



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

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Philadelphia, Pennsylvania 19103-2852

Tucker Smith, Acting Chief
Regulatory Branch
Norfolk District
U.S. Army Corps of Engineers
803 Front St.
Norfolk, VA 23510

Re: NAO-2018-00995; Green Ridge Recycling and Disposal Facility, LLC; Green Ridge Recycling and Disposal Facility, Cumberland County, Virginia

Dear Mr. Smith,

Thank you for the opportunity to review the public notice (PN) and supporting documentation for the proposal by Green Ridge Recycling and Disposal Facility, LLC for the discharge of dredged and/or fill material into waters of the United States (WOUS) associated with construction of the Green Ridge Recycling and Disposal Facility within the Norfolk District of the U.S. Army Corps of Engineers regulatory boundary. The applicant proposes to construct a 238-acre solid waste disposal cell, associated infrastructure, and soil borrow areas in Cumberland County, Virginia. Proposed discharges associated with the project would permanently impact 11,637 linear feet (LF) of stream channels and 0.02 acre of palustrine forested (PFO) wetlands. The applicant proposes to offset unavoidable impacts to WOUS with permittee-responsible mitigation (PRM) through onsite preservation of stream channels and buffer and offsite preservation and restoration of stream channels and buffer and enhancement of wetlands at Boxwood Farm in Buckingham County. As proposed, this would generate 17,966 stream credits and 0.05 wetland credits to fulfill the proposed credit requirement of 13,106 stream credits and 0.04 wetland credits.

The U.S. Environmental Protection Agency (EPA) review is intended to help ensure that the proposed project complies with the Clean Water Act (CWA) Section 404(b)(1) Guidelines (Guidelines) (40 C.F.R. Part 230), which provide the substantive environmental review criteria for CWA Section 404 permit applications. EPA's comments are based upon the 2020 and 2022 PNs and supplemental documentation, including the application, associated attachments and maps, and public, federal, and state agency comments, in addition to the April 14, 2022 pre-application meeting and subsequent June 29, 2022 Boxwood Farm Site visit.

After review of the provided information, EPA has identified a number of substantial concerns with the proposed project. Specifically, an inconsistency of the proposed scale of the project with the project purpose, whether all practicable alternatives have been fully evaluated and avoidance and minimization measures to aquatic resources undertaken, deficient characterization of the aquatic

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resources to be impacted, insufficient assessment of secondary and cumulative effects and potential for significant degradation to waters of the United States, and an inadequate compensatory mitigation plan (CMP) to offset impacts to aquatic resources. More detailed concerns and comments are set forth in the attached enclosure.

As proposed, the discharges associated with the project may not comply with the Guidelines. It is not apparent that all impacts have been minimized, nor is it evident that the direct, secondary, and cumulative impacts have been thoroughly evaluated and mitigated so that the proposed project will not cause or contribute to significant degradation of the waters of the United States. EPA recommends that the permit not be issued until modifications to the permit application and project are undertaken to address the detailed comments identified in the attached enclosure. EPA also requests the opportunity to meet with the Corps and others to work collaboratively to address EPA comments.

In addition, we have attached comments on the proposed project provided by the Environmental Assessment Branch in relation to the National Environmental Policy Act (NEPA). Should you have any further questions or concerns regarding NEPA compliance please contact Carrie Traver at 215-814-2772 or by email at Traver.Carrie@epa.gov.

Thank you for the opportunity to review and provide comment on the PN for the Green Ridge Recycling and Disposal Facility. EPA looks forward to continuing to work with the Corps and the applicant. Should you have questions, please do not hesitate to contact Meredith Hudson at 215-814-2753 or by email at Hudson.Meredith@epa.gov.

Sincerely,

Jeffrey D. Lapp, Chief
Wetlands Branch

ENCLOSURE

EPA's Technical Comments on NAO-2018-00995; Green Ridge Recycling and Disposal Facility, Green Ridge Recycling and Disposal Facility, LLC, Cumberland County, VA

Project Purpose

The range of alternatives to be evaluated under the Guidelines is defined by the purpose for the project. The purpose should be specific enough to define the applicant's needs but not so restrictive as to constrain the range of alternatives that must be considered. The stated purpose of the proposed Green Ridge Facility "is to provide MSW landfill capacity for County Waste and its affiliates to serve the waste disposal needs of the Company's more than 320,000 existing residential and commercial customers in the Greater Richmond Metropolitan Area as well as in Central and Southwest Virginia (the "Region") and to provide for the needs of future such customers while offering replacement capacity for the Commonwealth. Adequately fulfilling the purpose of and meeting the need for the Project requires a permitted landfill with a minimum of 25 years of disposal capacity for a minimum daily tonnage of 3,500 tons (which translates to a design capacity of 46.8 million tons assuming maximum tonnage) and an area of 1,000 acres with access to the Facility via U.S Highways or Primary State Highways." As proposed, EPA is concerned with the conflicting service area size and that the project constraints, which include waste capacity from out of state, are inconsistent with the project purpose. Without a clear and consistent project purpose, it is difficult to evaluate a full range of alternatives and thus determine if the proposal represents the Least Environmentally Damaging Practicable Alternative (LEDPA). EPA recommends the application be updated based on the following comments.

1. As stated above, the project requires a minimum 3,500 tons per day which translates to a capacity for 32.8 million tons. However, it seems that the applicant is building out for a capacity of 46.8 million tons, or 5,000 tons per day. EPA recommends providing further documentation and explanation as to why the landfill should be built out for 5,000 tons per day rather than the minimum stated in the project constraints. If the applicant anticipates tonnage beginning at 3,500 tons per day and ending at 5,000 tons by the end of the 25-year lifespan of the landfill, EPA recommends taking that progression into consideration when determining the needed capacity.
2. Further, the documentation includes waste generation projections through 2030. Since the applicant proposes to provide a minimum of 25 years of disposal capacity, EPA reiterates previous comments from 2020 and requests additional information be provided beyond 2030 to better support the proposed project design and capacity needs.
3. According to the original 2020 application, "the service area may be 500 miles in aerial radius distance, excluding New York and New Jersey." By creating a buffer in a freely available online mapping platform, a service area of this size would include all or parts of Virginia, Alabama, Georgia, South Carolina, North Carolina, Tennessee, Kentucky, West Virginia, Ohio, Indiana, Michigan, Maryland, Pennsylvania, The District of Columbia, Delaware, Massachusetts, Connecticut, Rhode Island, and Vermont. Since the stated purpose of the proposed Green Ridge Facility is to serve the waste disposal needs of the Greater Richmond Metropolitan Area and Central and Southwest Virginia ("the Region"), EPA recommends reducing the proposed 500-mile service area to meet the project purpose, thereby reducing the size of the landfill needed and avoiding and minimizing impacts to aquatic resources. Further, EPA recommends providing the

minimum capacity needed and anticipated tonnage per day if the service area was reduced to the Region, as stated above. Additionally, EPA recommends addressing the following comments and data requests:

- a. According to the Supplemental Statement of Purpose and Need, the Green Ridge Facility is needed given that "certain landfills such as Shoosmith (denied expansion) and Old Dominion (will reach capacity) will no longer be able to serve the Region in the very near future. Loss of just these two facilities will require approximately 1.4 million tons per year of replacement capacity based on CY 2020 data as reported by VDEQ." To better understand the project constraints, EPA recommends clarifying how much of that waste was received from out-of-state and/or outside the Region.
 - b. Additionally, the Supplemental Statement states that "existing capacity at private landfills in Virginia is being utilized for out-of-state waste disposal. In CY 2020, approximately 72% of all waste landfilled in Virginia was landfilled at the private landfills and of this approximately 50% was from out of state." EPA recommends clarifying if this includes the landfills listed above and how this influences the proposed capacity and anticipated daily tonnage at the proposed Green Ridge facility. To support this, EPA also recommends providing the tonnage of all waste landfilled in Virginia in CY 2020 and the tonnage received from out of state.
4. EPA recommends clarifying why the recent acquisition of County Waste by GFL Environmental, Inc. ("GFL") will lead to an increased need to dispose of up to 5,000 tons per day.

