J&T Consulting, Inc.

May 21, 2024

Mr. Rob Zuber
Environmental Protection Specialist
State of Colorado
Division of Reclamation, Mining, and Safety
Physical Address:
1313 Sherman Street, Room 215
Denver, CO 80203
Mailing Address:
Division of Reclamation, Mining and Safety, Room 215
1001 East 62nd Avenue
Denver, CO 80216

RE: Bernhardt Sand and Gravel Pit, File No. M-2023-025,
112c Permit Application, Second Adequacy Review

Dear Mr. Zuber,

WW Clyde & Co. (WW Clyde) has received the Division's Second Adequacy Review letter dated April 17, 2024. Below are the comments and the corresponding responses that we have provided to address the comments.

Comments

6.4.3 Exhibit C - Pre-Mining and Mining Plan Maps of Affected Land

3) The South Platte River must be shown and labeled on maps C-1 and C-2, per Rule 6.4.3(b).

No additional response required, but it is suggested that the symbology and legend on the maps in Exhibit C be improved. The same symbol is used for the dewatering trench and the edge of the river; this is confusing. Also, the term "Edge of River" is not clear; should it be "West Bank" instead? The 400-foot setback is not included in the legend.

Response: Acknowledged. See updated maps.

6.4.4 Exhibit D - Mining Plan

4) Please discuss if processing will entail washing of the product and if a pond or ponds will be included in the process area. If so, add a discussion to the text of Exhibit D and to Map C-2.

The Direction of Mining arrows on Map C-2 imply that mining will occur in the area where the Sediment Pond and Clearwater Pond will be constructed. Please explain in Exhibit D if these ponds will be constructed after this area is mined and how that impacts the process of washing material. Will the ponds need to be constructed twice during the life of the mine?

Response: The ponds will be constructed once and the area will be mined at the

end of the mining when no washing will be occurring once the final mining is completed with the final reclamation.

6) Exhibit D needs to include a discussion of stabilization of topsoil stockpiles (Rule 3.1.9(3)).
It does not appear that this text was added to Exhibit D. (It does appear that the text for Item #5 was added twice.) Please revise Exhibit D to discuss stabilization of topsoil stockpiles.

Response: See updated Exhibit D with the following text: "For topsoil stockpiles, the stabilization includes roughening to help with wind erosion as well as re-vegetating with appropriate seed mixes to minimize erosion and establish more rapidly to stabilize the stockpiles. If a stockpile remains more than one growing season, it will be seeded with the seed mix as recommended by the DRMS and in the reclamation plan in Exhibit E" with cyan highlighting.

7) Exhibit D should include a discussion of the structures that will be constructed for the mining operation, including buildings and roads. The discussion must include dimensions and general construction methods. (For example, will foundations include rebar reinforcement?)
The text needs to include dimensions for the concrete pads that will serve as foundations for the scale and scale house.

Response: See updated Exhibit D with the following text: "The scale house will be founded on typical trailer type jacks and tiedowns on top of concrete pads that are typically 2 feet x 2 feet x 1.5 feet deep with minimal rebar to provide reinforcement. The scale will also be founded on concrete pads with reinforcement where load cells are located for the scale, these are typically 12' long by 3 feet wide and 3 feet deep. These foundations would be removed once the pit is fully mined" with cyan highlighting.

6.4.7 Exhibit G – Water Information

16) The McGrane report and associated conclusions will be reviewed by a groundwater hydrologist with the Division, and an additional adequacy letter will be sent in October or November 2023.
Please see the enclosure with a review by a Division Groundwater Hydrologist, Patrick Lennberg.
Response: Acknowledged. See below responses for Groundwater Review Memo.

17) To ensure that the Bernhardt Pit does not impact the hydrologic balance of the river, the application needs to include a water quality monitoring plan, specifically for the alluvium. The groundwater monitoring plan should be developed in accordance with Rule 3.1.7(7)(b) and should include a Quality Assurance Project Plan (QAPP) for the collection of groundwater samples. The plan should provide mitigation steps if there is an exceedance at a groundwater or surface water monitoring location. Potential impacts to quality and/or quantity of nearby domestic wells should also be addressed. A copy of the Division's enclosure to this letter for your reference**.**
Please see the enclosure with a review by a Division Groundwater Hydrologist, Patrick Lennberg.

Response: Acknowledged. See below responses for Groundwater Review Memo.

6.4.8 Exhibit H – Wildlife Information

19) The applicant must address the comments of the Colorado Parks and Wildlife Division (CPW), which are enclosed with this review letter. Each of the comments must be directly addressed in your response letter, and, as applicable, comments must also be addressed by revising Exhibit H. Where necessary, add commitments for future studies or other actions. Note that CPW recommends a setback from the river of 500 feet. While this would be preferable in the context of wildlife protection, the Division believes that the 400-foot setback described in Exhibit G, above, is sufficient. Please consider the 400-foot option to protect wildlife as well as protect the riverbanks from erosion.

The Division has consulted with Colorado Parks and Wildlife, and we are requiring that another raptor survey be conducted prior to mobilization of earth-moving equipment or excavation at the site. In Exhibit H, please commit to conduction this survey and providing the results to the Division. These results need be submitted to the Division as a Technical Revision and submitted at least 30 days prior to mobilization of earth-moving equipment or excavation.

Response: WW Clyde commit to conducting a raptor survey prior to mobilization of earth-moving equipment or excavation at the site. The survey will be conducted and results submitted to the DRMS as a technical revision 30 days prior to mobilization of earth-moving equipment or excavation. (See highlighted text in updated Exhibit H with cyan highlighting)

6.5 Geotechnical Stability Exhibit

DRMS is reviewing the geotechnical analysis and our comments will be sent in October or November 2023.

DRMS is reviewing the geotechnical analysis and responses. Our comments will be sent under separate cover.

Response: Acknowledged.

Also, the Division will be working on the reclamation cost estimate in the near future and will be in touch with questions.

Response: Acknowledged.

Groundwater Review Memo No. 2

1. The Applicant proposes to only collect groundwater samples from two locations, one downgradient and one upgradient. The Applicant will need to expand groundwater sampling to include all four monitoring well locations to demonstrate that existing and reasonably potential future uses of groundwater are protected (Rule 3.1.7(8)) and no unauthorized release of pollutants to groundwater shall occur from any materials mined, handled, or disposed of within the permit area (Rule 3.1.5(11)).

Response: The sampling plan has been updated to include all the monitor wells.

2. Pursuant to Rule 3.1.7(7)(b)(ii) and (iv), please provide the method of well sampling and a description of the quality control and quality assurance methods (e.g., duplicate samples, rinsate samples) to be used during groundwater sampling.

Response: The sampling plan has been updated to include the methods as well as the quality control and quality assurance methods to be used during groundwater sampling. See the updated text in Exhibit G with cyan highlighting.

3. Please commit to providing the quarterly groundwater monitoring results along with the monthly groundwater level measurements by the following deadlines:

   First quarter report due by May 1st of every year.
   Second quarter report due by August 1st of every year.
   Third quarter report due by November 1st of every year.
   Fourth quarter report due by February 1st of the following year.

