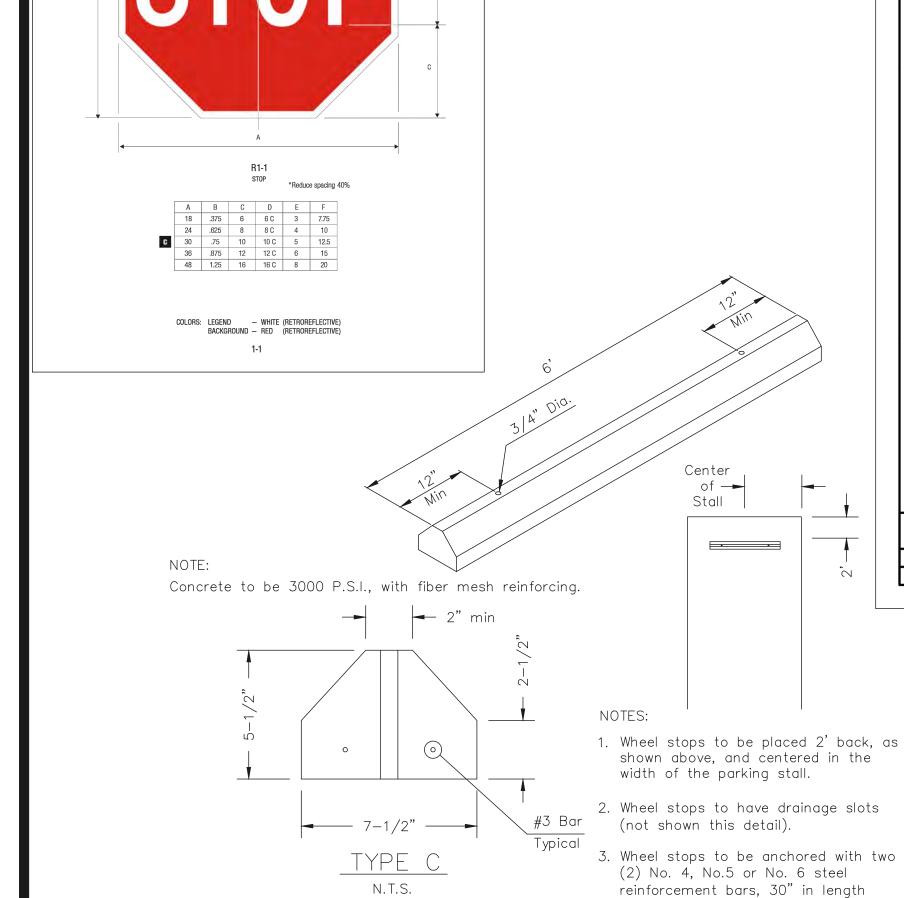
GRAVEL

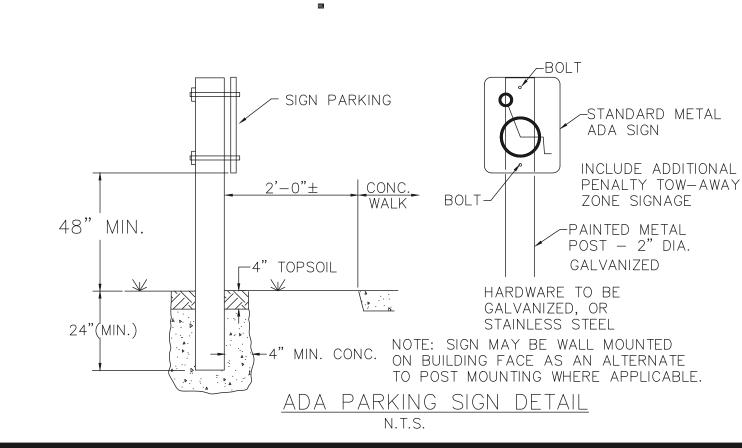
DETAILS

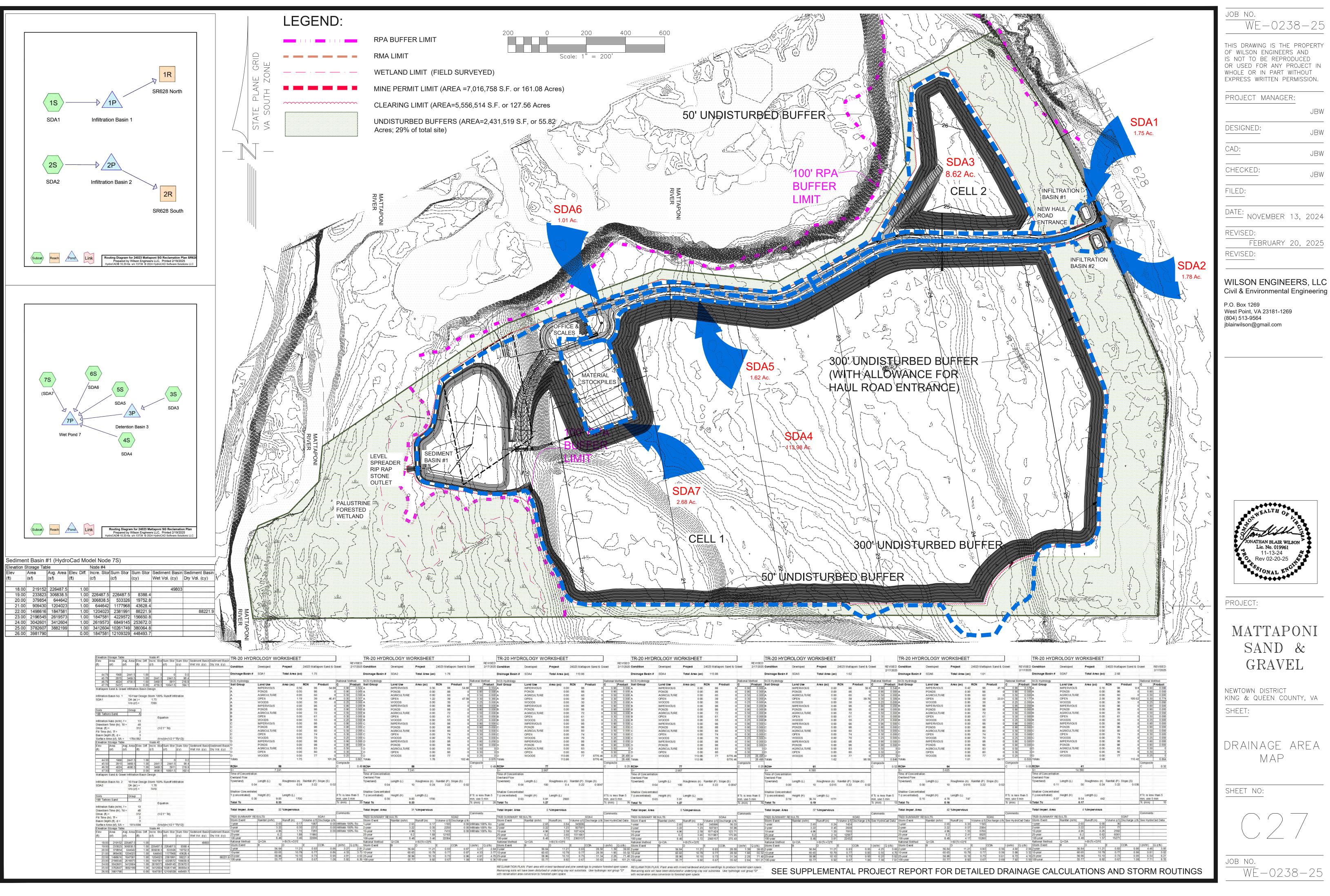
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SHEET:

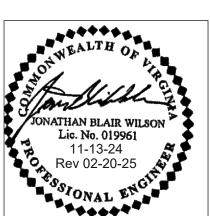
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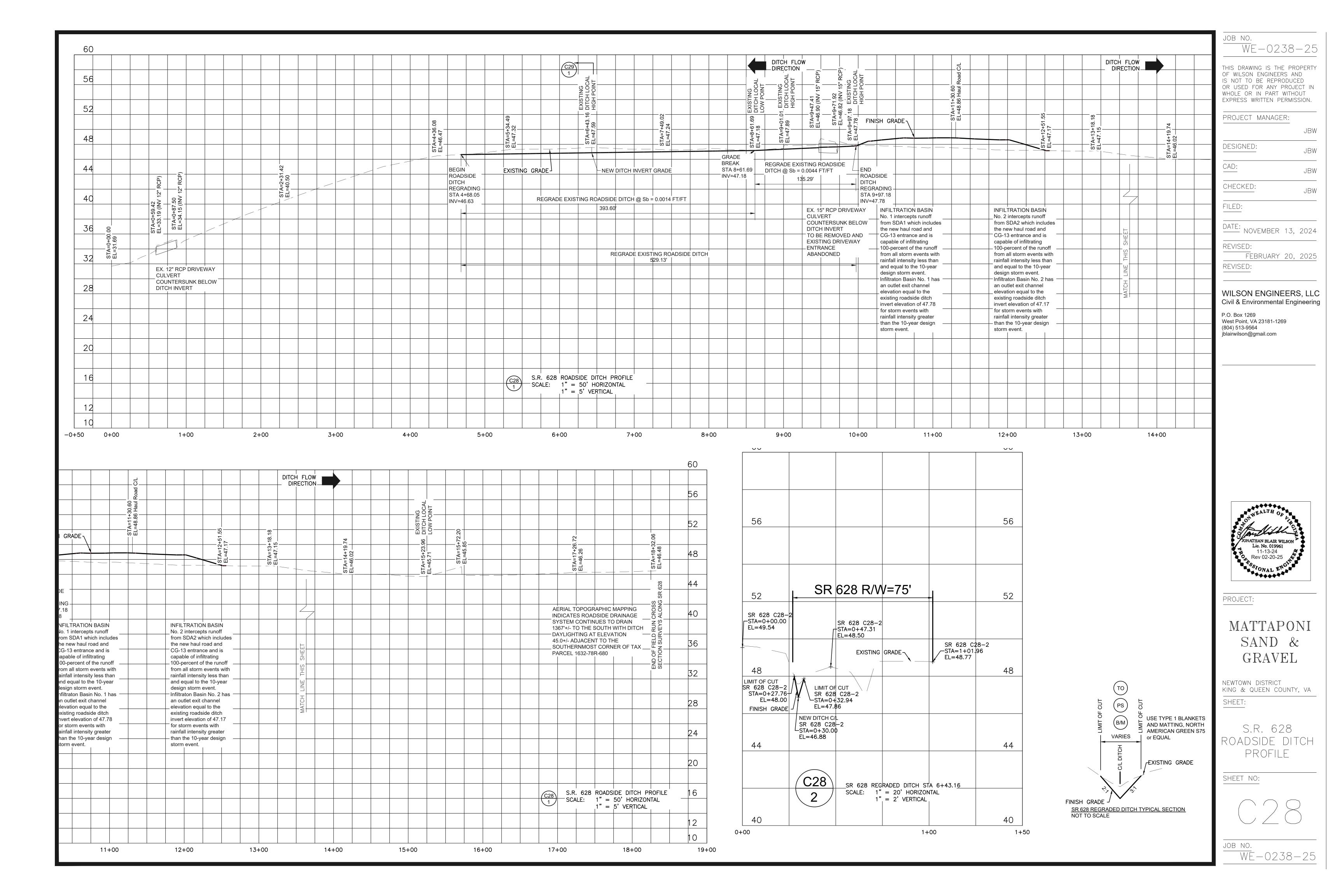


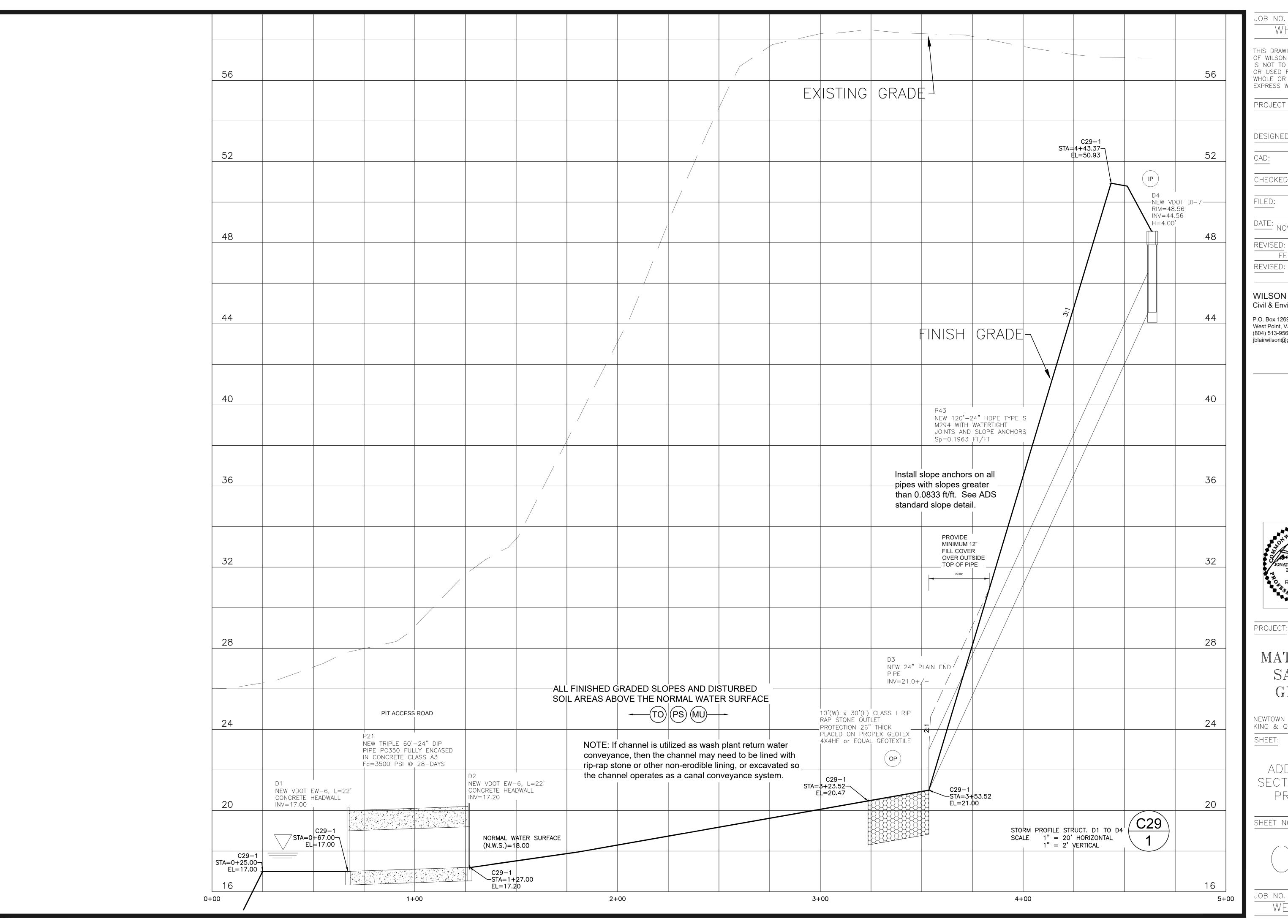




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 $\overline{W}E-0238-25$

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PROJECT MANAGER:

DESIGNED:

JBW

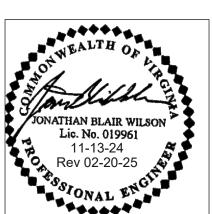
CHECKED:

DATE: NOVEMBER 13, 2024

REVISED:

WILSON ENGINEERS, LLC Civil & Environmental Engineering

P.O. Box 1269 West Point, VA 23181-1269 (804) 513-9564 jblairwilson@gmail.com



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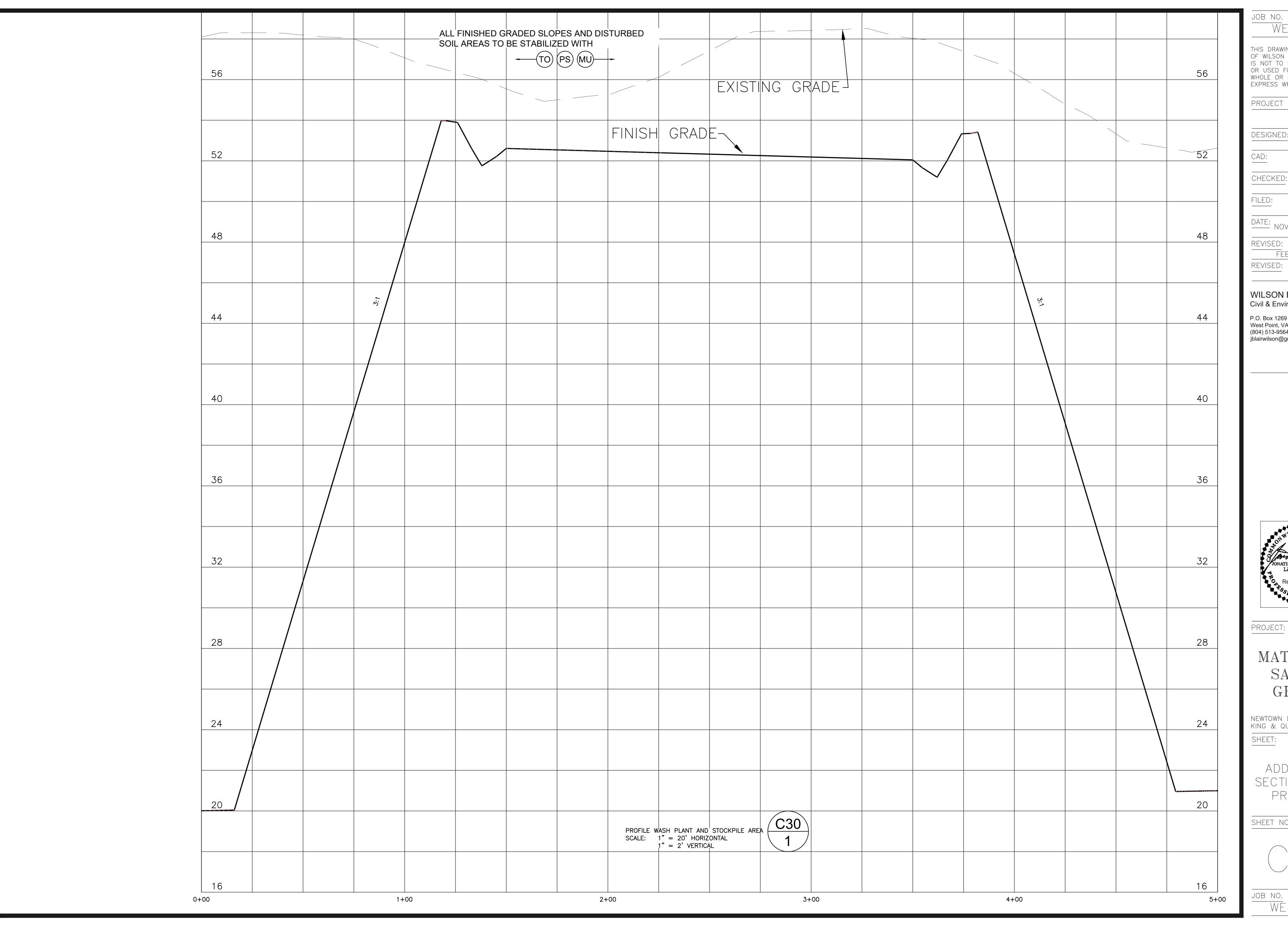
MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA

ADDITIONAL SECTIONS AND PROFILES

SHEET NO:

JOB NO. WE-0238-25



WE-0238-25

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PROJECT MANAGER:

JBW DESIGNED:

JBW

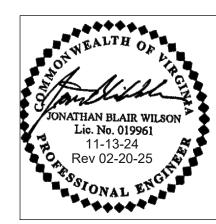
JBW

DATE: NOVEMBER 13, 2024

REVISED:

WILSON ENGINEERS, LLC Civil & Environmental Engineering

P.O. Box 1269 West Point, VA 23181-1269 (804) 513-9564 jblairwilson@gmail.com



PROJECT:

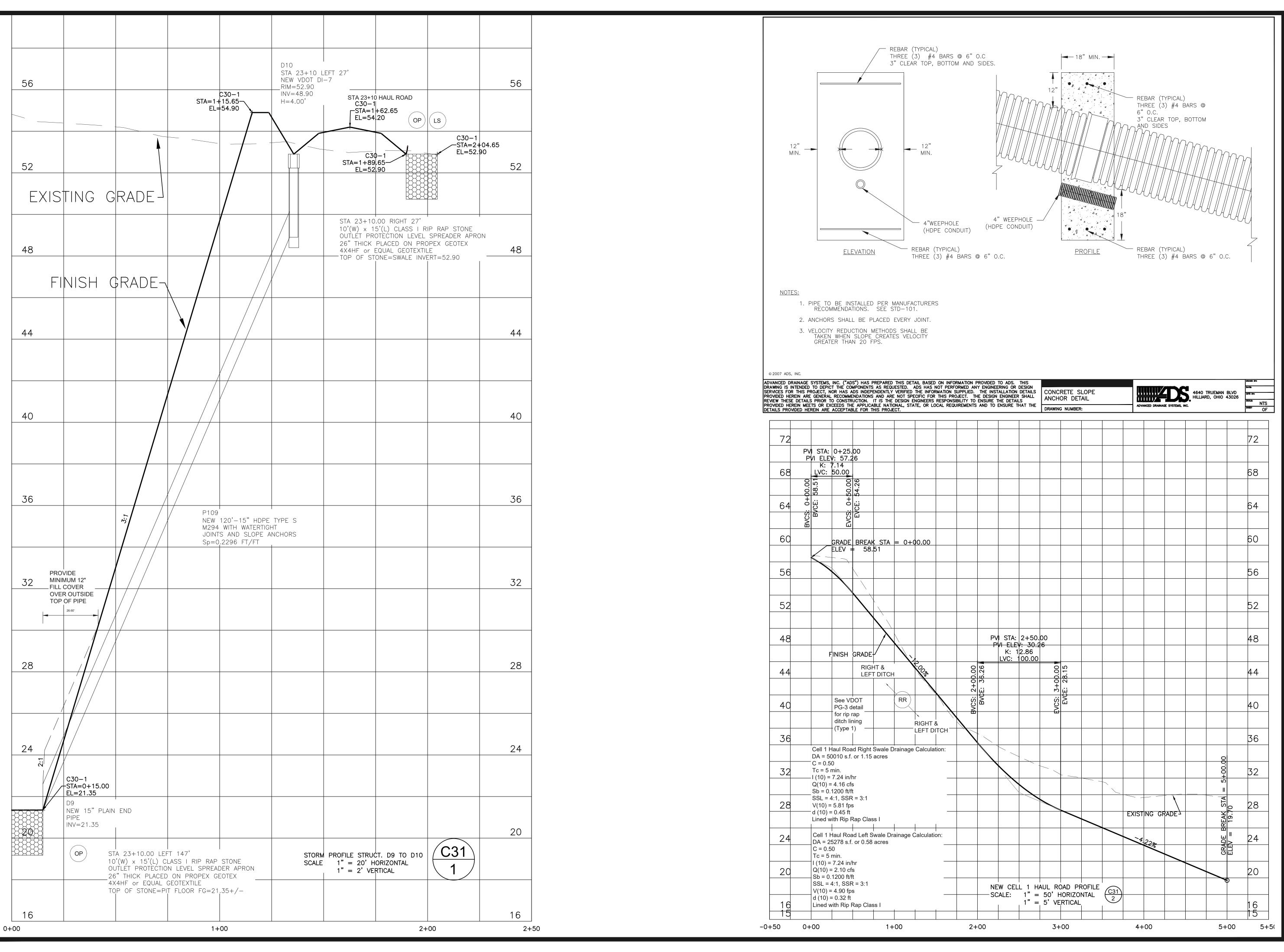
MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA

ADDITIONAL SECTIONS AND PROFILES

SHEET NO:

JOB NO. WE-0238-25



JOB NO. WE-0238-25

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PROJECT MANAGER:

DESIGNED:

JBW

CAD:

JBW

CHECKED:

FILED:

DATE: NOVEMBER 13, 2024

REVISED:

FEBRUARY 20, 2025
REVISED:

WILSON ENGINEERS, LLC
Civil & Environmental Engineering

P.O. Box 1269 West Point, VA 23181-1269 (804) 513-9564 jblairwilson@gmail.com



PROJECT:

MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA SHEET:

ADDITIONAL SECTIONS AND

PROFILES

SHEET NO:

JOB NO. WF-0238-2

SUPPLEMENTAL REPORT

Mattaponi Sand & Gravel Mine Site King & Queen County, Virginia

November 14, 2024 Revised February 20, 2025

PREPARED BY:
WILSON ENGINEERS, LLC
Civil & Environmental Engineering
P.O. Box 1269
West Point, VA 23181
(804) 513-9564



Wilson Engineers, LLC

February 20, 2025

Ms. Donna Sprouse
Director of Community Development
King and Queen County
P.O. Box 177
King & Queen Court House, Virginia 23085

RE: Mattaponi Sand & Gravel Level 3 Site Plan – 1st Review Comment Response TM 1632-78R-680

Dear Ms. Sprouse:

We have revised the Level 3 site plan to address regulatory review comments as contained in the December 23, 2024 review comment letter. The following summarizes how each of the comments have been addressed.

Zoning/Planning Comments

- We have relocated the scales, office, wash plant and stockpile outside of the designated floodplain. The excavated sediment basin/wet retention pond will remain within the floodplain.
- 2. Water used in the sieve washing will be pumped from the wet retention pond. There is adequate space available on the mine site to accommodate stockpiles and wash plant operations without concern for impacting the primary or reserve drainfield areas, or encroaching into required buffers. Drainage conveyance channels adjacent to the wash plant and stockpiles are part of the standard facilities and operations on a surface mine site. The purpose of the sediment basin is to allow for sedimentation processes to occur for both surface runoff as well as recycling of the water used in the wash plant sieve operations.
- Sheet C1 addresses the issues related to the fuel tank. Please note that the fuel tank is exempt from regulation by the Virginia Department of Environmental Quality, as the tank volume is below threshold limits for permitting and the tank is regulated by the Virginia Department of Energy. We do not believe that a roof covering is required for the 500-gallon tank. Secondary containment does not appear to be required beyond that which is provided by the double wall tank construction based on the limited volume of storage, however, if a code provision is presented that indicates that secondary containment is in fact required, or that a roof cover is required, then Mattaponi Sand & Gravel will provide the facilities necessary to conform with the code provisions to the satisfaction of the regulatory agent having jurisdiction over those particular items. We could not find a regulatory requirement for either the roof cover or secondary containment for fuel storage less than 660 gallons (one of the threshold limits) based on our review of EPA, VDEQ and NFPA regulations related to above ground fuel storage tanks. The location of the fuel tank is identified on Sheet C17. The fuel tank is outside of the designated floodplain.

