June 23rd, 2021

Mr. Eric Scott
Division of Reclamation, Mining, and Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203

RE: Preliminary Review of a 112 Construction Materials Reclamation Permit Amendment Application Package AM01, Nix Gravel Mine, Permit M-2001-046; Response #3

Dear Mr. Scott:

This letter is written in response to our conversation on June 17th and your subsequent conversation with Joshua Oliver of Ready Mixed Concrete Company on June 22nd.

While the operator believes that there is no reasonable expectation that adverse impacts to water quality will occur, the operator will commit to performing annual water quality monitoring. I have attached an updated Groundwater Monitoring Plan with a Groundwater Quality Monitoring Plan section added. The operator will sample water quality from these piezometers: Nix-Owens-Mon 4, Nix-Owens-Mon 5A, Nix-RMCC-Mon 6, Nix-RMCC-Mon 7, and Nix-RMCC-Mon 8 annually in June. The samples will be analyzed for the analytes listed in Tables 1 through 4 of the Water Quality Control Commission's "The Basic Standards for Ground Water," excluding the radiological section of Table 1. In the event of an exceedance of the standards set forth in Tables 1 through 4, the operator will notify the Division of Reclamation, Mining and Safety ("The Division") within 7 days of receiving the results. The water quality monitoring lab results will included in the site's annual report sent to the Division.

As noted in the previous adequacy review response sent on June 17th, 2021, the operator has performed baseline water quality sampling on the wells listed above on June 3rd, 2021. The lab results of this sampling will be made available to the Division through a Technical Revision once the results are available.

The price schedule for the Nix North Slurry Wall has been attached and the bonding for the slurry wall has been updated to reflect this.

Thank you for your review and please feel free to contact me with any questions or concerns.

Regards,

CIVIL RESOURCES, LLC

Kyle Regan
Project Geologist

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June 1st, 2021

Mr. Joshua Oliver
Ready Mixed Concrete Company
2500 E Brannan Way
Denver, CO 80229

RE: Nix Gravel Mine Amendment AM01 – Mitigation Plan for Potential Groundwater Impacts

Dear Mr. Oliver

The purpose of this memo is to describe the existing groundwater regime in the vicinity of the Nix gravel mine including the potential groundwater impacts of the new soil-bentonite slurry wall(slurry wall) installations and wet mining of the Siltation and Freshwater Ponds. The Nix site is bounded by Colorado State Highway 66 to the north, Weld County Road 19 to the east, Weld County Road 28 to the south and Weld County Road 17 to the west. More specifically, the site is within parts of Section 28, Township 3 North, Range 67 West, 6th P.M., County of Weld, State of Colorado. The site is 3,200' south east of the Saint Vrain River at its closest point. Land uses in the area include irrigated agricultural, oil and gas production, active gravel mines, mines reclaimed as below grade reservoirs, and low-density residential housing.

The Nix site will be mined in 3 stages comprising 7 cells. Stage 1 will consist of 2 unlined cells referred to as the freshwater pond and the siltation pond. The siltation pond will receive wash fines from the processing of mined sand and gravel. Stage 2 will be lined with a slurry wall and will contain Cell 3 and 4. Stage 3 will also be lined with a slurry wall and will contain Cells 5, 6, and 7.

Existing Groundwater Conditions

The near surface groundwater is part of an alluvial aquifer in which permeable sand and gravel alluvium overlies relatively impermeable bedrock of either the Fox Hills Sandstone and/or the Laramie Formation. Groundwater, measured in 8 piezometers, occurs at depths usually ranging from 5' to 26' feet with shallower groundwater to the north of the site. The prevailing groundwater flow at the site is to the north west reflecting the site topography. Groundwater in the area is tributary to the Saint Vrain River located north of the site. Locally the groundwater levels and flow directions are likely influenced by:

- The Saint Vrain River is north of the site. For most of the year, the river likely acts as a drainage way maintaining groundwater levels at elevations greater than water elevations in the river. In shorter periods of high run off, usually in the spring, river water levels will locally recharge the groundwater table.

- A lateral of the Last Chance Ditch traverses the Nix property from south to north between Cell 1 and Cell 7 and then follows the west permit boundary until it flows underneath Highway 66. The ditch may act like a drain during the non-irrigation season maintaining water levels at or above the water levels in the ditch. During the irrigation season, the ditch may serve as a source of recharge to the water table.

