



May 18, 2020

Mr. Elliott R. Russell
Environmental Protection Specialist
Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203

RE: Adequacy Review Response TR-08; M-1992-009

Dear Mr. Russell,

On behalf of Mr. Chris Pyles, owner and operator of Gillette Sand and Gravel, Inc., RealTime Aquifer Services (RAS) has prepared this document in response to your May 8, 2020, Adequacy Review for Technical Revision #8 (TR-08), dated April 10, 2020, and received by your office on April 14, 2020.

We have also enclosed a revised version of TR-08 to reflect the updated described herein. No other changes or edits have been incorporated into TR-08. Your May 8, 2020, Adequacy Review comments are provided below with our response to each comment.

1. *Comment:* Please provide a timeline for the proposed process pond relocation/construction proposed in TR-08.

Response: We anticipate that process pond relocation and reconstruction will be completed within 30 days of approval of TR-08. We will notify you if any significant construction delays are encountered and we will notify you upon completion of the work.

2. *Comment:* The Sediment Pond Schematic depicts #1 Sediment Pond having a 10' wide berm on the south and a 20' wide berm. Please revise this and provide details on the width of the berms on the east and north sides of this pond. Please also update the drawing to reflect all of the berm widths for #2 Sediment Pond and #3 Sediment Pond.

Response: The Sediment Pond Schematic is correctly labeled. The #1 Sediment Pond will have a 20-foot wide berm on the west side (to facilitate sediment cleanout using a tracked excavator), and a 10-foot wide berm on the south side. The berms between #1 and #2 Sediment Pond will be 5' wide. The following table provides specific widths for all four sides of each of the pond berms:

Berm Widths (feet)				
Sediment Pond	North	South	East	West
#1	5 (between ponds #1 and #2)	10	10	20
#2	20	5 (between ponds #1 and #2)	10	10
#3	10	10	10	10

This table has been included on the page following the Sediment Pond Schematic Drawing.

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3. *Comment:* Please provide height and width details for the Secondary Containment Berm and Sediment Containment Berm.

Response: For the Secondary Containment Berm, based on approximate berm length dimensions of 135' north-south and 135' east-west, a triangular secondary containment basin will be formed with an area of 9,100 square feet. Using a containment safety factor of 1.1 for the maximum pond capacity (24,000 cubic feet [cf]) in #2 Sediment Pond), the minimum secondary containment berm height will be 3.0 feet with a minimum base width of 6 feet (to maintain a minimum 45° berm slope). The length of the berm may be adjusted for conditions observed in the field. We will notify you of any substantive design changes. These dimensions have been posted onto the Sediment Pond Schematic.

The Sediment Containment Berm (with dimensions of approximately 80 feet north-south by 200 feet east-west), and a soil containment average depth of two feet, will be sized to contain up to 32,000 cf of soil. Assuming the soil is saturated fine sandy silt, its specific yield is estimated at 25 percent. Further assuming that all of the liquid could drain from the soil over a very short period of time (conservative assumptions), the estimated maximum liquid volume that would require containment is 8,000 cubic feet. The berm height required to contain this volume is less than one foot. To be conservative, the soil containment area berm height will be a minimum of 1.5 feet, with a total minimum width of 3 feet. These dimensions have been annotated onto the Sediment Pond Schematic.

4. *Comment:* Due to site topography, the Secondary Containment Berm may need to be extended further south than depicted on the Sediment Pond Schematic. Please commit to ensuring the Secondary Containment Berm is appropriately placed to capture process water in the event of a release from the sediment ponds.

Response: Noted and agreed; we will commit to field adjustments to the design of the Secondary Containment Berm to ensure adequate capture of process water in the event of a release from any individual pond.

5. *Comment:* TR-08 proposes the sediment ponds will be constructed above the existing ground surface to avoid interaction of the process water with groundwater. Please discuss the reclamation of the pond berms at the end of the operation as berm material will likely need to be removed and backfilled in the mining areas to reestablish approximate ground surface. Please provide the approximate volume (cubic yard) of material needing to be backfilled from the ponds during reclamation.