- 4. The 300-foot buffer to the rearmost corner of the former Garnett property has been provided.
- The buffers are currently vegetated. Street level views have been included in the Supplemental Report Tab 2 Narrative Report.

Environmental Codes Compliance Comments

- 1. Understood.
- 2. Informational, no action required.

Virginia Department of Health No comments.

Virginia Department of Transportation Comments

- 1. We have added Sheet C28 to include a profile of the existing roadside ditch centerline to show that the high point in the roadside drainage system occurs at the intersection of State Routes 628 and the new haul road entrance. We do not believe that an entrance culvert is warranted for the new haul road entrance. The existing ditch undulates with minimal differences between local high points and local low points north of the planned haul road entrance onto State Route 628, and the existing driveway entrance culvert located immediately north of the proposed haul road entrance is countersunk below the invert of the existing roadside ditch. We are proposing minimal regrading of the existing roadside ditch to improve the conveyance of storm runoff by removing the undulations and countersunk culvert. The roadside ditch south of the new entrance drains in a generally south direction toward the common property corner between Tax Parcel 1632-78R-680 (our site) and Tax Parcel 1632-79R-604A (formerly Garnett, now Stephen Schools). The southern roadside ditch daylights at the Stephen Schools property where runoff then sheet flows across the Schools property. A photograph in the Supplemental Report, Tab 2 Narrative Report has been provided to show the south roadside ditch daylight area.
- We have modified the plans to show that all vegetation within the lines of sight will be removed.

Please contact me at (804) 513-9564, if you have any questions, or need any additional information relative to the project.

Sincerely,

Jonathan Blair Wilson, P.E.

President

cc. file WE-0238-25 MSG



King and Queen County

Founded 1691 in Virginia

Office of the Zoning Administrator
P.O. Box 177 • King and Queen Court House, Virginia 23085
Phone: (804) 785-5985 • Fax: (804) 785-5999

December 23, 2024

Mattaponi Sand & Gravel LLC C/o Kyle Murray P.O. Box 2000 Gambrills, MD 21054

RE: Mattaponi Sand & Gravel – Level 3 Site Plan (Plans prepared by Jonathan Blair Wilson,

P.E., with Bay Design Group, seal date November 13, 2024)

SP24-04 - Mattaponi Sand & Gravel LLC

Tax Map Parcel: 1632-78R-680

Dear Mr. Murray,

I have received comments from King & Queen County Codes Compliance Department (Joshua Rellick), Virginia Department of Transportation (Robert Butler & Ronald "Chad" Brooks), and Virginia Department of Health (XXXX) in response to a request for a Level 3 Final Site Plan approval to operate a surface mining operation in conformance with the approved conditional use permit CU02-08, as approved on December 9, 2002, by the King and Queen County Board of Supervisors.

Before we may move this site plan through the public hearing process with the Planning Commission, the following comments must be addressed:

Zoning/Planning Comments

It appears that you are proposing to place your scales, scale house/office trailer, parking, stock piles, wash plant, septic system & drainfield all within the 5-acre portion of the parcel, zoned Industrial. When the rezoning and conditional use permit were both approved in 2002, the rezoning was to allow for processing. If you are sorting or processing for the facilitation of hauling the product, such use may be permitted outside of the Industrial zoned area. In fact, according to the FEMA FIRM, most of the Industrial zoned area is within the floodplain (Zone A). You may certainly propose this

development within the floodplain; however, a floodplain development application must be submitted and more details regarding your stock piles (size and location), plant size and location, and a flood elevation certificate is required for the scale house/office trailer and any other structure within the floodplain. I simply do not want you to assume that everything must be located within the 5 acres, zoned Industrial.

North North

It appears that you intend to use the wet sediment pond as your water source for cleaning the extracted material at your wash plant. How do you intend to get the water from the wet sediment pond to the area you have noted on the plan set as your material stock pile area and plant location? On the current mine site (the Fisher site), it appears that the plant, stock piles, office trailer, scales and haul road occupy about 13 acres. I simply do not see how you are able to use that small area for your plant location and stock piles without encroaching within your drainfield area, required setbacks per the approved conditional use permit, and CBPA areas (RPA and its buffers). It is strongly encouraged that you do not have stock piles located near your inlet at the ditch which directs into your wet pond, unless there is good permanent stabilization at the inlet to prevent sediment from collecting in the inlet and subsequently your wet sediment pond.

Are there any fuel tanks proposed on site, if so, where will they be located (will they be located within the floodplain) and please provide details regarding the required self-containment system with roof.

At the rear corner of the former Garnett property, next to the mine site, there isn't a full 300' buffer provided. You have identified the 300' buffer to the north of the former Garnett property line, but not to the north-west from the rear corner.

1/2 5.

Are these buffer/setback areas already fully vegetated? It is important to identify the current vegetative state (if any) of the buffer/setback areas now so in the future, we are able to confirm that these areas are or remain undisturbed. I am not suggesting that they need to be planted if not already vegetated, just simply identifying the state of the current buffer/setback areas.

Environmental Codes Compliance Office Comments

Comments were received from Joshua Rellick, Environmental Codes Compliance Officer for King & Queen County on December 19, 2024. Mr. Rellick noted the following...

"Below are my comments for the Mattaponi Sand and Gravel mine plan, dated November 13th, 2024.

ONDERS 130

CHOP. 15 15-64

ROSE OF STORY

PERMISSION

PERMISSION

PILE STORY

Compagipy right

(Nr 50,00)

- 1. For your information, the King and Queen County government has the authority to enforce the Chesapeake Bay Preservation Act within King and Queen County. If it is found during the operation of this mine that clearing was done within the Resource Protection Area (RPA) buffer, then a Water Quality Impact Assessment permit, mitigation, and a surety payment would be necessary to revegetate the area. Please make sure that all workers clearly know where the RPA buffer is and know not to do any clearing within it.
 - 2. For your information, the Department of Energy handles erosion and sediment control and stormwater regulations for mines. Please follow all erosion and sediment control and stormwater regulations as specified by the Department of Energy."

Virginia Department of Health Comments

Comments from Virginia Department of Health, Brandy Colgin were received via email on December 23, 2024. She provided a construction permit/approval of the septic system and noted that VDH has no comments regarding the proposed site plan.

Virginia Department of Transportation Comments

Comments from Virginia Department of Transportation (Robert Butler/Ronald "Chad" Brooks) were received via email, December 11, 2024. The following was noted:

"This office has reviewed the referenced plans with a license stamp date of 11-13-24 per the minimum standards as received on 11-26-24, and we have noted the following comments:

1. The entrance is in a relatively flat area along Rt. 628 and it is difficult to determine ditch flow direction even with the grades provided on the plan sheets. Therefore, please verify whether or not an entrance culvert is needed and provide one if necessary.

2. As vegetation can grow quickly, all vegetation within the sigh lines needs be removed regardless of current heights. Revision More 79 Remove Miles

Once these comments are addressed, submit revised plans to this office for review. If there are any questions concerning this review, contact Chad Brooks at (804)761-2148."

Once all comments set forth above have been properly addressed, please submit a revised complete site plan package (along with corresponding documentation), including a single comment response letter to the Planning & Zoning Department. Please note that it is important to our orderly and expeditious processing of your application that we receive responses that both explain the response and provide a citation/location of the item in the

submitted plan(s). Once revised plans have been received, the Planning & Zoning Department will then deliver the revised site plans to the appropriate state/local agencies for review, as needed.

Please contact this office should you have any questions about any of the comments mentioned above.

Sincerely,

Donna E. Sprouse
Director of Community Development

CC: Vivian Seay, County Attorney (email)
Joshua Rellick, King & Queen Codes Compliance Officer (email)
Paul Saunders, Department of Energy (email)
Blair Wilson, Bay Design Group (email)
Robert Butler & Ronald Chad Brooks, VDOT (email)
Brandy Colgin & Patricia Duttry, VDH (email)
File

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- 1. Land Development Application
- 2. Narrative Report
- 3. Virginia Department of Energy Mineral Mining Operational Plan
- 4. Virginia Department of Health Construction Permit Application
- 5. Drainage Calculations
- 6. HydroCAD Summary Reports

1. Land Development Application

King & Queen County Land Development Application

Planning & Zoning Department P.O. Box 177

King & Queen Courthouse, VA 23085 Phone: (804) 785-5975 or (804) 769-5000 Fax: (804) 785-5999 or (804) 769-5070

*Pl	lease	print	in	ink	or	use	a	typewi	riter
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Applicant: Mattaponi Sand & Gravel LLC	
Applicant's Address: P.O. Box 2000, Gambrills, MD 2	1054
Applicant's Phone: (443) 871-3440	_
Agent (Contact Person): Jonathan Blair Wilson, P.E.	
Agent's Address: P.O. Box 51, Urbanna, VA 23	175
Current Property Owner:Same as applicant	
Owner's Address:	
Owner's Phone:	
Correspondence to be sent to: X Applicant Own	ner X Agent Other
Tax Map Number: 1632-78R-680	Magisterial District: Newtown
General Project Location: Intersection of SR 628 and S	SR 639
Size of Request: 186.27 acres	
*Are Proffer's being offered along with this Application:	YES or NOX . If so please attach.
Check Appropriate Request:	
Zoning Administrator : Site Plan (Level 1) : 1-2 Lot Subdivision Request : Family Subdivision Review : Boundary Line Adjustment : Plat Approval	Planning Commission: Site Plan (Level 2): Chesapeake Bay Exception: Other: Final Plat Review for Minor & Major Subdivision
Planning Commission & Board of Supervisors : Rezoning : Conditional Use Permit : Zoning Ordinance Text Amendment : Subdivision Ordinance Text Amendment x : Site Plan (Level 3) : Other : Preliminary Plat Review for Minor & Maj	Board of Zoning Appeals : Administrative Appeal : Variance : Special Exception : Other or Subdivision

King & Queen County Land Development Application

Complete As Applicable:

Name of Subdivision, Development, or Proposal: Mattaponi Sand & Gravel Mine Site	
Proposal/Request: Level 3 Site Plan Approval for a surface mining operation conforming with CU02-0	08 .
Reason for Request: Required by county code of ordinances.	
Applicant: The information provided is accurate to the best of my knowledge. I acknowledge that percolation tests, topographic studies, or other requirements of the Health Official or the Zoning Administration will be carried out at my expense. I understand that the County may deny, approve, or conditionally approve for which I am applying. I certify that all property corners have been clearly staked and flagged. Applicant's Signature: Date: Date: 1/14/24 Owner: I have read this completed application, understand its content, and freely consent to it's filing. If application is for the purpose of subdivision, further subdivision of this property will require a new application approval by the Board of Supervisors. Furthermore, I grant permission to the Zoning Administrator and other County Officials to enter the property and make such investigations and tests as they deem necessary. Owner's Signature: Date: 1/14/24	tha tha

2. Narrative Report

NARRATIVE REPORT

Project Description:

Mattaponi Sand & Gravel, LLC is the owner of record of King and Queen County Tax Parcel 1632-78R-680 and seeks approval for a Level 3 Site Plan from the King and Queen County Board of Supervisors to conduct mineral mining on the 186.27 acre parcel in accordance with the Code of King and Queen County and the Conditional Use Permit CU02-08 as approved by the King and Queen County Board of Supervisors on December 9, 2002. The parcel is zoned Agricultural District (181.27 acres) and Industrial District (5.00 acres). Mineral mining is permitted in the Agricultural District and in the Industrial District.

It is anticipated that the Virginia Department of Energy, Division of Mineral Mining (VDE DMM) will issue a mining permit to Mattaponi Sand & Gravel LLC to conduct surface mining of mineral soils on Tax Parcel 1632-78R-680, subsequent to the issuance of a Virginia Department of Transportation Land Use Permit for the new commercial entrance proposed with the project to access State Route 628, Spring Cottage Road.

Mattaponi Sand & Gravel LLC intends on constructing a wash plant for sorting, grading and classifying raw mined materials, and constructing mining operation supporting infrastructure consisting of an administrative office with restroom facilities for employees and visitors, a water supply well for domestic use, and weigh scales on the property. A sediment basin with a wet retention pool will be constructed adjacent to the wash plant. The sediment basin will provide a suitable source and volume of water to enable the wash plant to sort and complete gradation of the mined materials with a wet sieve process. Water will be pumped from the sediment basin wet retention pool up to the wash plant. Wash water from the sieve operation will be returned to the sediment basin for recycling and reuse.

Sanitary facilities to serve the mine employees, mine inspectors and mine visitors will be the restroom that will be located in the administrative office to be constructed on Tax Parcel 1632-78R-680. Water supply and septic drainfield facilities servicing the administrative office on Tax Parcel 1632-78R-680 will permitted and constructed according to Virginia Sewage Handling and Disposal Regulations.

Buffers and Setbacks:

The surface mining operations will be obscured from public view with the maintenance of the Conditional Use Permit CU02-08 300-foot and 50-foot required undisturbed buffers, and the maintenance of the Resource Protection Area (RPA) and RPA 100-foot width buffer. These buffers are currently forested and will be maintained in their current natural conditions. Photographs of the current forested buffers as viewed from State Route 628 are included at the end of this Narrative Report.

Traffic Generation:

The Mattaponi Sand & Gravel mine site is expected to employ a maximum crew of 8 persons to operate and maintain mining equipment and perform administrative duties on the property. The maximum number of trucks that may export material from the site each day is 50 as stipulated

with the Conditional Use Permit CU02-08. Therefore the maximum number of empty trucks that will enter the site each day will be 50, and the maximum number of loaded trucks that will exit the site each day is 50.

Vehicular trip generation for the site is expected as follows:

TRIP GENERATION						11/13/2024		
Mattaponi Sand & Gravel, LLC								
•	Tax Parcel 1632-78R-680 ENTRANCE SPRING COTTAGE ROAD, S.R. 628							
lax raicei 1032-760-060 ENTRANCE SPRING COTTAGE NOAD, 3.N. 026								
Daily AM or PM Peak Hour								
Land Use	Intensity	Trips	Volumes					
Sand & Gravel Surface								
Mine	n/a		Total	Enter	Exit			
ITE Code (not applicable)		132	15	8	7			
Calculations:	Trucks pe	r day						
Operational days 52 weeks per year X 6 haul days per week = 312 haul days/year								
Anticipated mining life 10 years x 312 haul days/year = 3120 haul days								
Peak Annual Tonnage 390000 tons/year								
Average Vehicle Load	erage Vehicle Load 25 tons per vehicle							
Average Tonnage per day 390000 tons/year /312 haul days/year =1250 tons/day								
Trips per day (loaded) 1250 tons/day/25 tons/vehicle =50 VPD Max. per CU02-08								
50 VPD x 2 = 100								
Total Average Trip Ends VPD (50 empty in + 50 loaded out)								
, ,	Employees 8 employees							
Total Average Trip Ends	4 trip ends/employee x 8 employees = 32 VPD							
Combined PEAK Total ATE	tal ATE 132 (traveling North or South along SR 628)							
AM or PM PHV 132 x 11% = 15								
Enter/Exit Split 53/47 8 entering/7 exiting								
PHV right turns is 50-percent of 8 entering vehicles per hour 4								

Hours of Operation:

7:00 AM to 6:00 PM Monday through Friday with no loaded trucks leaving the site until after King and Queen County Public Schools morning bus routes are completed, and 7:00 AM to 12:00 PM on Saturday. The mine site will be closed on Sunday.

Outdoor Lighting:

No permanent outdoor lighting is being proposed with the mine site with the exception of lighting shown for the office area parking and that which is required by the building code for ingress and egress doors to the office.

Outdoor Speakers/Paging System:

No outdoor speaker or paging systems are proposed with the project.

Utilities:

Power service to the building and wash plant will be coordinated with the utility service provider.

Buildings and Structures:

Buildings and structures are shown on the site plan. Dimensions from the office building to front, left side, right side and rear property lines are identified on Sheet C20 of the site plan.

Sanitary Facilities:

Restrooms for employees and visitors will be provided in the administrative office. Sewage disposal will be with an on-site septic drainfield system.

Water Supply:

Water supply will be provided with a new Class IIIB groundwater supply well.

Dust Control:

Airborne sediments will be controlled according to Virginia Department of Energy Mineral Mining standards. During periods of dry weather, wetting of the haul roads using a sprinkler or similar spray discharge system mounted on a water tank truck will be employed as necessary to suppress and control dust.

Storm Runoff and Erosion Control:

Adequate provisions for controlling storm runoff, erosion and sedimentation from the surface mining operation have been included on the site plan for the project. The Virginia Department of Energy permit for the surface mining requires when surface mining in an area has been completed that the area be reclaimed. The reclamation plan for this site is to establish native ground cover vegetation, other approved grasses, or to implement the Forestry Reclamation Approach according to the Virginia Department of Energy Mine Operator's Manual. The reclamation grading plan promotes sheet flow to the project's permanent sediment basin. The sediment basin provides for a permanent wet retention pool to assist with the sedimentation process and attenuate peak storm event rates of discharge prior to release of site runoff through a stable rip rap stone outlet level spreader apron to the existing 100-foot Resource Protection Area

forested buffer. The permanent pond and level spreader outlet is designed for the project combined with the forested natural buffers to minimize storm runoff velocities and provide for water quality enhancement using natural sedimentation and filtration processes.

Chesapeake Bay Preservation Area:

The mine site has been designed to keep all mining and land disturbance landward of designated Resource Protection Areas (RPA) and RPA buffers.

The mine site mining and reclamation plan converts the property's silvicultural/forestry land use to an impoundment facility (excavated surface mine) where all surface runoff is retained within the mine limits. Final reclamation of the mined property will revert the land use back to a forestry or meadow land cover condition where pre-development and post-development runoff volumes, velocities and pollutant generation are expected to be equal.

Project Site Conditions:

The project site topography ranges from mild to severe. Stormwater runoff from the site is currently conveyed by overland flows generally in a west direction to the Mattaponi River. The Mattaponi River is non-tidal along this section of the river.

The property contains both Chesapeake Bay Preservation Area Resource Protection Areas (RPA) and Resource Management Areas (RMA). Non-tidal wetlands are located within the boundaries of the project. The limits of the non-tidal wetlands were field identified and flagged by George M. Junkin, Certified Wetlands Delineator #93MD0510034B. Flagged wetland limits were survey located by Bay Design Group. The U.S. Army Corps of Engineers has not issued a Jurisdictional Determination and confirmation of the surveyed wetland limits as of the date of the preparation of this report. No regulated non-tidal wetlands will be disturbed with the mining and reclamation activities on the project.

Project site conditions are identified on the Plan of Development.

Property Owner:

Mattaponi Sand & Gravel LLC

Adjacent Property:

Adjacent property ownership is identified on the project plans.

Offsite Areas:

There are no offsite areas associated with this project.

Soils:

Soils in existence prior to proposed surface mining are identified on Sheet C3 of the Level 3 Site Plan. The predominate soil is Tarboro sand, which is a hydrologic group "A" soil.

Critical Erosion Areas:

Critical erosion areas that must be protected to the maximum extent practical include the existing

roadside drainage channels, streams, non-tidal wetlands, and the adjacent properties. No other areas are considered to be critical.

Erosion and Sediment Control Measures:

The mining operations and erosion and sediment control measures to be implemented on the project site are regulated by the Virginia Department of Energy. Virginia Department of Energy staff conduct periodic inspections of all mine facilities to ensure the performance and adequacy of erosion and sediment control measures to protect areas located outside of the active mining pit areas. Temporary erosion and sediment control measures to be employed during reclamation grading operations include silt fencing, diversion dikes, culvert inlet protection, sediment basins, and dust control. Permanent erosion and sediment control measures to be implemented with the project reclamation include rip rap stone outlet protection and slope stabilization, permanent sediment basins, level spreaders, permanent seeding, mulching, erosion blankets and matting, and the establishment of vegetative cover over disturbed soil surfaces. All erosion and sediment control practices shall be in accordance with the standards and specifications as prescribed in the Virginia Department of Energy Mine Operator's Manual and as supplemented by the 1992 Virginia Erosion and Sediment Control Handbook.

Structural Practices & Vegetative Practices Proposed:

- 3.02 Construction Entrance
- 3.05 Silt Fence
- 3.08 Culvert Inlet Protection
- 3.09 Diversion Dike
- 3.13 Sediment Trap
- 3.14 Sediment Basin
- 3.18 Outlet Protection
- 3.19 Rip Rap
- 3.30 Topsoiling
- 3.31 Temporary Seeding (as required)
- 3.32 Permanent Seeding
- 3.35 Mulching
- 3.36 Soil Stabilization Blankets and Matting
- 3.39 Dust Control (as required)

Management Strategies:

See the project site plan. All sediments shall be confined within the project limits. Surface runoff will be directed to stabilized and adequate storm drainage channels or discharged in the form of sheet flow to forested buffers.

Permanent Stabilization:

All denuded areas will be stabilized with native ground cover vegetation as identified on the plans or with other approved groundcovers according to the Virginia Department of Energy Mine Operator's Manual.

Stormwater Management & Drainage Calculations:

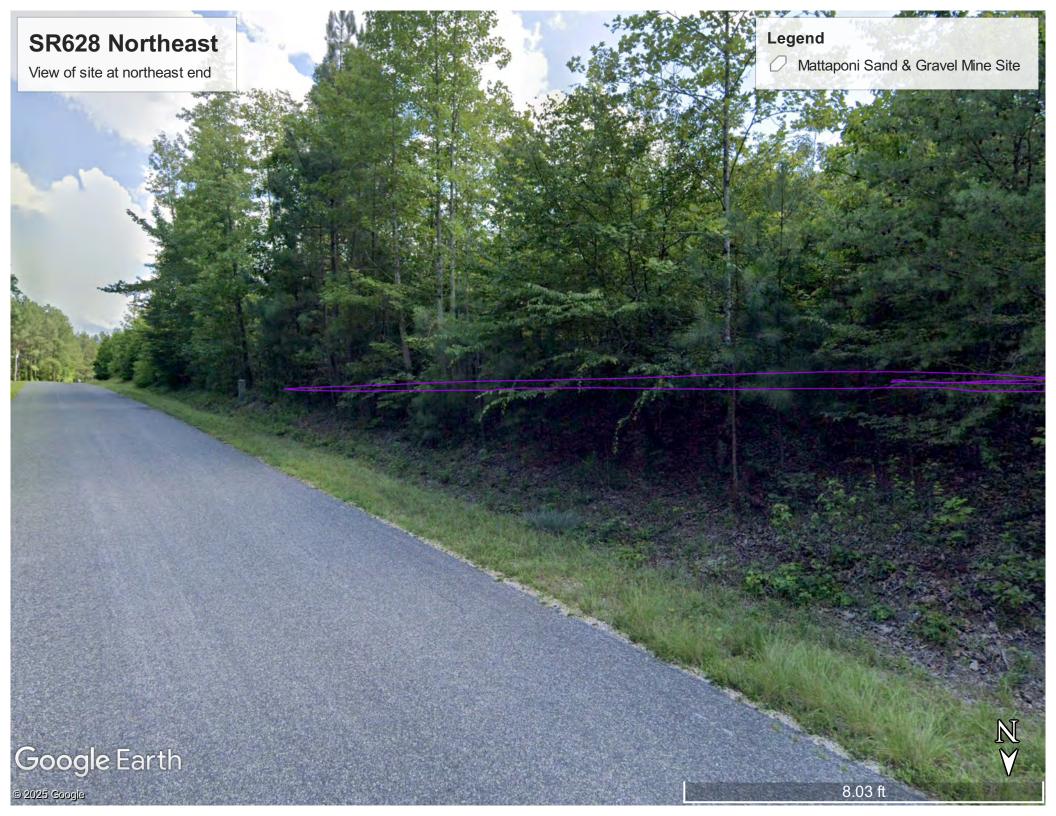
In summary, the minimal percentage of site impervious area, revegetation and proposed reclamation of mined areas, and flow attenuation through the permanent pond with discharges in the form of sheet flow to the extensive forested buffers surrounding the mine site are expected to result in no increase is runoff from the project site. Additionally, the total project area of 127.56 acres of land disturbance is significantly less than 1-percent of the total contributing Mattaponi River watershed area at the point where the site contributes flow to the Mattaponi River. The significant difference in size of the offsite contributing drainage area to the onsite development area results in no change to the watershed hydrology, and no change to the total runoff volume, peak discharge rate or velocity of flow in the receiving channel being the Mattaponi River.

The Virginia Department of Energy regulates surface mining operations for compliance with Virginia stormwater management and erosion and sediment control regulations.

Maintenance:

Temporary erosion and sediment control measures are to be inspected at the end of each workday, and after each rainfall. Damaged or inoperative control measures should be replaced and/or repaired immediately. Sediment accumulations shall be removed and disposed of in approved spoil areas to ensure satisfactory performance of the drainage system. Permanent erosion and sediment control measures consisting of permanent vegetation, rip rap stone outlet protection and slope protection should be inspected on an annual basis and after storm events with rainfall intensity of 2.8 inches per hour or greater. Damaged areas or measures should be repaired.

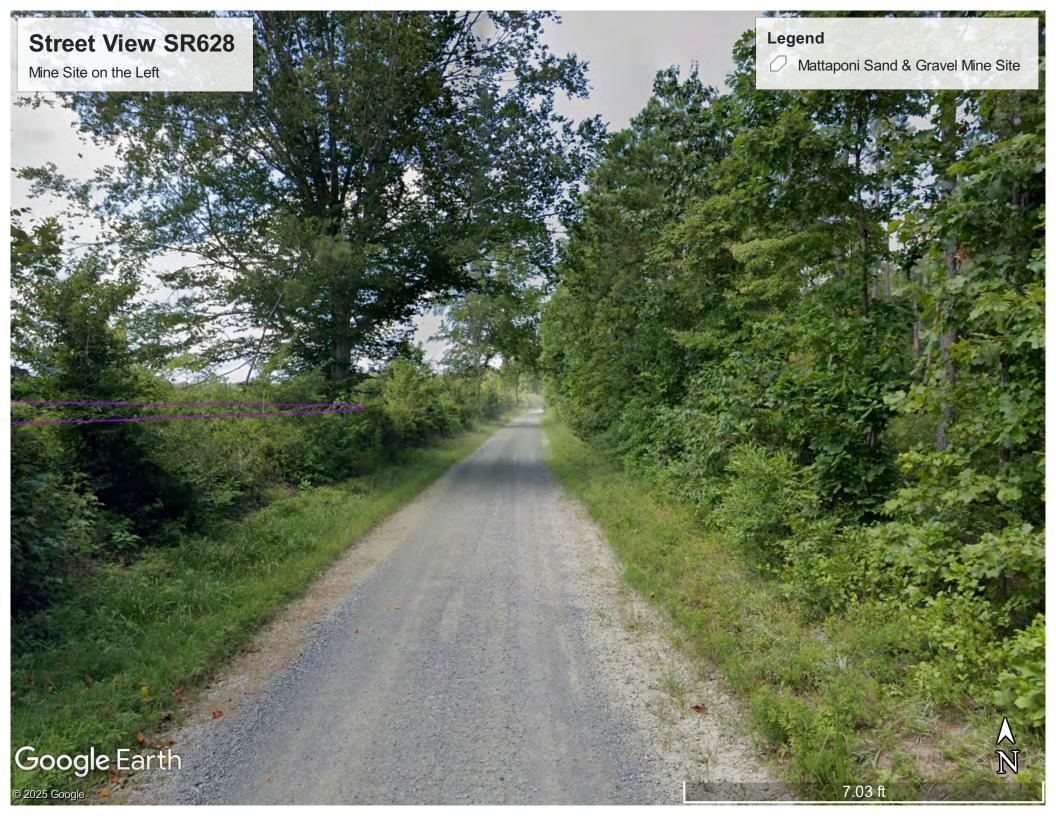












3. Virginia Department of Energy Mineral Mining Operational Plan

Mattaponi Sand & Gravel

OPERATIONAL PLANfor Mattaponi Sand & Gravel Mine Site

MAPS

A general location map showing sensitive features within 1000 feet of the Mattaponi Sand & Gravel property boundaries and mining site is shown in Appendix A and is part of this operational plan.