- There is a pond south of County Road 28. This pond likely causes elevated groundwater levels at the south of the site during the irrigation season.

- The Varra Pit to the northwest of the site likely causes some groundwater mounding (higher water levels) on the downgradient side of the site.

- Irrigation: The site is located in an area of irrigated cropland. Applied irrigation that is not lost to evaporation and transpiration likely recharges the groundwater.

- Alluvial wells: Other than the eight monitoring wells drilled at the site for monitoring groundwater levels, there are also eight pumping wells permitted within 600 feet of the mine property. There are three wells north of the site, three wells east of the site, one well south of the site and one well west of the site. If pumping, groundwater will be drawn to these wells.

Potential Slurry Wall and Mining Impacts to Local Groundwater Levels

For all lined cells, a properly constructed slurry wall will tend to isolate these cells from the surrounding alluvial groundwater table. The liner around these cells could cause "mounding" of groundwater (increase in groundwater elevation) on the upgradient side (south and south east) of the lined cells and a potential "shadow effect" (reduction in groundwater level) on the downgradient side (north and northwest) of the mine. Because the liner will tend to isolate these cells from the surrounding groundwater table, the effects of dewatering when mining lined cells will tend to not extend beyond the liner.

Any mounding effect on the upgradient side of the site (south and southwest) is anticipated to be on the order of a few feet or less and will dissipate with distance from the mine. Similarly, shadowing effects will be on the order of a few feet and will dissipate with distance from the mine. The shadowing effects will be minimized by the presence of the Saint Vrain River to the northwest and the Last Chance Ditch that runs between the site and the Varra Pit.

Dewatering of the unlined cells (Cells 1 and 2) will result in decreases in water levels around these cells. Since there are no wells permitted within 600' of the unlined cells, the effects of dewatering the unlined cells will be minimal.

Area Wells

A review of the permitted wells on file with the State Engineer's Office (SEO), Division of Water Resources (DWR) indicates that there are eight permitted pumping wells within 600 feet of the permit boundary. All of these wells are screened in the alluvium. None of these wells are within 600 feet of the unlined cells (Cells 1 and 2)

Wells within 600 feet of the permit boundary are discussed below:

- Varra Companies Inc Well (Permit #74385-F): Located to the west and downgradient of the slurry wall lined Cell 4. This well may see a groundwater shadow effect from the slurry wall which will be minimized by it's proximity to the lateral of the Last Chance Ditch that runs between the well and the slurry wall

- Johnson Well (Permit #219284): Located north and downgradient of the slurry wall lined Cell 4 across State Highway 66. This well may see a groundwater shadow effect from the slurry wall which will be minimized by it's proximity to the lateral of the Last Chance Ditch.

- Marquez Well (Permit #152561--A): Located north and downgradient of the slurry wall lined Cell 4 across State Highway 66. This well may see a groundwater shadow effect from the slurry wall which will be minimized by it's proximity to the lateral of the Last Chance Ditch.

- Kurtz Estates Well (Permit #152516): Located north and downgradient of the slurry wall lined Cell 4 across State Highway 66. This well may see a groundwater shadow effect from the slurry wall which will be minimized by it's proximity to the lateral of the Last Chance Ditch.

- Mayer Family Farms LLC Well (Permit #15399-R): Located north east and cross gradient of the slurry wall lined Cell 3. The effects of the slurry wall are anticipated to be minimal for this well.

- Joe and Chris Miller Well (Permit #212993): Located east and upgradient of the slurry wall lined Cell 3. There may be a mounding effect from the slurry wall on the order of a couple feet.

- Ralph Nix Produce Well(Permit #200374): Located southeast and upgradient of the slurry wall lined Cell 3. There may be a mounding effect from the slurry wall on the order of a couple feet.

- Mayer Family Farm Well (Permit #15750-R-R): Located south and upgradient of the slurry wall lined Cell 6. There may be a mounding effect from the slurry wall on the order of a couple feet.

Groundwater Level Monitoring and Mitigation Plan

Dewatering during mining of Cells 1 and 2 is unlikely to affect any wells in the area. However, if the miner receives a complaint, the following mitigation plan will be implemented.

The site monitoring wells will be measured monthly to identify potential changes in alluvial groundwater flow or elevation associated with mining and reclamation activities. Baseline data collected from the monitoring program will provide a range of relative water levels associated with premining groundwater conditions. Experience at other mines in similar geologic settings has found that groundwater levels tend to fluctuate being highest in the summer irrigation season and lowest in the winter and early spring.