   The report should, at a minimum, include a site map with well locations, tabulated data for all parameters, graphs/plots of selected parameters, a narrative analysis of the data with any trends and/or anomalies identified, and graphs and tables of measured groundwater levels for all locations. The Applicant should be prepared to submit field sheets that demonstrate monitoring wells were purged and sampled according to the approved plan.

   At the end of five quarters, the Applicant may submit a Technical Revision to reduce the analyte list and frequency of monitoring with sufficient justification.

   Response: WW Clyde commits to providing the quarterly reporting as stated.

4. Please commit to establishing a point(s) of compliance following five (5) quarters of baseline monitoring in accordance with Rule 3.1.7(6).

   Response: WW Clyde commits to establishing points of compliance following five quarters of baseline monitoring. Monitor Well 3 located on the west side of the permit boundary will be used as a background water quality sampling location and the remaining three monitoring wells as points of compliance (POC), the POCs will be Monitor Wells 1, 2, and 4. See the updated Exhibit G and updated text with cyan highlighting.

5. Exhibit G needs to be updated with a discussion of mitigation measures regarding groundwater mounding approaching the surface. Include in the discussion triggers for the initiation of mitigation measures.

   Response: The first mitigation measure will be the construction of a groundwater drain as detailed in the McGrane response attached. The design and construction of the groundwater drain will be at the same time the slurry wall design and construction are completed so there will be minimal affect on the groundwater elevations. The drain will be constructed to a depth deep enough to control groundwater mounding from surfacing. Stop logs will be used to control groundwater elevations such that the drain does not drop the elevation to much or raise the elevation where mounding could occur. The trigger points would be levels of plus or minus 2 feet of difference from the baseline seasonal groundwater levels in MW-1 through MW-4 where stop log elevations could be adjusted to either lower or raise groundwater levels to their historic seasonal elevations. See the updated Exhibit G and updated text with

***cyan highlighting*.**

6. Please clarify whether or not the results presented in the SGS table are total or dissolved.

   Response: The results are dissolved for the metals.

Groundwater Model Review

7. The Division was not able to review Attachment 11 - McGrane Groundwater Model Update and Responses, as it appears it was not included with the adequacy review responses. Please submit the missing attachment.

   Response: The McGrane response is attached.

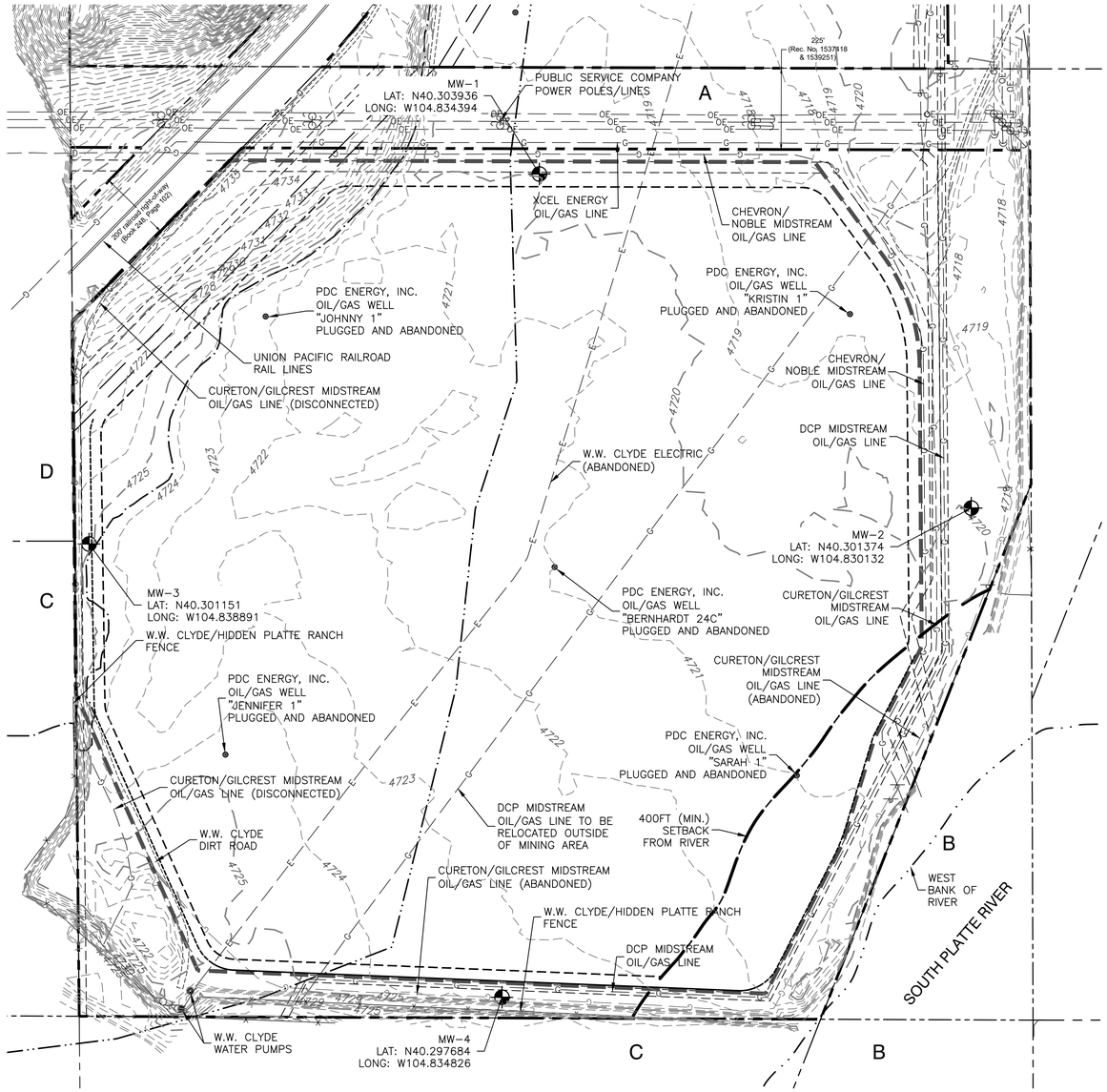
WW Clyde appreciates your consideration of this adequacy review response.

Please feel free to contact me with any questions or comments.

Sincerely,

J.C. York, P.E.
J&T Consulting, Inc.