Alternatives, Avoidance & Minimization

As directed by the Section 404(b)(1) Guidelines, the Corps' issued permit should reflect the LEDPA (230.10(a)). To identify the LEDPA, a full range of practicable alternatives, defined by the purpose for the project, is recommended for evaluation. Since the proposed project is a non-water dependent activity, the Guidelines presume that alternatives which avoid and minimize impacts to the aquatic ecosystem are available and restrict discharges when there is a practicable alternative that would have less adverse impact on the aquatic ecosystem. The applicant should be aware that neither increased costs of an alternative nor an unwillingness to pursue an alternative necessarily renders that alternative impracticable. Given the information provided, it is not clear that the proposed project represents the LEDPA. EPA recommends updating the analysis based on the following comments.

Phase 1

The Phase 1 Alternatives Analysis focused on technology and determination of the best alternative for waste disposal. Option 1 was to construct a material recovery facility (MRF), Option 2 was incineration waste to energy (WTE), and Option 3 was landfill disposal.

5. According to the Supplemental Statement, "given the lack of recycling markets for glass, composites, and plastics as well as the need for disposal of organics, Green Ridge determined that a MRF was not a viable or economically feasible technology to meet the purpose and need

of the Project.” To support this determination, EPA recommends providing more information on the lack of recycling markets.

6. WTE was eliminated in part because the “technology requires a significantly higher tonnage to meet the financial requirements for operation.” EPA recommends clarifying what tonnage is required and how this was determined.
7. While EPA appreciates the Phase 1 alternatives analysis for technology, EPA recommends the applicant consider alternatives which combine Options 1, 2, and/or 3, such as landfill disposal and waste to energy (WTE).

Phases 3A and 3B

After the applicant determined that they should construct a new landfill in Phase 2, they sought to identify interested localities in Virginia and the host community. The applicant contacted 24 counties to see if they were interested in hosting a landfill. Of these, three, including Cumberland, Buckingham, and Prince William County, expressed interest.

8. Based on the 45 Mile Radius Memorandum, Attachment 1, Figure 1, both Nottoway County and Dinwiddie County are within the 45-mile radius and in/southwest of the Richmond Virginia Metropolitan Area. Neither were contacted by the applicant based on the list provided. EPA recommends contacting Nottoway County and Dinwiddie County to determine their interest in hosting a private landfill that would meet the purpose and need of the Project and Region.

Phase 3C

After identifying the host community in the Phase 3B analysis, the applicant evaluated sites within that county. The applicant identified timberland/tree farms as the basis for initiating the evaluation. They provided five reasons for this related to general size of land tracts, willingness of owners to sell their land, reduced likelihood for suitable T&E species habitat, lower environmental value, and soil disturbance.

9. Since much of the aforementioned basis for this decision is not necessarily exclusive to timberland/tree farms, particularly in comparison to other types of agriculture, EPA recommends including in the alternatives analysis farmland and other undeveloped space that meets the access, size, and transportation requirements.

Onsite

10. The Miller Lane Realignment Memorandum provided in Attachment 5 of the Revision explains why the Miller Lane realignment had to be shifted further east; however, it does not provide alternative designs that avoid and minimize impacts to aquatic resources. The stream at Impact RR3 curves at the proposed crossing and appears to be straighter further east. EPA recommends shifting Miller Lane further east to avoid and minimize stream Impact RR3 and wetland Impact RR4 (0.023 acre).
11. EPA also recommends the applicant evaluate opportunities to shift the entrance road slightly north to avoid and minimize Impact EW.5 (239 LF intermittent stream).

12. The applicant proposes 468 LF of secondary impacts to Reaches 4.1, 5.1, 7.1, and 9.1 collectively, associated with the placement of outfalls for Sediment Basins 6, 8, and 9. While EPA appreciates the evaluation and proposed mitigation for secondary impacts, EPA recommends evaluating opportunities to shift the locations of these sediment basin outfalls to avoid and minimize secondary impacts.
13. Per EPA comments provided on October 20, 2020, EPA recommends including onsite alternatives showing avoidance and minimization opportunities at impacts previously identified as 2.1 and 3.2 in the 2020 application (along Reaches 2 and 3), which represented approximately 36% of the proposed impacts. EPA also recommends providing onsite alternatives that show avoidance opportunities at Reaches 6, 7, 8, 9.

Resource Characterization

Baseline information is important in not only assessing the impacted resources but also in identifying avoidance and minimization opportunities, assessing secondary and cumulative impacts, and evaluating appropriate mitigation for unavoidable impacts.

14. Consistent with EPA's 2020 comments, EPA recommends providing chemical and biological data for the streams to be impacted to supplement the information in the USM forms.
15. EPA requests a copy of the updated Preliminary Jurisdictional Determination (PJD) for the Green Ridge Site, including Impacts RR.3 and RR.4, once available.
16. EPA recommends providing photographs to accompany the Wetland Determination Data Forms for the Green Ridge Site.

Direct, Secondary and Cumulative Impacts

The Guidelines also direct the consideration of direct, secondary and cumulative impacts and whether the proposed fill will cause and/or contribute to violations of any applicable State water quality standard or to significant degradation of waters of the United States (40 CFR 230.10(b) & (c)). This includes significant adverse effects of the discharge on aquatic ecosystem diversity, productivity, and stability. EPA is concerned that the applicant has not yet demonstrated that the discharges associated with the project will not cause or contribute to significant degradation of receiving waters. EPA offers the following comments to better understand and evaluate the impacts of the proposed project and potential for significant degradation.

17. Based on the Entrance Road and Relocated Pine Grove Road Erosion and Sediment Control Plans (Sheets 1 of 3 and 2 of 2, respectively), it appears the applicant is not including culvert inlet and outlet protection in Impact Areas EW.2 and RR.2. EPA recommends verifying this and, if not included, adding them to the impact areas and providing additional compensatory mitigation.
18. While EPA appreciates the provided culvert cross sections, the diameter of several culverts remains unclear, particularly the culvert at Impact RR.3 at the Miller Lane relocation, Culvert 1 at Impact EW.1 and Culvert 4 at Impact EW.2 along the Entrance Road, and the culverts at Impacts RR.1 and RR.2 along Pine Grove Road. EPA recommends providing a list of culverts,

their associated stream reaches, impact numbers, length, and diameter to better understand the project impacts.