If, during mining or reclamation, the relative seasonal groundwater elevation at any monitoring wells differs from baseline conditions by more than 2 feet, and the condition was not observed during baseline monitoring, or if the miner receives a complaint from any well owner within 600 feet of the site boundary, then the miner will evaluate the cause and will notify the DRMS within 7 days..

After the DRMS has been notified, the miner will review the data and available information and submit a report to the DRMS within 30 days. The evaluation will include discussions with the well owner who has contacted the miner regarding a concern and review of baseline data from the well and vicinity to evaluate whether changes may be due to seasonal variations, climate, mining, slurry wall lining or other factors. The report will identify the extent of potential or actual impacts associated with the changes. If the extent of groundwater changes due to mining or reclamation activities is determined to be a significant contributing factor that has or may create adverse impacts, the mining associated impacts will be addressed to the satisfaction of the DRMS.

Miner will begin implementing one or more mitigation measures if mining and reclamation activity is determined to be a significant factor to groundwater changes requiring mitigation.

Mitigation measures may include, but are not limited to:

- Placing water in a recharge pond to raise groundwater levels around the well.

- Constructing a local clay liner at the edge of the mine Cell (i.e. between the dewatering point and the well) in order to raise water levels on the well side of the liner and mitigate dewatering effects.

- Cleaning the well to improve efficiency.

- Providing an alternative source of water or purchasing additional water to support historic well use in terms of water quantity and quality. If needed, water quality parameters will be checked in affected wells to ensure alternative sources support historic use.

- Modifying a well to operate under lower groundwater conditions. This could include deepening the well or lowering pumps. All work would be done at the miner's expense with the exception of replacing equipment that was non-functional prior to mining.

Groundwater Quality Monitoring Plan

Since mining operations at the site will take place inside of slurry wall lined cells, except for establishing the Freshwater Pond and Siltation Pond, it is unlikely that these operations will have a negative effect on groundwater quality. To establish pre-mining groundwater quality for the site, RMCC sampled wells Nix-Owens-Mon 4, Nix-Owens-Mon 5A, Nix-RMCC-Mon 6, Nix-RMCC-Mon 7, and Nix-RMCC-Mon 8 on June 3rd, 2021. The samples collected were tested for the water quality analytes listed in Tables 1 through 4 of "The Basic Standards for Ground Water," excluding the radiological section of Table 1.

To establish that mining has had no negative affect on water quality in the area, RMCC will sample the wells listed above annually during the month of June. The water quality samples will be tested for the analytes listed in Tables 1 through 4 of "The Basic Standards for Ground Water," excluding the radiological section of Table 1. RMCC will notify DRMS within 7 days of receiving a lab report that indicates any of the standards set forth in Tables 1 through 4 have been exceeded. If a lab report indicates an exceedance, a new sample will be taken to verify the exceedance and discount lab contamination. Any water quality lab results will be included in the DRMS annual report for the site.

Annual groundwater testing will be conducted for the life of the mine unless the requirement has been reduced or eliminated through the Technical Revision process with the DRMS.

Attachments:
Existing Conditions Map
Proposed Reclamation Map

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Nix North Slurry Wall Cost Schedule		
Mobilization	$	512,000.00
Survey	$	58,000.00
Topsoil Strip	$	25,368.00
Construction Platform	$	40,547.00
Supplemental Fines	$	96,725.00
Leak Test	$	189,000.00
Reseeding	$	50,000.00
Slurry Wall	$	2,263,680.00
Structural Crossings	$	32,000.00
Utility Crossings	$	30,000.00
Bentonite	$	167,680.00
Project Management	$	262,400.00
Total=	$	3,727,400.00