Response: The ponds will be constructed approximately two to three feet below grade, at the approximate level of the undisturbed terrain prior to a 1965 dam failure upstream of the site. The dam failure covered what is now the process with a two to three foot veneer of outwash debris. The sediment ponds will be constructed so that the pond bottoms are above the water table. This will avoid interaction of the process water with groundwater. Using a conservative maximum

excavation depth of three feet, the total volume of soil required to backfill the ponds is estimated at 1,080 cubic yards.

The Reclamation section of the text of TR-08 has been amended to include the following description of sediment pond reclamation:

“The process pond area will be reclaimed by allowing process water in the ponds to evaporate and/or be used for on-site beneficial uses, such as dust control or irrigation. Process water will not be released from the site.

The pond berms, sediment pond dredge spoils and other features will be graded into the pond excavations. The ponds and the immediately surrounding area will be graded to mimic the surrounding terrain and drainage patterns. The area will then be reclaimed in accordance with the reclamation plan. Any excess soils, including sediment pond dredge spoils, will be used as fill in the reclamation of other parts mined parts of the Permit Area.”

6. *Comment:* In accordance with Rule 6.2.1(2)(a), please revise the maps submitted to show the name of the Applicant (Gillette Sand and Gravel, Inc.). Additionally, in accordance with Rule 6.2.1(2)(b), maps must be signed.

Response: Noted and agreed; the requested changes have been incorporated into the TR-08 maps.

7. *Comment:* The Exhibit D Map contains a label near the southern permit boundary which states 38.51 Acre Boundary. Please revise this to reflect the approved permit acreage of 32 acres.

Response: Noted; the acreage has been relabeled as requested on the Exhibit D Map.

8. *Comment:* The Exhibit D Map identifies the latitude/longitude coordinate for the northwest boundary corner. Please revise this map or provide a separate table, identifying the remaining seven permit boundary corners coordinates.

Response: The decimal latitude and longitude for all eight corners of the permit area are posted on the following table. Corners are numbered on the Exhibit D Map.

Corner (indexed on Exhibit D)	Decimal Latitude	Decimal Longitude
1	38.78214°	-105.1192°
2	38.78034°	-105.1187°
3	38.78023°	-105.1196°
4	38.77852°	-105.1193°
5	38.77854°	-105.1191°
6	38.77797°	-105.1190°
7	38.77840°	-105.1153°
8	38.78256°	-105.1152°



This table has been posted onto the Exhibit D Map of the TR-08 document and the map has been annotated to show the corner locations.

We appreciate your comments and hope that this letter is responsive to the Adequacy Review of TR-08. We further hope that the revised Technical Revision will satisfy the Board's Order and that Mr. Pyles can return to his important work of supplying the Teller County community with aggregate. Should you have additional questions, comments, or require any information, please contact me at 303-808-6133 or at bren.shine@q.com.

Regards,
Realtime Aquifer Services

A blue ink signature of Brendan Shine, consisting of stylized, overlapping loops and lines.

Brendan Shine, P.E.
Senior Geological Engineer

A blue ink signature of William Pedler, featuring a large, circular loop followed by several smaller, more complex strokes.

William Pedler
President/ Geological Engineer

Cc: Chris Pyles, President
Teller County Planning Department

Attachment:
Technical Revision, Gillette Mine, Permit No. M-1992-009

cc: Chris Pyles, Gillette Sand and Gravel, Inc. Ute Pass Concrete-Sand & Gravel, utesng@yahoo.com
Jason Musick with DRMS, jason.musick@state.co.us

EXHIBIT D - Gillette Mine

Technical Revision to Exhibit D of the Mining Plan

This Technical Revision (TR) has been prepared to replace Exhibit D of the Department of Reclamation, Mining and Safety (DRMS), Permit No. M-1992-009 for the Gillette Mine (the mine). Changes to the original mining plan include relocation and improvements to the process ponds. The improvements will mitigate any potential process water releases by improving the structural integrity and functionality of the ponds. The changes will also provide a buffer zone and secondary containment to the west.

EXHIBIT D - Mining Plan

Conventional surface aggregate mining is expected to continue beginning in spring 2020, with completion of mining activities anticipated in fall 2040. Resources will be extracted using bulldozers and front-end loaders (or equivalent), with transport by truck and/or conveyor. Depending on the material to be mined, it may be sized at the extraction site using a portable, self-contained screening plant and/or transported to the on-site process and wash plant (the plant) for classification and fines removal.