19. EPA appreciates the use of bottomless arch culverts for Culvert 7A and 7B at Impacts EW.3 and EW.4, respectively. EPA recommends clarifying if bottomless culverts were considered at other locations as well as use of con/span and bridging. Additionally, EPA recommends providing further information and narrative on how secondary impacts from culverts, such as modified hydrology and hindrance to the passage of aquatic life, will be avoided and minimized.
20. While EPA appreciates the secondary impact analysis provided in Attachments 11 and 12 in which the pre-development volumetric flows from the 1-, 2-, and 10-year, 24-hour storms for each drainage area were compared to the post-development volumetric flows for those storms within each reach, it is unclear if this is sufficient nor is it apparent how the results support the conclusion of no anticipated secondary impacts. EPA recommends modifying the secondary impact analysis based on the following comments.
 - a. The report states that “if the post-development volumes are 90-percent or more of the pre-development volumes, then it is anticipated that there will be sufficient flow to maintain the streams and wetlands.” The report concluded that the post-development stormwater volumes For Drainage Areas 1-10 are significantly more than the pre-development volumes except for the 10-year storm volumes for Drainage Areas 4 and 6, where the post-development volumes are below pre-development volumes. Further, the hydrograph volume results show that the volume of stormwater released from each drainage area will be significantly increased in post-development. Specifically, per Tables 1-3, five drainage areas roughly tripled or more in volumetric flow post-development for the 1-year storm, two roughly tripled or more for the 2-year storm, and four roughly tripled or more for the 10-year storm, while many others doubled for each storm event. Additionally, energy balance results show that for all drainage areas, the post-development peak flow is well under half of the pre-development peak flow. For Drainage Area 11, the volume of stormwater released will be decreased in post-development. The report states that “for the 1- and 2- year storm events, that account for more than 95-percent of the likely rainfall events per the Virginia Stormwater Management Handbook (2013 draft, Chapter 10), approximately 50 to 60 percent of the pre-development flow is maintained.” Also, for the 10-year storm event, only approximately 30 percent of the pre-development flow is maintained. This data presents substantial changes in the drainage areas and stream systems, yet the Report concludes that “there will be sufficient stormwater to feed the streams and wetlands...the energy balance requirements for channel protection are met in each drainage area and there is no localized flooding for the 10-year storm,” implying that there will be no secondary impacts downstream of sediment basin outfalls.
 - i. EPA is concerned that aquatic resources downstream of the sediment basins may experience secondary effects from modified hydrology, as described above, leading to changes in function and quality. Increases in flow and volume could result in scouring, increased erosion, as well as changes in substrate and benthic

macroinvertebrates, while decreases could result in excessive sedimentation and loss of floodplain wetlands and their connectivity to WOUS, and both could alter floodplain vegetative communities. Rather than basing the secondary impact analysis on the post-development factors above being more or less than in pre-development, EPA recommends basing it off of a range, such as within a specified percentage of pre-development values. If post-development values exceed the range, then the study concludes that secondary impacts are anticipated, and additional compensatory mitigation is needed. Alternatively, the applicant could monitor all drainage area study points during and after construction to determine if the factors remain within the pre-development range and verify that the project does not have an adverse effect on baseline conditions.

- b. Since annual precipitation has increased in this area of the US, along with more intense and frequent precipitation events, EPA recommends evaluating pre-development and post-development volumetric flows for more intense and frequent storm events. Should the applicant decide not to include this, EPA recommends additional information be provided to justify stopping the analysis at the 10-year storm.
 - c. It does not appear that the secondary impact analysis included a drainage area study point for Reach 5. EPA recommends completing the secondary impact analysis in the unimpacted stream and wetlands between Reach 5 and Reach 6 and revising the plans to illustrate the new study (discharge) point. EPA is particularly concerned about potential secondary impacts associated with modified/loss of hydrology since it appears that hydrology previously conveyed by Reach 5 will now be diverted to Reach 6 (downstream) due to fill and the location of the outfall for Sediment Basin 7. EPA also recommends the same be done for Reach 8 and all streams downstream of Borrow Areas, which is particularly important since several of those reaches are proposed to generate compensatory mitigation credits for preservation.
 - d. Additionally, EPA recommends providing plans illustrating Drainage Area 11 and its associated study (discharge) point.
 - e. EPA is also concerned about secondary effects related to diversion of flow from one drainage area to another post-development, particularly baseflow in groundwater-fed systems. For example, post-development Drainage Areas 4 and 3 may see a decrease in typical hydrology due to the diversion of headwater drainage to Drainage Areas 9 and 1, which may see an increase in hydrology for this reason. EPA recommends addressing this, clarifying if and where groundwater-fed systems are located, and adding a comparison of pre-development and post-development volumetric flow for non-storm events to provide a basis for comparison of average daily flow and/or baseflow.
21. EPA is concerned that excavation for the proposed landfill may adversely affect the subsurface hydrology of adjacent aquatic resources, potentially draining them and consequently altering hydroperiod and whether they function as ephemeral, intermittent, or perennial. EPA recommends providing the depth of the landfill below surface level and analyzing how

placement and depth of cells will affect subsurface hydrology and whether that interruption will result in a secondary effect on adjacent aquatic resources as described above.

22. The October 21, 2020 ACOE Public Comments and Responses Summary included a comment stating that “stream reaches that originate in the landfill disposal area are groundwater fed [and asked if] groundwater [would] have to be diverted in order to excavate/construct the base of the landfill.” The applicant replied that “management of the streams and any subsurface flow will be addressed during the Part B (final design) permitting process.” EPA recommends fully addressing this comment now since it pertains to potential secondary impacts and affects the amount of compensatory mitigation needed to offset project impacts.
23. Using the DCR dam break analysis based on the maximum capacity of the Flippen Dam, Green Ridge “determined there could be a very limited impact to the proposed waste management boundary” in the event of dam failure and stated that they will revise the waste management boundary to assure that the boundary is out of any inundation zone.” EPA recommends verifying if the waste management boundary has been revised to assure that the boundary is out of the inundation zone for potential failure of the Flippen Dam. EPA also recommends providing a map of the proposed landfill depicting the inundation zone.
24. The October 21, 2020 ACOE Public Comments and Responses Summary also included a comment stating that “the seismic conditions in the area are not adequately considered in the application. The stated plan to engineer the facility to withstand only 0.1g is inadequate, considering the 50-year PGA for the site is 0.2g (USGS).” EPA recommends updating the alternatives analysis with this information.
25. EPA also recommends providing more information on the use and effectiveness of a single liner versus dual liner system in preventing leachate system failure among other issues related to seismic activity, groundwater and drinking water contamination, etc. Per EPA 2020 comments, EPA recommends additional information be provided about the liner and how lining the landfill is intended to minimize potential secondary effects to downstream aquatic resources.
26. Comments provided by EPA in 2020 stated that EPA is aware that some solid waste facilities have had to expand their facility and impact more waters to accommodate more waste or to account for elevated temperatures beyond the standard range intended to facilitate the composition of solid waste. While additional research is needed to assess the causes, effects, prevention, and management of landfills that exhibit elevated temperatures, it is unclear if this information was considered in the material provided. EPA continues to recommend that additional documentation of the proposed design and location be provided to address possible remediation of elevated temperatures within the landfill post construction and avoid potential cumulative effects to aquatic resources through expansion.
27. It is currently unclear if other future expansion at the proposed site is anticipated. If so, EPA reiterates our prior recommendation that the applicant identify and assess disposal options that avoid or minimize aquatic resource impacts, particularly in the evaluation of secondary and cumulative impacts, and provide information about any efforts to reduce or re-direct waste.