Attachments:
1. Updated Exhibit C-1, C-2, F-1 and F-2 Maps
2. Updated Exhibit D
3. Updated Exhibit G
4. Updated Groundwater Monitor Well Readings
5. Updated Groundwater Quality Testing Readings
6. McGrane Groundwater Model Update and Responses
7. Updated Exhibit H



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SCALE IN FEET

LEGEND:

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- PROPERTY LINE
- EXISTING FENCE
- EXISTING ROADS
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING POWER POLE
- EXISTING OIL/GAS LINE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING 100 YR FLOODPLAIN
- EXISTING 100 YR FLOODWAY
- PERMIT BOUNDARY
- MINING LIMIT
- WEST BANK OF RIVER
- 400FT SETBACK FROM RIVER BANK
- SLURRY WALL
- DEWATERING TRENCH
- STOCKPILE AREA
- A — PROPERTY OWNER MAP ID

PROPERTY OWNERS WITHIN 200 FEET

MAP ID	NAME/ADDRESS	ASSESSORS ID NO.
A	PUBLIC SERVICE COMPANY OF COLORADO TAX SERVICE DEPARTMENT PO BOX 1979 DENVER, CO 80201-1979	105924000019
B	HALFLIGHT LAND & MINERALS, LLC 4420 SUMAC LANE LITTLETON, CO 80123-2743	105729100002
C	HIDDEN PLATTE RANCH, LLC PO BOX 331 MILLIKEN, CO 80543-0331	105924000039
D	CHERYL KASTEN KAREN CURRIER CARLENE STROH 511 N SHOLDT DRIVE PLATTEVILLE, CO 80651-7583	105924000036

VEGETATION:

ALL AREAS WITHIN THE PERMIT BOUNDARY ARE CURRENTLY AGRICULTURAL CROP AND PASTURE LAND.

NOTE:
W.W. CLYDE & CO. IS THE SURFACE AND SUBSURFACE OWNER WITHIN THE PERMIT AREA.

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.jtconsulting.com

Bernhardt Sand And Gravel Pit

Exhibit C1 - Pre-Mining Plan Map

W.W. Clyde & Co.

REVISIONS

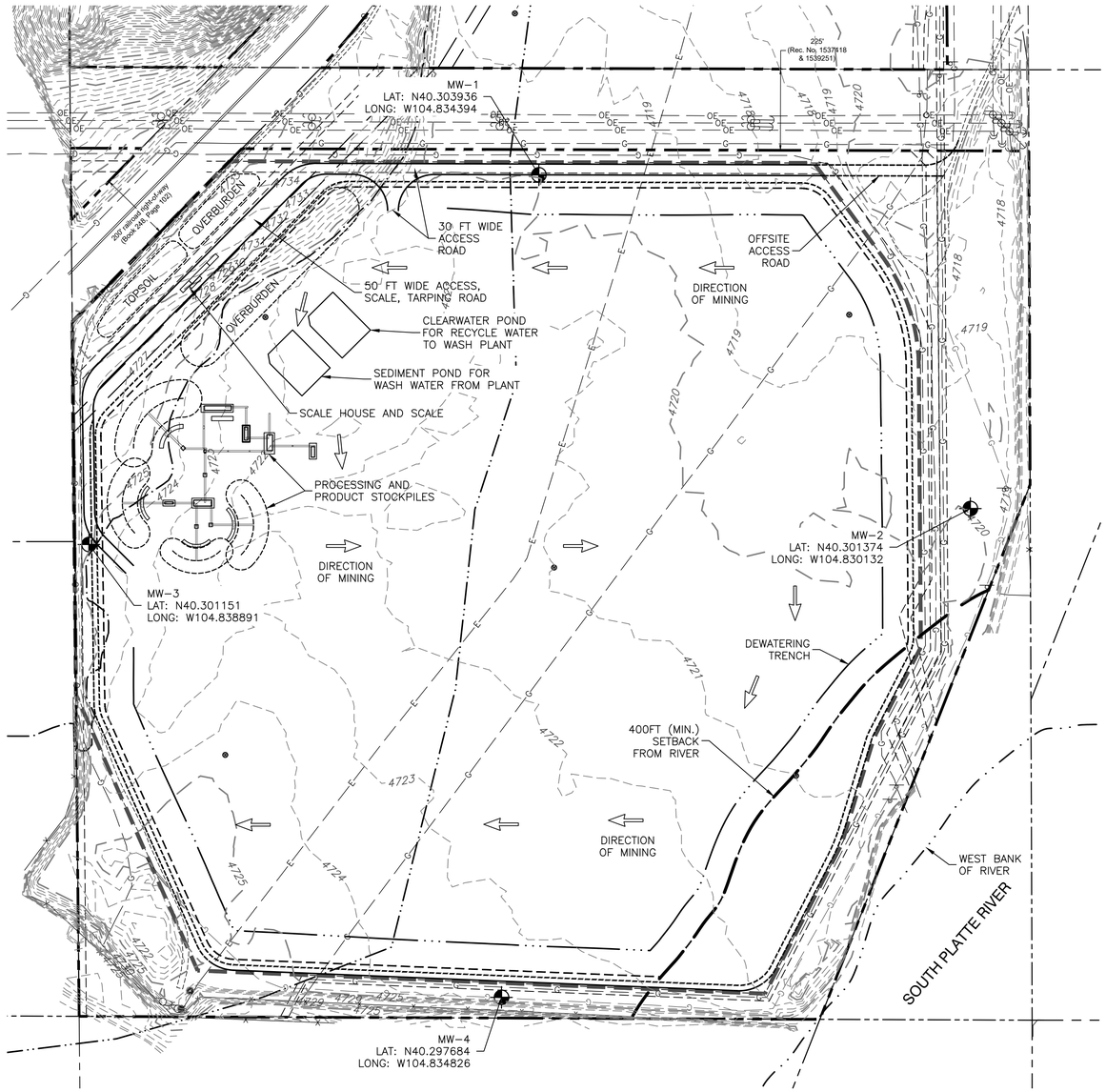
No	Description	Date	By	Chk

J&T Consulting, Inc.

J.C. York

Job #	22036
Date	03.12.24
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	JT-IHCS Bernhardt Mining.dwg
Scale	As Shown

Sheet: 1 Of: 2



PERMIT AREA = 111.01 AC
MINING AREA = 98.24 AC

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SCALE IN FEET

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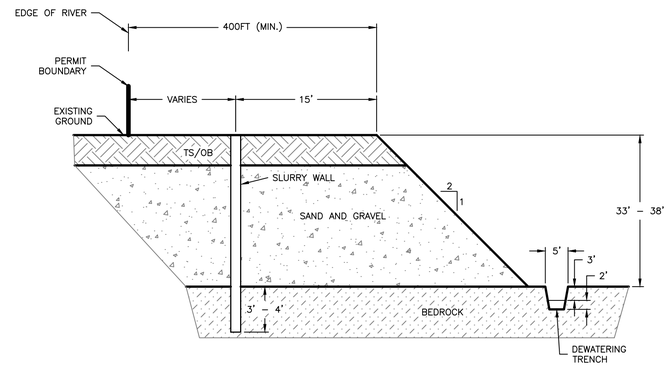
x x	EXISTING FENCE
	EXISTING ROADS
OE	EXISTING OVERHEAD ELECTRIC
E	EXISTING UNDERGROUND ELECTRIC
	EXISTING POWER POLE
G	EXISTING OIL/GAS LINE
	EXISTING RIGHT-OF-WAY
	SECTION LINE
	EXISTING 100 YR FLOODPLAIN
	EXISTING 100 YR FLOODWAY
	PERMIT BOUNDARY
	MINING LIMIT
	WEST BANK OF RIVER
	400FT SETBACK FROM RIVER BANK
	SLURRY WALL
	DEWATERING TRENCH
	STOCKPILE AREA
A	PROPERTY OWNER MAP ID



TYPICAL MINING SECTION
N.T.S.