Extraction

Gravel extraction in the central part of the permit area will proceed in a general northerly direction, with localized extraction to the south and east of the central part of the mine. In the south pit area, extraction will proceed to the south, then to the west. Gravel will be mined from approximately 32 acres of the 49.78 acre site. The approximate 15 acre willow-sedge wetland that traverses the central part of the site will not be mined. Location and flow in the stream channel in this part of the site varies because of beaver activities.

Prior to resource extraction, topsoil will be removed and stored in close proximity to the mine process plant site (the plant; Sediment Pond Schematic) to minimize disturbance during the mining operation. The site will be mined for gravel in areas outside of the wetlands illustrated in the Pre-Mining Map (Permit No. M-1992-009, Exhibit C). The Exhibit D map shows areas of previous gravel mining and topsoil salvage.

In excess of 250,000 cubic yards of aggregate removal are anticipated to depths of approximately 15 feet using conventional bulldozers and loaders. The mined material will be classified at the extraction area using a portable screening plant. If necessary, it will be transported to the plant by truck or conveyor for additional processing. The processed aggregate will be stored at the plant site until it is hauled away with end dump tractor-trailers or similar equipment.

Processing and support facilities will include two portable crushers with classifying screens, two portable stacking conveyors, a diesel generator, and one mobile service trailer for storing oil. A scale and a 250 square-foot scale house are located at the mine entrance.

Processing

Unless classification is performed at the extraction site by portable crushers, the plant will be used for gravel sorting. All washing (where required) will also be performed at the plant. The plant location is shown on Exhibit D.

Aggregate wash operations will use a zero-discharge system to remove unwanted fines. The water used in the system is purchased from the City of Cripple Creek, through an existing, on-site, metered tap. After it has been used, the sediment-laden process water is circulated from the wash plant through three sequential sedimentation (settling) ponds before it is pumped back to the plant for re-use.

Sediment Ponds

The three process settling ponds associated with the wash plant are used to remove sediment from the process water before it is returned to the plant for re-use. There is no discharge from the ponds into the surrounding environment.

The ponds are located in the northeast quadrant of the site, 30 feet east of the western mine permit (property line) boundary. The pond locations provide a buffer to prevent sediment and water from leaving the site in the event of a release. In addition, a low berm will be located along the western, and west corner of the northwest property lines to control potential runoff from the site and to provide secondary containment in the event of a release. Secondary Containment berm dimensions will be approximately 135' (north-south) by 135' (east-west), with a minimum height of 3' and a minimum width of 3'. These dimensions will be adjusted in the field, as necessary, to ensure the intended performance of the berm. The western boundary of the mine will be fenced using soft, 4-strand wire.

Process water will move by gravity to flow sequentially from the wash plant into Pond 1 for primary settlement. When Pond 1 has reached its freeboard, it will flow over a low concrete spillway to Pond 2 for secondary settlement. The process water will then flow from Pond 2, through a concrete trough to Pond 3, where it will be pumped from a central location in the pond, via an underground return pipe where it will be reused in the wash plant.

The pond berms are of earthen construction and will be reinforced with aggregate. They will be wide enough to allow a Volvo EC300 excavator (or equivalent) to track on them for periodic sediment cleanout and maintenance. Pond 2 will have a 20 (north-south) foot by 30 foot (east-west) earthen pad to facilitate sediment clean out with the excavator.

Process pond design dimensions will be as follows:

Pond No.	East-West (feet)	North-South (feet)	Max Volume (cf)
Pond 1	60	40	9,600
Pond 2	60	100	24,000
Pond 3	70	70	19,600

Each process pond will have a maximum water depth of approximately four feet and a minimum downstream freeboard of three feet.

Pond water levels (and corresponding sediment load) will be visually monitored and recorded weekly by on-site personnel using a staff gauge. Records of the visual measurements will be maintained on-site. A copy of the form to be used for pond level monitoring and sediment removal is included with this TR.

When process water levels approach the minimum freeboard (three feet), sediment will be excavated from each of the ponds as necessary to return them acceptable operational levels. To avoid interaction of the process water with groundwater, sediment pond will not be excavated beyond the base of the existing ground surface.