28. According to the October 21, 2020 ACOE Public Comments and Responses Summary, "any harvesting of trees on the former timber company properties is set forth in agreements between the previous owners and the landfill Owner/Operator." EPA recommends clarifying if timbering will occur in or adjacent to wetlands or streams, providing a map with the proposed landfill and former timber company properties and the agreements set forth between the previous owners and the landfill Owner/Operator, highlighting the requirements and deadlines for harvesting. Timbering along wetlands and/or streams could have additional cumulative effects on the aquatic resources in the watershed, such as contributing to already-present impairments in Muddy Creek. EPA recommends also providing information on the management of these properties pertaining to erosion and sediment controls, to prevent adverse cumulative effects.
29. The project proposes to impact unnamed tributaries to Muddy Creek, a 303(d) listed river impaired for aquatic life due to dissolved oxygen. Furthermore, Muddy Creek drains directly to the James River, a 303(d) listed river impaired for fish consumption and recreation with a Total Maximum Daily Load (TMDL) for fecal coliform. According to How's My Waterway, probable sources contributing to impairment of the James River in 2020 include municipal point source discharges and non-point source contributions of Escherichia Coli (E. coli). Filling streams is not only a direct loss of aquatic habitat, but likely leads to secondary and cumulative impacts to the biogeochemical and hydrologic conditions of the receiving streams, which for this proposal, could exacerbate the already impaired waters. It is currently unclear if the applicant considered potential cumulative impacts. Therefore, EPA recommends an evaluation of cumulative effects, which evaluates the linkage between the proposed impacts and the aquatic resources in the watershed, as well as impacts from nearby projects, including authorized impacts to WOUS. The approach should examine past, present, and reasonably foreseeable future activities.

Compensatory Mitigation

After all practicable avoidance and minimization measures have been incorporated into the proposed project, compensatory mitigation for those unavoidable impacts to WOUS should be undertaken. The fundamental objective of compensatory mitigation is to offset environmental losses from unavoidable impacts to WOUS. Based on the information available for review, it is not apparent that the proposed compensatory mitigation will sufficiently offset the loss of the aquatic resources and their functions as a result of the project and create lift within the watershed to replace these losses. The applicant's proposed CMP includes permittee-responsible mitigation in the form of onsite preservation of stream channels and buffer, both credit and non-credit generating, and offsite preservation and restoration of stream channels and buffer, and enhancement of wetlands at Boxwood Farm in Buckingham County. The CMP proposes to generate 17,966 stream credits (15,396 from the Boxwood Farm Site and 2,570 from the Green Ridge Site) and 0.05 wetland credits through wetland enhancement at the Boxwood Farm Site to fulfill the proposed credit requirement of 13,106 stream credits and 0.04 wetland credits. EPA is particularly concerned that the amount of in-stream preservation versus restoration as well as buffer preservation, planting, and re-establishment around TMDL-restored streams may result in the net-loss in the amount and function of aquatic resources. Additionally, EPA is concerned about unwarranted temporal loss of functions, fragmentation of restored and preserved reaches, and the potential for secondary impacts to preservation areas and other aquatic resources on the Project Site which may require further compensatory mitigation.

The 2008 Mitigation Rule discusses various mitigation options available to offset impacts, with a preference for use of mitigation bank credits to help reduce risk, uncertainty, and temporal loss of resource functions. Therefore, EPA recommends utilizing any available mitigation bank credits, in part or whole, to offset the project impacts in the primary service area since these credits reduce risk, uncertainty, temporal loss and are released after the mitigation bank has reached ecological performance. Should the PRM continue to be an option for compensation, EPA recommends additional documentation be provided to explain and support how the onsite option is more effective, appropriate, sustainable and likely to succeed. EPA also recommends the CMP be designed to fully offset the functional losses occurring onsite and meet the requirements of the 2008 Mitigation Rule (see Section 230.93). The CMP must include the twelve items described at Section 230.94(c)(2) through (c)(14). EPA recommends revising the CMP so that it is consistent with the Mitigation Rule and clearly demonstrates that the compensatory mitigation undertaken will offset the loss of aquatic functions. Specific recommendations are included in the below list.

Site Suitability and Ecological Uplift

30. EPA recommends clarifying why the Martin Site, which is adjacent to the Project Site and was previously proposed for offsite compensatory mitigation, is no longer available.
31. The applicant proposes to enhance 0.32 acres of wetlands offsite to generate 0.05 wetland mitigation credits using a 7 to 1 ratio. It is currently unclear if the proposed wetland enhancement can replace the fill and loss of 0.02 acres of wetland since, generally, site activities should result in at least 80% of wetland credits obtained through wetland restoration/creation. Currently, the wetland enhancement includes removing invasive species and replanting with native wetland species. If wetland impacts cannot be avoided, EPA recommends evaluating opportunities for wetland restoration on the Boxwood Farm and Green Ridge Sites.
32. EPA strongly recommends against generating credit from added buffer around already restored TMDL streams. As proposed, TMDL stream reaches include RD2, RD2T1R2, RD2T2, RD2T3, RD2T4R2, LC1US, LC1T2R3, LC1T3R2, LC1T4R2, LC1DS, LC2DS, and LC2DST3R2, totaling a compensation length of 9,846 LF and 2,415 proposed credits for buffer. EPA is concerned that credits generated from upland mitigation activities are out-of-kind and unable to offset the filling of streams, contributing to the net-loss of aquatic resources discussed further below. Additionally, the low survivorship of trees and shrubs in the TMDL buffer zone seen during the June 29, 2022 site visit raises concerns about the ability to reach performance standards for invasive species for extended buffer areas. EPA recommends not generating credit from added buffer around TMDL restored streams and instead recommends additional stream restoration activities or purchase of mitigation bank credits.
33. EPA recommends utilizing any available mitigation bank credits in lieu of credits for permittee-responsible TMDL-restored stream buffer and offsite preservation (especially low-quality preservation) to offset the project impacts since these credits are generated from several years of maintenance, monitoring, and achieving performance standards, indicating more established, stable aquatic resources that are providing greater ecosystem function than, for example, a PRM as-built. EPA recommends purchasing credits from mitigation banks (MBs) whose primary service area encompasses the project location, providing letters of credit availability from MBs,

and generating any remaining credits through PRM with an emphasis on onsite preservation and offsite restoration and enhancement, then high-quality preservation.

34. It is unclear if site activities will result in at least 50% of stream credits obtained through stream restoration/enhancement as is current VA IRT practice since only two stream reaches are proposed for in-stream restoration (RD1T5R1 and LC1T2R2), totaling 3,452 LF (out of 53,820 LF across both sites) and 5,165 credits (out of 17,966 total stream credits). Based on these amounts, in-stream restoration accounts for only 28.75% of all stream work, with the remainder being stream preservation and buffer preservation, enhancement, and restoration. It is not clear how the minimal amount of in-stream restoration and copious amount of upland mitigation activities, particularly upland preservation, offsets the fill and loss of streams on the Project Site. In accordance with 40 C.F.R. § 230.93(h), preservation may be used to provide compensatory mitigation for activities authorized by DA permits when the resources to be preserved provide important physical, chemical, or biological functions for the watershed, contribute significantly to the ecological sustainability of the watershed, and are under threat of destruction or adverse modifications. Therefore, EPA recommends against generating credit for the proposed “low-quality preservation” offsite. EPA also recommends providing documentation to support the condition of the buffer and streams proposed for preservation and how they provide important physical, chemical, and biological functions, contribute significantly to the ecological sustainability of the watershed, and are under threat of destruction or adverse modifications. At a minimum this should include data and photos of each reach and buffer area and chemical, physical, and biological baseline assessments.
35. To aid the review and in accordance with the 2018 MBI Template, EPA recommends providing a table which clearly demonstrates the amount and credits to be generated through each type of stream mitigation activity including in-stream restoration, in-stream preservation, buffer restoration, buffer enhancement, buffer high-quality preservation, buffer low-quality preservation, etc., as well as the percentage of each and a separate table for buffer around TMDL-restored streams if not eliminated from credit generation. In summary, EPA recommends clarifying how much preservation is proposed and how it meets the requirements of the 2008 Mitigation Rule and providing a more detailed narrative describing how the proposed CMP achieves no net loss of the functions and values associated with the impacted resources.
36. EPA recommends clarifying if efforts were made to acquire the land downstream of Reaches RD1T5R1 (proposed for restoration) and RD1T5R2 (proposed for preservation) upstream of where the stream connects onsite to Randolph Creek, which was restored for TMDL credit. This is particularly important since this fragments one of only two restoration reaches from the remainder of onsite preservation and TMDL restoration. The same applies for the land between Reaches LC1DS and LC2US, downstream of restoration reach LC1T2R2. If these properties can not be acquired, EPA recommends providing an explanation of why this is not anticipated to have adverse impacts on the success and functions of the proposed mitigation.