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.j-tconsulting.com

Bernhardt Sand And Gravel Pit

Exhibit C2 - Mining Plan Map

W.W. Clyde & Co.

REVISIONS

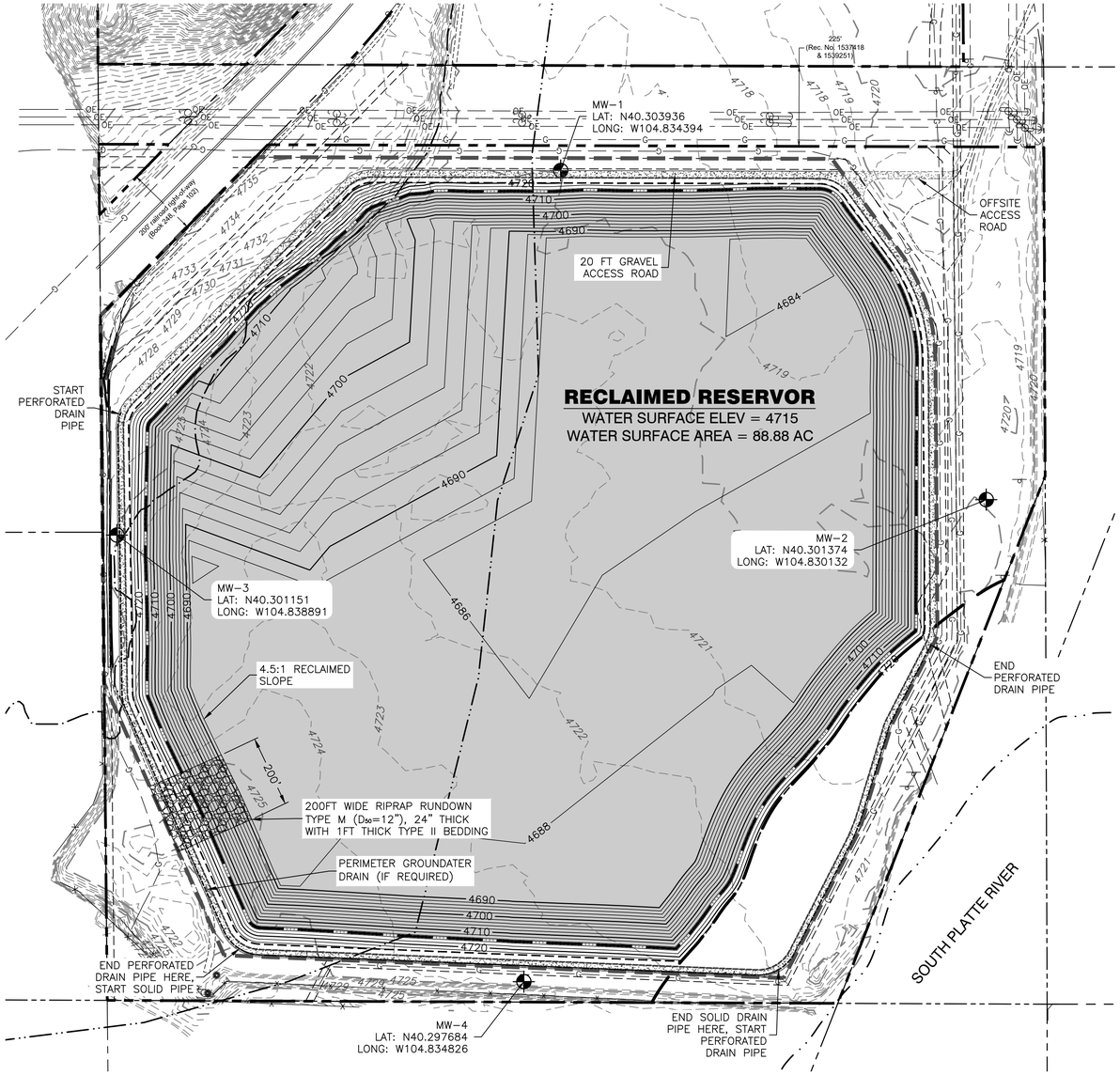
No	Date	By	Chk	Description

J&T Consulting, Inc.

J.C. York

Job #	22036
Date	03.12.24
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	JT-IHCS Bernhardt Mining.dwg
Scale	As Shown

Sheet: 2 Of: 2



LEGEND:

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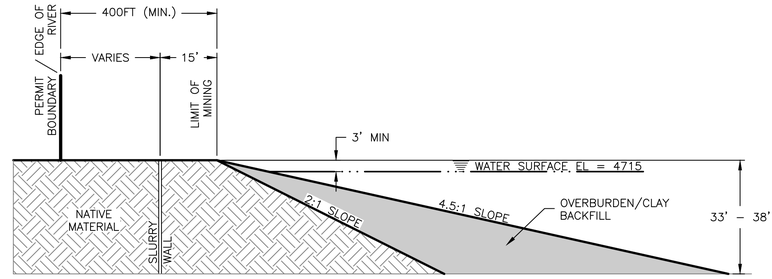
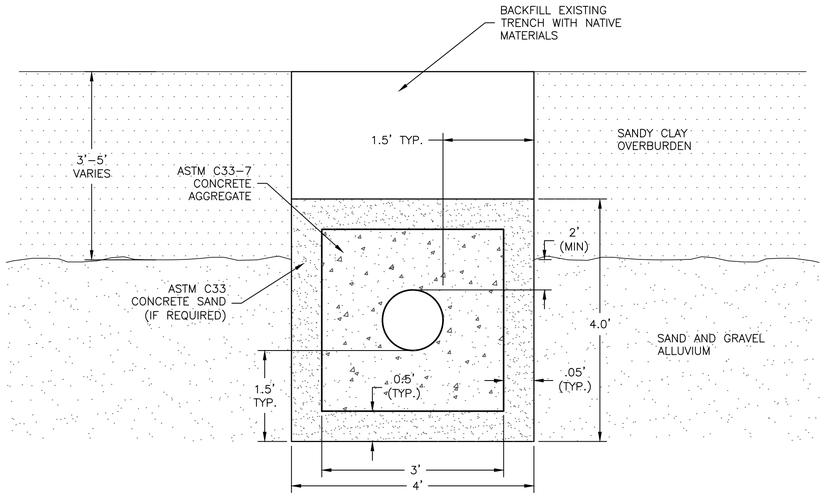
- PROPOSED CONTOURS
- PROPERTY LINE
- EXISTING FENCE
- EXISTING ROADS
- EXISTING GAS LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING POWER POLE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING 100 YR FLOODPLAIN
- EXISTING 100 YR FLOODWAY
- PERMIT BOUNDARY
- WEST BANK OF RIVER
- 400FT SETBACK FROM RIVER BANK
- SLURRY WALL
- RESERVOIR WATER SURFACE
- PERIMETER DRAIN (IF NEEDED)
- SCARIFY, TOPSOIL, SEED AREA



TYPICAL RECLAMATION SECTION
N.T.S.