SIGNS

A 4-foot by 4-foot sign shall be posted at the mining site adjacent to the principal access road. The sign shall be mounted on a metal or wood post with a mounting height at least 4-feet above ground level. The name of the permittee and the Virginia Department of Energy permit number shall be identified on the sign in a clear and legible format with font sizing appropriate for size of the sign and distance from the edge of the principal access road.

MARKING PERMIT BOUNDARY

The permit boundary of the mine site and plant shall be clearly marked with identifiable markings when mine related disturbing activities are within 100' of the permit boundary. The permit boundary will be marked using a combination of witness stakes in open areas consisting of metal fence posts, 1-inch diameter white PVC Sch40 pipe posts, fiberglass boundary posts, or similar permanent delineation materials. In wooded areas, the permit boundary will be marked by painting and flagging of trees at the permit boundary.

ROADS

The entrance to the mine site will require a Virginia Department of Transportation (VDOT) Land Use Permit for a new commercial entrance conforming to the current VDOT Road Design Manual Appendix F standards. The new commercial entrance will have a minimum paved width of 30-feet with 50-foot radii conforming to VDOT requirements. The new entrance will be surfaced with asphalt or concrete extending from the existing Spring Cottage Road, State Route 628 edge of pavement interior to the project site a minimum distance of 100-feet

(Haul Road STA 1+00). Beyond the new VDOT commercial entrance, the access road will be 30 feet in width and surfaced with VDOT No. 21A aggregate material between Haul Road STA 1+00 to 3+50, with the remainder of the Haul Road surfaced with a combination of sand and gravel to create an all-weather travel surface. Internal service roads will be installed as needed by the mine operator. Internal service roads will be a minimum width of 15-feet. All access roads will be properly maintained to ensure that mud and debris are not tracked onto public roads. All access roads and service roads will be properly maintained to control dust. Maintenance of the road system shall consist of inspecting, repairing and cleaning of roadways, ditches and culverts as necessary. Internal service roads and principal access roads shall be planned to minimize the impact of traffic, dust, and vehicle noise on areas outside the mining site.

Road surfaces and ditches will be stabilized with rock or other suitable paving material or vegetated in the case of ditches. When a road is abandoned, steps shall be taken immediately to minimize erosion and establish vegetative cover. These steps will involve scarifying the road to a depth of 12 inches and seeding to meet the post mining land use requirements. The haul roads may be left unreclaimed with the landowner's approval following the completion of mining. Sediment control shall be provided for roads to minimize sediment that leaves the permitted and disturbed area. If necessary, culverts with a minimum diameter of 12 inches, but adequate to carry storm runoff, will be installed at intervals to prevent overloading of ditches. Where necessary, the inlet end shall be protected by a headwall of a suitable material and the outlet end shall discharge onto an apron of rock riprap or concrete. Runoff will not be allowed to flow over an unprotected fill slope.

DRAINAGEWAYS

No impacts to natural drainageways will be allowed. There are no plans to mine near any intermittent or perennial streams.

100-foot Chesapeake Bay Preservation Area Resource Protection Area buffer shall be maintained. No mining or disturbance of the RPA buffers is permitted.

A 50-foot buffer zone of undisturbed vegetation or undisturbed forest will be provided and maintained between the mining operation and any stream, not otherwise protected by the RPA buffer requirements, or by King and Queen County Conditional Use Permit CU02-08 300-foot and 50-foot undisturbed buffers. Buffer zones will be maintained in addition to proper sediment control.

SCREENING

The Mattaponi Sand & Gravel mine site shall be effectively screened from public view using one or a combination of methods consistent with the following:

- 1. King and Queen County Conditional Use Permit CU02-08 undisturbed buffers consisting of a 300-foot natural undisturbed forested area within the property boundaries as measured from the State Route 628 public right-of-way and as measured from the property boundary with the now or formerly Garnett property, and a 50-foot natural undisturbed forested area within the property adjacent to all other exterior property boundary lines;
- 2. Maintenance and use of natural topography;
- 3. Constructed earth berms, where determined to be necessary; and
- 4. Planting of trees, where determined to be necessary.

Trees specifically planted for screening purposes shall be evergreen species of adequate height and suitable to the area. Plantings shall be spaced to accommodate the mature size of the species. Plantings shall be provided in at least two (2) rows with trees staggered along the rows as the Virginia Department of Energy minimum requirement.

Constructed earth berms for screening purposes shall be sloped at 3H: 1V. All berms shall be seeded to prevent soil erosion. The toe of berms shall not be constructed within 25-feet of adjacent property boundaries without written permission from the adjoining property owner. Silt fence shall be installed along the toe of berms on the exterior facing side. Screening berms are to be removed and berm materials are to be used during the reclamation of the mining site at the completion of mining operations.

TOPSOIL AND OVERBURDEN STORAGE

Temporary erosion and sediment control measures shall be installed prior to any land disturbance associated with site preparation or mining activities. Erosion and sediment control measures shall conform to the Virginia Department of Energy Mineral Mine Operator's Manual and/or the Virginia Erosion and Sediment Control Handbook. Topsoil and overburden will be removed and stockpiled or used to create diversion berms around the perimeter of the site. All constructed berms will have a top width of at least 4 feet and shall not exceed 5-feet in height as measured from the existing natural ground elevation. Berm side slopes will be 3H:1V or less and will be compacted and vegetated. Topsoil shall not be removed from the permitted mining site without prior approval from the Virginia Department of Energy. Diversion berms will be inspected on a regular basis and maintained as necessary. Berms shall not be constructed within 25 feet of adjacent property boundaries without written permission from the adjoining

property owner. Tree roots and limbs generated on-site may be stockpiled within the permit area.

As areas are completed, the berms will be utilized during reclamation activities to obtain final grade and promote vegetative cover.

MINING METHOD

Mining operations shall be conducted to ensure that all sediment generated from the mining activities at the site will be directed into the mine pit. Grading and surface drainage facilities shall be implemented to minimize soil erosion, adequately control runoff and direct such runoff to stable outlets. Temporary and permanent erosion and sediment control measures shall be implemented as necessary to confine all sediment to the permitted active mine site. Perimeter buffers shall be maintained to further enhance the project site's erosion control program.

Mining will be conducted using dragline equipment, front-end loaders, dozers, off-road dump trucks, pans, excavators and other equipment necessary to remove topsoil and overburden, prepare the site for mining, mineral extraction operations, and during reclamation of mining site.

The mining is expected to extend to an average depth of approximately 20 to 38-feet below the existing ground elevation. Overburden soils are expected to range from 1 to 6 feet below the existing ground surface, with mineable minerals located beneath the overburden soils.

Wooded areas located within the permitted mine limits will be cleared and grubbed. Individual mine cells will be designated by the mine operator and mining will proceed on a cell by cell basis. Areas cleared or disturbed outside of active mining cells will be stabilized with temporary or permanent seeding.

Active mining will commence on individual cells with the removal and stockpiling of overburden soils from the active mining cell area. Mineral extraction will be accomplished in a single lift, with mine pit walls extending from the depth of the overburden soils to the depth of the pit floor (depth varies) below the existing ground surface. The sand and gravel material within the mineral extraction zone will be removed so the pit wall remains stable. No activity will be permitted on the pit floor below or near areas actively being mined. Overburden material will be stripped back at least 10 feet from the top edge of the mineral extraction layer at the pit wall to create a bench at the top of the excavation. Benching the overburden soil away from the top of the pit wall will assist in decreasing overburden soil pressure acting on the face of the pit

wall. The overburden soil will be sloped away from the bench at the active pit area back to natural ground with a slope equivalent to the angle of repose of the overburden soil. All slopes within the mineral extraction zone and overburden layers will be maintained at the angle of repose of the various strata or flatter during mining operations. Final slopes will be graded to 3H:1V with reclamation activities being conducted on a cell by cell basis.

DRAINAGE CONTROL

Mining operations will be conducted to direct all surface runoff into the mine pit area. The mine pit will be excavated to depths approximately 20 to 38-feet below the surrounding adjacent grade, or depths as shown on the Plan of Development. However, the mine operator may extend the depth of extraction to the full extent of the mineral bearing strata, which may be greater than 38-feet. All surface runoff within areas of active mining will be contained within the mine pit. The pit will contain at least 0.125 acre-feet of volumetric storage for sediment control. Temporary sediment basins will be constructed as necessary and will include minimum normal pool depths of 3-feet measured from the sediment basin floor. The normal pool depth may be regulated with weir outlets, or with float level controls and dewatering pumping. Dewatering effluent will be clear, non-turbid and free of sediment. Dewatering effluent will be discharged, if necessary, to secondary sediment trapping devices such as dewatering pits or silt bags prior to final release through stabilized outlets.

METAL AND DEBRIS

All metal, lumber and debris generated on site will be stored in one location within the permitted area for use in repair of equipment, or to be sold at a later date. No metal will be left on the site after mining is complete. Any off-site generated metal waste will be promptly removed from the mine site. There will be no landfilling activities on the permitted area.

ACID MATERIAL

All acid-generating spoil materials will be segregated and buried to a minimum depth of four feet.

OFF-SITE MATERIALS / HAZARDOUS WASTE

No off-site materials or hazardous waste will be transported to the Mattaponi Sand & Gravel Mine Site.

No trash and/or debris will be allowed to accumulate on-site. All on-site generated waste such as used petroleum products, contaminated fuel, used anti-

freeze, used batteries, used cleaning solvents, etc. will be properly stored until disposed of at an approved off-site facility.

GROUNDWATER

Shallow seasonal perched ground water may be encountered during mineral extraction. Dewatering of the mine pit shall be conducted in accordance with the Mine Operator's Manual.

Soil evaluation test pits advanced by the Owner indicate no seasonal water table to depths of 20-feet below the existing ground surface, consistent with the maximum depth of the test pit excavations. Mineral extraction may extend to depths of approximately 38-feet below the ground surface, or 18-feet below the test pit excavations, where the depth to the seasonal high water table may be encountered. Dewatering of the mine pit may be necessary during pit excavation operations. Dewatering required to control groundwater seepage in the active mine pit will be conducted to direct pumping effluent to an appropriately sized dewatering structure, sediment trap or basin. Dewatering structures may consist of portable sediment tanks, filter boxes, silt bags or straw bale/silt fence pits conforming to Virginia Erosion and Sediment Control Handbook Standard 3.26. Sediment trapping and dewatering structure outlets will be sized to dissipate pump discharge velocity and ensure that effluent is released from the dewatering structure or sediment trap at velocities that are non-erosive to the receiving drainage channel, stream or forested buffer prior to ultimate discharge into the Mattaponi River.

Mining operations and excavation below the shallow near surface aquifer will not impact the groundwater supply wells in the vicinity of the mine site. There are two (2) expected domestic water supply wells within 1000-feet of the Mattaponi Sand & Gravel Mine Site. The wells are located on properties situated at 1381 Spring Cottage Road and 1878 Spring Cottage Road approximately 200-feet south and 670-east of the designated mine limit.

No impact on groundwater resources are expected to result from the mining operations or from temporary dewatering of the mine pit. The mine site is located adjacent to tributary streams that discharge to the Mattaponi River. Seasonal rainfall, and the tributary streams will effectively recharge the shallow aquifer and will maintain the hydrologic balance of the shallow aquifer.

PETROLEUM AND OTHER SOURCES OF CONTAMINATION

Any above ground fuel storage tanks shall be double walled vessels or tanks shall be constructed with concrete containment dikes to prevent petroleum leakage and contamination. Fueling of mining excavation equipment will be conducted using portable storage containers or fueling trucks. Fueling will be accomplished to

minimize potential for petroleum spills and leakage. Any fuel that accidentally leaks onto the ground will be immediately cleaned up and the contaminated material will be removed from the site.

A Plan for Minimization of Adverse Effects on Water Quality will be implemented on this project to prevent the potential of petroleum products from entering the groundwater system. The following precautions will be taken:

- 1. All major mobile equipment repairs will be made off the mine site at service provider shops.
- 2. Minor repairs made to mobile equipment will be made at least 200 feet from any ponds.
- 3. Fluids from repairs will be collected and disposed of properly offsite at an appropriate offsite disposal site.
- 4. A petroleum spill kit and spill kit materials will be available to clean up any accidental spills. Any soil contaminated by an accidental spill will be removed from the site and disposed of in an approved Virginia DEQ approved landfill facility or sent to an appropriate mitigation facility.
- 5. Fuel storage on site will be limited to a single 1,000 gallon tank. This tank shall be a double walled containment vessel. The fuel tank will be located at least 200 feet from any pond.

SIMULTANEOUS RECLAMATION

The mine site will be reclaimed in general conformance with the Level 3 Site Plan dated November 13, 2024 and revised through February 17, 2025.

Once mining is complete in an individual cell area, the pit walls within the individual cell will be sloped to 3H:1V and the pit floor will be shaped and graded to conform with the final reclamation grading plan. All areas above the normal pool level of any permanent pond will be limed, fertilized, mulched, and seeded with the approved permanent vegetation mix.

Any area within the mine site where mining has not been completed but has been dormant and no land disturbance for a period of one year, will be sloped 3H:1V and the pit floor will be graded level. The dormant area above the normal pool level will be seeded with temporary cover vegetation, as directed by the Virginia Department of Energy.

Any area within the mine site where mining has not been completed but has been dormant and no land disturbance for a period of two years, will be sloped 3H:1V and the pit floor will be graded level. The dormant area above the normal pool level will be limed, fertilized, mulched, and seeded with the approved permanent vegetation mix, as directed by the Virginia Department of Energy.

RE-VEGETATION

No plant species considered a highly invasive species by the Commonwealth of Virginia will be planted on the mine site.

The soil will be tested before seeding. 1000 lbs/acre of 10-10-10 fertilizer or its equivalent will be used, if so recommended by the soil test, on all areas to be seeded. Two tons of agricultural lime will also be used, if needed as shown by the soil test, on all the areas receiving fertilizer and permanent seeding.

The temporary seed mixture will consist of 50 lbs/acre of annual rye except for foxtail millet, which will be planted at the same rate in the summer months.

The permanent seed mixture and seeding rate will be:

As specified on Sheet C8 of the above referenced Level 3 Site Plan.

CLOSURE OF ROADS OR OPENINGS

Upon abandonment of the mine, the operator shall effectively close or fence all roads, openings, and pits where hazardous conditions exist. Warning signs shall be posted. If fencing is necessary, the fence shall be 4-feet high woven wire with two strands of barbed wire on top. Intermittently worked mines shall also be closed or barricaded and posted with warning signs to prevent access to roads and hazardous areas.

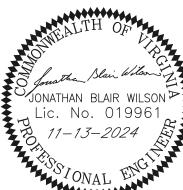


24023-03

THIS DRAWING IS THE PROPERTY OF BAY DESIGN GROUP AND IS NOT TO BE REPRODUCED OR USED FOR ANY PROJECT IN WHOLE OR IN PART WITHOUT EXPRESS WRITTEN PERMISSION.

JBW/DSS





MATTAPONI SAND & GRAVEL

NEWTOWN DISTRICT KING & QUEEN COUNTY, VA



4. Virginia Department of Health Construction Permit Application

supplies, a plat of the property is recommended and a site sketch is required. The site sketch should show your property lines, actual and/or proposed buildings and the desired location of your well and/or sewage system. When the site evaluation is conducted the property lines, building location and the proposed well and sewage sites must be clearly marked and the property sufficiently visible to see the topography. I give permission to the Virginia Department of Health to enter onto the property described during normal business hours for the purpose of processing this application and to perform quality assurance checks of evaluations and designs certified by a private sector Onsite Soil Evaluator or Professional Engineer as necessary until the sewage disposal system and/or private water supply has been constructed and approved. 2-20-25

sei mi

OSE/P	E Report For:	
Construction Repair Permit	/oluntary Upgrade Permit	Certification Subdivision Letter Approval
Property Location:		The state of the s
911 Address: Spring Cottage Road		city: Newtown
LotSection	Subdivision	
GPIN or Tax Map # 1632-78R-680	Health Dept II	D#
Latitude 37.858097	Longitude <u>-</u> 7	
Applicant or Client Mailing Address: Name: Mattaponi Sand & Gravel LLC		
Street: P.O. Box 2000		
City: Gambrills	State MD	Zip Code 21054
Prepared by: OSE Name David R. Miles	Lice	ense # 1940001111
Address P.O. Box 2270		A CHARLES TO STREET
City Kilmarnock	_{State} VA	Zip Code 22482
PE Name Jonathan Blair Wilson	Licen	nse # 019961
Address P.O. Box 1269		
City West Point	State VA	Zip Code 23181
Date of Report 11-5-24	Date of	Revision #1 02-20-25
OSE/PE Job # WE-0238-25	Date of	Revision #2
Contents/Index of this report (e.g., Site Evaluation Summ	nary, Soil Profile Description	ons, Site Sketch, Abbreviated Design, etc.)
Application	Plans and De	etails
System Specifications		
AOSE Soil Evaluation Report		
Certification Statement I hereby certify that the evaluations and/or designs contained the Sewage Handling and Disposal Regulations (12 VAC5-610), Alternative Onsite Sewage Systems (12VAC5-613) and all othe Department of Health. I further certify that I currently possess Commonwealth that have been duly issued by the applicable at The potential for both conventional and alternative onsite seem. The work attached to this cover page has been condition that exemption in Code of Virginia Section 54.1-402.	the Private Well Regulation applicable laws, regulation any professional license reagency charged with licensi wage systems has been dissolucted under an exemption A.11 cification letter subdivuntary upgrade	ons (12 VAC5-630), the Regulations for one and policies implemented by the Virginia equired by the laws and regulations of the ure to perform the work contained herein. Soussed with the owner/applicant.

System Specifications

	VDH Use Only	
HDIN: _		

Application Information				
Name: Mattaponi Sand & Gravel LLC	Address: P.O. Box 2000			
Phone: 443-871-3440	Gambrills, MD 21054			
Location Information				
Tax Map/GPIN #: 1632-78R-680	Property Address:Spring Cottage Road			
Subdivision: Section:	Block: Lot:			
Directions: SR 14 north, SR 721 north, left SR 639 to intersection	n with SR 628, west side of ITX			
General Information				
Property Type (e.g. residential): Industrial	Number of Bedrooms:			
Daily Flow: 450 gpd	Conditions:			
Notes:				
Sewer Line				
Diameter: 4 in. Material: PVC	(or equivalent) Notes:			
Pretreatment Unit(s)				
Treatment Level: TL-1	Septic Tank Capacity: 1000 gallons			
Sewer Line Diameter: 4 in. Material: PVC (or equivalent) Notes:				
Per the Sewage Handling and Disposal Regulations, c	heck which option(s) chosen:			
☐ Septic tank with inspection port ■ Septic tank with	effluent filter Reduced maintenance septic tank			
Secondary treatment device(s), if applicable:				
Notes:				
Conveyance Line	Distribution Method and Header Lines			
Conveyance Method: Gravity	Distribution Method: Gravity			
If pumping, include pump specifications sheet.	No. of boxes: 1 No. of outlets: 4			
Material: PVC Sch40 Diameter: 4-inch	Surge or splitter box required: ■ Yes □ No			
Notes:	Header Line Material: 4" PVC Sch40			
Percolation Lines/Absorption Area				
Dispersal Method (e.g. laterals, pad, mound): laterals				
If using pressure dispersal (e.g. drip), include pressure	dispersal specifications sheet.			
No. of laterals/pads: 4 Length of lateral(s)/pad	d(s): 75 ft. Width of lateral(s)/pad(s): 36 in.			
Center to center spacing: 9 ft. Installation d	epth: 24 in. Aggregate depth: 12 in.			
Size/Type of Aggregate: VDOT No. 57 agg. or washed grave	Lateral/pad slope: 2-4 in. per 100 ft.			
Reserve Area Provided: 100 % Notes:				

Well Specifications

	VDH Use Only
HDIN:	

Applicant Information		
Name: Mattaponi Sand & Gravel LLC	Address; P.O. Box 2000	
Phone: 443-871-3440	Gambrills, MD 21054	
Location Information		
Tax Map/GPIN #: 1632-78R-680	Property Address:Spring Cottage Road	
Subdivision: S	ection: Block: Lot:	
Directions: SR 14 north to SR 721 north to left onto SR 639	to intersection with SR 628, property west of ITX.	
General Information		
Well Purpose (select all that apply): ■ Domestic D	Prinking Water	
☐ Irrigation ☐ Industrial/C	Commercial Geothermal	
Well Class: IIIB	Minimum Casing Depth: 50	_ ft.
Estimated Water Usage: 450 GPD	Minimum Grout Depth: 50	_ ft.
Horizontal Setbacks		
Distance from Building Sewer: 104.00 ft.	Distance from Pretreatment Unit(s): 115.10	ft.
Distance from Conveyance System: 124.08 ft.	Distance from Absorption Area: 493.84	ft.
Distance from Property Line: 159.50 ft.	Distance from foundations: 55.52	ft.
Distance from other source(s) of contamination:	ft.	
List other source(s):		
Note:		

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Site and Soil Evaluation Report

	VDH Use Only
mmi	vibil osc omy
HDIN:	

Date: 8/21/2024 King & Queen County Health Department
Owner: Bay Design Group; ATTN: Gordon L. Jones, L.S. Phone: 804-229-0015 Owner Address: P.O. Box 51 Urbanna, VA 23175 Property Address: Intersection Of Eastern View Road & Spring Cottage Road Tax Map/GPIN #: Subdivision: Section: Block: Lot: Soil Information Summary 1. Position in landscape satisfactory: Yes \(\text{No}\) Describe landscape position: Cleared/Sloping 2. Slope: 5-6 % 3. Depth to rock/impervious strata: Max. in. Min. in. Not observed 4. Free Water Present: Yes \(\text{No}\) Yes \(\text{No}\) No Range in inches: 5. Depth to seasonal water table (gray mottling or gray color): \(\frac{42-48+}{42-48+} \) inches \(\text{Not observed} \) 6. Soil percolation rate estimated: \(\text{Yes} \) No Estimated rate: \(\frac{35}{35} \) min/in at \(\frac{24}{35} \) inches depth Texture Group: \(\text{I} \) \(\text{III} \) \(\text{III} \) \(\text{III} \) \(\text{IV} \) 7. Percolation test performed: \(\text{Yes} \) No If yes, provide additional data on percolation test results. Name and title of evaluator: \(\text{David R. Miles, CPSS, OSE} \) Signature: \(\text{Signature: Grawl Trenches Only! 4x76s} \) (describe dispersal area, e.g. absorption trenches) dispersing
Owner Address: P.O. Box 51 Urbanna, VA 23175 Property Address: Intersection Of Eastern View Road & Spring Cottage Road Tax Map/GPIN #: Subdivision: Section: Block: Lot: Soil Information Summary 1. Position in landscape satisfactory: Yes I No Describe landscape position: Cleared/Sloping 2. Slope: 5-6 % 3. Depth to rock/impervious strata: Max. in. Min. in. Not observed 4. Free Water Present: Yes I No Range in inches: 5. Depth to seasonal water table (gray mottling or gray color): 42-48+ inches I Not observed 6. Soil percolation rate estimated: Yes I No Estimated rate: 35 min/in at 24 inches depth Texture Group: I I II III III IV 7. Percolation test performed: Yes I No If yes, provide additional data on percolation test results. Name and title of evaluator: David R. Miles, CPSS, OSE Signature: David R. Miles, CPSS, OSE Signature: Gravel Trenches Only! 4x76s (describe dispersal area, e.g. absorption trenches) dispersing
Intersection Of Eastern View Road & Spring Cottage Road
Section: Section: Block: Lot: Soil Information Summary
Soil Information Summary Soil Information Summary
Soil Information Summary 1. Position in landscape satisfactory: Yes \ No \ Describe landscape position: Cleared/Sloping 2. Slope: \(\frac{5-6}{9} \) % 3. Depth to rock/impervious strata: Max in. Min in. \ Not observed 4. Free Water Present: \ Yes \ No \ Range in inches: 5. Depth to seasonal water table (gray mottling or gray color): \(\frac{42-48+}{42-48+} \) inches \ Dot observed 6. Soil percolation rate estimated: \(\frac{1}{2} \) Yes \(\Delta \) No \ Estimated rate: \(\frac{35}{2} \) min/in at \(\frac{24}{2} \) inches depth Texture Group: \(\Delta \) I \(\Delta \) III \(\Delta \) IV 7. Percolation test performed: \(\Delta \) Yes \(\Delta \) No \(\text{If yes, provide additional data on percolation test results.} \) Name and title of evaluator: \(\Delta \) David R. Miles, CPSS, OSE Signature: \(\Delta \) (describe dispersal area, e.g. absorption trenches) dispersing
2. Slope: 5-6 % 3. Depth to rock/impervious strata: Max in. Min in. ■ Not observed 4. Free Water Present: □ Yes ■ No Range in inches: 5. Depth to seasonal water table (gray mottling or gray color): 42-48+ inches □ Not observed 6. Soil percolation rate estimated: ■ Yes □ No Estimated rate: 35 min/in at 24 inches depth Texture Group: □ I ■ II □ III □ IV 7. Percolation test performed: □ Yes ■ No If yes, provide additional data on percolation test results. Name and title of evaluator: □ David R. Miles, CPSS, OSE Signature: □ □ Site approved: Gravel Trenches Only! 4x75's (describe dispersal area, e.g. absorption trenches) dispersing
4. Free Water Present: Yes No Range in inches: Depth to seasonal water table (gray mottling or gray color): Estimated rate: Not observed inches depth of the present
5. Depth to seasonal water table (gray mottling or gray color): 42-48+ inches Not observed 6. Soil percolation rate estimated: Yes No Estimated rate: 55 min/in at 24 inches depth Texture Group: I I II III IV 7. Percolation test performed: Yes No If yes, provide additional data on percolation test results. Name and title of evaluator: David R. Miles, CPSS, OSE Signature: David R. Miles, CPSS, OSE Signature: (describe dispersal area, e.g. absorption trenches) dispersing
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Site approved: Gravel Trenches Only! 4x75's (describe dispersal area, e.g. absorption trenches) dispersing
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TI-1 (considering a function of the standard of 24 (Gashar) day that
(proposed level of freatment at time of evaluation) to be placed at (niches) depitt at
site designated on permit. Site provides a total of 900 square feet of absorption area for primary and
reserve (if applicable). 4 to 9 pd x 1915 F/100 GALLONS = 859.5 SF RE OVINGO
☐ Site disapproved: Reasons for rejection (check all that apply)
 □ Position in landscape subject to flooding or periodic saturation.
2. Insufficient depth of suitable soil over hard rock.
 Insufficient depth of suitable soil to seasonal water table. Rates of absorption too slow.
5. Insufficient area of acceptable soil for required absorption area, and/or reserve area.
 6. ☐ Proposed system too close to well. 7. ☐ Other (specify)