Other

37. In addition to providing chemical, physical, and biological baseline assessments, EPA recommends monitoring of these characteristics for onsite preservation reaches since they are surrounded by proposed borrow areas which may lead to secondary impacts.

38. It is currently unclear if the applicant intends to sell surplus credits that would be generated by the proposed PRM. Should this be the case, the applicant will need to submit a Prospectus to the Interagency Review Team (IRT) for this to be reviewed for approval as a Mitigation Bank.
39. A Conservation Easement is proposed for the Boxwood Farm Site, while a Declaration of Restrictions (DOR) is proposed to be used for the preservation reaches on the Green Ridge facility. EPA recommends clarifying why a DOR is proposed for the Green Ridge Site and why this is appropriate in accordance with 40 C.F.R. § 230.93(h)(v). Additionally, EPA recommends verifying what type of protective instrument is proposed for non-credit generating stream preservation reaches on the Green Ridge Site and on the TMDL project at the Boxwood Farm Site.
40. To be consistent with VA IRT practice, EPA recommends providing all information from the Complete Prospectus Checklist and the 2018 Site Selection Criteria for both the Boxwood Farm Site and for the preservation reaches at the Green Ridge Site.
41. The Compensation Crediting Forms provided in Attachment A for the Boxwood Farm Site and the Green Ridge Site are not accompanied by photos. While EPA appreciates the Boxwood Farm Existing Conditions graphic with a map of the site and photos correlating to several of the reaches, EPA recommends also providing photos with each Compensation Crediting Form for both sites.
42. EPA recommends providing performance standards and a monitoring and maintenance plan for proposed wetland enhancement.
43. Additional information should be provided on the appropriate reference stream data to support the type of mitigation proposed for each reach. Representative photographs should also be provided for both mitigation and reference reaches. For example, based on the LC1T2R1 Design Plan (Sheet 7 of 12), it appears that they are proposing a straighter alignment for parts of Reach LC1T2R1 than the existing stream alignment. EPA recommends the sponsor verify this and provide additional information supporting this design approach, including reference reach location, data, and photos.
44. Based on the CMP, there are existing forested areas within the riparian buffer of stream reaches proposed for restoration. EPA appreciates the inclusion of a re-planting plan and invasive, nuisance, or undesirable (INU) species management plan and recommends limiting tree removal as much as possible. Additionally, based on the CMP, riparian wetlands are located along some reaches that are proposed to be restored. EPA recommends the revised CMP clearly explain the measures that will be taken to ensure impacts to existing riparian wetlands are avoided.

Mitigation Plan Drawings

45. The CMP Design Narrative repeatedly refers to one of the stream restoration reaches as LC1T1R2; however, in the Mitigation Plan drawing, it is labeled as LC1T2R2, and LC1T1R2 does not exist. Please provide clarification and make revisions as necessary.

46. EPA recommends clarifying what type of stream crossings are proposed along the easement and how hydrology will be maintained through the crossings, particularly for the southern-most crossing in the middle of the restoration reach.
47. Based on the Mitigation Plan drawings (Sheet 4 of 12), it appears that buffer is not provided around the northwestern perimeter of the wetland enhancement planting area. EPA recommends providing 100-foot buffer around proposed wetland enhancement.
48. Based on the Mitigation Plan drawings (Sheet 4 of 12) and aerial imagery, there appears to be an impoundment offsite and upstream of Reach RD1T5R1, proposed for restoration, an impoundment on the adjacent property upstream from preservation Reach RD1, and several other impoundments upstream of the site including two large ones near the headwaters of Bob Branch. EPA recommends providing information on these impoundments including, connection to aquatic resources onsite, what is being farmed on those sites, who manages them, and an explanation of why they are/are not anticipated to have negative impacts on the functions of the proposed mitigation such as thermal increases in water temperature, decreases in dissolved oxygen, erosion and degradation of the channel downstream from the impoundment, or dam failure from storm events.
49. Based on the Mitigation Plan Map of the Green Ridge Site (Sheet 5 of 12), the Waste Management Boundary extends east, well beyond the Landfill Disposal Boundary into proposed Borrow Area 1 and around streams proposed for preservation without credit generation (ST8 R3, ST8 R2, ST8 R1, ST8 T1, and ST8 T2). EPA recommends clarifying what is proposed within the waste management boundary, how it may/may not affect streams proposed for preservation, how its size and footprint were determined, and if it is related to future expansion.

Invasive Species Inventory and Management Plan

50. While EPA appreciates the Invasive Species Management Plan provided for the Boxwood Farm Site, it is unclear if an inventory was completed for the Green Ridge Site and how much of the Plan applies to Green Ridge. Therefore, EPA recommends providing a full Invasive Species Inventory and Management Plan for Green Ridge Site preservation, both credit-generating and non-credit-generating. This should include a list of invasive species and an invasive species inventory map depicting the location (acres) and extent (coverage) of all individual species of invasive plants over the entire mitigation site.
51. EPA recommends providing a map of the polygon IDs identified in the INU Management Plan Attachment C Green Ridge Landfill PRM Site Baseline INU Data & Mapping to better understand and evaluate the information.
52. EPA recommends discussing options for mechanical control of pervasive problematic species before they go to seed, rather than exclusive use of chemical controls, and re-considering performance standards based on this.
53. According to the Design Narrative for the CMP, "the banks and valley of RD1T5R1 are covered with invasive species, dominated by *Rubus sp.* and *Lonicera japonica*." EPA recommends clarifying how the applicant will control and manage delivery of these species to Reach

RD1T5R1 from upstream and offsite so that performance standards are met over time. This is particularly important since this is one of only two reaches proposed for stream restoration.

54. When providing Monitoring Reports, EPA recommends including photos to accompany monitoring narratives for all invasive species, including deprioritized species.
55. EPA recommends revising INU species performance standards in accordance with the 2018 MBI Template with Exhibits, specifically that "native or non-invasive herbaceous plant coverage shall be at least 60% by the end of the first growing season, 80% by the end of the second growing season, and maintained each monitoring year thereafter until canopy coverage is at least 30%."
56. According to the CMP, the sponsor proposes that the release of credits associated with demonstrating compliance with the INU Management Plan will be tied to the level of ecological lift being provided, as well as the relative weight of each Performance Standard within each Functional Role category and for each species' Priority assignment with respect to achieving the target vegetative community. EPA is concerned that this would allow the sponsor to release credits even if they are not meeting performance standards, particularly for deprioritized and pervasive problematic species and the lack of credit that those species are afforded. Therefore, EPA recommends releasing credits when performance standards associated with the INU Management Plan are met, consistent with current IRT practice as outlined in the 2018 MBI Template.