PERIMETER GROUNDWATER DRAIN (TYPICAL SECTION IF REQUIRED)
N.T.S.

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.jtconsulting.com

Bernhardt Sand And Gravel Pit

Exhibit F1 - Reclamation Plan Map

W.W. Clyde & Co.

REVISIONS

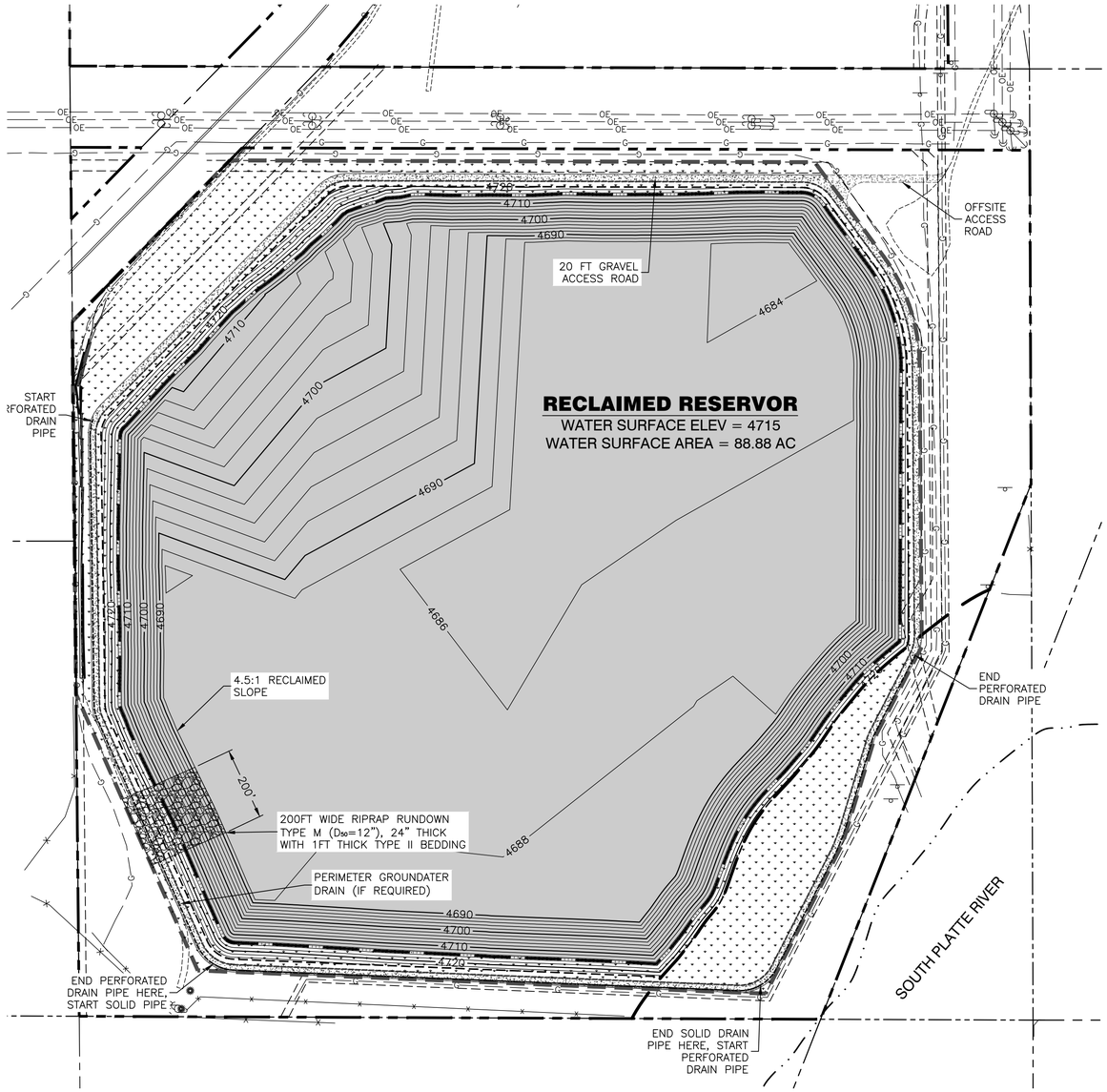
No	Date	By	Chk	Description

J&T Consulting, Inc.

J.C. York

Job #	22036
Date	03.12.24
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	JT-IHCS Bernhardt Rec.dwg
Scale	As Shown

Sheet: 1 Of: 2



LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPERTY LINE
- EXISTING FENCE
- EXISTING ROADS
- EXISTING GAS LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING POWER POLE
- EXISTING RIGHT-OF-WAY
- SECTION LINE
- EXISTING 100 YR FLOODPLAIN
- EXISTING 100 YR FLOODWAY
- PERMIT BOUNDARY
- WEST BANK OF RIVER
- 400FT SETBACK FROM RIVER BANK
- SLURRY WALL
- RESERVOIR WATER SURFACE
- PERIMETER DRAIN (IF NEEDED)
- SCARIFY, TOPSOIL, SEED AREA

NOTE:

ALL DISTURBED AREAS OUTSIDE OF THE WATER SURFACE WILL BE SEEDED AND MULCHED, WITH THE EXCEPTION OF THE ACCESS ROAD, WHICH WILL BE GRAVEL SURFACED.

RECLAIMED AREA TABULATION:

WATER SURFACE = 92.35 AC
GRAVEL ACCESS ROAD = 3.59 AC
SCARIFY, TOPSOIL, SEED AREA = 15.07 AC
TOTAL AREA = 111.01 AC

N

200 100 0 200 400 600

SCALE IN FEET

J&T Consulting, Inc.
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Fort Lupton, CO 80621
Ph: 303-857-6222
www.jtconsulting.com

Bernhardt Sand And Gravel Pit

Exhibit F2 - Reclamation Seeding Map

W.W. Clyde & Co.

REVISIONS

No	Date	By	Chk	Description

J&T Consulting, Inc.

J.C. York

Job #	22036
Date	03.12.24
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	JT-IHCS Bernhardt Rec.dwg
Scale	As Shown

Sheet: 2 Of: 2

EXHIBIT D

Mining Plan

Mining Limits

WW Clyde proposes to mine in the land located in the parcel of land situated in the northeast 1/4 of Section 24, Township 4 North, Range 67 West of the 6th Principal Meridian, in Weld County, Colorado.

The proposed mining site is located within the Town of Milliken. CR 46 is north of the property and an access road from the property connects to CR 46 near the intersection of CR 46 and CR 25. The South Platte River is adjacent to the property and approximately 880 feet south of the site on the south side of the permit boundary and 140 feet from the east side of the permit boundary. The dominant land use surrounding the property is agricultural use and industrial use.

