STATE OF COLORADO

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us>

Evans Mining Resource M-2024-056 Application 2nd Adequacy

1 message

Gagnon - DNR, Nikie <nikie.gagnon@state.co.us> Mon, Feb 10, 2025 at 9:34 AM
To: Sydney Connor <Sydney@lewicki.biz>, Ben Miller <ben@lewicki.biz>, Greg Geras <GregG@asphaltspecialties.com>

Hello.
Please see the attached 2nd adequacy letter for the Evans Mining Resource 112c application. The Division's engineering staff reviewed the application in context of Rule 3.1.6 and our Floodplain Standards and submitted the attached additional questions.

Let me know if you have any questions.

Kind regards,

Nikie Gagnon
Environmental Protection Specialist

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

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M2024056_Evans Mining_Adequacy Letter 2_20250210.pdf
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COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

February 10, 2025

Greg Geras
Asphalt Specialties Company, Inc.
345 W. 62nd Ave.
Denver, CO 80216

Re: Evans Mining Resource, Permit No. M-2024-056, 112c Construction Materials Application, Adequacy Review #2

Dear Mr. Geras:

The Division of Reclamation, Mining and Safety (Division/DRMS) continues to review the Amendment Application package submitted for the above referenced permit. The Division's engineering staff reviewed the application in the context of Rule 3.1.6 and our Floodplain Standards. Based on this review, the Division has the following additional questions.

1. A detailed analysis of the inflow/outflow structure is required. This requirement is described in the Division's Floodplain Protection Standards for Sand and Gravel Pits Adjacent to Rivers and Perennial Streams (attached). The operator has included a detailed design drawing (F-2 Flow Structures), but additional information is needed. Is the design based on a standard methodology from a drainage criteria manual or other source? This must be discussed in Exhibit G. Also, Exhibit G requires a description of how the velocity on the F-2 figure (7.09 feet/second) was determined.

2. Additional information is required to explain the inputs to the Hydrology Calculations in Appendix G-1. In particular, how were runoff coefficients determined? Revise Exhibit G to include this information.

3. The applicant should explain the difference between the volumes in Table G-3 on page G-4 (fifth column from the left) and the volumes in the Hydrograph Summary Report in Appendix G-1 (sixth column from the left). These values are different. Please explain what each represents and why they are different. Revisions should be made to Exhibit G, as appropriate.

The Division continues to review the application and may send additional adequacy review letters. Please note that the decision date for this application is **March 14, 2025**. Please allow the Division sufficient time to perform another review of your responses prior to this date. If you are unable to provide satisfactory responses to any inadequacies, it will be your responsibility to request an extension of time to allow for continued review of this application.

If you have any questions, please contact me by telephone at (720)527-1640 or by email at nikie.gagnon@state.co.us.

Sincerely,

Nikie Gagnon

Nikie Gagnon
Environmental Protection Specialist

Enclosure: 2024 Floodplain Protection Standards for Sand and Gravel Pits Adjacent to Rivers and Perennial Streams

Ec: Ben Miller, Lewicki & Associates
Sydney Connor, Lewicki & Associates
Jared Ebert, Senior EPS, DRMS

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Floodplain Protection Standards for Sand and Gravel Pits Adjacent to Rivers and Perennial Streams

February 2024

Introduction

Sand and gravel are necessary commodities for construction that must be mined where they exist. Many gravel deposits exist in the floodplains of rivers and streams. Historically, gravel was extracted directly from streams and rivers via in-stream mining methods. Today, floodplain mining (occurring adjacent to the main channel of a river or stream) is considered a safer and less impactful method of extracting this material.

However, floodplain mining can cause significant impacts to the surface water environment and associated infrastructure if its risks are not properly addressed. Mining operations that occur within or adjacent to floodplains have the potential to significantly impact the prevailing hydrologic balance of affected land within the boundary of a mine site, as well as the surrounding area. These operations also have the potential to cause significant damage off-site during flood events. One common example of this is when a river or stream cuts through an adjacent pit during a flood event (referred to as "stream capture"), which can lead to off-site impacts to river water diversions and other structures.

Potential damage from mining within or adjacent to floodplains can include:

- Damage to property and infrastructure
- Reduction in water quantity for water users
- Degradation of water quality for water users
- Destruction of riparian vegetation and habitat
- Short- and long-term changes to channel morphology and river behavior
- Cumulative impacts from multiple mines in a floodplain

To limit these impacts, the Colorado State Legislature and the Mined Land Reclamation Board (MLRB) have promulgated the following Statutes and Rules (citations in References section) pertaining to the extraction of construction materials.

- C.R.S. 34-32.5-116(4)(c):

  > An operator shall demonstrate that . . . all affected areas to be reclaimed as part of the approved application will not result in any unauthorized release of pollutants to the surface drainage system.