Monitoring and Maintenance Plan

57. EPA recommends explaining any differences in credit totals from design to as-built plans in the As-built Survey.
58. The CMP states that "monitoring activities will occur during the 1st, 2nd, 3rd and 5th years following completion of grading." EPA recommends a performance monitoring period of 10 years and preparing a monitoring report during Years 1, 2, 3, 5, 7, and 10 of the monitoring period in accordance with Virginia's 2018 MBI Template and Exhibits. If all Performance Standards have not been met in the 10th monitoring year, then a monitoring report may be required for each consecutive year until two sequential annual reports indicate that all criteria have been successfully satisfied.
59. In accordance with the 2018 MBI Template, EPA recommends providing a detailed narrative discussing the objectives of the Bank as described in the Mitigation Work Plan, and the degree to which the Bank meets those objectives.
60. In accordance with the MBI Template, if sampling adequacy analysis indicates oversampling, then the number of plots may be reduced after 3 years of sampling rather than 2 years as proposed in the CMP.
61. As part of the regular maintenance, EPA recommends posting and repairing property limit and conservation easement/declaration of restrictions signs as required by the MBI Template.

Long-term Management Plan

62. In accordance with the Template, EPA recommends maintaining and monitoring the condition of trails, crossings, and roads, etc. of aquatic resources on the mitigation sites, particularly the crossing at the utility easement in the middle of a restoration reach, to maintain conditions of wetlands and streams. The following tasks should be added to the Long-term Management Plan in association:

- f. Task: During each site visit, record condition of trails, crossings, and roads. Record location, type, and recommendations to implement repair or replacement to trails, crossings, and roads, if applicable.
- g. Task: Maintain trails, crossings, and roads as necessary. Replace trails, crossings, and roads as necessary, and as funding allows.

Organization

Finally, EPA recommends future documentation provided in response to agency comments be better organized with a Table of Contents that contains hyperlinks to each section, appendix, and attachment to help reviewers navigate the files and better facilitate review.

401

Additionally, the PN states that it is serving as the 401(a)(2) notification. Effective April 6, 2022, the CWA section 401 certification process is once again governed by the CWA section 401 certification regulations EPA promulgated in 2020, codified at 40 CFR 121. Accordingly, the PN does not serve as notice per CWA section 401(a)(2) and 40 CFR 121.12. In order to determine whether to undertake the notification described in CWA section 401(a)(2) and 40 CFR 121.12(b), EPA requests a copy of the application and the certification, when received by the Corps, be sent to R3-CWA401@epa.gov. Within 30 days from receipt, EPA will review the application and certification, including any supplemental information if applicable, and determine whether to notify any other State, the licensing or permitting agency, and the applicant pursuant to CWA section 401(a)(2) and 121.12.

Community Outreach

According to the October 21, 2020, ACOE Public Comments and Responses Summary, "in addition to baseline monitoring [of wells], routine monitoring on a regular basis during the landfill's operational life (and after as needed) ...will be made available to nearby residents that request it (per the Host Agreement), or at the direction of regulatory agencies." EPA recommends defining 'nearby' and clarifying how residents will be contacted to gage interest and how they can request routine monitoring of their well.

The following comments are provided by the Environmental Assessment Branch regarding the National Environmental Policy Act (NEPA):

As detailed in the comments above, the new 1,178-acre landfill site would impact greater than two miles of streams in the Muddy Creek watershed; additional indirect impacts to base flow and wetland hydrology and groundwater resources are unclear. At this point, it appears that impacts to a range of resources may occur from the project. Development of the landfill may have impacts that extend beyond the footprint and immediate vicinity of the facility, such as increased heavy truck traffic and greenhouse gas emissions. As described in the JPA, the facility will receive up to 5,000 tons of trash per day. Heavy trucks and other vehicles would travel to and from the site 6 days a week, with potential impacts to traffic, safety, air emissions, and noise. Adverse impacts will occur to cultural resources listed or eligible for the National Register of Historic Places (NRHP); however, the extent of those impacts is not yet known. Potential impacts on local communities, their quality of life, and the rural landscape should be fully evaluated and mitigated, as appropriate, with community input.

Overall, it appears that impacts to both biological and cultural resources may be significant, and may warrant preparation of an Environmental Impact Statement (EIS) in order to ensure full and transparent evaluation of the project and alternatives, identify appropriate mitigation, and to ensure sufficient public engagement and participation in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508).

As stated in § 1500.1, the purpose of NEPA is:

to ensure Federal agencies consider the environmental impacts of their actions in the decision-making process. Section 101 of NEPA establishes the national environmental policy of the Federal Government to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.

Section 102(2) of NEPA requires *Federal agencies to provide a detailed statement on proposals for major Federal actions significantly affecting the quality of the human environment.*

Notwithstanding the applicant's assertions that an Environmental Impact Statement is unwarranted because state and federal permitting requirements fulfill the function of NEPA compliance, 40 CFR 1501.1(a)(6) does not relieve a federal agency of its obligation to comply with NEPA based upon a state permitting program. While CEQ's regulations (*e.g.*, 40 CFR 1506.2 and 1500.4(p)) encourage coordination and integrating state and federal environmental reviews to "eliminate duplication," these regulations do not excuse the federal agency from carrying out its NEPA responsibilities. We are not aware of any instance in which a court has held that a state permitting process is functionally equivalent to NEPA. 40 CFR 1506.3 allows a federal agency to adopt another federal agency's NEPA document but does not authorize adopting a state agency's analysis *in lieu of* the federal agency's compliance. The USACE is free to integrate DEQ's environmental analysis to avoid duplication, provided it meets the USACE's needs for its own decision-making, but nothing in the regulations would seem to allow USACE to forego its NEPA obligations based upon the state's process.

Foundational to a NEPA Study (either an EIS or Environmental Assessment) are a clear purpose and need, evaluation of an appropriate range of reasonable alternatives, and a full assessment of direct, indirect, and cumulative effects. At this point, these areas do not seem to be developed in the JPA in a way that clearly translates to a NEPA Study.

Purpose and Need

Critical to a NEPA study is clearly defining the purpose and need, as the range of alternatives is defined by the purpose and need. Generally, the need for the action should identify and describe the underlying problem or deficiency and the purpose of the proposal should be defined in relationship to the need.

Further defining goals and objectives may also be helpful to clarify the proposal, and logistics to make the project viable should be clearly explained to support the reasonable range of alternatives. In the Response to Additional Information Request Letter dated 3/25/2021 documentation (“Response”), Green Ridge lists a number of specific constraints in their purpose and need (i.e., an area of at least 1,000 acres with a disposal area of at least 238 acres and 3,500 tons minimum daily). However, the purpose and need, as clarified in the CEQ Final Rule (April 20, 2022), should not be unnecessarily constrained by the applicant’s goals. This guidance states that “the goals of the applicant are an important, but not determinative, factor in developing a purpose and need statement.” In its analysis, The USACE should ensure that the project purpose and need is appropriately described to allow for a full consideration of the range of reasonable alternatives.

Alternatives

The examination and comparison of the alternatives under consideration and the “no action” alternative is a critical element of a NEPA Study. As indicated above, clarification of the service area, design capacity, size, highway access, and other key constraints is important to inform the assessment of alternatives.