An aggregate processing plant will be located in Phase 1. These areas will contain stockpiles, portable equipment, storage bins, and silos as necessary to support the plant operations. Mining will start from the northeast corner of the mining limit then moving south approximately to one third of the property then west, then moving south to another third of the property back to the east, then moving south to the final third of the property to the west to complete mining and reclamation.

All local, State, and Federal rules and regulations will be followed for the storage and handling of any petroleum products.

The permit boundary will encompass approximately 111.01 acres which will all be affected acreage, and approximately 98.24 acres being mined. The remaining area will consist of access roads and disturbed land. The following table depicts the different affected acreage:

Affected Acreage	**Mining Plan Area (acres)**
Mined Area	98.24
Access Roads	2.36
Disturbed Land	10.41
TOTAL	**111.01**

Various setbacks from adjacent roads, adjacent structures, and oil and gas infrastructure will be maintained as mining occurs. The final executed agreements are expected to be obtained in the near future and will be forwarded to the Division when they are available. A minimum 200-foot setback from any existing oil/gas facility will be maintained until that time. See Exhibit C, Mining Plan Map, and the Slope Stability Report for the mining limit configuration and information on setbacks and their locations. The abandoned wells would be cutoff after mining has reached the bedrock surface or the reclaimed slope surface where a new cap and any additional concrete for the existing plug would be needed. Petroleum Development Corporation (PDC) is the leaseholder and operator of the existing abandoned wells. Discussions with PDC have indicated they would cut down the existing casings as mining occurs. We have also worked with McCarty Engineering, LLC to provide this service at other mining permit locations for other operators. If PDC does not want to perform this work then McCarty Engineering, LLC would be contacted to do it. They are licensed and bonded to obtain approvals from the COGCC to do these types of re-plug services on abandoned oil and gas wells.

Products

Sand and gravel will be the primary product produced from the Bernhardt Sand and Gravel Pit. The principal intended use for the sand and gravel is for road base and construction aggregates.

Subsurface drilling and testing have verified that the Bernhardt Sand and Gravel Pit property contains a significant commercial deposit of sand and gravel. The depth of clay, interbedded sandy clays and clayey to silty sands at the surface range from 1 to 8 feet. The thickness of the aggregate material ranges from 4 to 37 feet where bedrock contact occurs.

Mining Methods

The deposit will be dry mined and a slurry wall will be constructed around the perimeter of the mining area for Phase 1. Mining will not expose groundwater prior to the slurry wall being constructed around the perimeter of Phase 1. Design specifications for the slurry wall and quality control procedures used during construction will ensure that the reclaimed reservoir meets State Engineer's Office (SEO) performance standards. Dewatering trenches will be excavated around the perimeter of each mining area prior to mining operations commencing. The depth of the ditches will vary as the mining progresses deeper into the alluvium in order to maintain the groundwater level below the active mining bottom surface, and therefore minimize the exposed groundwater surface area. The dewatering ditches will flow to a collection pond, from which the water will be pumped and discharged into recharge areas where overflow will reach a ditch that flows to the South Platte River.

The equipment and facilities may include, but are not limited to the following:

Scaling Equipment

A scale house and scale will be used to weigh trucks and product leaving the pit. The dimensions of the scale house are 40’ x 12’ and the scale will be 70’ by 10’. The scale house will be founded on typical trailer type jacks and tiedowns on top of concrete pads that are typically 2 feet x 2 feet x 1.5 feet deep with minimal rebar to provide reinforcement. The scale will also be founded on concrete pads with reinforcement where load cells are located for the scale, these are typically 12’ long by 3 feet wide and 3 feet deep. These foundations would be removed once the pit is fully mined.

Processing Equipment

Screens, wash plant, crusher, conveyors, stackers, and other miscellaneous processing equipment. All processing equipment will be mobile and temporary without fixed foundations. Washing will occur at the wash plant and excess water from the washing will be recycled to the wash water ponds within the processing area, there will be a sedimentation pond that will receive the excess water first and then and overflow from the sedimentation pond to the clear water pond for re-using the water and pumping back to the wash plant.

Earth Moving Equipment

Dozers, loaders, scrapers, excavators, and compactors will be used for mining and earth moving operations.

Haul Roads and Access Roads

Haul roads will be graded and constructed using the existing pit run where needed outside the processing area in order to move material from the mine using haul trucks, loaders, or scrapers. These roads will be mined and removed as the mining is completed.

Access roads to the processing plant will be constructed with aggregates made at the site where the entrance to the permit boundary is located to the scale house and through the scaling area until the access reaches the stockpile locations. The roads around the stockpiles will be constructed from the existing pit run similar to the haul roads.

Miscellaneous Equipment

Dewatering pumps, electrical trailer, generator trailer, small portable generators and watering trucks will be used as needed.

As mining progresses, topsoil and overburden will be stripped to expose the aggregate product below. Topsoil will be stripped and salvaged from areas where overburden material will be stockpiled. All soil and overburden material will be used on-site for reclamation; so long-term stockpiling of these materials is not anticipated. Overburden stockpiles will be located within the proposed mining area. The stockpiles will be placed parallel to the floodplain to mitigate impacts to the floodplain.

Mining of the aggregate will progress down to the underlying bedrock. Since reclamation will occur concurrently with mining, it is not anticipated that overburden material will be stockpiled long-term prior to use in the slope reclamation and also the production of road base. During mining the mining face for Phase 1 will have a 2H:1V slope to bedrock or the bottom of the future reclaimed reservoir and the reclamation slope will be constructed using the excess overburden to a 4.5H:1V slope. The processed aggregate material will be temporarily stockpiled near the portable processing plant.

Recommendations for monitoring of slope stability, including, conducting a visual inspection of the excavated slopes on a weekly basis for the duration of mining, conducting a visual inspection after a major precipitation event that has saturated the ground using the same procedures, contacting qualified personnel to evaluate and recommend remediation work to stabilize the area in the event a visual inspection detects signs of potential slope failure, and if no visible signs of slope failures are detected during mining, reducing visual inspections to once every six months after mining completion, or after every major precipitation event.

All local, State, and Federal rules and regulations will be followed for the storage and handling of any fuel for the facilities.

Topsoil Handling Plan

As stated previously the topsoil will be stripped to expose the aggregate product underlying the topsoil. The topsoil will be stripped using scrapers and stockpiled in the topsoil stockpile as depicted in Exhibit C. For topsoil stockpiles, the stabilization includes roughening to help with wind erosion as well as re-vegetating with appropriate seed mixes to minimize erosion and establish more rapidly to stabilize the stockpiles. If a stockpile remains more than one growing season, it will be seeded with the seed mix as recommended by the DRMS and in the reclamation plan in Exhibit E.

The volume of topsoil for all the mining phases is approximately 13,000 cubic yards. The depth of the topsoil is approximately six inches over the majority of the mining area. The topsoil will be stripped and stockpiled during each phase of mining where topsoil will only be removed for Phase 1 as Phase 1 is mined. Mining will start from the northeast corner then moving south

approximately to one third of the property then west, then moving south to another third of the property back to the east, then moving south to the final third of the property to the west to complete mining and reclamation. The height of the topsoil stockpile will be approximately 15 feet to 20 feet.