- C.R.S. 34-32.5-116(4)(h) and Rule 3.1.6(1):

  > Disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quantity or quality of water in surface and groundwater systems, both during and after the mining operation and during reclamation, shall be minimized.

- C.R.S. 34-32.5-116(4)(i):

  > Areas outside of the affected land shall be protected from slides or damage occurring during the mining operation and reclamation.

- Rule 3.1.5(3):

  > All grading shall be done in a manner to control erosion and siltation of the affected lands, to protect areas outside the affected land from slides and other damage.

- C.R.S. 34-32.5-116(4)(j) and Rule 3.1.6(3):

  > All surface areas of the affected land . . . shall be stabilized and protected so as to effectively control erosion.

- Rules 6.3.3(l) and 6.3.4(1)(e):

  > [The operator must] . . . describe what measures will be taken to minimize disturbance to the hydrologic balance, prevent off-site damage, and provide for a stable configuration of the reclaimed area consistent with the proposed future land use.

The Division of Reclamation, Mining and Safety (Division) is the implementing agency to enforce the Legislative Statutes and the MLRB's Rules through permitting actions, inspections, and enforcement.

This document is intended to provide guidance related to floodplain protection for sand and gravel pits located adjacent to rivers and perennial streams. The guidance presented in this document sets the standard for review of new permit applications and for applications submitted to revise existing permits or expand mining operations into the floodplain of a river or perennial stream.

The Division will be working with operators of existing permits on a case-by-case basis to determine what permit revisions, if any, are needed to comply with these standards.

The standards below are largely based on review of guidelines developed for the Mile High Flood District (MHFD; formerly the Urban Drainage and Flood Control District), which oversees floodplain management in the Denver Metropolitan area: *"Technical Review Guidelines for Gravel Mining and Water Storage Activities Within or Adjacent to 100-Year Floodplains."* (This document is heretofore referred to as the MHFD Guidelines.) The MHFD is considered a national leader in stormwater and floodplain management, and their guidelines are broadly accepted. The Division has determined that the principles of the MHFD Guidelines are based on sound engineering, professional judgment, and decades of experience in floodplain management, and it is appropriate to apply these principles to sites located outside of the MHFD boundaries.

The Division has extensive experience regulating sand and gravel pits in floodplains, and significant lessons were learned after the extensive flooding that occurred in 2013 and 2015. Currently, approximately 25 percent of Division permits are located within a 100-year floodplain.

The extent of damage that can be caused by mined pits subjected to river flooding is illustrated in the Google Earth aerial imagery presented in Appendix A.

While this guidance document pertains to mining operations located within 400 feet of a river or perennial stream, all mining operations are responsible for preventing off-site impacts, including operations located more than 400 feet from a river or perennial stream. Accordingly, based on the details of a particular floodplain mining operation proposal, the Division may require additional or more stringent protection measures than what is presented below in this guidance document. For example, more stringent measures may be implemented for applications proposing new pits in an area with multiple existing pits, as these sites are at a higher risk of causing significant flood damage.