Page 6 of 29

Data of	Probable	p/20/202	Pag	e 601 -1
Date of	Evaluation	on: 8/20/2024		
Propert	TD.		SOIL EVALUATION REPORT	
Topen	ly 1D			
drawing private C all struct the rever	on the cons Onsite Soil I tural feature se side of the	truction perr Evaluator or s (i.e. sewag nis page or p	nt conducts the soil evaluation the location of profile holes may be shown on the nit or the sketch submitted with the application. If soil evaluations are conducted Professional Engineer, location of profile holes and sketch of the area investigated disposal systems, wells, etc.) within 100 feet of the site and reserve site shall repared on a separate page and attached to this form.	ted by a ated including be shown on
	pplication s		See Construction Permit See sketch on reverse side or page attached to	
Hole #	Horizon	Depth (Inches)	Description of color, texture, etc.	Texture Group
1	A	0-06	10YR 4/3 SL Coarse	IIA
	AE	06-20	10YR 7/3 SL Coarse	IIA
	E	20-24	10YR 6/4 SL Coarse	IIA
	Bt1	24-30	10YR 6/6 SL-SCLL	IIA-IIB
	С	30-42	10YR 6/4-6/6 SL Coarse	IIA
	С	42-48	10YR 7/3 SL w/ Gravel Damp	IIA
2	A	0-06	10YR 4/3 SL Coarse	IIA
	C	06-24	10YR 7/3-8/3 SL Coarse	IIA
	Bt1	24-30	10YR 5/6 SCLM	IIB
	С	30-48	10YR 7/4 SL. Coarse Damp @42" Deep	IIA
3	A	0-06	10YR 4/3 LS Coarse	
	С	06-20	10YR 7/4 LS Coarse	1
	C	20-42	10YR 7/4 LS Coarse w/ Gravel	1
	С	42-48	10YR 8/1-8/2 Sand Coarse W/ Pea Gravel	1
THE PARTY OF THE P				
			24.5	
REMA	RKS: 2"0	of rain night befo	ore!	
			Company of the Compan	

7/2912

BAY DESIGN GROUP

To: King and Queen County Health Department

From: Jonathan Blair Wilson, P.E. (804) 513-9564 phone

CC: File 24023

Date: 11/14/2024

Re: Mattaponi Sand & Gravel – Tax Parcel 1623-78R-680, King and Queen County, Virginia

Mattaponi Sand & Gravel LLC intends on operating a sand and gravel surface mining operation on Assessor's Tax Parcel 1623-78R-680 in King and Queen County, Virginia. The facility will operate with eight (8) employees and is expected to accommodate the export of a maximum of 50 trucks of material from the site each workday. Wastewater effluent from the facility will have waste concentrations that are less than typical residential strength waste. The following is provided for your consideration:

Design Basis: Similar to Factories and Office Buildings 25 gpd/employee; and

Interstate Rest Areas 5 gpd/person

Units	Use	Employees/Persons	Comments
1	Office/scales	8	Design Flow =1200 gpd
1	Rest Areas	50 (transient truck drivers)	Design Flow =250 gpd
			Total Flow = 450 gpd

The wastewater characterization and disposal facility design is based on Table 5.1 of the current Sewage Handling and Disposal Regulations.

Discharge Facility	Design Unit	Flow	BOD	S.S.	Flow Duration
	Per person	(gpd)	(#/day)	(#/day)	(hour)
Office/Factories		25	0.05	0.05	12
Rest Areas		5	0.01	0.01	24

For comparison (for waste strength)

Discharge Facility	Design Unit	Flow	BOD	S.S.	Flow Duration
	Per person	(gpd)	(#/day)	(#/day)	(hour)
Residential Dwelling		75	0.20	0.20	24

Waste Concentration:

Offices/Factories BOD: (0.05 #/day/person)/(25 gal./person/day) = 0.0020 #/gal.

S.S.: (0.05 #/day/person)/(25 gal./person/day) = 0.0020 #/gal.

Rest Areas BOD: (0.01 #/day/person)/(5 gal./person/day) = 0.0020 #/gal.

S.S.: (0.01 #/day/person)/(5 gal./person/day) = 0.0020 #/gal.

Residential Dwelling BOD: (0.20 #/day/person)/(75 gal./person/day) = 0.0027 #/gal.

S.S.: (0.20 #/day/person)/(75 gal./person/day) = 0.0027 #/gal.

Therefore with respect to effluent waste strength concentrations the facility will have waste strengths that are less than typical residential strength waste.



ConSeal CS-102 3/4" **MEETS OR EXCEEDS** SEALS (ASTM 1227) JOINT DETAIL TOP HALF OF TANK BOTTOM HALF OF TANK USE SILICONE ADHESIVE BETWEEN RISER JOINTS JTLET **TANK** 4 34" POLY RISER FOR FILTER ACCESS SEAM SEPTIC 7 34 SIDE VIEW WWW.HANOVERPRECAST.COM SEPTIC TANK TEES & FILTER **BRING TO GRADE WITH** E-Z SET POLY RISERS MAXIMUM BURIAL DEPTH 24 INCHS 4" HIGH PRESSURE SEALS (ASTM 1227) SANITARY TEE 1000 GALI 24" NET NET 55" ..69

6X6X10X10 REINFORCING WIRE 5000 + PSI CONCRETE WITH FIBER FOR SECONDARY REINFORCMENT

TOP VIEW

4" PVC COUPLER INSPECTION PORT

62"

(10 PSI) NO RUST POLY HANDLES

MEETS OR EXCEEDS ASTM 1227

HIGH PRESSURE PIPE SEALS

INLETS & OUTLETS HAVE 4 INCH

TOP HALF 4500 LBS. BOTTOM 4500 LBS.

WEIGHT

+ OR - 1/2"

NOT TO SCALE

+ OR - 1/2"

4

.. 66

CONTRACTOR

ASTM C-990

9000 LBS.

TOTAL

JANUARY 2015 PAGE 1/FILTER TOP

(804) 798-2336 FAX (804) 798-2339 TAPER MANHOLE

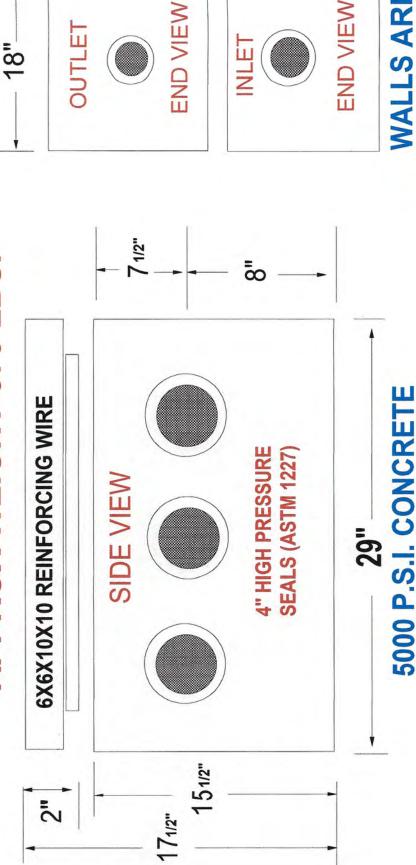
"THIS DRAWING IS THE PROPERTY OF HANOVER PRECAST INC. OF ASHLAND, VIRGINIA. IT IS INTENDED FOR USE BY THOSE DESIGNING WITH AND SPECIFYING HANOVER PRECAST PRECAST INC. IS FORBIDDEN." COPYRIGHT 1/01/20

24 INCH E-Z SET POLY RISER

BURIAL DEPTH

Manual Manual PRESSI

APPROX WEIGHT 370 LBS.



... **TOP & BOTTOM ARE** WALLS ARE 2" **END VIEW**

MAY 2017

(804)-798-2336 FAX (804)-798-2339 WWW.HANOVERPRECAST.COM

WITH FIBER

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



SECTION: 3.20.065 FM1775 0507 Supersedes 0705

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347 SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961 (502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624 visit our web site: www.zoeller.com

ZOELLER ON-SITE WASTEWATER PRODUCTS



Zoeller Residential Septic Tank Effluent Filter Specifications

Application: Single family homes.

Filter Area: 132 Linear Feet of 1/16" filtration.

Flow Rate: 1,000 gpd.

Material: All materials are noncorrosive in the septic tank environment. Sleeve is PVC, primary filter is polypropylene, and filter connection element is neoprene.

Easy to install or retrofit: The Zoeller Septic System Filter fits inside any 4" sanitary tee. Slide the filter cartridge into the filter sleeve. Slide the assembled cartridge and sleeve into the sanitary tee at the tank's outlet. Ensure the sleeve latch is pointing toward the outlet of the septic tank before filter placement into the tee. The drain field is now protected from solids greater than 1/16".

Adding an extension handle: A 1/2" PVC pipe can be attached to the top of the filter with a stainless steel screw. Cut off to appropriate length below the lid.

ZOELLER SEPTIC TANK RISER
AND LOCKABLE LATCH

EXTENSION HANDLE

SLEEVE

FILTERING
CONNECTION
ELEMENT

TOTAL LENGTH
OF FILTER

"WW"
CARTRIDGE

SK1972

NOTE: State and local plumbing codes may require aspecific liquid penetration. For example, 25%-45% into the liquid depth or 9" off the tank bottom.

Easy to maintain: The filter can be maintained by rotating the cartridge counterclockwise and removing for cleaning. The sleeve should

remain in the sanitary tee while cleaning the cartridge. To clean, hold cartridge over septic tank opening and rinse with hose until clean, washing filtered trash back into septic tank. After cleaning the cartridge the sleeve should be cleaned inside and out. Reinsert the cartridge, turn it clockwise in the sleeve, locking in place. Remove the filter and sleeve assembly from the sanitary tee. The Zoeller filter should be cleaned each time the septic tank is pumped or when the need is indicated by slow flows from the house. More frequent cleanings will not hurt the filter and could even improve the performance of your septic tank. For installations that exceed the design flow rate of the filter, more frequent cleanings may be required. Two or more filters may be connected with a manifold for higher flow applications.

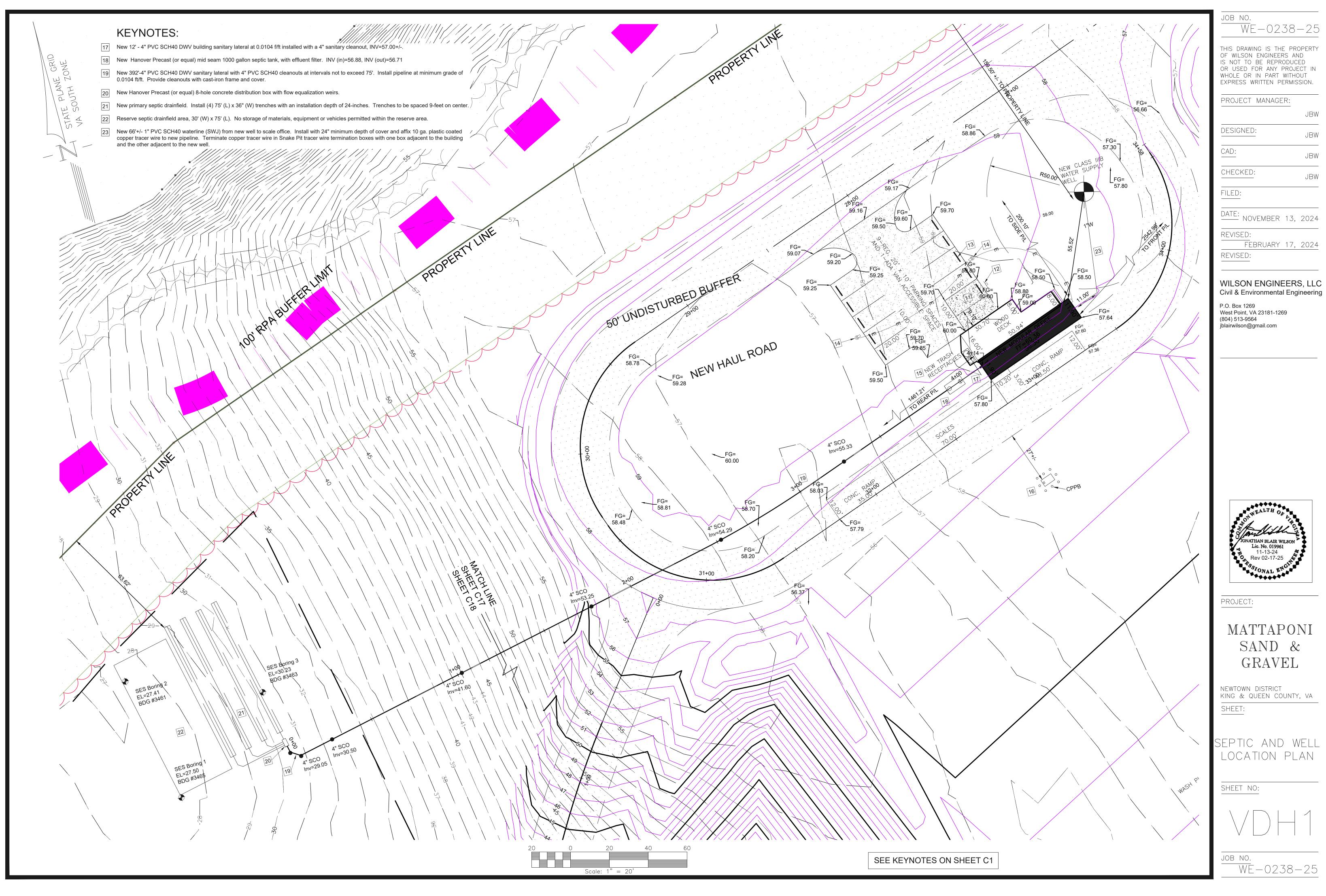
Troubleshooting, repair, and replacement: Follow the install and maintenance instructions above. For replacement components, call 1-800-928-PUMP.

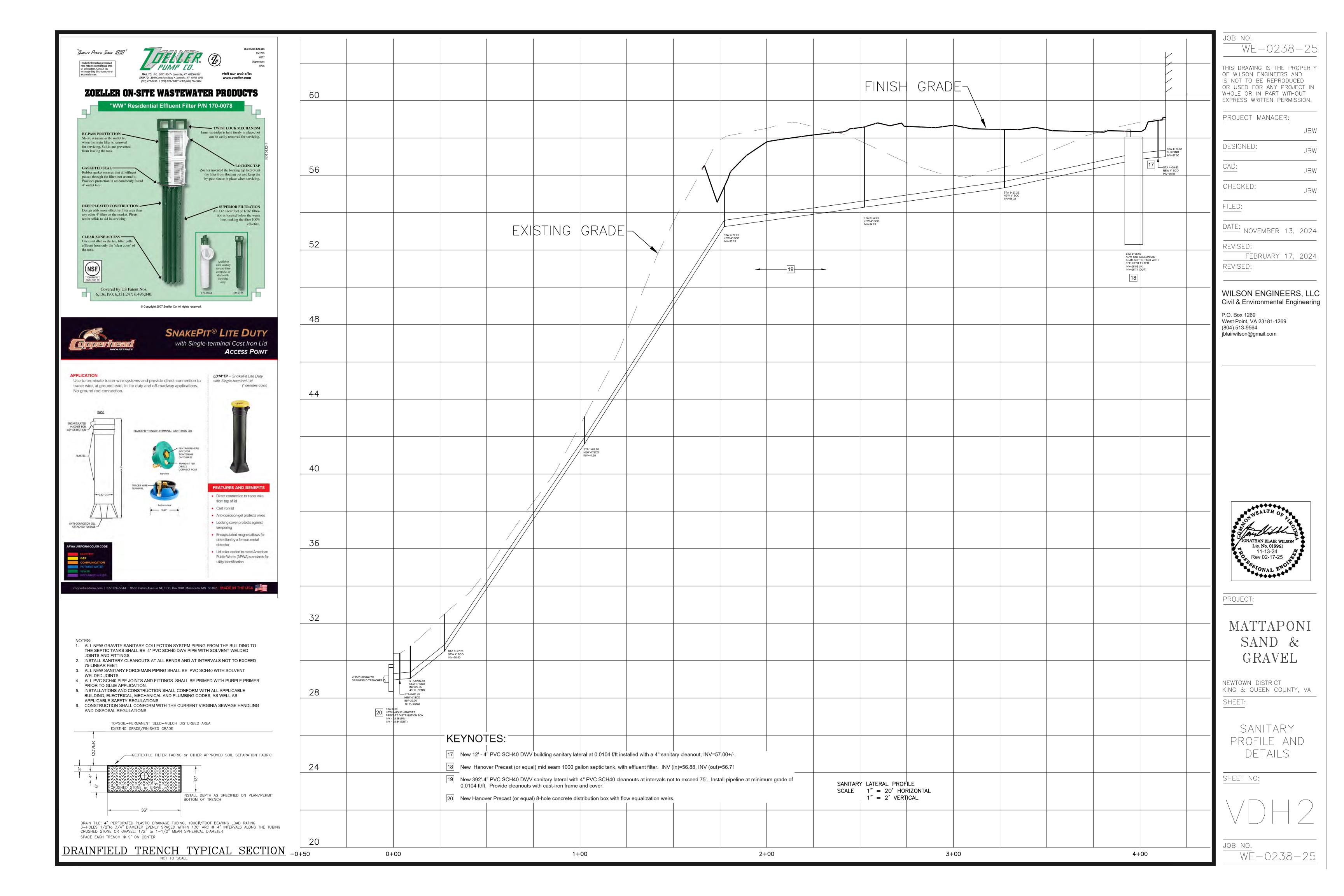
Lifetime Warranty: Every Zoeller filter is guaranteed to be free from defects in materials and workmanship for the lifetime of the homeowner/purchaser. Free repair or replacement, excluding labor, will be made on return of the filter prepaid to the factory. This warranty is limited to product proven to be free from abuse or improper installation.

ALL ZOELLER ON-SITE PRODUCTS MUST BE INSTALLED IN ACCORDANCE WITH PLUMBING AND HEALTH DEPARTMENT CODES.

Distributed By:







5. Drainage Calculations

TR-20 HYDROLOGY WORKSHEET

Condition 24023 Mattaponi Sand & Gravel Developed Project

REVISED 2/17/2025

Tc (min)

1.08

5.85

20

6.30

Drainage Basin # SDA1 Total Area (ac) 1.75

SCS Hydrology							Rational M	ethod
Soil Group	Land Use		Area (ac)	F	RCN	Product	С	Product
Α	IMPERVIOUS			0.56	98	54.88	0.90	0.504
Α	PONDS			0.00	98	0	0.90	0.000
Α	AGRICULTUR	RΕ		0.00	60	0	0.50	0.000
A	OPEN			1.19	39	46.41	0.30	0.357
A	WOODS			0.00	30	0	0.25	0.000
В	IMPERVIOUS			0.00	98	0	0.90	0.000
В	PONDS			0.00	98	0	0.90	0.000
В	AGRICULTUR	RΕ		0.00	72	0	0.50	0.000
В	OPEN			0.00	61	0	0.30	0.000
B C	WOODS			0.00	55	0	0.25	0.000
С	IMPERVIOUS			0.00	98	0	0.90	0.000
C C C	PONDS			0.00	98	0	0.90	0.000
С	AGRICULTUR	RΕ		0.00	80	0	0.50	0.000
С	OPEN			0.00	74	0	0.30	0.000
С	WOODS			0.00	70	0	0.25	0.000
D	IMPERVIOUS			0.00	98	0	0.90	0.000
D	PONDS			0.00	98	0	0.90	0.000
D	AGRICULTUR	RΕ		0.00	83	0	0.50	0
D	OPEN			0.00	80	0	0.30	
D	WOODS			0.00	77	0	0.25	
Totals				1.75		101.29		0.861
							Composite	
RCN=		58					С	0.49
S=		7.241						
Time of Concent	ration							
Overland Flow								
T(overland)	Length (L)		•	` '	Rainfall (P)	,		
	0.04	10		0.24	3.22	0.02		
Shallow Concent	trated							
T (concentrated)			Length (L)				If Tc is less	s than 5
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.30	9.85	J (=)	1700			min, use 5	min

Total Imper. Area 32 %Impervious

0.33

55.77

Total Tc

100-year

rotal illiper. Area	32	70111per vious				
		-			Comments	s:
TR20 SUMMARY R	ESULTS:			SDA1	Ī	
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs))	
1-year	2.65	0.17	1087	0.00	Infiltrate 10	00% Ro
2-year	3.22	0.35	2212	0.00	Infiltrate 10	00% Ro
10-year	4.96	1.15	7285	0.00	Infiltrate 10	00% Ro
25-year	6.2	1.88	11960			
100-year	8.48	3.46	22006			
Rational Method	Q=CIA	I=B/(Tc+D)^E				
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	0.86	3.27	2.81
10-year	60.65	10.79	0.77	0.86	4.33	3.73
25-year	58.96	10.10	0.73	0.95	4.91	4.65
100	FF 77	0.00	0.07	4.00	T 0.F	C 20

8.92

0.67

Elevation S	Storage Tab	le		Node #1				
Elev	Area	Avg. Area	Elev. Diff.	Incre. Stor	Sum Stor	Sum Stor	Sediment Basin	Sediment Basin
(ft)	(sf)	(sf)	(ft)	(cf)	(cf)	(cy)	Wet Vol. (cy)	Dry Vol. (cy)
44.78	1968	2441.5	1.00	0	0	0.0		
45.78	2915	3469.5	1.00	2441.5	2441.5	90.4		
46.78		4730.5	1.00	3469.5	5911	218.9		
47.78	5437		0.00	4730.5	10641.5	394.1		

Mattaponi Sand & Gravel Infiltration Basin Design

Infiltration Basin No. 1 10-Year Design Storm 100% Runoff Infiltration

SDA1 DA (ac) = 1.75 Vro (cf) = 7285

Soils	Group	
18B Tarboro Sand	Α	
		Equation
Infiltration Rate (in/hr), f =	13	
Drawdown Time (hr), Td =	48	
Dmax (ft) =	312	(1/2 f * Td)
Fill Time (hr), Tf =	2	
Basin Depth (ft), d =	3	
Surface Area (sf), SA =	1784.082	(Vro/[d+(1/2 f *Tf)/12])

TR-20 HYDROLOGY WORKSHEET

Condition Project 24023 Mattaponi Sand & Gravel Developed

REVISED 2/17/2025

Drainage Basin # SDA2 Total Area (ac) 1.78

SCS Hydrology							Rational M	lethod
Soil Group	Land Use		Area (ac)	F	RCN	Product	С	Product
Α	IMPERVIC	US		0.56	98	54.88	0.90	0.504
Α	PONDS			0.00	98	0	0.90	0.000
Α	AGRICUL ⁷	URE		0.00	60	0	0.50	0.000
Α	OPEN			1.22	39	47.58	0.30	0.366
Α	WOODS			0.00	30	0	0.25	0.000
В	IMPERVIC	US		0.00	98	0	0.90	0.000
В	PONDS			0.00	98	0	0.90	0.000
В	AGRICUL ⁷	URE		0.00	72	0	0.50	0.000
В	OPEN			0.00	61	0	0.30	0.000
В	WOODS			0.00	55	0	0.25	0.000
С	IMPERVIC	US		0.00	98	0	0.90	0.000
B B C C C C D	PONDS			0.00	98	0	0.90	0.000
С	AGRICUL ⁷	TURE		0.00	80	0	0.50	0.000
С	OPEN			0.00	74	0	0.30	0.000
С	WOODS			0.00	70	0	0.25	0.000
D	IMPERVIC	US		0.00	98	0	0.90	0.000
D	PONDS			0.00	98	0	0.90	0.000
D	AGRICUL ⁷	TURE		0.00	83	0	0.50	0
D	OPEN			0.00	80	0	0.30	0
D	WOODS			0.00	77	0	0.25	0
Totals				1.78		102.46		0.870
							Composite	;
RCN=		58					С	0.49
S=		7.241						•
Time of Concentr	ation						•	
Overland Flow								
T(overland)	Length (L)		Roughness	s(n) F	Rainfall (P)	Slope (S)		
	0.04	10	_	0.24	3.22	0.02		
Shallow Concenti	rated							
T (concentrated)	Height (H)		Length (L)				If Tc is less	s than 5
	0.30	9.85	- ' '	1700			min, use 5	min
Total Tc		0.33					Tc (min)	20

Total Imper. Area

31 %Impervious

•		•			Comments	s:
TR20 SUMMARY R	TR20 SUMMARY RESULTS: SDA2					
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs)		
1-year	2.65	0.17	1105	0.00	Infiltrate 10	00% Ro
2-year	3.22	0.35	2250	0.00	Infiltrate 10	00% Ro
10-year	4.96	1.15	7410	0.00	Infiltrate 10	00% Ro
25-year	6.2	1.88	12165			
100-year	8.48	3.46	22384			
Rational Method	Q=CIA	I=B/(Tc+D)^E				
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	0.87	3.27	2.84
10-year	60.65	10.79	0.77	0.87	4.33	3.77
25-year	58.96	10.10	0.73	0.96	4.91	4.70
100-year	55.77	8.92	0.67	1.09	5.85	6.36

Elevation S	Storage Tab	le		Node #2				
Elev	Area	Avg. Area	Elev. Diff.	Incre. Stor	Sum Stor	Sum Stor	Sediment Basin	Sediment Basin
(ft)	(sf)	(sf)	(ft)	(cf)	(cf)	(cy)	Wet Vol. (cy)	Dry Vol. (cy)
44.50	1968	2441.5	1.00	0	0	0.0		
45.50	2915	3469.5	1.00	2441.5	2441.5	90.4		
46.50	4024	4690.5	1.00	3469.5	5911	218.9		
47.50	5357		0.00	4690.5	10601.5	392.6		

Mattaponi Sand & Gravel Infiltration Basin Design

Infiltration Basin No. 2 10-Year Design Storm 100% Runoff Infiltration

SDA2 DA (ac) = 1.78 Vro (cf) = 7410

Soils	Group	
18B Tarboro Sand	Α	
		Equation
Infiltration Rate (in/hr), f =	13	
Drawdown Time (hr), Td =	48	
Dmax (ft) =	312	(1/2 f * Td)
Fill Time (hr), Tf =	2	
Basin Depth (ft), d =	3	
Surface Area (sf), SA =	1814.694	(Vro/[d+(1/2 f *Tf)/12])

TR-20 HYDROLOGY WORKSHEET

Condition Developed **Project** 24023 Mattaponi Sand & Gravel

Drainage Basin # SDA3 Total Area (ac) 8.62

SCS Hydrology						Rational M	ethod
Soil Group	Land Use	Area (ac)	RCN	Produc	ct	С	Product
A	IMPERVIOUS		0.00	98	0	0.90	0.000
Α	PONDS		0.00	98	0	0.90	0.000
Α	AGRICULTURE		0.00	60	0	0.50	0.000
Α	OPEN		0.00	39	0	0.30	0.000
Α	WOODS		0.00	30	0	0.25	0.000
В	IMPERVIOUS		0.00	98	0	0.90	0.000
В	PONDS		0.00	98	0	0.90	0.000
В	AGRICULTURE		0.00	72	0	0.50	0.000
В	OPEN		0.00	61	0	0.30	0.000
B C	WOODS		0.00	55	0	0.25	0.000
С	IMPERVIOUS		0.00	98	0	0.90	0.000
С	PONDS		0.00	98	0	0.90	0.000
С	AGRICULTURE	.	0.00	80	0	0.50	0.000
C C C	OPEN		0.00	74	0	0.30	0.000
	WOODS		0.00	70	0	0.25	0.000
D	IMPERVIOUS		0.00	98	0	0.90	0.000
D	PONDS		0.00	98	0	0.90	0.000
D	AGRICULTURE	.	0.00	83	0	0.50	0
D	OPEN		0.00	80	0	0.30	
D	WOODS		8.62	77	663.74	0.25	2.155
Totals			8.62		663.74		2.155
						Composite	
RCN=		77				С	0.25
S=		.987					
Time of Concentr	ation						
Overland Flow							
T(overland)	Length (L)	Roughnes	s (n) Raint	fall (P) Slope ((S)		
	0.59	100	0.4	3.22	0.0057		
Shallow Concenti	rated						
T (concentrated)	Height (H)	Length (L)				If Tc is less	s than 5
		1.53	517			min, use 5	
Total Tc		0.75				Tc (min)	45

Total Imper. Area 0 %Impervious

					Comments:
TR20 SUMMARY RE	SULTS:			SDA3	
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs)	
1-year	2.65	0.84	26159	4.30	
2-year	3.22	1.23	38366	6.58	
10-year	4.96	2.59	81029	14.55	
25-year	6.2	3.65	114346	20.66	
100-year	8.48	5.72	178870	32.27	
Rational Method	Q=CIA	I=B/(Tc+D)^E	•	•	

rational Method	Q-OIA	1-D/(101D) L				
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	2.16	2.01	4.34
10-year	60.65	10.79	0.77	2.16	2.75	5.93
25-year	58.96	10.10	0.73	2.37	3.17	7.51
100-year	55.77	8.92	0.67	2.69	3.87	10.42

RECLAMATION PLAN: Plant area with mixed hardwood and pine seedlings to produce forested open space. Remaining soils will have been disturbed or underlying clay soil substrata. Use hydrologic soil group "D" with reclamation area conversion to forested open space.