The sediment will be contained within a bermed area with dimensions of approximately 80' (north-south) by 200' (east-west), with a minimum height of 3' and a minimum width of 3'. These dimensions will be adjusted in the field, as necessary, to ensure the intended performance of the sediment containment berm.

The excavated pond sediment is used as subbase fill in the reclamation process, where it will be placed as needed, graded, then covered with topsoil and seeded in accordance with the Reclamation Plan.

Reclamation

Affected areas will be reclaimed within eight months after completion of mining so as to coincide with summer and fall months in accordance with the reclamation plan (Exhibit E of the Permit). The remaining period of active mining is estimated to be 20 years.

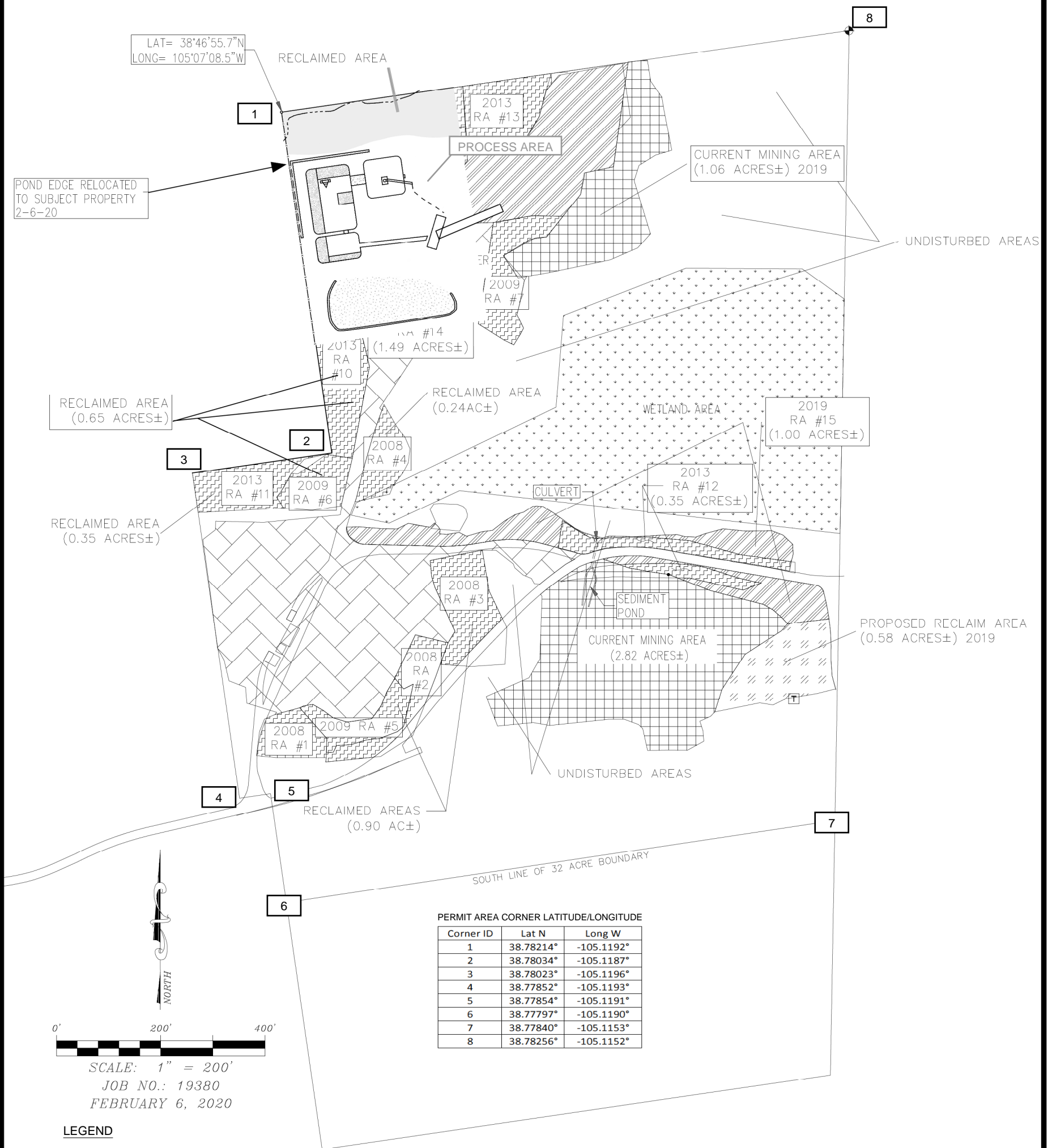
The process pond area will be reclaimed by allowing process water in the ponds to evaporate and/or be used for on-site beneficial uses, such as dust control or irrigation. Process water will not be released from the site. The pond berms and other features will be removed and graded smooth to approximate the surrounding drainage patterns and terrain. The area will then be reclaimed in accordance with the reclamation plan. Any excess soils, including sediment pond dredge spoils (that were not necessary for sediment pond area reclamation) will be used as fill in the reclamation of mined parts of the Permit Area.