Mine Phasing

WW Clyde anticipates mining and reclaiming the Bernhardt Sand and Gravel Pit in 1 phase, progressing through this phase as shown on the Mining Plan Map. The overall time required to complete the mining and reclamation is estimated to be 11 years based on an average rate of 650,000 tons per year. The initial production is expected to be 300,00 tons per year with the maximum production expected to be 1,000,000 tons per year. However, it is possible that due to demand fluctuations, mining could progress slower than anticipated and additional time may be required for mining and reclamation of the site.

Phase 1 is 98.24 acres and the estimated time for mining Phase 1 is approximately 11 years.

The mining will progress beginning at the outer edge of the phase where material will be moved toward the interior of the phase such that the mining slope can be established. The mining slope will be established for the entire perimeter of the phase in 3 to 6 feet intervals.

Dewatering

Dewatering trenches will be placed along the perimeter of Phase 1. The dewatering trench around the perimeter of the phase being mined will be placed at the toe of the mining slope. As the phase is mined deeper the dewatering trench will be lowered and moved laterally along the mining slope toward the center of that phase. A slurry wall is anticipated to be installed around the perimeter of Phase 1 prior to exposing groundwater and mining will continue to commence and it is expected minimal dewatering will be required after the slurry wall is installed due to the slurry wall cutting off groundwater infiltration into the pit. WW Clyde will have an approved substitute water supply plan and well permit prior to exposing groundwater. The substitute supply plan will be updated annually to account for water that is consumed due to exposing groundwater by the mining operation.

Explosives

Explosives will not be used during mining.

EXHIBIT G

Water Information

Introduction

WW Clyde proposes to mine in the land located in the parcel of land situated in the northeast 1/4 of Section 24, Township 4 North, Range 67 West of the 6th Principal Meridian, in Weld County, Colorado.

The proposed mining site is located within the Town of Milliken town limits. CR 46 is north of the property and an access road from the property connects to CR 46 near the intersection of CR 46 and CR 25. The South Platte River is adjacent to the property and approximately 880 feet south of the site on the south side of the permit boundary and 180 feet from the east side of the permit boundary. The operation will consist of sand and gravel production and will impact the South Platte River in the form of depletions due to evaporation and operational losses associated with mining. Mining of the Bernhardt Sand and Gravel Pit mining site will last for approximately 11 years. Once reclamation is complete a reservoir will be created with a total surface area being 92.35 acres.

The depth to groundwater ranges from 3 to 7 feet seasonally within the permit boundary (measured in MW-1 through MW-4, See the attached piezometer measurements table). The site will be mined down to a depth of 37 feet at the deepest depth thus exposing groundwater to the atmosphere. This exposed groundwater, along with the operational losses associated with the extraction of sand and gravel deposits, will impact the South Platte alluvial aquifer. These impacts will cause river depletions that must be augmented. Groundwater will be exposed during the mining once the mining depths reach an elevation of approximately 4713.8.

To enable dry mining at the Bernhardt Sand and Gravel Pit mining site, there will be dewatering trenches around the perimeter of Phase 1. These dewatering trenches will change in length throughout mining. The maximum length will occur when Phase 1 is completely mined. The maximum size of dewatering trench will be 5,430 feet long and 5 feet wide, or 0.62 acres of exposed surface area. water will be pumped into dewatering ditch, which traverses the site, and ultimately into the South Platte River.

As mining progresses, the dewatering trenches will shift as mining slopes are reclaimed. The gravel pit will have a slurry wall liner being constructed as mining commences in Phase 1.

Water Requirements

Water use at the Bernhardt Sand and Gravel Pit mining site will include evaporation from exposed groundwater, dust control of haul roads and stockpiles, water for the wash plant (i.e. wash screen for concrete rock and sand) and water retained in material removed from the site.

Evaporative Loss

Evaporative losses are dependent on the exposed water surface area, which may shift throughout the mining operation, but will not exceed the maximum. Exposed surface area at the Bernhardt Sand and Gravel mining site will include groundwater exposed in the dewatering trenches. The

maximum exposed surface area at the site during mining is estimated at 1.80 acres. WW Clyde plans to keep the site dewatered throughout the life of the mine.

Evaporation data was taken from NOAA Technical Report NWS 33, Evaporation Atlas for the 48 Contiguous United States. The annual gross evaporation was determined to be 45 inches for this location. Monthly evaporation percentages are established by guidelines set by the State Engineer's Office. To determine precipitation, data from the National Weather Service for Greeley, CO (UNC) (1967-2022) was used. The long-term average precipitation at the Bernhardt Sand and Gravel Pit mining site is estimated at 14.26 inches. Effective precipitation is calculated as 70% of the total precipitation. The net evaporation is the difference between gross annual evaporation and effective precipitation. The resulting net evaporation is 2.56 feet.

The maximum evaporative loss from the 1.80 acres is 4.61 ac-ft.

Operational Loss

The average annual production from the Bernhardt Sand and Gravel Pit mining site is estimated at 650,000 tons. Using 4% moisture content (2% for moisture in the product and 2% for water used to wash), the total associated consumptive use for water retained in the material mined and water used for washing is 19.13 ac-ft.

Dust control and water use is 10,000 gal/day, 6 days/week, 4 weeks/month for 10 months of the year. This equates to 7.4 ac-ft.

Maximum annual operational loss is estimated to be 26.53 ac-ft for Phase 1.

Consumptive Use

The maximum annual consumptive use (operational loss + evaporation loss) at this site during the mining operation is estimated to be 31.14 ac-ft for Phase 1.

Replacement Water

The replacement of consumptive uses at the site is will be accounted for in a substitute water supply plan (SWSP) approved by the State Engineer. The SWSP will be obtained prior to any mining activities occurring that expose groundwater.

Surrounding Water Rights

The attached Figure A-1 Well Permits in the Bernhardt Sand and Gravel Pit – Groundwater Evaluation by McGrane Engineering, LLC shows the permitted wells within 600 feet of the mining limits and permitted wells within the boundaries of the groundwater model/evaluation. The well information and locations were obtained from the Division of Water Resources online mapping well permit locator. This well and water rights information was cross checked with the State's CDSS. Between the sources, all permitted and decreed wells are included. Table G-1 below is a corresponding list of wells as numbered in the Bernhardt Sand and Gravel Pit – Groundwater Evaluation by McGrane Engineering, LLC that is attached that are within 600 feet of the mining limits.