Elevation S	Storage Tab	le		Node #3				
Elev	Area	Avg. Area	Elev. Diff.	Incre. Stor	Sum Stor	Sum Stor	Sediment Basin	Sediment Basin
(ft)	(sf)	(sf)	(ft)	(cf)	(cf)	(cy)	Wet Vol. (cy)	Dry Vol. (cy)
24.90	0	2684	0.10	0	0	0.0		
25.00	5368	64630.5	1.00	268.4	268.4	9.9		
26.00	123893	135315.5	1.00	64630.5	64898.9	2403.7		
27.00	146738	220894	22.00	135315.5	200214.4	7415.3		
49.00	295050		0.00	4859668	4924567	182391.4		

Mattaponi Sand & Gravel Infiltration Basin Design

Infiltration Basin No. 3 10-Year Design Storm 100% Runoff Infiltration SDA3 DA (ac) = 8.62

Vro(cf) = 81029

Soils	Group	
Subgrade Clays	D	
		Equation
Infiltration Rate (in/hr), f =	0.06	
Drawdown Time (hr), Td =	48	
Dmax (ft) =	1.44	(1/2 f * Td)
Fill Time (hr), Tf =	2	
Basin Depth (ft), d =	1.1	
Surface Area (sf), SA =	73329.41	(Vro/[d+(1/2 f *Tf)/12])

TR-20 HYDROLOGY WORKSHEET

REVISED Condition Developed Project 24023 Mattaponi Sand & Gravel 2/17/2025

Drainage Basin # SDA4 Total Area (ac) 113.98

SCS Hydrology						Rational M	ethod
Soil Group	Land Use	Are	ea (ac)	RCN	Product	С	Product
A	IMPERVIOUS		0.00	98	0	0.90	0.000
Α	PONDS		0.00	98	0	0.90	0.000
Α	AGRICULTURI	E	0.00	60	0	0.50	0.000
Α	OPEN		0.00	39	0	0.30	0.000
Α	WOODS		0.00	30	0	0.25	0.000
В	IMPERVIOUS		0.00	98	0	0.90	0.000
В	PONDS		0.00	98	0	0.90	0.000
В	AGRICULTURI	E	0.00	72	0	0.50	0.000
В	OPEN		0.00	61	0	0.30	0.000
B C	WOODS		0.00	55	0	0.25	0.000
С	IMPERVIOUS		0.00	98	0	0.90	0.000
C C C	PONDS		0.00	98	0	0.90	0.000
С	AGRICULTURI	E	0.00	80	0	0.50	0.000
С	OPEN		0.00	74	0	0.30	0.000
	WOODS		0.00	70	0	0.25	0.000
D	IMPERVIOUS		0.00	98	0	0.90	0.000
D	PONDS		0.00	98	0	0.90	0.000
D	AGRICULTURI	E	0.00	83	0	0.50	0
D	OPEN		0.00		0	0.30	0
D	WOODS		113.98	77	8776.46	0.25	28.495
Totals			113.98		8776.46		28.495
						Composite	
RCN=		77				С	0.25
S=	_	2.987					
Time of Concentr	ation						
Overland Flow							
T(overland)	Length (L)	Ro	ughness (n)	Rainfall (P)	Slope (S)		
	0.64	100	0.4	3.22	0.0047		
Shallow Concenti	rated						
T (concentrated)	Height (H)	Le	ngth (L)			If Tc is less	s than 5
	0.63	5.91	2800			min, use 5	min
Total Tc		1.27				Tc (min)	76

Total Imper. Area 0 %Impervious

					Comments:
TR20 SUMMARY F					
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs)	
1-year	2.65	0.84	345896	36.53	
2-year	3.22	1.23	507301	55.98	
10-year	4.96	2.59	1071424	123.71	
25-year	6.2	3.65	1511961	175.95	
100-year	8.48	5.72	2365157	275.43	
Rational Method	O=CIA	I=B/(Tc+D)^F			

National Method	Q-CIA					
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	28.50	1.39	39.65
10-year	60.65	10.79	0.77	28.50	1.95	55.52
25-year	58.96	10.10	0.73	31.34	2.28	71.40
100-year	55.77	8.92	0.67	35.62	2.84	101.21

RECLAMATION PLAN: Plant area with mixed hardwood and pine seedlings to produce forested open space. Remaining soils will have been disturbed or underlying clay soil substrata. Use hydrologic soil group "D" with reclamation area conversion to forested open space.

Elevation Storage Table				Node #4	(Shown in HydroCad Model as Node 7P)			
Elev	Area	Avg. Area	Elev. Diff.	Incre. Stor	Sum Stor	Sum Stor	Sediment Basin	Sediment Basin
(ft)	(sf)	(sf)	(ft)	(cf)	(cf)	(cy)	Wet Vol. (cy)	Dry Vol. (cy)
18.00	219152	226487.5	1.00				49803	
19.00	233823	306838.5	1.00	226487.5	226487.5	8388.4		
20.00	379854	644642	1.00	306838.5	533326	19752.8		
21.00	909430	1204023	1.00	644642	1177968	43628.4		
22.00	1498616	1847581	1.00	1204023	2381991	88221.9		88221.9
23.00	2196545	2619573	1.00	1847581	4229572	156650.8		
24.00	3042601	3412604	1.00	2619573	6849145	253672.0		
25.00	3782607	3882199	1.00	3412604	10261749	380064.8		
26.00	3981790		0.00	1847581	12109329	448493.7		

TR-20 HYDROLOGY WORKSHEET

Condition	Developed	Project	24023 Mattaponi Sand & Gravel	REVISED
				2/17/2025

Drainage Basin # SDA5 Total Area (ac) 1.62

SCS Hydrology						Rational M	ethod
Soil Group	Land Use	Area (ac)	RCN	Prod	luct	C	Product
A	IMPERVIOUS		0.60	98	58.8	0.90	0.540
Α	PONDS		0.00	98	0	0.90	0.000
Α	AGRICULTURE		0.00	60	0	0.50	0.000
Α	OPEN		1.02	39	39.78	0.30	0.306
A	WOODS		0.00	30	0	0.25	0.000
В	IMPERVIOUS		0.00	98	0	0.90	0.000
В	PONDS		0.00	98	0	0.90	0.000
В	AGRICULTURE		0.00	72	0	0.50	0.000
В	OPEN		0.00	61	0	0.30	0.000
В	WOODS		0.00	55	0	0.25	0.000
В В С С С С	IMPERVIOUS		0.00	98	0	0.90	0.000
С	PONDS		0.00	98	0	0.90	0.000
С	AGRICULTURE		0.00	80	0	0.50	0.000
С	OPEN		0.00	74	0	0.30	0.000
С	WOODS		0.00	70	0	0.25	0.000
D	IMPERVIOUS		0.00	98	0	0.90	0.000
D	PONDS		0.00	98	0	0.90	0.000
D	AGRICULTURE		0.00	83	0	0.50	(
D	OPEN		0.00	80	0	0.30	(
D	WOODS		0.00	77	0	0.25	(
Totals			1.62		98.58		0.846
						Composite)
RCN=	6					С	0.52
S=	6.39	3					•
Time of Concen	tration	-				J	
Overland Flow							
T(overland)	Length (L)	Roughness	s (n) Rainfa	all (P) Slop	e (S)		
	0.00 1	0	0.015	3.22	0.02		
Shallow Concer	ntrated						

Total Imper, Area

0.19

Height (H)

T (concentrated)

Total Tc

37 %Impervious

Length (L)

36.74 **0.19**

i otai iiiipoii / ti oa	01	/01111poi 110ao			
		-			Comments:
TR20 SUMMARY RE	Ī				
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs)	See HydroCad Data
1-year	2.65	0.24	1424		
2-year	3.22	0.45	2659		
10-year	4.96	1.35	7910		
25-year	6.2	2.14	12587		
100-year	8.48	3.81	22432		
Rational Method	Q=CIA	I=B/(Tc+D)^E			
Storm Event	R	D	F	CCfA	L(in/hr) O(cfs)

1771

If Tc is less than 5

12

min, use 5 min Tc (min)

rtational Motiloa	Q 01/1	. 5/(10/5) =				
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	0.85	4.25	3.60
10-year	60.65	10.79	0.77	0.85	5.55	4.70
25-year	58.96	10.10	0.73	0.93	6.25	5.82
100-year	55.77	8.92	0.67	1.06	7.38	7.81

TR-20 HYDROLOGY WORKSHEET

Condition	Developed	Project	24023 Mattaponi Sand & Gravel	REVISED
				2/17/2025

Drainage Basin # SDA6 Total Area (ac) 1.01

SCS Hydrology						Rational M	ethod
Soil Group	Land Use	Area (ac)	RCN	Pro	duct	С	Product
Α	IMPERVIOUS		0.42	98	41.16	0.90	0.378
Α	PONDS		0.00	98	0	0.90	0.000
A	AGRICULTURE		0.00	60	0	0.50	0.000
A	OPEN		0.59	39	23.01	0.30	0.177
Α	WOODS		0.00	30	0	0.25	0.000
В	IMPERVIOUS		0.00	98	0	0.90	0.000
В	PONDS		0.00	98	0	0.90	
В	AGRICULTURE		0.00	72	0	0.50	0.000
В	OPEN		0.00	61	0	0.30	0.000
В	WOODS		0.00	55	0	0.25	0.000
С	IMPERVIOUS		0.00	98	0	0.90	0.000
С	PONDS		0.00	98	0	0.90	0.000
C C	AGRICULTURE		0.00	80	0	0.50	0.000
С	OPEN		0.00	74	0	0.30	0.000
С	WOODS		0.00	70	0	0.25	0.000
D	IMPERVIOUS		0.00	98	0	0.90	0.000
D	PONDS		0.00	98	0	0.90	0.000
D	AGRICULTURE		0.00	83	0	0.50	0
D	OPEN		0.00	80	0	0.30	0
D	WOODS		0.00	77	0	0.25	0
Totals			1.01		64.17		0.555
						Composite	
RCN=	6					С	0.55
S=	5.62	5					
Time of Concent	ration						
Overland Flow							
T(overland)	Length (L)	Roughnes	s (n) Rainfa	all (P) Slop	oe (S)		
	0.00 1	0	0.015	3.22	0.02		
Shallow Concent	trated						

Total Imper. Area

T (concentrated)

Total Tc

Height (H)

0.15

42 %Impervious

Length (L)

4.78

0.16

•		•			Comments:
TR20 SUMMARY F	RESULTS:			SDA6	
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs)	See HydroCad Data
1-year	2.6	5 0.33	1193		
2-year	3.2	2 0.57	2084		
10-year	4.9	6 1.55	5700		
25-year	6.	2 2.41	8825		
100-year	8.4	8 4.17	15280		
Rational Method	Q=CIA	I=B/(Tc+D)^E			

747

If Tc is less than 5

9

min, use 5 min Tc (min)

rational Motiloa	Q OI/ (1 D/(10.D) L				
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	0.56	4.60	2.55
10-year	60.65	10.79	0.77	0.56	5.98	3.32
25-year	58.96	10.10	0.73	0.61	6.72	4.10
100-year	55.77	8.92	0.67	0.69	7.92	5.50

TR-20 HYDROLOGY WORKSHEET

Condition	Developed	Project	24023 Mattaponi Sand & Gravel	REVISED
				2/17/2025

Drainage Basin # SDA7 Total Area (ac) 2.68

SCS Hydrology						Rational M	ethod
Soil Group	Land Use	Area (ac)	RCN	Р	roduct	С	Product
A	IMPERVIOUS		0.10	98	9.8	0.90	0.090
Α	PONDS		0.00	98	0	0.90	0.000
Α	AGRICULTURE		0.00	60	0	0.50	0.000
Α	OPEN		2.58	39	100.62	0.30	0.774
A	WOODS		0.00	30	0	0.25	0.000
В	IMPERVIOUS		0.00	98	0	0.90	0.000
В	PONDS		0.00	98	0	0.90	0.000
В	AGRICULTURE		0.00	72	0	0.50	0.000
В	OPEN		0.00	61	0	0.30	0.000
B C	WOODS		0.00	55	0	0.25	0.000
С	IMPERVIOUS		0.00	98	0	0.90	0.000
С	PONDS		0.00	98	0	0.90	0.000
С	AGRICULTURE		0.00	80	0	0.50	0.000
С	OPEN		0.00	74	0	0.30	0.000
С	WOODS		0.00	70	0	0.25	0.000
D	IMPERVIOUS		0.00	98	0	0.90	0.000
D	PONDS		0.00	98	0	0.90	0.000
D	AGRICULTURE		0.00	83	0	0.50	
D	OPEN		0.00	80	0	0.30	
D	WOODS		0.00	77	0	0.25	
Totals			2.68		110.42		0.864
						Composite	
RCN=	-	1				С	0.32
S=	14.39	0					
Time of Concen	tration	_			_		
Overland Flow							
T(overland)	Length (L)	Roughnes	s (n) Rainfa	all (P) S	lope (S)		
	0.11 5	0	0.24	3.22	0.038	1	

Time of Concentration
Overland Flow
T(overland)

Shallow Concentrated
T (concentrated)
T (concentrated)

Height (H)

0.07

9.54

442

Total Tc

14.030

Roughness (n) Rainfall (P) Slope (S)

0.024

3.22

0.038

If Tc is less than 5

min, use 5 min

Tc (min)

10

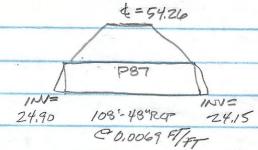
Total Imper. Area

4 %Impervious

					Comments:
TR20 SUMMARY RE					
Storm Event	Rainfall (in/hr)	Runoff (in)	Volume (cf)	Discharge (cfs)	See HydroCad Data
1-year	2.65	0.00	36		
2-year	3.22	0.01	77		
10-year	4.96	0.26	2560		
25-year	6.2	0.62	6061		
100-year	8.48	1.57	15271		
Rational Method	O=CIA	I=B/(Tc+D)^F			

Mational Method	Q-CIA					
Storm Event	В	D	E	CCfA	I (in/hr)	Q (cfs)
2-year	56.84	11.21	0.83	0.86	4.46	3.85
10-year	60.65	10.79	0.77	0.86	5.81	5.02
25-year	58.96	10.10	0.73	0.95	6.54	6.21
100-year	55.77	8.92	0.67	1.08	7.71	8.33

CULVERT CALCULATION P87



P100 = 32,27 es

|NCOT CONTROL HW/D = 0.60 HW = 2.40 HW 52 = 27.30

ATLOT CONTROL $HW = H + h_0 - LS_0$ $H = (1 + k_c + 29m^2 L) V^2/29$ K = 6.50 T = 0.013 L = 108 R = D/4 = 1.00 V = 2.57 fps Q = 32.2 $R = 1/3^2$ H = 0.21' $h_0 = (4c + D)/2 = 2.80'$ $L_0 = 0.75'$ HW = 2.26' HW 5Z = 27.16'

INLET CONTROLS FLOW



CHANNEL ANALYSIS

>>> Cell 1 Right Swale

Name Cell 1 Right Swale

Discharge 4.16
Channel Slope 0.12
Channel Bottom Width 0
Left Side Slope 3
Right Side Slope 4

Low Flow Liner

Retardence Class E <2 in
Vegetation Type None
Vegetation Density None

Soil Type Sandy Loam (GM)

Rock Riprap

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Rock Riprap Unvegetated	Straight	4.16 cfs	5.81 ft/s	0.45 ft	0.032	4.33 lbs/ft2	1.63 lbs/ft2	2.66	STABLE	

P300

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
P300 Unvegetated	Straight	4.16 cfs	5.87 ft/s	0.45 ft	0.032	2.8 lbs/ft2	3.37 lbs/ft2	0.83	UNSTABLE	E
Underlying Substrate	Straight	4.16 cfs	5.87 ft/s	0.45 ft	0.032	2.65 lbs/ft2	1.62 lbs/ft2	1.64	STABLE	E
P300 Reinforced Vegetation	Straight	4.16 cfs	9.01 ft/s	0.36 ft	0.018	12 lbs/ft2	2.71 lbs/ft2	4.42	STABLE	E
Underlying Substrate	Straight	4.16 cfs	9.01 ft/s	0.36 ft	0.018	2.8 lbs/ft2	1.3 lbs/ft2	2.15	STABLE	E

North American Green
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Poseyville, Indiana 47633
Tel. 800.772.2040
>Fax 812.867.0247
www.nagreen.com
ECMDS v7.0



CHANNEL ANALYSIS

>>> Cell 1 Left Swale

Name Cell 1 Left Swale

Discharge 2.1
Channel Slope 0.12
Channel Bottom Width 0
Left Side Slope 3
Right Side Slope 4

Low Flow Liner

Retardence Class E <2 in
Vegetation Type None
Vegetation Density None

Soil Type Sandy Loam (GM)

Rock Riprap

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Rock Riprap Unvegetated	Straight	2.1 cfs	4.9 ft/s	0.35 ft	0.032	4.33 lbs/ft2	1.26 lbs/ft2	3.44	STABLE	

P300

Phase	Reach	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
P300 Unvegetated	Straight	2.1 cfs	4.72 ft/s	0.36 ft	0.034	2.8 lbs/ft2	2.67 lbs/ft2	1.05	STABLE	E
Underlying Substrate	Straight	2.1 cfs	4.72 ft/s	0.36 ft	0.034	2.65 lbs/ft2	1.28 lbs/ft2	2.07	STABLE	Е
P300 Reinforced Vegetation	Straight	2.1 cfs	7.11 ft/s	0.29 ft	0.019	12 lbs/ft2	2.17 lbs/ft2	5.52	STABLE	Е
Underlying Substrate	Straight	2.1 cfs	7.11 ft/s	0.29 ft	0.019	2.8 lbs/ft2	1.04 lbs/ft2	2.68	STABLE	Е

North American Green 5401 St. Wendel-Cynthiana Rd. Poseyville, Indiana 47633 Tel. 800.772.2040 >Fax 812.867.0247 www.nagreen.com ECMDS v7.0 6. HydroCAD Summary Reports

24023 Mattaponi SG Reclamation Plan SR628

Prepared by Wilson Engineers LLC

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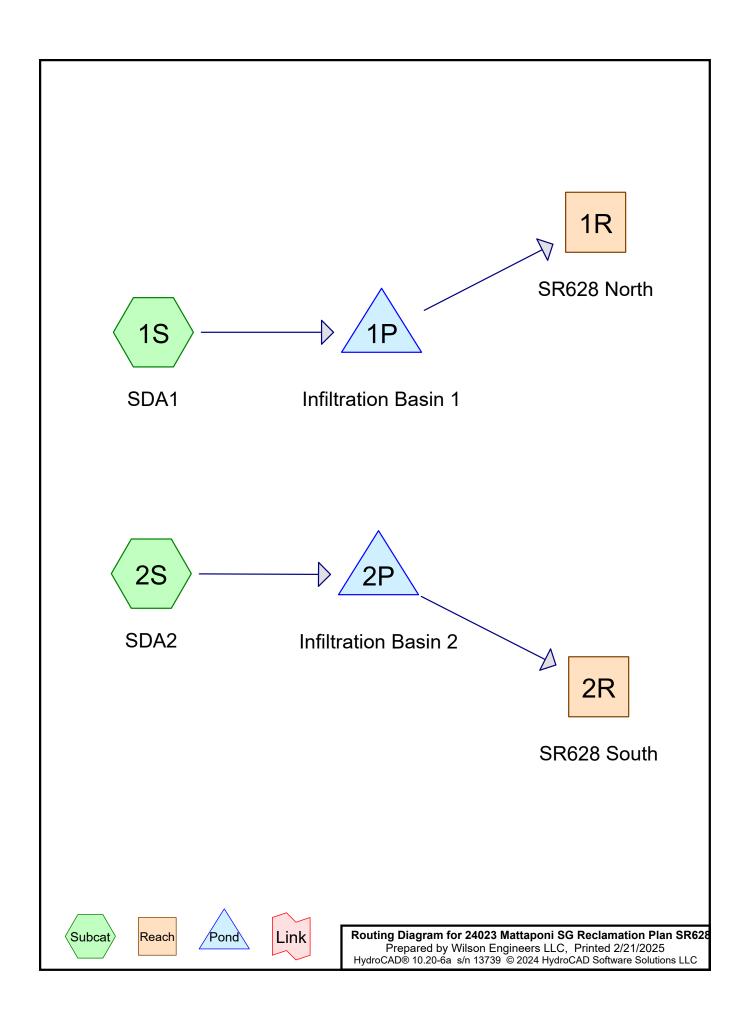
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Rainfall Events Listing (selected events)

Event#	Event	Storm Type	Curve	Mode	Duration	B/B	Depth	AMC
	Name				(hours)		(inches)	
1	1-Year	Type II 24-hr		Default	24.00	1	2.65	2
2	10-Year	Type II 24-hr		Default	24.00	1	4.96	2
3	100-Year	Type II 24-hr		Default	24.00	1	8.48	2

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Summary for Pond 1P: Infiltration Basin 1

Inflow Area = 1.750 ac, 32.00% Impervious, Inflow Depth > 0.17" for 1-Year event

Inflow = 0.09 cfs @ 12.27 hrs, Volume= 0.025 af

Outflow = 0.09 cfs @ 12.35 hrs, Volume= 0.025 af, Atten= 5%, Lag= 4.9 min

Discarded = 0.09 cfs @ 12.35 hrs, Volume= 0.025 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Reach 1R: SR628 North

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 44.79' @ 12.35 hrs Surf.Area= 1,978 sf Storage= 21 cf

Plug-Flow detention time= 4.0 min calculated for 0.024 af (99% of inflow)

Center-of-Mass det. time= 2.6 min (982.6 - 980.0)

Volume	Invert	Avail.Storage	Storage Description
#1	44.78'	10,642 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

Elevation (feet)		Surf.Area	Inc.Store	Cum.Store (cubic-feet)	
		(sq-ft)	(cubic-feet)		
	44.78	1,968	0	0	
	45.78	2,915	2,442	2,442	
	46.78	4,024	3,470	5,911	
	47.78	5,437	4,731	10,642	

	Device	Routing	Invert	Outlet Devices
#1 Discarded 44.78'		44.78'	6.500 in/hr Exfiltration over Surface area	
				Conductivity to Groundwater Elevation = 22.00'
	#2	Primary	47.78'	Channel/Reach using Reach 1R: SR628 North

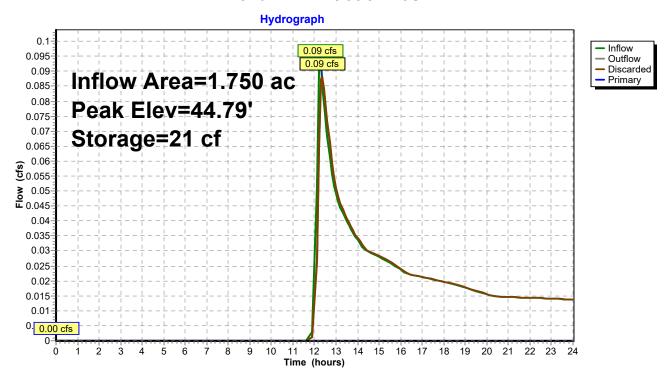
Discarded OutFlow Max=0.30 cfs @ 12.35 hrs HW=44.79' (Free Discharge) 1=Exfiltration (Controls 0.30 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.78' (Free Discharge) 2=Channel/Reach (Controls 0.00 cfs)

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Pond 1P: Infiltration Basin 1



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Summary for Reach 1R: SR628 North