Slurry Wall Area		524,000
Cost Per Square Foot	**$**	**7.11**

EXHIBIT L - RECLAMATION COST

Activity	Quantity	Units	Unit Costs	Cost
A. Processing area/Office/Shop (Equipment: Excavators, Dozers, Tractor, Water Truck)				
1 Remove concrete pad for wash plant	15	CY	$ 65.00	$ 975.00
2 Demolish and remove shop	1	LS	$ 2,000.00	$ 2,000.00
3 Remove concrete footings for office	8	CY	$ 65.00	$ 520.00
4 Remove concrete base for scale	10	CY	$ 65.00	$ 650.00
5 Scarify ground	7	Acres	$ 150.00	$ 1,050.00
6 Spread 6" topsoil	5,650	CY	$ 0.75	$ 4,237.50
7 Seed and Mulch	7	Acres	$ 900.00	$ 6,300.00
			Subtotal	$ 15,732.50
B. Concrete Batch Plant. (Equipment: Excavator, Tractor, Dozer)				
1 Remove 30'x50' pad for concrete batch plant	55	CY	$ 65.00	$ 3,575.00
2 Scarify ground	2	Acres	$ 150.00	$ 300.00
3 Spread 6" topsoil	1,613	CY	$ 0.75	$ 1,209.75
4 Seed and Mulch	2	Acres	$ 900.00	$ 1,800.00
			Subtotal	$ 6,884.75
C Asphalt Batch Plant. (Equipment: Excavator, Tractor, Dozer)				
1 Remove concrete pad for lime silo	10	CY	$ 65.00	$ 650.00
2 Remove footings for aggregate bins	6	CY	$ 65.00	$ 390.00
3 Remove footings for drum mixer	20	CY	$ 65.00	$ 1,300.00
4 Remove footings for loadout silo	20	CY	$ 65.00	$ 1,300.00
5 Scarify ground	4	Acres	$ 150.00	$ 525.00
6 Spread 6" topsoil	2,777	CY	$ 0.75	$ 2,082.75
7 Seed and Mulch	4	Acres	$ 900.00	$ 3,600.00
			Subtotal	$ 9,847.75
D. Freshwater and Silt Pond (Equipment: Excavators, Dozers, Scrapers, Water Truck)				
1 Backfill Fresh Water Pond 7 acres, 47 feet deep, 60% recovery	169,000	CY	$ 2.05	$ 346,450.00
2 Backfill Siltation Pond 20 acres, 47 feet deep, 60% recovery	668,000	CY	$ 2.05	$ 1,369,400.00
3 Scariffy Ground	27	Acres	$ 150.00	$ 4,050.00
4 Spread 6" topsoil	22,000	CY	$ 1.50	$ 33,000.00
5 Seed and Mulch	27	Acres	$ 900.00	$ 24,300.00
			Subtotal	$ 1,777,200.00
E. Area Surrounding Lined Reservoirs (Equipment: Dozers, Scrapers, Water truck)				
1 Scariffy Ground	35	Acres	$ 150.00	$ 5,250.00
2 Spread 6" topsoil	28,000	CY	$ 1.50	$ 42,000.00
3 Seed and Mulch	35	Acres	$ 900.00	$ 31,500.00
			Subtotal	$ 78,750.00
F. Slurry Wall @ 100% Installation Cost ($7.11 per SF) per DRMS Bonding Requirement. Assumes 61'(North) and 52'(South) average depth (including 4' key into bedrock.) South slurry wall will not be constructed for more that 2 years. Equipment used- Excavators, Dozers, Scrapers, Water Truck				
North Slurry Wall @100%, 9,421 linear feet of slurry wall	524,000	SF	$ 7.11	$ 3,727,400.00
South Slurry Wall @0%, 9,159 LF(Will be bonded prior to starting construction)	479,693	SF	$ 7.11	$ -
			Subtotal	$ 3,727,400.00
Total Disturbance Costs				**$ 5,615,815.00**
Indirect Costs				
Overhead & Profit				
Performance Bond (2.02%) - Based on DRMS estimate				$ 113,439.46
Performance Bond (3.07%) - Based on DRMS estimate				$ 58,966.06
Job Superintendent (240 hours @ $75/hr) - Based on DRMS estimate				$ 18,000.00
Contractor Mob and DeMob (3%) - Based on DRMS estimate not including slurry wall				$ 56,652.45
Contractor Overhead and Profit (10%) - Based on DRMS estimate not including slurry wall				$ 188,841.50
			Subtotal	$ 435,899.47
Contract Amount (direct + O & P)				**$ 6,051,714.47**
Legal, Engineering & Project Management				
Financial warranty processing (legal/related costs) ($500)				$ 500.00
Engineering Work and/or contract/bid preparation (4.25%)				$ 257,197.86
Reclamation management and/or administration (5%) - Based on DRMS estimate				$ 302,585.72
Contingency (3%)				$ 168,474.45
			Subtotal	$ 728,758.04
Total Indirect Costs				$ 1,164,657.51
Total Bond Amount				$ 6,780,472.51