The identified site constraints should be supported. As originally proposed, the facility had an active total waste disposal area of approximately 500 acres; the disposal area is currently 238 acres and overall disturbance is 514 acres. It is unclear why 1000 acres would be the minimum required size for the facility given that the current disposal area is less than half the initial disposal area. Further explanation regarding facilities, required buffers, etc., should be provided to support size requirements.

An organized, fully updated NEPA document could help clarify both the proposal and constraints. For example, while the applicant’s Response indicates that the landfill will serve existing customers in Virginia and proximity to the Greater Richmond Metropolitan Area is a key constraint, the previous JPA documents indicate waste could be accepted from a 500-mile radius, excluding New York and New Jersey. The service area should be clearly identified and need for a potential service area of this size should be supported.

The site selection criteria for identifying alternatives should be clarified in the NEPA Study. For example, while the service area is described as very large, the alternative landfill sites presented by Green Ridge are confined to Cumberland County. This appears to be extremely limited for either service area that has been identified. In addition, it also appears that the Cumberland County alternatives were further limited to sites that had previously been used for silviculture. While EPA supports avoiding

impacts to high-value, undisturbed biological communities, it is unclear if sites with other types of disturbance were evaluated. A NEPA study should fully and transparently evaluate offsite alternative locations in the service area.

A Material Recovery Facility and Incineration and Waste to Energy were dismissed from consideration as standalone alternatives to a new landfill. EPA recommends that waste reduction and diversion efforts be fully considered, both alone and in conjunction with a new or existing facility. Such efforts could include composting or other beneficial use efforts. While recycling operations are expected to be part of the proposal, the clarification of the proposed recycling operations and any other waste diversion efforts should be fully described. Onsite configurations to avoid and minimize impacts should also be fully evaluated and explained.

Effects

The full range of direct, indirect, and cumulative effects from the project should be assessed. For example, a detailed assessment of hydrology will be necessary to ensure impacts to baseflow, wetland hydrology, and groundwater will not be impacted. The NEPA Study should also fully assess any related or additional impacts, such as utilities that will be required, their location, the capacity of the infrastructure, and temporary and permanent impacts to resources.

The extent of impacts for a number of resource areas is unclear at this time, but it appears that there is a potential for significant adverse effects. In addition to aquatic resources, resource areas with potential effects that should be fully evaluated in the NEPA Study include (but are not limited to) the following:

Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to consider the effects on historic properties. There are a number of documented archaeological and architectural resources in the vicinity of the project. Consultation in accordance with the NHPA Section 106 is critical in identifying, avoiding, and mitigating impacts to historic resources.

The landfill is adjacent to the Pine Grove Elementary School, and as indicated by the Virginia Department of Historic Resources (DHR), adverse effects appear likely to the school and other cultural resources. Based on documentation provided in the application, the Hobson Cemetery is expected to be in the vicinity of the proposed borrow area but has not yet been found. There may be impacts to contributing resources to the NRHP-eligible Pine Grove School Rural Historic District (DHR ID #024-5125).

As described, the Pine Grove School Rural Historic District is a historic African American cultural landscape, which includes development by enslaved labor on plantations and later by free Black landowners and residents after slavery ended. Black families constructed houses, churches, cemeteries, and schools, including the Pine Grove School that operated as a school from 1917 until 1964. The groups that support preservation of the school, Agee-Miller-Mayo-Dungy Family Association (AMMD) and AMMD Pine Grove Project indicate that while it no longer operates as a school, it continues to serve as an important place to the community of current and former residents.

Although boundaries for the Pine Grove School Rural Historic District apparently have not yet been determined, potential impacts to contributing elements should be fully assessed in consultation with

DHR and other interested parties. To fully assess and potentially mitigate impacts to cultural resources, effective consultation with the range of stakeholders is critical.

Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued in 1994 to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations, with the goal of achieving environmental protection for all communities. In 2021, Executive Order 13985, *Advancing Racial Equity and Support of Underserved Communities through the Federal Government*, reiterated these goals in stating that each federal agency must assess whether, and to what extent, its programs and policies perpetuate systemic barriers to opportunities and benefits for people of color and other underserved groups.

EPA has reviewed the June 16, 2020 demographic report and the August 6, 2020 addendum provided by Mangum Economics and finds that the identification of Environmental Justice (EJ) concerns warrants further analysis and discussion. While the report states the “approach is consistent with guidance from the US Environmental Protection Agency” it cites the 1994 *Toolkit for Assessing Potential Allegations of Environmental Injustice*, which is not appropriately used as guidance. EPA recommends using guidance such as *CEQ Environmental Justice Guidance Under the National Environmental Policy Act*. https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

EPA generally recommends screening for EJ concerns at the census block group level, which is the smallest geographical unit for which the United States Census Bureau publishes data. The assessment of potential impacts to areas with Environmental Justice (EJ) concerns should focus on communities or block groups most likely to be impacted from project activities, including traffic.

EPA’s environmental justice screening tool, EJSCREEN (<https://www.epa.gov/ejscreen>) shows that while the census block group the landfill is located in (510499301003) is 27% low income and 17% people of color, high percentages of low income and people of color communities are present in block groups roughly 2-4 miles from the landfill site. The block groups to the west and south of the site are shown to be in the 76th percentile and 62nd percentile for low income nationally. People of color are in the 68th and 71st percentile nationally to the south and west, including along Route 60. These populations (39-55% people of color) also are higher than the state average. (It should also be noted that 27% low income is higher than average in Virginia.) Based on the CEQ guidance, this suggests that there may be potential EJ concerns in the project vicinity. Note that the CEQ guidance for EO12898 states *Minority populations should be identified where either: the minority population of the affected area exceeds 50 percent, **or** (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.* (Emphasis added.) CEQ guidance further notes that the selection of the appropriate unit of geographic analysis should not artificially dilute or inflate the affected minority population.

As indicated, Cumberland County is a rural area with a low population density. Much of the county is lower income as compared to Virginia. EJScreen indicates other potential vulnerabilities in the vicinity of the landfill, including nearby block groups in the 80th percentile for less than high school education and exceeding the 80th percentile for people over age 64. We concur that high unemployment rates exist

in the area; the extent to which the landfill would address that by creating jobs and hiring from the community should be fully evaluated in the socioeconomic analysis.

EJScreen also suggests potential health disparities in Cumberland County. Rates of asthma are relatively high in the region and much of Virginia has a high air toxics cancer risk, indicating some existing health burdens from air quality. Like most of rural Virginia, Cumberland County is medically underserved and is mapped as a food desert. Surrounding areas are in the 90-95th percentile for households with limited broadband. Communication regarding the project, such as access to the landfill application materials and online public meetings may present challenges.

The effects to rural, underserved communities should be fully evaluated, not only by using demographic data, but also by fully considering the feedback provided by the community. Tailored outreach to communities that may have EJ concerns is critical to assure that communication regarding the project reaches citizens in an appropriate way to receive feedback about potential impacts. Please see further comments in Public Outreach and Engagement below.

Children's Health

The NEPA study should evaluate environmental health and safety risks to children in accordance with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. We note that the block group for the landfill includes a very high percentage of young children (91st percentile for the state/nation). Environmental hazards that may disproportionately affect children and infants may include air pollutants generated from traffic and noise. Effects from the project should be considered in light of existing health disparities and stressors as noted above.