Inflow Area = 1.750 ac, 32.00% Impervious, Inflow Depth = 0.00" for 1-Year event

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

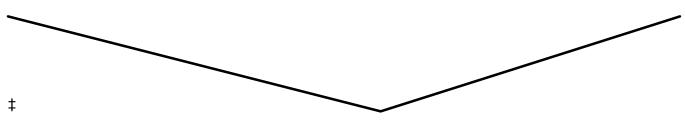
Bank-Full Depth= 0.63' Flow Area= 2.4 sf, Capacity= 10.91 cfs

0.00' x 0.63' deep channel, n= 0.030 Earth, grassed & winding

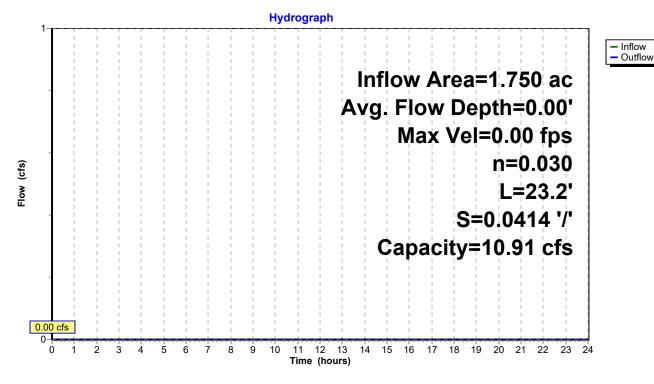
Side Slope Z-value= 6.6 5.3 '/' Top Width= 7.50'

Length= 23.2' Slope= 0.0414 '/'

Inlet Invert= 47.78', Outlet Invert= 46.82'



Reach 1R: SR628 North



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Summary for Subcatchment 1S: SDA1

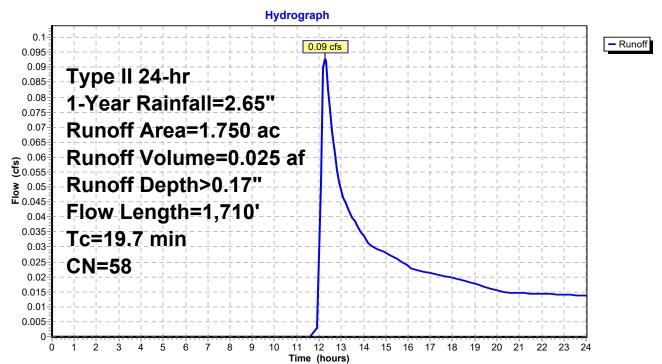
Runoff = 0.09 cfs @ 12.27 hrs, Volume= 0.025 af, Depth> 0.17"

Routed to Pond 1P: Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

	Area	(ac) (CN Des	cription		
*	0.	560	98 Impe	ervious		
	1.	190	39 >75°	% Grass co	over, Good	, HSG A
1.750 58 Weighted Average					age	
1.190 68.00% Pervious Area					us Area	
	0.	560	32.0	0% Imperv	∕ious Area	
	_					
	Tc	Length	•	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.3	10	0.0200	0.07		Sheet Flow, Overland Sheet Flow
						Grass: Dense n= 0.240 P2= 3.22"
	17.4	1,700	0.0058	1.63		Kirpich Method, Shallow Concentrated
_						Bare soil or roadside ditches k= 1.00
	10 7	1 710	Total			

Subcatchment 1S: SDA1



Type II 24-hr 1-Year Rainfall=2.65" Printed 2/21/2025

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Summary for Pond 2P: Infiltration Basin 2

Inflow Area = 1.780 ac, 31.46% Impervious, Inflow Depth > 0.17" for 1-Year event

Inflow = 0.09 cfs @ 12.28 hrs, Volume= 0.025 af

Outflow = 0.09 cfs @ 12.35 hrs, Volume= 0.025 af, Atten= 2%, Lag= 4.2 min

Discarded = 0.09 cfs @ 12.35 hrs, Volume= 0.025 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Reach 2R: SR628 South

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 44.51' @ 12.35 hrs Surf.Area= 1,995 sf Storage= 20 cf

Plug-Flow detention time= 3.6 min calculated for 0.025 af (99% of inflow)

Center-of-Mass det. time= 2.3 min (982.5 - 980.2)

Volume	Invert	Avail.Storage	Storage Description
#1	44.50'	10,611 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

Elevation		Surf.Area	Inc.Store	Cum.Store		
	(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)		
	44.50	1,986	0	0		
	45.50	2,915	2,451	2,451		
	46.50	4,024	3,470	5,920		
	47.50	5,357	4,691	10,611		

Device	Routing	Invert	Outlet Devices
#1	Discarded	44.50'	6.500 in/hr Exfiltration over Surface area
			Conductivity to Groundwater Elevation = 20.00'
#2	Primary	47.16'	Channel/Reach using Reach 2R: SR628 South

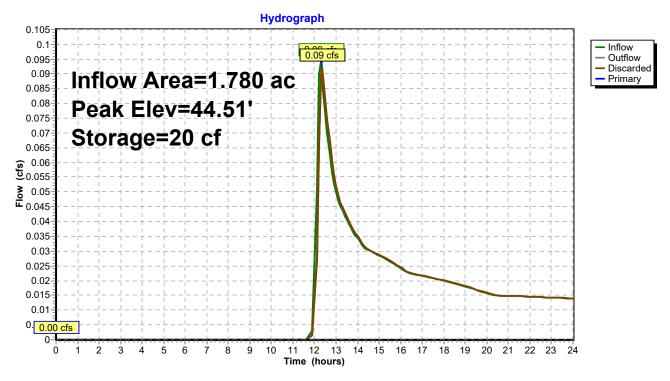
Discarded OutFlow Max=0.30 cfs @ 12.35 hrs HW=44.51' (Free Discharge) 1=Exfiltration (Controls 0.30 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.50' (Free Discharge) 2=Channel/Reach (Controls 0.00 cfs)

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Pond 2P: Infiltration Basin 2



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Summary for Reach 2R: SR628 South

Inflow Area = 1.780 ac, 31.46% Impervious, Inflow Depth = 0.00" for 1-Year event

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 0.64' Flow Area= 2.7 sf, Capacity= 2.32 cfs

2.00' x 0.64' deep channel, n= 0.030

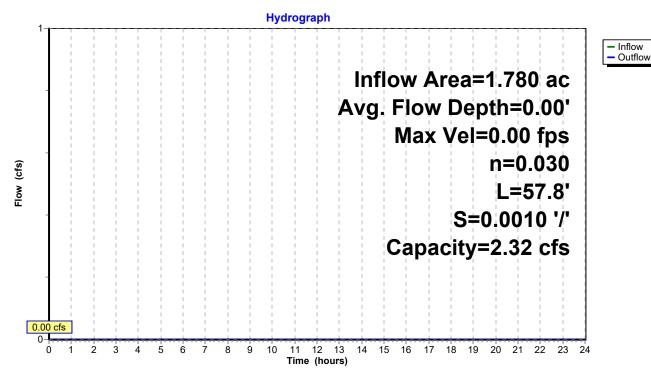
Side Slope Z-value= 1.6 5.1 '/' Top Width= 6.29'

Length= 57.8' Slope= 0.0010 '/'

Inlet Invert= 47.16', Outlet Invert= 47.10'



Reach 2R: SR628 South



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Summary for Subcatchment 2S: SDA2

Runoff = 0.09 cfs @ 12.28 hrs, Volume= 0.025 af, Depth> 0.17"

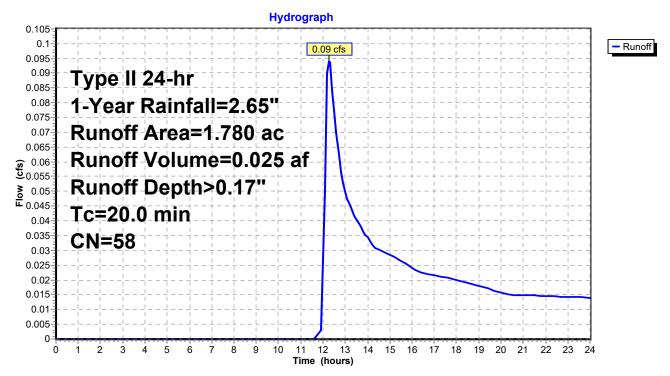
Routed to Pond 2P: Infiltration Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

	Area	(ac)	CN	Desc	ription		
*	0.	560	98	Impe	rvious		
*	1.	220	39	Ope	n, Grass		
1.780 58 Weighted Average			hted Aver	age			
	1.220 68.54% Pervious Area 0.560 31.46% Impervious Area			4% Pervio	us Area		
				6% Imperv	ious Area		
	Тс	Leng		Slope	Velocity	Capacity	Description
	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)	
	20.0						Direct Entry, See TR20 Worksheet

5.

Subcatchment 2S: SDA2



Type II 24-hr 10-Year Rainfall=4.96"

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Summary for Pond 1P: Infiltration Basin 1

Inflow Area = 1.750 ac, 32.00% Impervious, Inflow Depth > 1.14" for 10-Year event

Inflow = 1.86 cfs @ 12.15 hrs, Volume= 0.166 af

Outflow = 0.43 cfs @ 12.71 hrs, Volume= 0.166 af, Atten= 77%, Lag= 33.6 min

Discarded = 0.43 cfs @ 12.71 hrs, Volume= 0.166 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Reach 1R: SR628 North

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 45.61' @ 12.71 hrs Surf.Area= 2,754 sf Storage= 1,959 cf

Plug-Flow detention time= 35.5 min calculated for 0.166 af (100% of inflow)

Center-of-Mass det. time= 34.5 min (923.0 - 888.6)

Volume	Invert	Avail.Storage	Storage Description
#1	44.78'	10,642 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

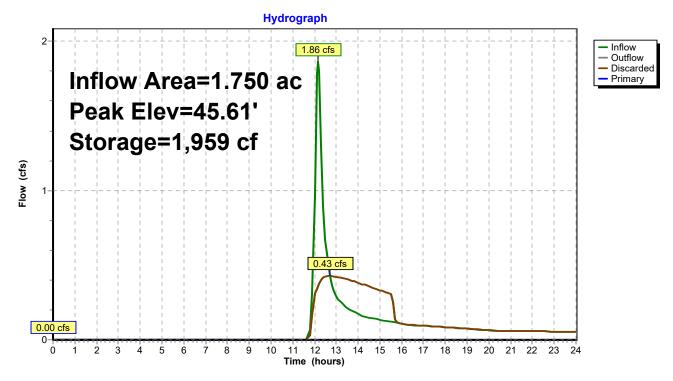
Elevation (feet)		Surf.Area	Inc.Store	Cum.Store (cubic-feet)	
		(sq-ft)	(cubic-feet)		
	44.78	1,968	0	0	
	45.78	2,915	2,442	2,442	
	46.78	4,024	3,470	5,911	
	47.78	5,437	4,731	10,642	

	Device	Routing	Invert	Outlet Devices
#1 Discarded 44.78'		44.78'	6.500 in/hr Exfiltration over Surface area	
				Conductivity to Groundwater Elevation = 22.00'
	#2	Primary	47.78'	Channel/Reach using Reach 1R: SR628 North

Discarded OutFlow Max=0.43 cfs @ 12.71 hrs HW=45.61' (Free Discharge) 1=Exfiltration (Controls 0.43 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.78' (Free Discharge) 2=Channel/Reach (Controls 0.00 cfs)

Pond 1P: Infiltration Basin 1



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Summary for Reach 1R: SR628 North

Inflow Area = 1.750 ac, 32.00% Impervious, Inflow Depth = 0.00" for 10-Year event

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

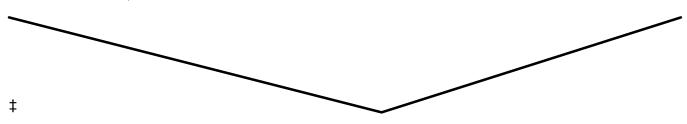
Bank-Full Depth= 0.63' Flow Area= 2.4 sf, Capacity= 10.91 cfs

0.00' x 0.63' deep channel, n= 0.030 Earth, grassed & winding

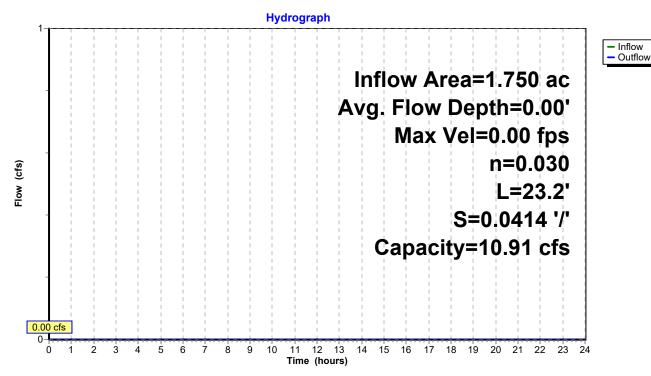
Side Slope Z-value= 6.6 5.3 '/' Top Width= 7.50'

Length= 23.2' Slope= 0.0414 '/'

Inlet Invert= 47.78', Outlet Invert= 46.82'



Reach 1R: SR628 North



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Summary for Subcatchment 1S: SDA1

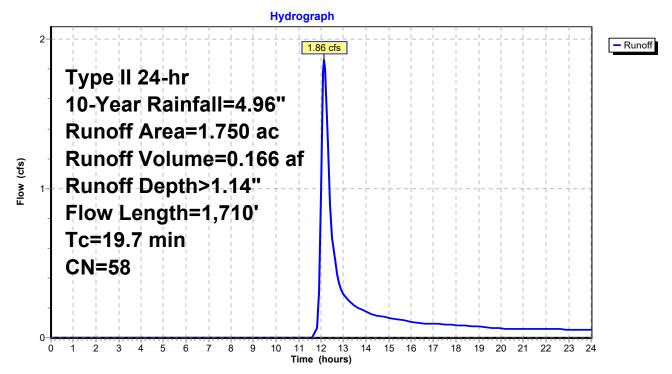
Runoff = 1.86 cfs @ 12.15 hrs, Volume= 0.166 af, Depth> 1.14"

Routed to Pond 1P: Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

_	Area	(ac) (CN Des	cription		
*		560		ervious		
_	1.	190	39 >75	% Grass c	over, Good	, HSG A
	1.	750	58 We	ghted Aver	age	
	1.	190	68.0	00% Pervio	us Area	
	0.	560	32.0	00% Imperv	/ious Area	
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.3	10	0.0200	0.07		Sheet Flow, Overland Sheet Flow
						Grass: Dense n= 0.240 P2= 3.22"
	17.4	1,700	0.0058	1.63		Kirpich Method, Shallow Concentrated
						Bare soil or roadside ditches k= 1.00
	19.7	1,710	Total			

Subcatchment 1S: SDA1



Type II 24-hr 10-Year Rainfall=4.96"

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Summary for Pond 2P: Infiltration Basin 2

Inflow Area = 1.780 ac, 31.46% Impervious, Inflow Depth > 1.14" for 10-Year event

Inflow = 1.88 cfs @ 12.16 hrs, Volume= 0.169 af

Outflow = 0.43 cfs @ 12.73 hrs, Volume= 0.169 af, Atten= 77%, Lag= 34.0 min

Discarded = 0.43 cfs @ 12.73 hrs, Volume= 0.169 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Reach 2R: SR628 South

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 45.34' @ 12.73 hrs Surf.Area= 2,768 sf Storage= 1,999 cf

Plug-Flow detention time= 36.2 min calculated for 0.168 af (99% of inflow)

Center-of-Mass det. time= 35.2 min (923.9 - 888.8)

Volume	Invert	Avail.Storage	Storage Description
#1	44.50'	10,611 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

Elevation	Surf.Area	Inc.Store	Cum.Store		
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)		
44.50	1,986	0	0		
45.50	2,915	2,451	2,451		
46.50	4,024	3,470	5,920		
47.50	5,357	4,691	10,611		

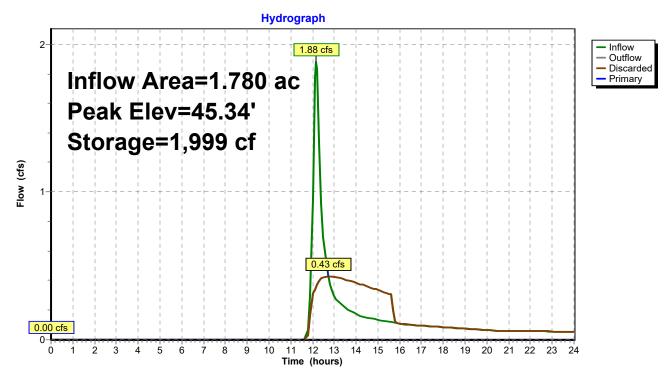
Device	Routing	Invert	Outlet Devices
#1	Discarded	44.50'	6.500 in/hr Exfiltration over Surface area
			Conductivity to Groundwater Elevation = 20.00'
#2	Primary	47.16'	Channel/Reach using Reach 2R: SR628 South

Discarded OutFlow Max=0.43 cfs @ 12.73 hrs HW=45.34' (Free Discharge) 1=Exfiltration (Controls 0.43 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.50' (Free Discharge) 2=Channel/Reach (Controls 0.00 cfs)

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Pond 2P: Infiltration Basin 2



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Summary for Reach 2R: SR628 South

Inflow Area = 1.780 ac, 31.46% Impervious, Inflow Depth = 0.00" for 10-Year event

Inflow 0.00 cfs @ 0.00 hrs. Volume= 0.000 af

0.00 cfs @ 0.00 hrs, Volume= Outflow 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 0.64' Flow Area= 2.7 sf, Capacity= 2.32 cfs

2.00' x 0.64' deep channel, n= 0.030

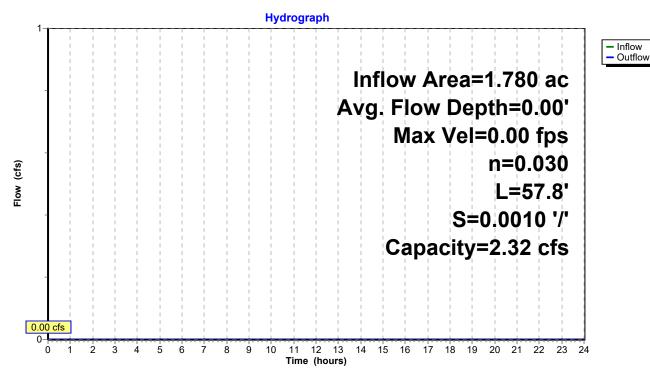
Side Slope Z-value= 1.6 5.1 '/' Top Width= 6.29'

Length= 57.8' Slope= 0.0010 '/'

Inlet Invert= 47.16', Outlet Invert= 47.10'



Reach 2R: SR628 South



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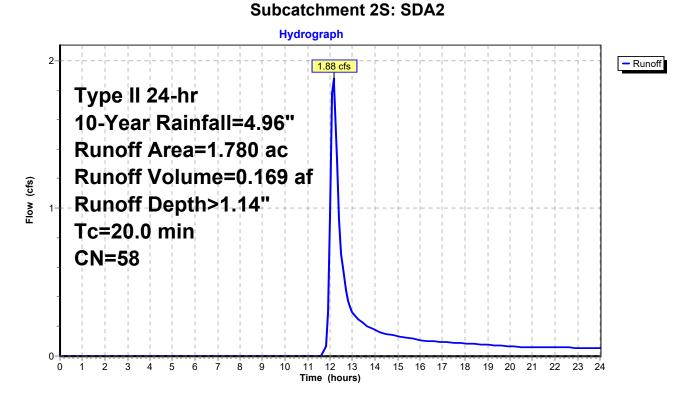
Summary for Subcatchment 2S: SDA2

Runoff = 1.88 cfs @ 12.16 hrs, Volume= 0.169 af, Depth> 1.14"

Routed to Pond 2P: Infiltration Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

	Area	(ac)	CN	Desc	cription		
*	0.	560	98	Impe	rvious		
*	1.	220	39	Ope	ո, Grass		
	1.780 58 Weighted Average				hted Aver	age	
	1.220 68.54% Pervious Area					us Area	
	0.560			31.4	6% Imperv	ious Area	
	Тс	Leng		Slope	Velocity	Capacity	Description
_	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)	
	20.0						Direct Entry, See TR20 Worksheet



Type II 24-hr 100-Year Rainfall=8.48" Printed 2/21/2025

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Summary for Pond 1P: Infiltration Basin 1

Inflow Area = 1.750 ac, 32.00% Impervious, Inflow Depth > 3.45" for 100-Year event

Inflow = 6.53 cfs @ 12.13 hrs, Volume= 0.503 af

Outflow = 0.82 cfs @ 12.95 hrs, Volume= 0.502 af, Atten= 87%, Lag= 48.8 min

Discarded = 0.82 cfs @ 12.95 hrs, Volume= 0.502 af Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Reach 1R: SR628 North

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Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 47.49' @ 12.95 hrs Surf.Area= 5,030 sf Storage= 9,134 cf

Plug-Flow detention time= 122.7 min calculated for 0.500 af (99% of inflow)

Center-of-Mass det. time= 121.4 min (975.2 - 853.8)

Volume	Invert	Avail.Storage	Storage Description
#1	44.78'	10,642 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

	Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)		(sq-ft)	(cubic-feet)	(cubic-feet)
	44.78	1,968	0	0
	45.78	2,915	2,442	2,442
	46.78	4,024	3,470	5,911
	47.78	5,437	4,731	10,642

Device	Routing	Invert	Outlet Devices
#1	Discarded	44.78'	6.500 in/hr Exfiltration over Surface area
			Conductivity to Groundwater Elevation = 22.00'
#2	Primary	47.78'	Channel/Reach using Reach 1R: SR628 North

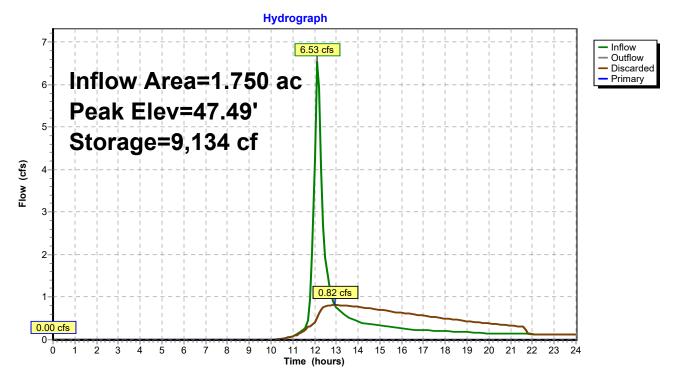
Discarded OutFlow Max=0.82 cfs @ 12.95 hrs HW=47.49' (Free Discharge) 1=Exfiltration (Controls 0.82 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.78' (Free Discharge) 2=Channel/Reach (Controls 0.00 cfs)

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Pond 1P: Infiltration Basin 1



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Summary for Reach 1R: SR628 North

Inflow Area = 1.750 ac, 32.00% Impervious, Inflow Depth = 0.00" for 100-Year event

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs Average Depth at Peak Storage= 0.00'

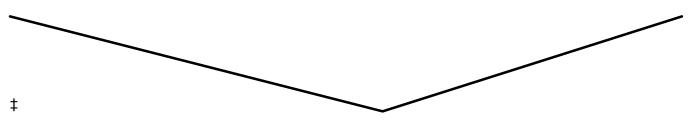
Bank-Full Depth= 0.63' Flow Area= 2.4 sf, Capacity= 10.91 cfs

0.00' x 0.63' deep channel, n= 0.030 Earth, grassed & winding

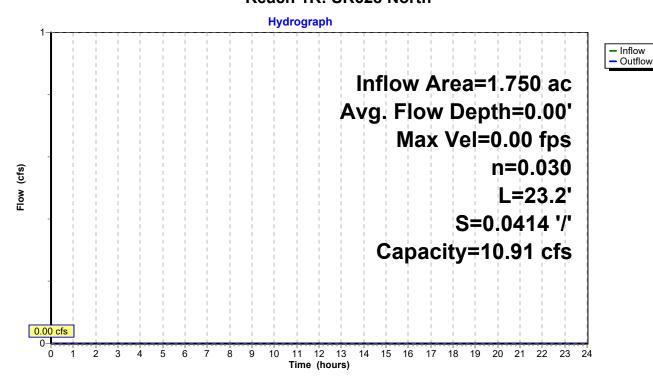
Side Slope Z-value= 6.6 5.3 '/' Top Width= 7.50'

Length= 23.2' Slope= 0.0414 '/'

Inlet Invert= 47.78', Outlet Invert= 46.82'



Reach 1R: SR628 North



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Summary for Subcatchment 1S: SDA1

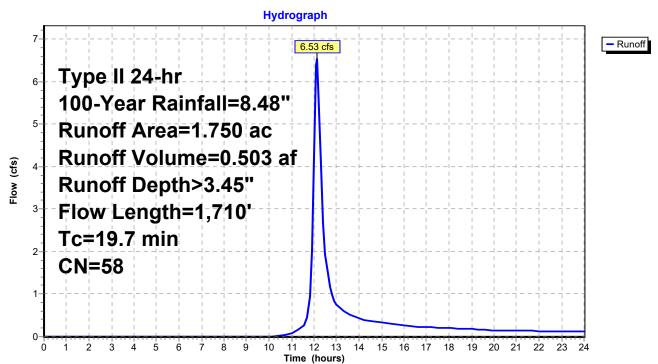
Runoff = 6.53 cfs @ 12.13 hrs, Volume= 0.503 af, Depth> 3.45"

Routed to Pond 1P: Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

	Area	(ac) (CN Des	cription		
*	0.	560	98 Impe	ervious		
	1.	190	39 >75°	% Grass co	over, Good	, HSG A
	1.	750	58 Weig	ghted Aver	age	
	1.	190	68.0	0% Pervio	us Area	
	0.	560	32.0	0% Imperv	∕ious Area	
	_					
	Tc	Length	•	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.3	10	0.0200	0.07		Sheet Flow, Overland Sheet Flow
						Grass: Dense n= 0.240 P2= 3.22"
	17.4	1,700	0.0058	1.63		Kirpich Method, Shallow Concentrated
_						Bare soil or roadside ditches k= 1.00
	10 7	1 710	Total			

Subcatchment 1S: SDA1



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Summary for Pond 2P: Infiltration Basin 2

Inflow Area = 1.780 ac, 31.46% Impervious, Inflow Depth > 3.45" for 100-Year event

Inflow = 6.57 cfs @ 12.14 hrs, Volume= 0.511 af

Outflow = 0.87 cfs (a) 12.92 hrs, Volume= 0.511 af, Atten= 87%, Lag= 47.1 min

Discarded = 0.81 cfs @ 12.92 hrs, Volume= 0.508 af Primary = 0.06 cfs @ 12.92 hrs, Volume= 0.003 af

Routed to Reach 2R: SR628 South

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 47.24' @ 12.92 hrs Surf.Area= 5,017 sf Storage= 9,286 cf

Plug-Flow detention time= 123.9 min calculated for 0.511 af (100% of inflow)