Standards for New Applications

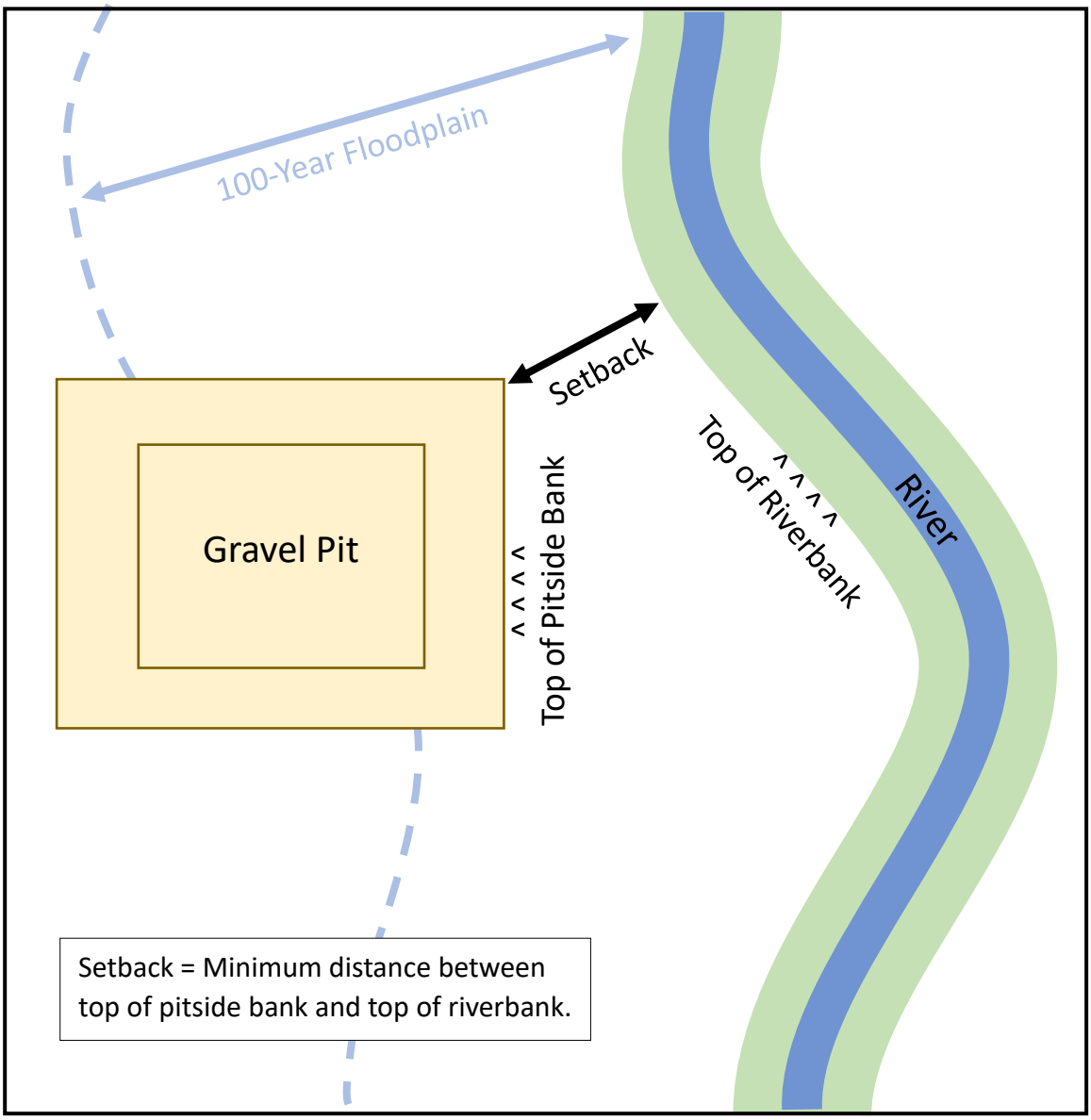
For a new permit application or an application to revise an existing operation to include a new pit adjacent to a river or perennial stream, the Division will require that one of the following options (or a combination thereof) be performed by the Applicant as part of their submittal to the Division:

1) Propose an appropriate mining setback from the banks of the river or stream. The standard setbacks presented in Table 1 below are based on the MHFD Guidelines. *Note that in the scenario where no pitside bank or riverbank protection is provided, the standard setback from the river or stream is 400 feet.* See Figure 1 below with sketch showing how setback is measured.

Table 1 - Standard Setbacks from River (Based on MHFD Guidelines)

Area Stabilized	**Minimum Setback (feet)**
None	400
Pitside Bank Only (armoring internal to the pit)	300
Riverbank Only (armoring external to the pit)	250
Riverbank and Pitside Bank	150

Figure 1 - Sketch Showing How Setback from River is Measured



2) Provide detailed designs of proposed structures (e.g., riprap, grouted boulders, side-channel spillways) to be installed on pitside banks and/or riverbanks to allow flood waters to safely flow in and out of the pit during the 100-year flood event while minimizing significant erosion of the banks. The design for these structures must be based on guidelines from a recognized authority and/or a detailed hydrology and hydraulics analysis. Guidelines could be stabilization measures presented in the MHFD Guidelines, bank protection designs presented in county drainage criteria manuals, or other applicable documents. Detailed analysis could include a hydrology and hydraulics model.

Note that in the scenario (in Table 1) where both pitside bank and riverbank protection is provided, the standard setback from the river or stream is 150 feet.

3) Provide a detailed analysis of the 100-year flow in the river or stream during the worst-case conditions of the proposed mining and reclamation scenarios. This analysis must sufficiently demonstrate that the proposed pit banks during mining and after reclamation will not be significantly eroded by the flood event. This could be done using appropriate hydrology and hydraulics models. Examples of acceptable models include the Hydrologic Modeling System (HMS) and River Analysis System (RAS) developed by the U.S. Army Corps of Engineers (USACE) Hydrologic Engineering Center (HEC). These models are commonly referred to as HEC-HMS and HEC-RAS. Links to information on these models are provided in the References section of this report.

If another regulating agency or local city or county government has developed more protective standards than those presented in this guidance document, such standards shall supersede those set by the Division. These standards would also need to be incorporated into the mine permit approved by the Division.

Upon request, the Division is available for consultation during development of an application that proposes a sand or gravel operation adjacent to a river or perennial stream.