Attachments

1. Sediment Pond Schematic
2. Exhibit D Site Map
3. Gillette Mine Process Pond Monitoring Form

DATE: Revised 05/11/2020

EXHIBIT D



LEGEND

- 7 Key to Permit Area corner latitude/longitude
- T TELEPHONE PEDESTAL
- AREA OF EXCAVATION TO BE RECLAIMED
- CURRENT MINING
- RECLAIMED AREA
- WETLAND
- MINED AREA
- FUTURE RECLAIMED MINING AREA
- RECLAIMED AREA 2019

AREA DESCRIPTION	ORIGINAL AREA		AREA AS OF 2019	
	SQUARE FEET	ACRES	SQUARE FEET	ACRES
2008 RECLAIMED AREA #1	9,808 S.F.	0.23 AC±	9,612 S.F.	0.22 AC±
2008 RECLAIMED AREA #2	13,858 S.F.	0.32 AC±	12,206 S.F.	0.28 AC±
2008 RECLAIMED AREA #3	22,521 S.F.	0.52 AC±	27,975 S.F.	0.41 AC±
2008 RECLAIMED AREA #4	10,423 S.F.	0.24 AC±	10,423 S.F.	0.23 AC±
2009 RECLAIMED AREA #5	11,049 S.F.	0.25 AC±	11,012 S.F.	0.25 AC±
2009 RECLAIMED AREA #6	10,429 S.F.	0.24 AC±	10,429 S.F.	0.24 AC±
2009 RECLAIMED AREA #7	28,731 S.F.	0.66 AC±	16,872 S.F.	0.38 AC±
2013 RECLAIMED AREA #8	18,890 S.F.	0.43 AC±	18,890 S.F.	0.43 AC±
2013 RECLAIMED AREA #9	46,737 S.F.	1.07 AC±	43,519 S.F.	1.00 AC±
2013 RECLAIMED AREA #10	23,652 S.F.	0.54 AC±	20,474 S.F.	0.47 AC±
2013 RECLAIMED AREA #11	15,220 S.F.	0.35 AC±	15,220 S.F.	0.35 AC±
2013 RECLAIMED AREA #12	24,395 S.F.	0.56 AC±	15,117 S.F.	0.35 AC±
2013 RECLAIMED AREA #13	19,743 S.F.	0.45 AC±	17,572 S.F.	0.40 AC±
2019 RECLAIMED AREA #14			65,118 S.F.	1.49 AC±
2019 RECLAIMED AREA #15			37,543 S.F.	0.86 AC±
TOTAL RECLAIMED AREA		5.86 AC±		7.36 AC±

Applicant: Gillette Sand
and Gravel, Inc.
Brendan Shine, P.E.
RealTime Aquifer Services

[Signature]



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PROJECT: GILLETTE PONDS

Exhibit D Showing Sediment Pond Area

Base Map: Rampart Surveys

DRAFTED BY: Ken Vogel

APPROVED BY: BFS

SCALE: 1 inch = 200 feet

DATE: Revised 05/11/2020

GILLETTE MINE PROCESS POND MONITORING RECORD

THIS FORM IS TO BE COMPLETED ON A WEEKLY BASIS OR WITHIN ONE DAY OF A PRECIPITATION EVENT
a copy of this record must be stored on-site

[illegible]