Greenhouse Gases and Climate Change

While methane comprises only roughly 50% of landfill gas (LFG), municipal solid waste (MSW) landfills are the third-largest source of human-related methane emissions in the United States. EPA's data indicates the methane emissions from MSW landfills in 2020 were approximately equivalent to the greenhouse gas (GHG) emissions from about 20.3 million passenger vehicles driven for one year. Therefore, LFG minimization and capture will be a critical discussion in the NEPA Study. The proposed design and requirements for LFG management should be fully discussed in the NEPA Study. Extent of capture, including time lags, efficiency, and the impact on climate change should be assessed.

The comparison of alternative sites in the Response indicates roughly 4,500 tons of carbon emissions annually generated from heavy truck traffic alone. In addition, emissions from clearing and land conversion, passenger vehicle traffic (employees, visitors, and customers), energy use, and LFG generation should be fully evaluated. GHG emissions of alternatives should also be compared. GHG emission from construction and operation should be fully assessed in accordance with the latest guidance from CEQ. (Tools can be found at <https://ceq.doe.gov/guidance/ghg-tools-and-resources.html>.)

In addition to assessing GHG emissions, the NEPA Study should consider how the design of the landfill is resilient in the face of a changing climate, such as more severe and frequent storms.

Traffic and Transportation

As described in the JPA, the facility will receive up to 5,000 tons of trash daily, which would add traffic from approximately 250 trucks hauling 20 tons each. The expected additional traffic generated by the recycling and convenience center is currently unclear. Heavy trucks as well as personal vehicles would travel to and from the site 6 days a week. It appears that this traffic is likely to be substantial; impacts on the traffic network would be expected to impact residents along the transportation routes, including Route 60. Potential effects from traffic to communities, particularly those with Environmental Justice concerns should be fully evaluated, especially in light of potential health vulnerabilities such as incidence of asthma.

Detailed studies on the potential range of impacts from traffic, which are not limited to traffic congestion, but also include noise, safety, and localized emissions from heavy truck traffic should be conducted. It appears that Route 60 is a 2-lane road in this vicinity. Safety is a critical concern and should also be fully assessed, considering factors such as roadway size, speeds, volume, types of vehicles and current accident data.

Road improvements including widening or other upgrades should be evaluated. Impact of heavy traffic on roads may also more quickly degrade surfaces and the responsibility for maintenance should be evaluated.

Groundwater

In a rural area, most of the residents depend on well water. Shallow wells are common in the area and are particularly susceptible to be impacted by disruption of hydrology or contamination. Therefore, potential impacts to both groundwater quantity and quality should be carefully evaluated. Detailed modeling of groundwater impacts should be included in the NEPA Study. Key to this discussion is the design of the landfill and monitoring, including the liner system, leachate collection, groundwater monitoring, stormwater collection, and water use.

Noise and Community Impacts

Potential impacts to communities can include traffic, noise, drinking water, health, aesthetics, and other concerns. Noise and quality of life issues, including odors, and aesthetics should be fully evaluated. The Magnum Report states the facility will have operating procedures to reduce noise, dust, and light emissions. Construction and operation of the landfill to minimize such impacts should be fully discussed in the NEPA Study. Operational days and hours are a key consideration.

Visual impacts include lighting and security measures as well as the landfill itself. Visual effects during both leaf off and leaf on conditions should be assessed.

Socioeconomics

Socioeconomic concerns and effects may include impacts on property values, taxes, and the local economy. The NEPA Study should include a full, detailed discussion of both beneficial and negative socioeconomic impacts of the Project, including jobs that will be generated and the effect of the project on property values.

Biological Resources

Construction of the proposed project would impact over 500 acres, clear approximately 438 acres of forest, and impact ecological cores rated “very high” value by the Virginia Natural Landscape Assessment. While much of the site has been subject to silviculture practices and/or agriculture, a number of ecological services, including habitat, may be provided. Timber management areas provide habitat for a range of species, including resting, foraging, and breeding habitat. The Phase I Cultural Resources Investigation also notes that some areas of mature deciduous forest are found in the southern portion of the project. These forests may have high habitat value. The extent of the existing habitat, functions and tradeoffs from development of the landfill should be fully assessed.

The NEPA Study should clearly discuss the current conditions, including the existing vegetation and areas that will be impacted within the disturbance area for the landfill. As part of this discussion, types of vegetation, dominant species, and age of timber stands should be identified. The presence of vernal pools for amphibians or other specialized habitat should be evaluated.

Once existing resources are fully assessed, potential impacts from construction and operation of the project should be evaluated, including impacts from vegetation removal or conversion, lighting, fencing, loss of carbon storage and sequestration, and attraction or spread of invasive or nuisance species. Impacts to migratory birds in accordance with the Migratory Bird Treaty Act should be carefully evaluated.

Mitigation

Once potential direct, indirect, and cumulative effects are assessed, appropriate minimization and mitigation measures for the range of resources should be identified. While the focus for the JPA is aquatic resource mitigation, mitigation for other resource areas should be fully identified in the NEPA Study.

Public Outreach and Engagement

As noted above, the landfill may have a range of impacts. It is critical to fully inform and engage the public and consider the feedback received. From the Response, we are aware that Green Ridge has conducted some outreach efforts. However, given the concern in a rural, sparsely populated area (as evidenced by meetings attended by dozens to hundreds of people), additional outreach and stakeholder participation is critical. We appreciate that Green Ridge has made efforts to reach out to AMMD. Additional attempts should be made to engage this critical stakeholder.

To inform the public regarding the proposal, project information should be readily accessible. EPA notes that the online JPA materials and the Response lack organization and are extremely difficult to review. Thirty-four files for the project were posted on the Virginia Marine Resources Commission’s website with over 2,300 pages of content including 1,708 pages of the most recent materials. It is difficult to find specific information regarding topics of interest. Individual files must be opened or downloaded and scrolled through to determine the contents. Some are duplicative. Maps and plans do not open or display well on mobile devices such as laptops. It would likely be challenging for a member of the public to navigate these materials, particularly with limited internet access.

EPA recommends that additional public outreach efforts be conducted, including both in-person and online meetings. Informational materials should be written in plain language and be provided both

online and as physical copies in locations accessible to the community. Project information should be clearly organized by topic, and detailed project plans should be available to the public. EPA suggests providing notices of public meetings, informational events, and related resources at frequently visited community locations as well as mailers. These locations may include, but may not be limited to, schools, churches and faith centers, community centers, barbershops, salons, and medical offices.

As a range of effects may impact not only those immediately adjacent to the facility, but also in the broader community, extensive public engagement is critical for fully informed decision making required by NEPA. As described by § 1502.1, *The primary purpose of an environmental impact statement...is to ensure agencies consider the environmental impacts of their actions in decision making. It shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.*

Summary

The development of a new landfill appears to be a major federal action that may have impacts on the environment and on the rural quality of life. An EIS and public meetings could help inform the public and provide opportunity for engagement and participation to assess and mitigate potential impacts to the surrounding rural communities, ensure that issues of Environmental Justice and equity are fully considered, and allow for a robust evaluation of purpose and need and reasonable alternatives. § 1502.1 repeats the statement that “An environmental impact statement is a document that informs Federal agency decision making and the public,” highlighting the importance of not only federal decision making, but also the public’s role.

Please note that these are only preliminary comments for NEPA and are not a comprehensive list of topics that should be evaluated. EPA anticipates providing additional feedback during scoping and encourages additional discussion with agencies as well as the public.