For proposals to install riverbank protection, Applicants should be aware that additional requirements may be imposed by local governments, State agencies, and/or the U.S. Army Corps of Engineers.

References

Colorado Land Reclamation Act for the Extraction of Construction Materials, C.R.S. 34-32.5 §. Available at: https://drive.google.com/file/d/1nWs3Y_2wm8fp4eApFjUhZC2IyHxKKCM8/view

Colorado Mined Land Reclamation Board. Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials (2019). Available at: https://drive.google.com/file/d/1l5U8fOVjQ7VyB3GC7DGv6Gkczz7PwuRl/view

U.S. Army Corps of Engineers. Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS). Information available at: https://www.hec.usace.army.mil/software/hec-hms/

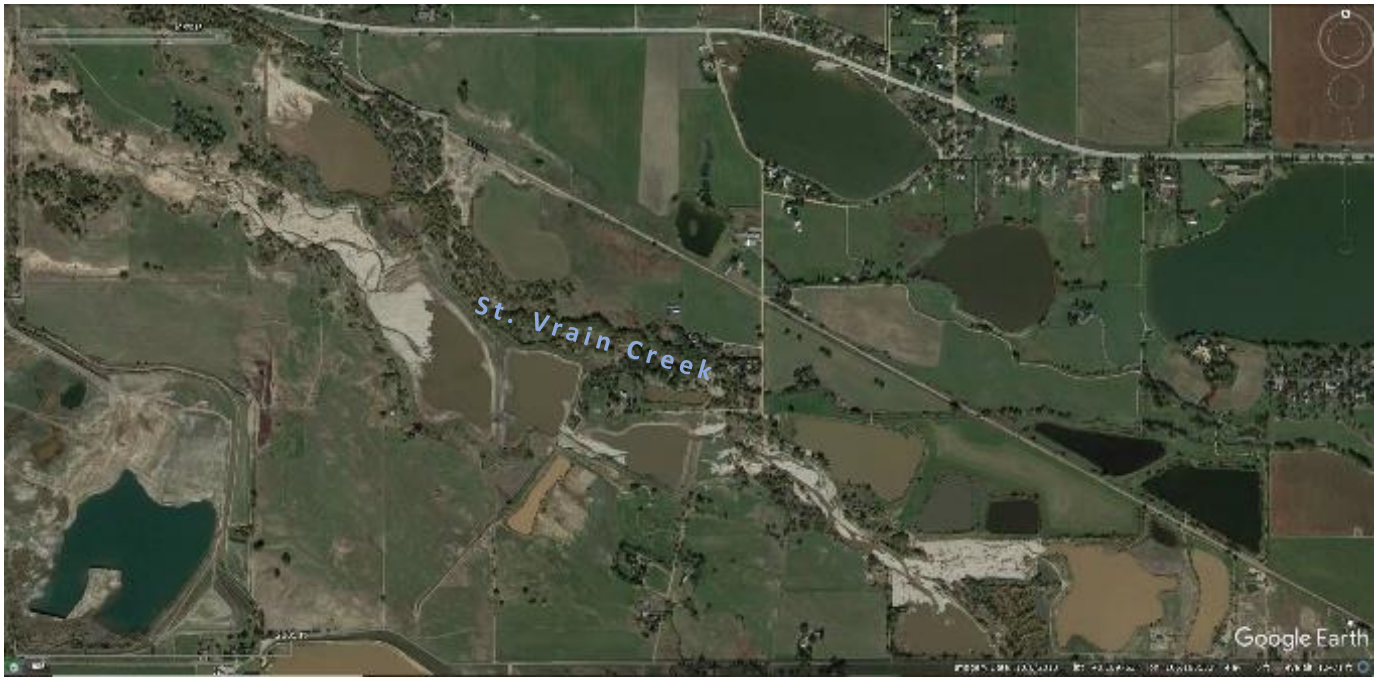
U.S. Army Corps of Engineers. Hydrologic Engineering Center's River Analysis System (HEC-RAS). Information available at: https://www.hec.usace.army.mil/software/hec-ras/

Wright Water Engineers, Inc. Technical Review Guidelines for Gravel Mining and Water Storage Activities Within or Adjacent to 100-Year Floodplains (2013, January). Available at: https://mhfd.org/wp-content/uploads/2019/12/Technical_Review_Guidelines_for_Gravel_Mining_and_Water_Storage_Activities_2013.pdf

APPENDIX A

Google Earth Aerial Imagery Showing Before (1A) and After (1B) Conditions in Boulder County After the 2013 Flood (Multiple Permits).

1A



1B

Google Earth Aerial Imagery Showing Before (2A) and After (2B) Conditions in Larimer County After the 2013 Flood (Single Permit).

2A

2B