Center-of-Mass det. time= 123.2 min (977.2 - 854.0)

Volume	Inve	t Avail.Sto	orage Stor	age Description	
#1	44.50)' 10,6	311 cf Cus	tom Stage Data (P	rismatic)Listed below (Recalc)
Elevation	on S	Surf.Area	Inc.Store	e Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet) (cubic-feet)	
44.5	50	1,986	(0	
45.5	50	2,915	2,45	1 2,451	
46.5	50	4,024	3,470	5,920	
47.	50	5,357	4,69	1 10,611	
Device	Routing	Invert	Outlet De	vices	
#1	Discarded	44.50'	6.500 in/h	r Exfiltration over	Surface area

Conductivity to Groundwater Elevation = 20.00' #2 Primary 47.16' **Channel/Reach** using Reach 2R: SR628 South

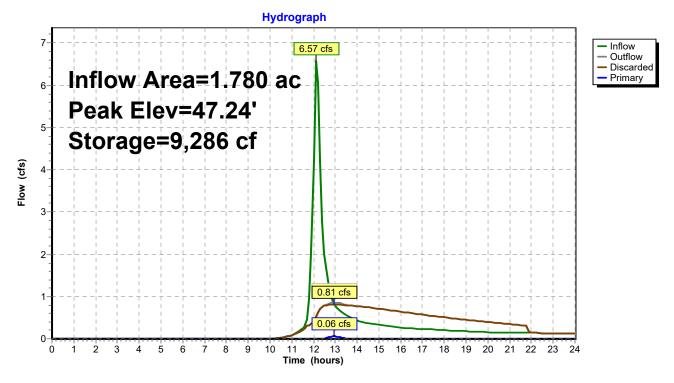
Discarded OutFlow Max=0.81 cfs @ 12.92 hrs HW=47.24' (Free Discharge) **1=Exfiltration** (Controls 0.81 cfs)

Primary OutFlow Max=0.05 cfs @ 12.92 hrs HW=47.24' (Free Discharge) 2=Channel/Reach (Channel Controls 0.05 cfs @ 0.28 fps)

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Pond 2P: Infiltration Basin 2



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Summary for Reach 2R: SR628 South

Inflow Area = 1.780 ac, 31.46% Impervious, Inflow Depth = 0.02" for 100-Year event

Inflow = 0.06 cfs @ 12.92 hrs, Volume= 0.003 af

Outflow = 0.05 cfs @ 12.96 hrs, Volume= 0.003 af, Atten= 2%, Lag= 2.4 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Max. Velocity= 0.28 fps, Min. Travel Time= 3.4 min Avg. Velocity = 0.12 fps, Avg. Travel Time= 8.3 min

Peak Storage= 11 cf @ 12.96 hrs

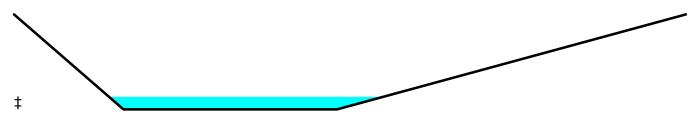
Average Depth at Peak Storage= 0.08', Surface Width= 2.57' Bank-Full Depth= 0.64' Flow Area= 2.7 sf, Capacity= 2.32 cfs

2.00' x 0.64' deep channel, n= 0.030

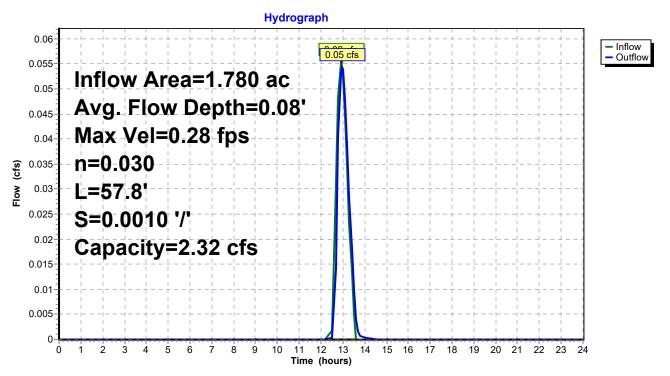
Side Slope Z-value = 1.6 5.1 '/' Top Width = 6.29'

Length= 57.8' Slope= 0.0010 '/'

Inlet Invert= 47.16', Outlet Invert= 47.10'



Reach 2R: SR628 South



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Summary for Subcatchment 2S: SDA2

Runoff = 6.57 cfs @ 12.14 hrs, Volume= 0.511 af, Depth> 3.45"

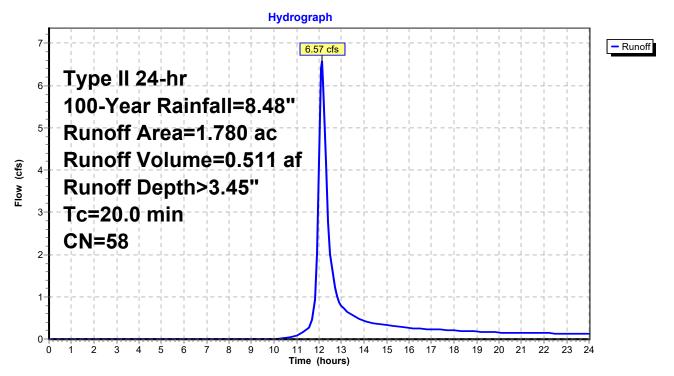
Routed to Pond 2P: Infiltration Basin 2

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

	Area	(ac)	CN	Desc	cription		
*	0.	560	98	Impe	rvious		
*	1.	220	39	Ope	ո, Grass		
	1.780 58 Weighted Average						
	1.220 68.54% Pervious Area						
	0.	0.560 31.46% Impervious Area				ious Area	
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	20.0	-					Direct Entry, See TR20 Worksheet

Subcatchment 2S: SDA2



Multi-Event Tables Printed 2/21/2025 Page 27

Events for Pond 1P: Infiltration Basin 1

Event	Inflow	Outflow	Discarded	Primary	Elevation	Storage
	(cfs)	(cfs)	(cfs)	(cfs)	(feet)	(cubic-feet)
1-Year	0.09	0.09	0.09	0.00	44.79	21
10-Year	1.86	0.43	0.43	0.00	45.61	1,959
100-Year	6.53	0.82	0.82	0.00	47.49	9,134

Multi-Event Tables Printed 2/21/2025 Page 28

Events for Reach 1R: SR628 North

Event	Inflow	Outflow	Elevation	Storage
	(cfs)	(cfs)	(feet)	(cubic-feet)
1-Year	0.00	0.00	47.78	0
10-Year	0.00	0.00	47.78	0
100-Year	0.00	0.00	47.78	0

Multi-Event Tables Printed 2/21/2025 Page 29

Events for Subcatchment 1S: SDA1

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	0.09	0.025	0.17
10-Year	4.96	1.86	0.166	1.14
100-Year	8.48	6.53	0.503	3.45

Multi-Event Tables Printed 2/21/2025 Page 30

Events for Pond 2P: Infiltration Basin 2

Event	Inflow	Outflow	Discarded	Primary	Elevation	Storage
	(cfs)	(cfs)	(cfs)	(cfs)	(feet)	(cubic-feet)
1-Year	0.09	0.09	0.09	0.00	44.51	20
10-Year	1.88	0.43	0.43	0.00	45.34	1,999
100-Year	6.57	0.87	0.81	0.06	47.24	9,286

Multi-Event Tables Printed 2/21/2025 Page 31

Events for Reach 2R: SR628 South

Event	Inflow	Outflow	Elevation	Storage
	(cfs)	(cfs)	(feet)	(cubic-feet)
1-Year	0.00	0.00	47.16	0
10-Year	0.00	0.00	47.16	0
100-Year	0.06	0.05	47.24	11

Multi-Event Tables Printed 2/21/2025 Page 32

Events for Subcatchment 2S: SDA2

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	0.09	0.025	0.17
10-Year	4.96	1.88	0.169	1.14
100-Year	8.48	6.57	0.511	3.45

24023 Mattaponi SG Reclamation Plan

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- 7 Subcat 5S: SDA5
- 8 Subcat 6S: SDA6
- 9 Pond 7P: Wet Pond 7
- 11 Subcat 7S: (SDA7

10-Year Event

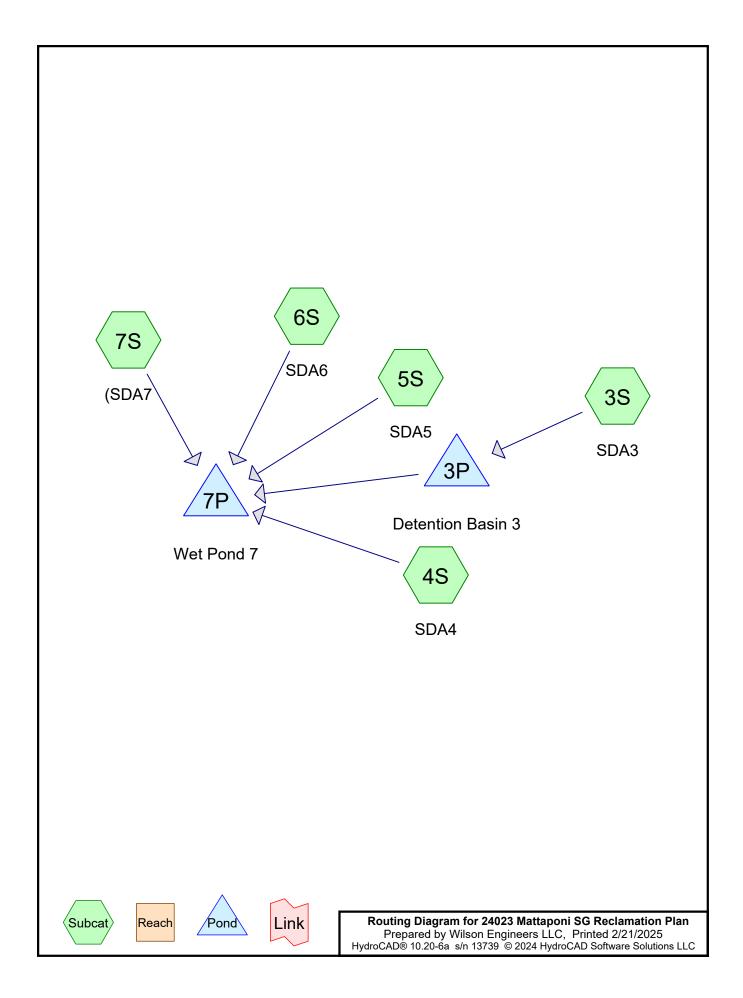
- 12 Pond 3P: Detention Basin 3
- 14 Subcat 3S: SDA3
- 15 Subcat 4S: SDA4
- 16 Subcat 5S: SDA5
- 17 Subcat 6S: SDA6
- 18 Pond 7P: Wet Pond 7
- 20 Subcat 7S: (SDA7

100-Year Event

- 21 Pond 3P: Detention Basin 3
- 23 Subcat 3S: SDA3
- 24 Subcat 4S: SDA4
- 25 Subcat 5S: SDA5
- 26 Subcat 6S: SDA6
- 27 Pond 7P: Wet Pond 7
- 29 Subcat 7S: (SDA7

Multi-Event Tables

- 30 Pond 3P: Detention Basin 3
- 31 Subcat 3S: SDA3
- 32 Subcat 4S: SDA4
- 33 Subcat 5S: SDA5
- 34 Subcat 6S: SDA6
- 35 Pond 7P: Wet Pond 7
- 36 Subcat 7S: (SDA7



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Rainfall Events Listing (selected events)

Event#	Event	Storm Type	Curve	Mode	Duration	B/B	Depth	AMC
	Name				(hours)		(inches)	
1	1-Year	Type II 24-hr		Default	24.00	1	2.65	2
2	10-Year	Type II 24-hr		Default	24.00	1	4.96	2
3	100-Year	Type II 24-hr		Default	24.00	1	8.48	2

24023 Mattaponi SG Reclamation Plan

Type II 24-hr 1-Year Rainfall=2.65" Printed 2/21/2025

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Summary for Pond 3P: Detention Basin 3

Inflow Area = 8.620 ac, 0.00% Impervious, Inflow Depth > 0.82" for 1-Year event

Inflow = 4.30 cfs @ 12.47 hrs, Volume= 0.592 af

Outflow = 1.46 cfs @ 13.24 hrs, Volume= 0.572 af, Atten= 66%, Lag= 45.9 min

Primary = 1.46 cfs @ 13.24 hrs, Volume= 0.572 af

Routed to Pond 7P: Wet Pond 7

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 25.32' @ 13.24 hrs Surf.Area= 42,842 sf Storage= 7,890 cf

Plug-Flow detention time= 89.1 min calculated for 0.572 af (97% of inflow)

Center-of-Mass det. time= 71.6 min (959.6 - 888.0)

<u>Volume</u>	Invert	Avail.Storage	Storage	Description
#1	24.90'	5,059,882 cf	Custom	Stage Data (Prismatic)Listed below (Recalc)
Elevation	Surf	.Area In	c.Store	Cum.Store

Elevation	Suil.Alea	1110.31016	Culli.Stole
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
24.90	0	0	0
25.00	5,368	268	268
26.00	123,893	64,631	64,899
27.00	146,738	135,316	200,214
49.00	295,050	4,859,668	5,059,882

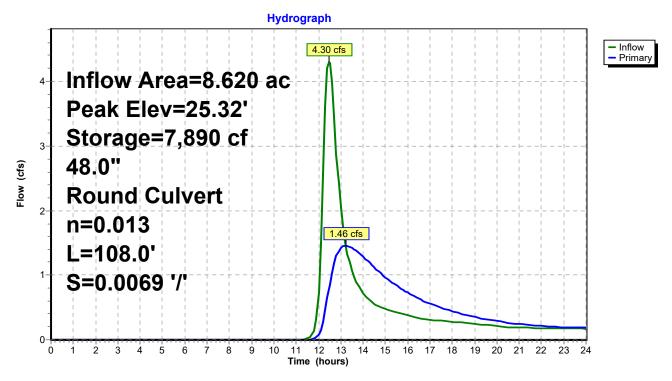
Device	Routing	Invert	Outlet Devices
#1	Primary	24.90'	48.0" Round RCP_Round 48"

L= 108.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 24.90' / 24.15' S= 0.0069 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=1.37 cfs @ 13.24 hrs HW=25.32' (Free Discharge) 1=RCP_Round 48" (Barrel Controls 1.37 cfs @ 3.01 fps)

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Pond 3P: Detention Basin 3



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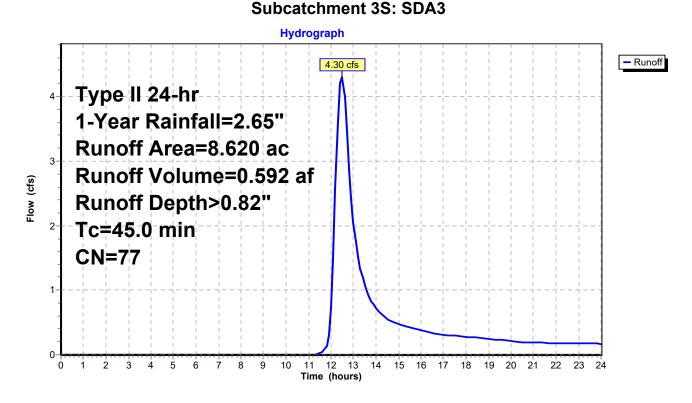
Summary for Subcatchment 3S: SDA3

Runoff = 4.30 cfs @ 12.47 hrs, Volume= 0.592 af, Depth> 0.82"

Routed to Pond 3P: Detention Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

	Area	(ac)	CN	Desc	cription			
*	8.	620	77	See	TR20 Wor	ksheet		
	8.620 100.00% Pervious Area							
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	45.0						Direct Entry, See TR20 Worksheet	



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Summary for Subcatchment 4S: SDA4

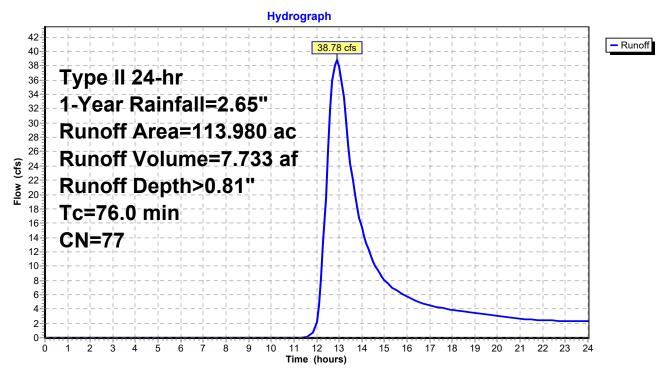
Runoff = 38.78 cfs @ 12.90 hrs, Volume= 7.733 af, Depth> 0.81"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

	Area	(ac)	CN	Desc	cription		
*	113.	.980	77	See	TR20 Wor	ksheet	
	113.980 100.00% Pervious Area						
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	76.0						Direct Entry, See TR20 Worksheet

Subcatchment 4S: SDA4



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Summary for Subcatchment 5S: SDA5

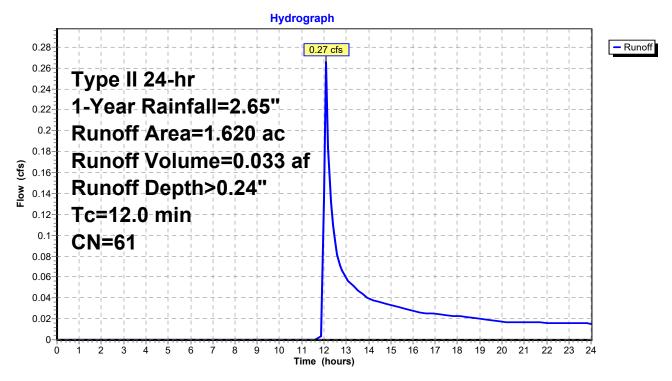
Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.033 af, Depth> 0.24"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

	Area	(ac)	CN	Desc	cription		
*	1.	620	61	See	TR20 Wor	ksheet	
	1.620 100.00% Pervious Area						
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	12.0						Direct Entry, See TR20 Worksheet

Subcatchment 5S: SDA5



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Summary for Subcatchment 6S: SDA6

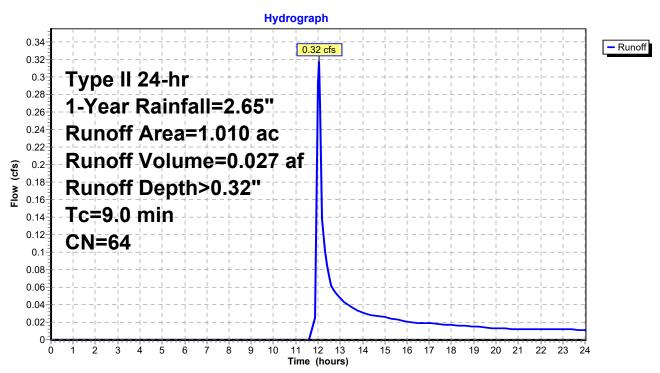
Runoff = 0.32 cfs @ 12.04 hrs, Volume = 0.027 af, Depth > 0.32"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

	Area	(ac)	CN	Desc	cription		
*	1.	010	64	See	TR20 Wor	ksheet	
1.010 100.00% Pervious Area							
		Leng		Slope	•		Description
_	(min)	(fee	t)	(ft/ft)	(ft/sec)	(cfs)	
	9.0						Direct Entry, See TR20 Worksheet

Subcatchment 6S: SDA6



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Type II 24-hr 1-Year Rainfall=2.65" Printed 2/21/2025

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Summary for Pond 7P: Wet Pond 7

Inflow Area = 127.910 ac, 0.00% Impervious, Inflow Depth > 0.78" for 1-Year event

Inflow = 40.26 cfs @ 12.90 hrs, Volume= 8.365 af

Outflow = 19.59 cfs @ 13.82 hrs, Volume= 7.653 af, Atten= 51%, Lag= 54.9 min

Primary = 19.59 cfs @ 13.82 hrs, Volume= 7.653 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Peak Elev= 18.51' @ 13.82 hrs Surf.Area= 226,604 sf Storage= 113,210 cf

Plug-Flow detention time= 114.2 min calculated for 7.621 af (91% of inflow)

Center-of-Mass det. time= 74.7 min (988.5 - 913.9)

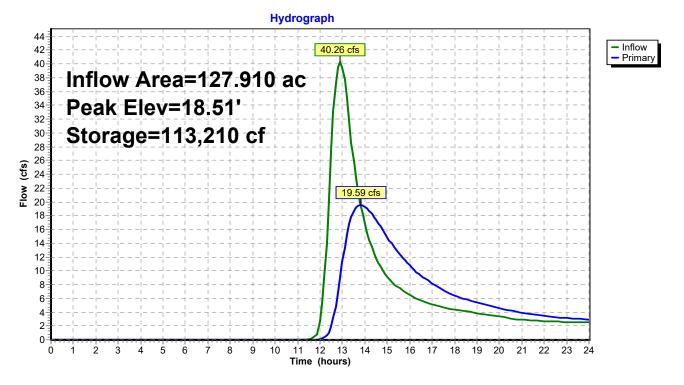
Volume	lnv	vert Avail.S	torage	Storage l	Description	
#1	18.	00' 14,143,	947 cf	Custom	Stage Data (Pr	ismatic)Listed below (Recalc)
Elevation	on	Surf.Area	Inc	.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubio	c-feet)	(cubic-feet)	
18.0	00	219,152		0	0	
19.0	00	233,823	22	6,488	226,488	
20.0	00	379,854	30	6,839	533,326	
21.0	00	909,430	64	4,642	1,177,968	
22.0	00	1,498,616	1,20	4,023	2,381,991	
23.0	00	2,196,545		7,581	4,229,572	
24.0	00	3,042,601	2,61	9,573	6,849,145	
25.0	00	3,782,607	,	2,604	10,261,749	
26.0	00	3,981,790	3,88	2,199	14,143,947	
Device	Routing	Inver	t Outle	et Devices	}	
#1	Primary	18.00		•		road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60

Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=19.54 cfs @ 13.82 hrs HW=18.51' (Free Discharge) 1=Broad-Crested Rectangular Weir (Weir Controls 19.54 cfs @ 1.92 fps)

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Pond 7P: Wet Pond 7



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Summary for Subcatchment 7S: (SDA7

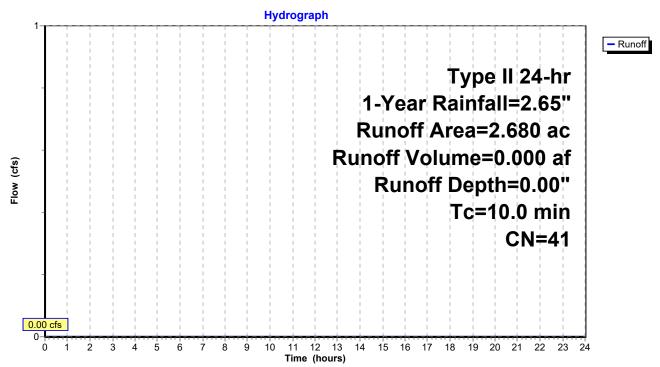
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 1-Year Rainfall=2.65"

_	Area	(ac)	CN	Desc	cription		
*	2.	680	41	See	TR20 Wor	ksheet	
	2.	680		100.	00% Pervi	ous Area	
	Tc (min)	Lengt (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	10.0	·		•	,	,	Direct Entry, See TR20 Worksheet

Subcatchment 7S: (SDA7



Type II 24-hr 10-Year Rainfall=4.96"

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Summary for Pond 3P: Detention Basin 3

Inflow Area = 8.620 ac, 0.00% Impervious, Inflow Depth > 2.56" for 10-Year event

Inflow = 14.55 cfs @ 12.44 hrs, Volume= 1.839 af

Outflow = 4.62 cfs @ 13.17 hrs, Volume= 1.785 af, Atten= 68%, Lag= 44.1 min

Primary = 4.62 cfs @ 13.17 hrs, Volume= 1.785 af

Routed to Pond 7P: Wet Pond 7

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 25.67' @ 13.17 hrs Surf.Area= 84,556 sf Storage= 30,308 cf

Plug-Flow detention time= 101.0 min calculated for 1.785 af (97% of inflow)

Center-of-Mass det. time= 84.8 min (940.9 - 856.0)

Volume	Invert	Avail.St	orage	Storage	e Description
#1	24.90'	5,059,	882 cf	Custon	m Stage Data (Prismatic)Listed below (Recalc)
Elevation (feet)		.Area sɑ-ft)	Inc.	Store :-feet)	Cum.Store

Lievation	Ouri.Area	1110.01016	Ourn.Olore
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
24.90	0	0	0
25.00	5,368	268	268
26.00	123,893	64,631	64,899
27.00	146,738	135,316	200,214
49.00	295,050	4,859,668	5,059,882

Device	Routing	Invert	Outlet Devices
#1	Primary	24 90'	48 0" Round RCP Round 48"

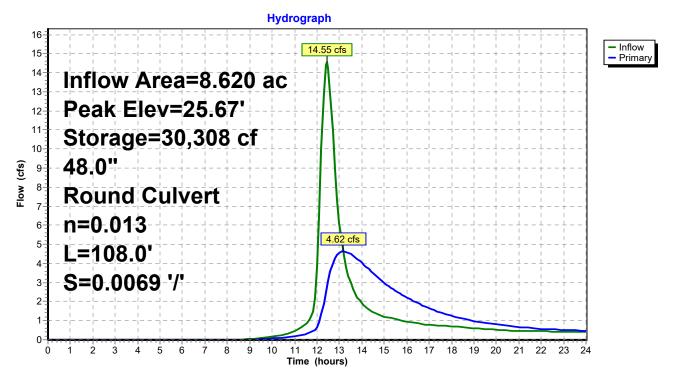
L= 108.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 24.90' / 24.15' S= 0.0069 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=4.57 cfs @ 13.17 hrs HW=25.67' (Free Discharge) 1=RCP_Round 48" (Barrel Controls 4.57 cfs @ 4.10 fps)

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Pond 3P: Detention Basin 3



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Summary for Subcatchment 3S: SDA3

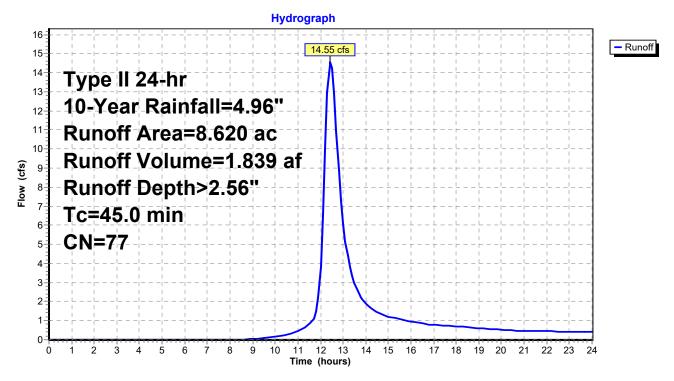
Runoff = 14.55 cfs @ 12.44 hrs, Volume= 1.839 af, Depth> 2.56" Routed to Pond 3P : Detention Basin 3

Nouted to Folia St. Determon Dasin S

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

_	Area	(ac)	CN	Desc	cription		
*	8.	620	77	See	TR20 Wor	ksheet	
	8.	620		100.	00% Pervi	ous Area	
	Tc (min)	Leng		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	45.0					-	Direct Entry, See TR20 Worksheet

Subcatchment 3S: SDA3



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Summary for Subcatchment 4S: SDA4

Runoff = 131.33 cfs @ 12.84 hrs, Volume= 24.095 af, Depth> 2.54"

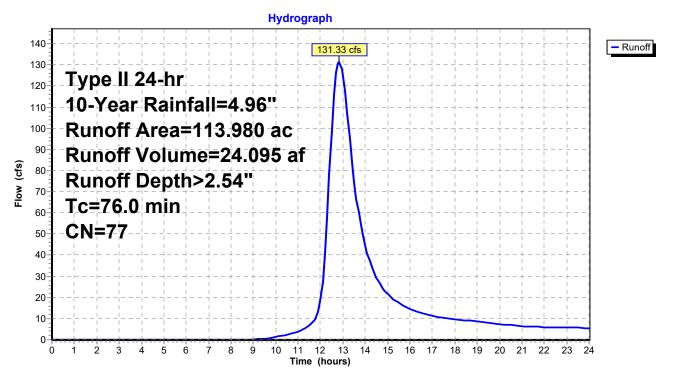
Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

	Area	(ac)	CN	Desc	cription		
*	113.	980	77	See	TR20 Wor	ksheet	
	113.	980		100.	00% Pervi	ous Area	
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	76.0				-		Direct Entry, See TR20 Worksheet

_,,, coc ...<u>_</u>

Subcatchment 4S: SDA4



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Summary for Subcatchment 5S: SDA5

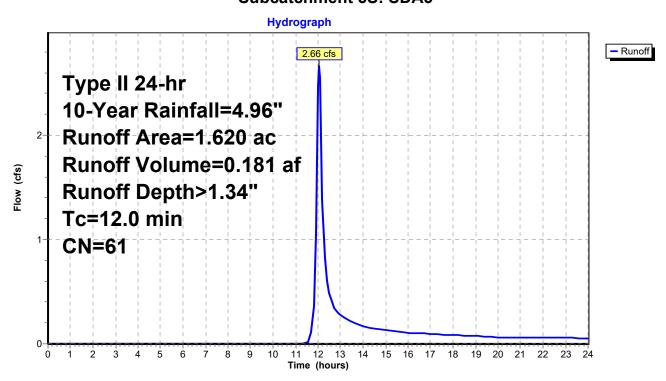
Runoff = 2.66 cfs @ 12.06 hrs, Volume= 0.181 af, Depth> 1.34"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

	Area	(ac)	CN	Desc	cription		
*	1.	620	61	See	TR20 Wor	ksheet	
	1.	620		100.	00% Pervi	ous Area	
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	12.0		·				Direct Entry, See TR20 Worksheet

Subcatchment 5S: SDA5



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Summary for Subcatchment 6S: SDA6

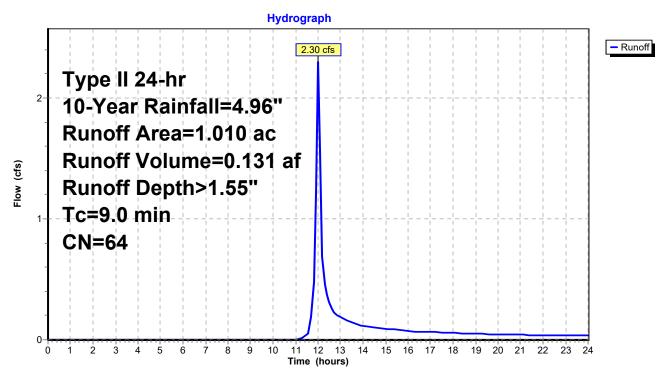
Runoff = 2.30 cfs @ 12.01 hrs, Volume= 0.131 af, Depth> 1.55"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

	Area	(ac)	CN	Desc	cription		
*	1.	010	64	See	TR20 Wor	ksheet	
	1.	010		100.	00% Pervi	ous Area	
	Тс	Leng	th :	Slope	Velocity	Capacity	Description
	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)	
	9.0						Direct Entry, See TR20 Worksheet

Subcatchment 6S: SDA6



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Summary for Pond 7P: Wet Pond 7

Inflow Area = 127.910 ac, 0.00% Impervious, Inflow Depth > 2.46" for 10-Year event

Inflow = 136.33 cfs @ 12.85 hrs, Volume= 26.251 af

Outflow = 83.60 cfs @ 13.46 hrs, Volume= 24.987 af, Atten= 39%, Lag= 36.8 min

Primary = 83.60 cfs @ 13.46 hrs, Volume= 24.987 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Peak Elev= 19.36' @ 13.46 hrs Surf.Area= 286,160 sf Storage= 319,667 cf

Plug-Flow detention time= 80.7 min calculated for 24.884 af (95% of inflow) Center-of-Mass det. time= 56.5 min (940.3 - 883.8)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	14,143,947 cf	Custom Stage Data (Prismatic)Listed below (Recalc)

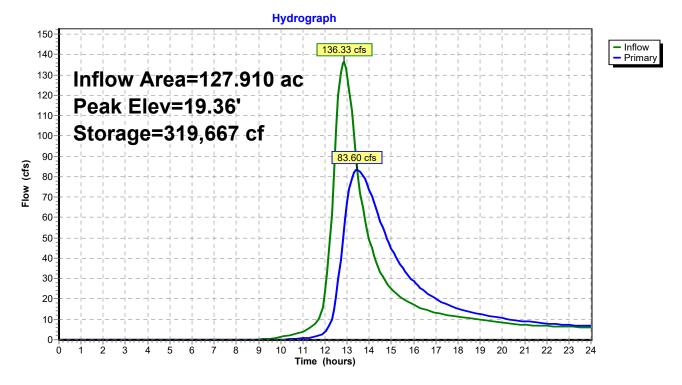
Elevation	Surf.Area	Inc.Store	Cum.Store
(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
18.00	219,152	0	0
19.00	233,823	226,488	226,488
20.00	379,854	306,839	533,326
21.00	909,430	644,642	1,177,968
22.00	1,498,616	1,204,023	2,381,991
23.00	2,196,545	1,847,581	4,229,572
24.00	3,042,601	2,619,573	6,849,145
25.00	3,782,607	3,412,604	10,261,749
26.00	3,981,790	3,882,199	14,143,947

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	20.0' long x 36.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=83.48 cfs @ 13.46 hrs HW=19.36' (Free Discharge) 1=Broad-Crested Rectangular Weir (Weir Controls 83.48 cfs @ 3.08 fps)

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Pond 7P: Wet Pond 7



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Summary for Subcatchment 7S: (SDA7

Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.058 af, Depth> 0.26"

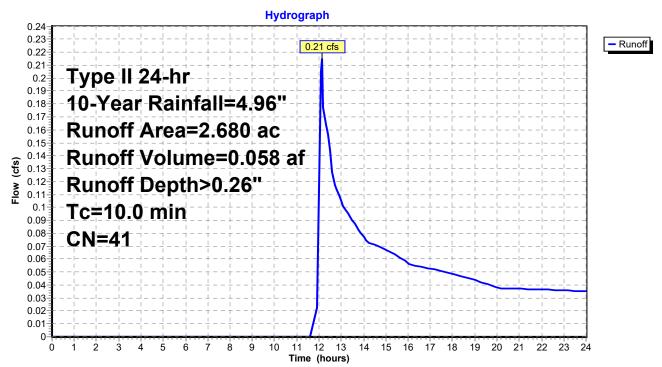
Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 10-Year Rainfall=4.96"

	Area	(ac)	CN	Desc	cription		
*	2.	680	41	See	TR20 Wor	ksheet	
	2.	680		100.	00% Pervi	ous Area	
	Tc	Lengt		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	(min) 10.0	(iee	ι)	(11/11)	(II/Sec)	(CIS)	Direct Entry, See TR20 Worksheet

-

Subcatchment 7S: (SDA7



24023 Mattaponi SG Reclamation Plan

Type II 24-hr 100-Year Rainfall=8.48"

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Summary for Pond 3P: Detention Basin 3

Inflow Area = 8.620 ac, 0.00% Impervious, Inflow Depth > 5.66" for 100-Year event

Inflow = 32.27 cfs @ 12.43 hrs, Volume= 4.066 af

Outflow = 9.87 cfs @ 13.15 hrs, Volume= 3.949 af, Atten= 69%, Lag= 43.7 min

Primary = 9.87 cfs @ 13.15 hrs, Volume= 3.949 af

Routed to Pond 7P: Wet Pond 7

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Peak Elev= 26.06' @ 13.15 hrs Surf.Area= 125,202 sf Storage= 72,036 cf

Plug-Flow detention time= 109.8 min calculated for 3.933 af (97% of inflow)

Center-of-Mass det. time= 93.5 min (927.8 - 834.3)

Volume	Invert	Avail.S	torage	Storage	Description
#1	24.90'	5,059	,882 cf	Custom	n Stage Data (Prismatic)Listed below (Recalc)
Elevation (feet)		.Area		Store	Cum.Store

(feet)	(sq-ft)	(cubic-feet)	(cubic-feet)
24.90	0	0	0
25.00	5,368	268	268
26.00	123,893	64,631	64,899
27.00	146,738	135,316	200,214
49.00	295,050	4,859,668	5,059,882

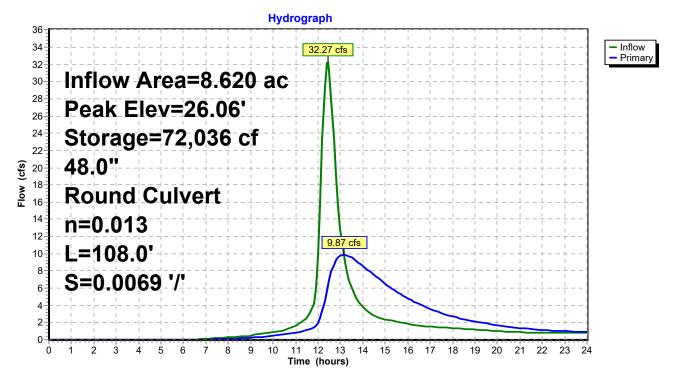
Device	Routing	Invert	Outlet Devices
#1	Primary	24.90'	48.0" Round RCP_Round 48"

L= 108.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 24.90' / 24.15' S= 0.0069 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=9.85 cfs @ 13.15 hrs HW=26.06' (Free Discharge) 1=RCP_Round 48" (Barrel Controls 9.85 cfs @ 4.90 fps)

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Pond 3P: Detention Basin 3



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Summary for Subcatchment 3S: SDA3

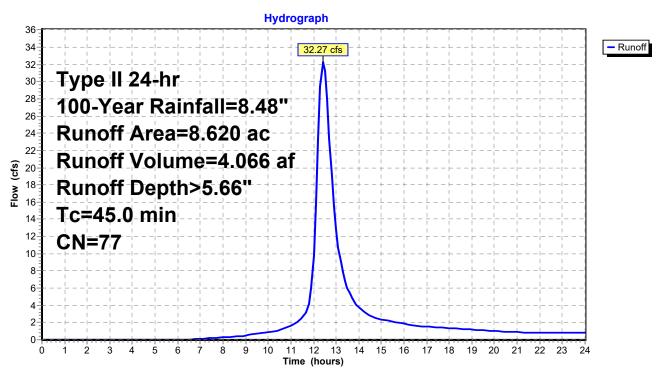
Runoff = 32.27 cfs @ 12.43 hrs, Volume= 4.066 af, Depth> 5.66"

Routed to Pond 3P: Detention Basin 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

	Area	(ac)	CN	Desc	cription		
*	8.	620	77	See	TR20 Wor	ksheet	
	8.	620		100.	00% Pervi	ous Area	
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	45.0						Direct Entry, See TR20 Worksheet

Subcatchment 3S: SDA3



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Summary for Subcatchment 4S: SDA4

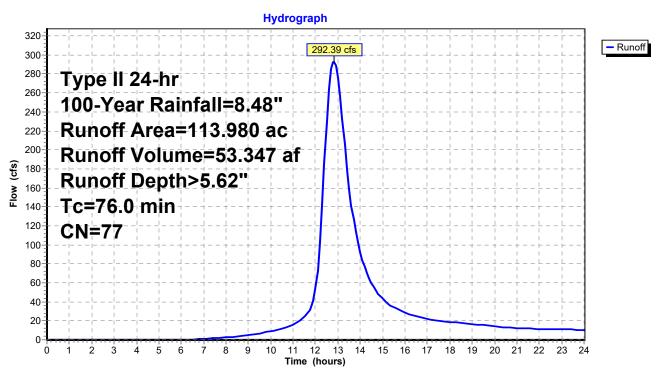
Runoff = 292.39 cfs @ 12.82 hrs, Volume= 53.347 af, Depth> 5.62"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

	Area	(ac)	CN	Desc	cription		
*	113.	980	77	See	TR20 Wor	ksheet	
	113.	980		100.	00% Pervi	ous Area	
_	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	76.0				-		Direct Entry, See TR20 Worksheet

Subcatchment 4S: SDA4



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Summary for Subcatchment 5S: SDA5

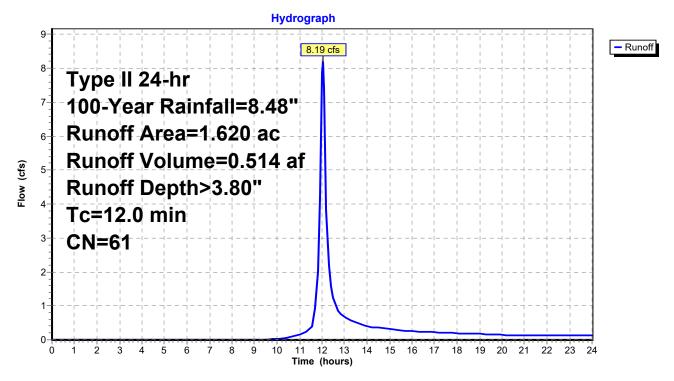
Runoff = 8.19 cfs @ 12.04 hrs, Volume= 0.514 af, Depth> 3.80"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

_	Area	(ac)	CN	Desc	cription		
*	1.	620	61	See	TR20 Wor	ksheet	
	1.	620		100.	00% Pervi	ous Area	
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	12.0		•	•			Direct Entry, See TR20 Worksheet

Subcatchment 5S: SDA5



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Summary for Subcatchment 6S: SDA6

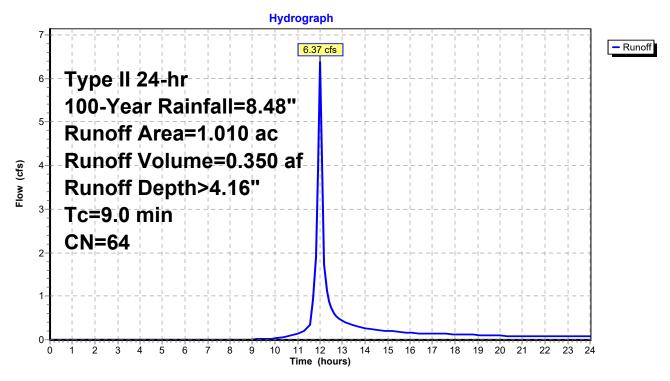
Runoff = 6.37 cfs @ 12.00 hrs, Volume= 0.350 af, Depth> 4.16"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

_	Area	(ac)	CN	Desc	cription		
*	1.	010	64	See	TR20 Wor	ksheet	
	1.	010		100.	00% Pervi	ous Area	
	Тс	Leng	th	Slope	Velocity	Capacity	Description
	(min)	(fee	et)	(ft/ft)	(ft/sec)	(cfs)	
	9.0						Direct Entry, See TR20 Worksheet

Subcatchment 6S: SDA6



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Summary for Pond 7P: Wet Pond 7

Inflow Area = 127.910 ac, 0.00% Impervious, Inflow Depth > 5.49" for 100-Year event

Inflow = 303.60 cfs @ 12.82 hrs, Volume= 58.509 af

Outflow = 186.38 cfs @ 13.43 hrs, Volume= 56.585 af, Atten= 39%, Lag= 36.2 min

Primary = 186.38 cfs @ 13.43 hrs, Volume= 56.585 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs

Peak Elev= 20.32' @ 13.43 hrs Surf.Area= 551,552 sf Storage= 684,315 cf

Plug-Flow detention time= 69.5 min calculated for 56.351 af (96% of inflow)

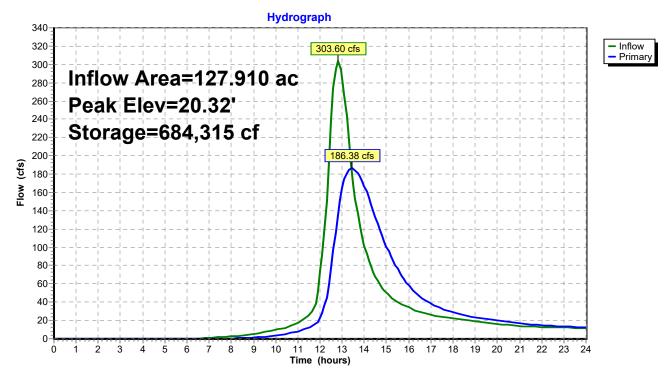
Center-of-Mass det. time= 52.1 min (915.0 - 862.9)

Volume	Invert Avail.S	Storage Storage [Description	
#1	18.00' 14,143	,947 cf Custom	Stage Data (Pr	rismatic)Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
18.00	219,152	0	0	
19.00	233,823	226,488	226,488	
20.00	379,854	306,839	533,326	
21.00	909,430	644,642	1,177,968	
22.00	1,498,616	1,204,023	2,381,991	
23.00	2,196,545	1,847,581	4,229,572	
24.00	3,042,601	2,619,573	6,849,145	
25.00	3,782,607	3,412,604	10,261,749	
26.00	3,981,790	3,882,199	14,143,947	
	outing Inve			
#1 P	rimary 18.00	Head (feet) 0.2	20 0.40 0.60 (road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=186.20 cfs @ 13.43 hrs HW=20.32' (Free Discharge) 1=Broad-Crested Rectangular Weir (Weir Controls 186.20 cfs @ 4.01 fps)

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Pond 7P: Wet Pond 7



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Summary for Subcatchment 7S: (SDA7

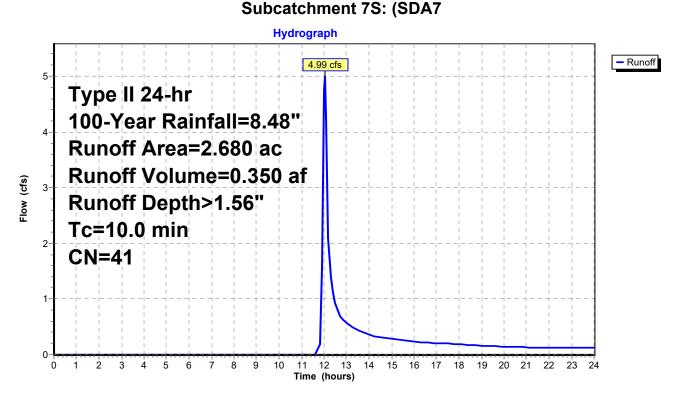
Runoff = 4.99 cfs @ 12.04 hrs, Volume= 0.350 af, Depth> 1.56"

Routed to Pond 7P: Wet Pond 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.10 hrs Type II 24-hr 100-Year Rainfall=8.48"

	Area	(ac)	CN	Desc	cription		
*	2.	680	41	See	TR20 Wor	ksheet	
	2.	680		100.	00% Pervi	ous Area	
	Tc (min)	Leng (fee		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	10.0				<u>'</u>	, ,	Direct Entry, See TR20 Worksheet

Cubactabracut 7C: (CDA7



Multi-Event Tables Printed 2/21/2025 Page 30

Events for Pond 3P: Detention Basin 3

Event	Inflow	Primary	Elevation	Storage
	(cfs)	(cfs)	(feet)	(cubic-feet)
1-Year	4.30	1.46	25.32	7,890
10-Year	14.55	4.62	25.67	30,308
100-Year	32.27	9.87	26.06	72,036

Multi-Event Tables Printed 2/21/2025 <u>Page 31</u>

Events for Subcatchment 3S: SDA3

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	4.30	0.592	0.82
10-Year	4.96	14.55	1.839	2.56
100-Year	8.48	32.27	4.066	5.66

Multi-Event Tables Printed 2/21/2025 Page 32

Events for Subcatchment 4S: SDA4

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	38.78	7.733	0.81
10-Year	4.96	131.33	24.095	2.54
100-Year	8.48	292.39	53.347	5.62

Multi-Event Tables Printed 2/21/2025 Page 33

Events for Subcatchment 5S: SDA5

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	0.27	0.033	0.24
10-Year	4.96	2.66	0.181	1.34
100-Year	8.48	8.19	0.514	3.80

Multi-Event Tables Printed 2/21/2025 <u>Page 34</u>

Events for Subcatchment 6S: SDA6

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	0.32	0.027	0.32
10-Year	4.96	2.30	0.131	1.55
100-Year	8.48	6.37	0.350	4.16

Multi-Event Tables Printed 2/21/2025 Page 35

Events for Pond 7P: Wet Pond 7

Event	Inflow	Primary	Elevation	Storage
	(cfs)	(cfs)	(feet)	(cubic-feet)
1-Year	40.26	19.59	18.51	113,210
10-Year	136.33	83.60	19.36	319,667
100-Year	303.60	186.38	20.32	684,315

Multi-Event Tables Printed 2/21/2025 Page 36

Events for Subcatchment 7S: (SDA7

Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
1-Year	2.65	0.00	0.000	0.00
10-Year	4.96	0.21	0.058	0.26
100-Year	8.48	4.99	0.350	1.56



King and Queen County

Founded 1691 in Virginia

Paul F. Koll, Zoning Administrator
P. O. Box 177 • King and Queen Courthouse, Virginia 23085
Phone: (804) 785-5985 • (804) 769-5011
Fax (804) 785-5999 • (804) 769-5070

December 10, 2002

Charles J. Kerns, Vice President Chesapeake Forest Products Company, LLC P. O. Box 311 West Point, VA. 23181

Re: CU02-08 Conditional Use Permit Approved
Surface Mining of Sand & Gravel
Spring Cottage Tract, Tax Map# 1623-78R-680

Dear Mr. Kerns,

The King & Queen County Board of Supervisors along with the Planning Commission held a joint public hearing on Monday, December 9, 2002 at the King & Queen County Administration Building in King & Queen Courthouse, Virginia. After review and public comment the Board of Supervisors did receive the Planning Commission's recommendation for approval. A motion was made and a vote taken by the Board of Supervisors to approve conditional use permit CU02-08 with the following conditions;

- 1. 25% or more of the site will be undisturbed and left for buffering including the following;
 - A. 300' setback from Rt. 628
 - B. 50' setback from all property lines
 - C. 300' setback/buffer from the Garnett property line continuing the full length of that property line (650 feet approximately)
 - D. No impact to wetlands or RPA
- 2. Hours of Operation;

7 a.m. – 6 p.m. Monday thru Friday- with no loaded trucks leaving the site until after morning school bus routing.

7 a.m. - 12 p.m. Saturday

3. Maximum of 50 loads of material per day during peak demand periods usually June – September. Normal operations would be maximum 30 loads per day.

- 4. Paved Construction/commercial entrance to VDOT standards and stoned back 300 from Rt. 628 to control dust and debris at highway.
- 5. Any fuel tanks on site will have self-containment systems with roofs.
- 6. Sewage disposal facilities will consist of portable toilets unless or until a scale house is constructed.
- 7. The phasing and buffering of this operation are represented on the attached site plans and will be honored.
- 8. Drainage issues, Erosion & Sedimentation, and site reclamation will be bonded and overseen as part of the Department of Mines, Minerals and Energy' own permitting process.
- 9. Fill material can be sold to independent contractors subject to hours of operation and availability of material.

Should you have any questions or if this office can be of any assistance please contact us at the above numbers.

Sincerely,

Paul F. Koll

Zoning Administrator

Ce: Andrea G. Erard, Assistant County Attorney



King and Queen County

Founded 1691 in Virginia

Paul F. Koll, Zoning Administrator
P. O. Box 177 • King and Queen Courthouse, Virginia 23085
Phone: (804) 785-5985 • (804) 769-5011
Fax (804) 785-5999 • (804) 769-5070

December 10, 2002

Charles J. Kerns, Vice President Chesapeake Forest Products Company, LLC P.O. Box 311 West Point, VA. 23181

Re: RZ02-02 Rezoning to "I" Industrial Approved
A Five (5) Acre Site on Tax Map # 1623-78R-680
Spring Cottage Proposed Sand & Gravel Mining Operation

Dear Mr. Kerns,

The Board of Supervisors along with the Planning Commission held a joint public hearing Monday, December 9, 2002 at 7:15 P.M. at the King & Queen County Administration Building in King & Queen Courthouse, Virginia. After review and public comment the Board of Supervisors did receive the Planning Commission's recommendation for approval. A motion was made and a vote taken by the Board of Supervisors to approve RZ02-02 with the following proffered conditions;

- 1. The 5 acres to be rezoned is for sand and gravel processing only and the owner will within 12 months of project completion make application to rezone this area back to whatever the adjoining zoning district is at the time, The screening plant will be completely disassembled and removed from the site upon completion.
- 2. Sprinkler systems will be used to minimize dust.

Should you have any questions or if this office can be of any further assistance please contact us at the above telephone numbers.

Sincerely.

Paul F. Koll

Zoning Administrator

Cc: Andrea G. Erard, Assistant County Attorney

AGENDA:	Monaay, April 7, 2025, PC Meeting
ITEM #6:	
Old Business:	
A. None	
*****	*************

AGENDA: Monday, April 7, 2025, PC Meeting

ITEM #7:

Staff's Comments:

- A. Upcoming Applications (if any)
- B. Other Comments/Updates (if any)

AGENDA: Monday, April 7, 2025, PC Meeting

ITEM #8:

Commissioner's Comments:

Planning Commission will provide comments, if any, other than items already discussed during the meeting/public hearing.

AGENDA: Monday, April 7, 2025, PC Meeting

ITEM #9 & #10:

Meeting Schedule/Adjournment:

The next Planning Commission meeting is scheduled for Monday, May 5, 2025, at 6:00 p.m.

Ask the Commission for a motion to adjourn the meeting.

Ask is there a second.

All in favor say "Aye"

Note that meetings may be cancelled due to lack of agenda items or for other reasons as noted in the Planning Commission By-Laws.