Table G-1 - Permitted and Decreed Wells Within 600 Feet of Mining Limits								
No.	**Permit No**	**WDID**	**Well Name**	**Owner**	**Address**	**City**	**State**	**Zip Code**
1	14477-F-R (Replaced 014477F Shows Expired on DWR Website)	0208226	Stroh Well (Irrigation)	Cheryl L. Kasten, Carlene M. Stroh, Karen S. Currier	511 North Sholdt Drive	Platteville	CO	80651
2	42519-F	0205536	Bernhardt Well (Irrigation)	WW Clyde (Purchased Property in 2022)	10303 E. Dry Creek Road, Suite 300	Englewood	CO	80112
3	85-R-R	0205392	Bernhardt Well #5 (Irrigation)	WW Clyde (Purchased Property in 2022)	10303 E. Dry Creek Road, Suite 300	Englewood	CO	80112
4	5-WCB	No WDID	CWCB Well	Violet Montgomery	No Street Address Provided on Permit	Eagle	CO	No Zip Code Provided on Permit
5	13701-F (Red Tag in Photos Showing Do Not Divert dated 2019)	0205393	Bernhardt Well #6 (Irrigation)	Herbert B. Bernhardt	500 Broad Street	Milliken	CO	80543

At the time of SWSP application/approval, a new gravel pit well permit will be applied for/obtained to include the evaporative and operational losses from the property. If the proposed use of groundwater at the Bernhardt Sand and Gravel Pit mining site results in material injury to surrounding wells, WW Clyde will ensure that all necessary measures are taken to address the issues.

Water Quality

An NPDES permit will be obtained from the Water Quality Control Division at the Colorado Department of Public Health & Environment for the Bernhardt Sand and Gravel Pit mining site prior to discharging any groundwater that is dewatered from the site. This permit will be kept current and amended as necessary to ensure that any water discharged from the site will meet the permitted water quality standards.

Impacts to Groundwater/Hydrologic Balance

WW Clyde will monitor the groundwater levels surrounding the site and provide groundwater recharge via a groundwater drain as shown on the reclamation plan. The groundwater drain size will be provided with the groundwater drain plan and profiles prior to installation of the slurry wall at the same time that the slurry wall design/construction drawings are provided to the DRMS prior

to installation of the slurry wall. WW Clyde will discharge dewatering flows into existing adjacent irrigation laterals where possible to limit the disturbance to the surrounding land or obtain an agreement with one of the adjacent land owners to discharge the dewatering flows directly to the South Platte River. A slurry wall liner is proposed around the individual phase and will be installed prior to mining starting.

The first mitigation measure will be the construction of a groundwater drain as detailed in the McGrane response attached. The design and construction of the groundwater drain will be at the same time the slurry wall design and construction are completed so there will be minimal affect on the groundwater elevations. The drain will be constructed to a depth deep enough to control groundwater mounding from surfacing. Stop logs will be used to control groundwater elevations such that the drain does not drop the elevation to much or raise the elevation where mounding could occur. The trigger points would be levels of plus or minus 2 feet of difference from the baseline seasonal groundwater levels in MW-1 through MW-4 where stop log elevations could be adjusted to either lower or raise groundwater levels to their historic seasonal elevations.

To summarize the mitigation process, as each phase of mining/dewatering occurs, WW Clyde will monitor the groundwater levels adjacent to mine as each phase progresses. If groundwater levels drop to a level that prevents an adjacent well from performing acceptably, according to that well's owner, WW Clyde will either implement a groundwater recharge ditch/pond near the well in order to raise the groundwater level in the vicinity of the well and hence return it's operation to acceptable standards, or will negotiate an agreement with that well owner to replace the well or provide replacement water via other means until the mining and reclamation activities are concluded but it is not anticipated that any groundwater levels will drop since the slurry wall and groundwater drain will be installed prior to exposing groundwater.

Groundwater wells that are not owned by WW Clyde (Table G-1) are potentially located within 600 feet of the mining limits. The exact physical location of these wells will be determined during the SWSP and well permit application processes. If wells are found to be within 600 feet of the mining limits, WW Clyde will either obtain a well waiver from the owner of the well, or provide an agreement with the well owner that WW Clyde will mitigate any material damage to the well that is directly attributable to the mining and reclamation of the site.

All other wells within 600 feet of the mining limits are either owned by WW Clyde, or are monitoring wells therefore groundwater impacts to these wells do not need to be addressed.

See the attached Piezometer Location Map, and Piezometer Data Summary, which show the locations of monitoring wells around the perimeter of the site that WW Clyde has either installed or has access to, and the groundwater level data that has been collected for each well. The groundwater monitoring data will be provided for what has been done to date with this permit application/adequacy review and then submitted at the following frequency to the DRMS:

First quarter report due by May 1st of every year.
Second quarter report due by August 1st of every year.
Third quarter report due by November 1st of every year.
Fourth quarter report due by February 1st of the following year.

The report will include a site map with well locations, tabulated data for all parameters, graphs/plots of selected parameters, a narrative analysis of the data with any trends and/or anomalies identified, and graphs and tables of measured groundwater levels for all locations. The

field sheets will be included in an appendix that demonstrates monitoring wells were purged and sampled according to the approved plan.

Groundwater Quality Monitoring Plan

The majority of the mining operations at this site will be within the slurry wall lined area. The areas outside of the slurry wall will be limited to the scale house and haul roads for trucks coming into and out of the pit, which are not likely to affect groundwater quality.

To establish pre-mining groundwater quality at the site WW Clyde will have four monitor wells sampled quarterly. The samples will be taken by a qualified consultant and then tested by SGS Laboratories for the analytes listed in Tables 1-4 of the "Basic Standards for Groundwater."

The quarterly sampling will continue until 5 quarters of data has been established. Once the baseline has been established, we would recommend annual sampling to monitor the groundwater quality and a technical revision will be submitted to request the change.

WW Clyde commits to establishing points of compliance following five quarters of baseline monitoring. Monitor Well 3 located on the west side of the permit boundary will be used as a background water quality sampling location and the remaining three monitoring wells as points of compliance (POC), the POCs will be Monitor Wells 1, 2, and 4.

When obtaining a monitor well sample typically at least 3 well volumes will be taken from the well to make sure a true groundwater sample is obtained. During the purging time, measuring pH, temperature, EC will occur at different times until stabilization occurs. Then the sample will be collected and placed in the lab provided bottle(s) for unfiltered samples. The sample will then be filtered prior to placement into the lab bottle(s) for SGS to run the testing on for the dissolved metals from Table 41. Sampling and collection of the groundwater from the monitor wells will reference the USGS National Field Manual for Collecting Water Quality Data Chapter A.4 Collection of Water Quality Samples and EPA Region 9 Groundwater Sampling Guide.

The groundwater quality sampling data will be provided for what has been done to date with this permit application/adequacy review and then submitted in the quarterly report for the pit to the DRMS after approval of the permit application. WW Clyde will notify the DRMS within 7 days of receiving a lab report that indicates any of the standards set forth in Tables 1-4 have been exceeded. If a lab report shows an exceedance, a new sample will be taken to verify exceedance or discount potential lab contamination.

The groundwater quality testing data will be provided for what has been done to date with this permit application/adequacy review and then submitted at the following frequency to the DRMS:

First quarter report due by May 1st of every year.
Second quarter report due by August 1st of every year.
Third quarter report due by November 1st of every year.
Fourth quarter report due by February 1st of the following year.

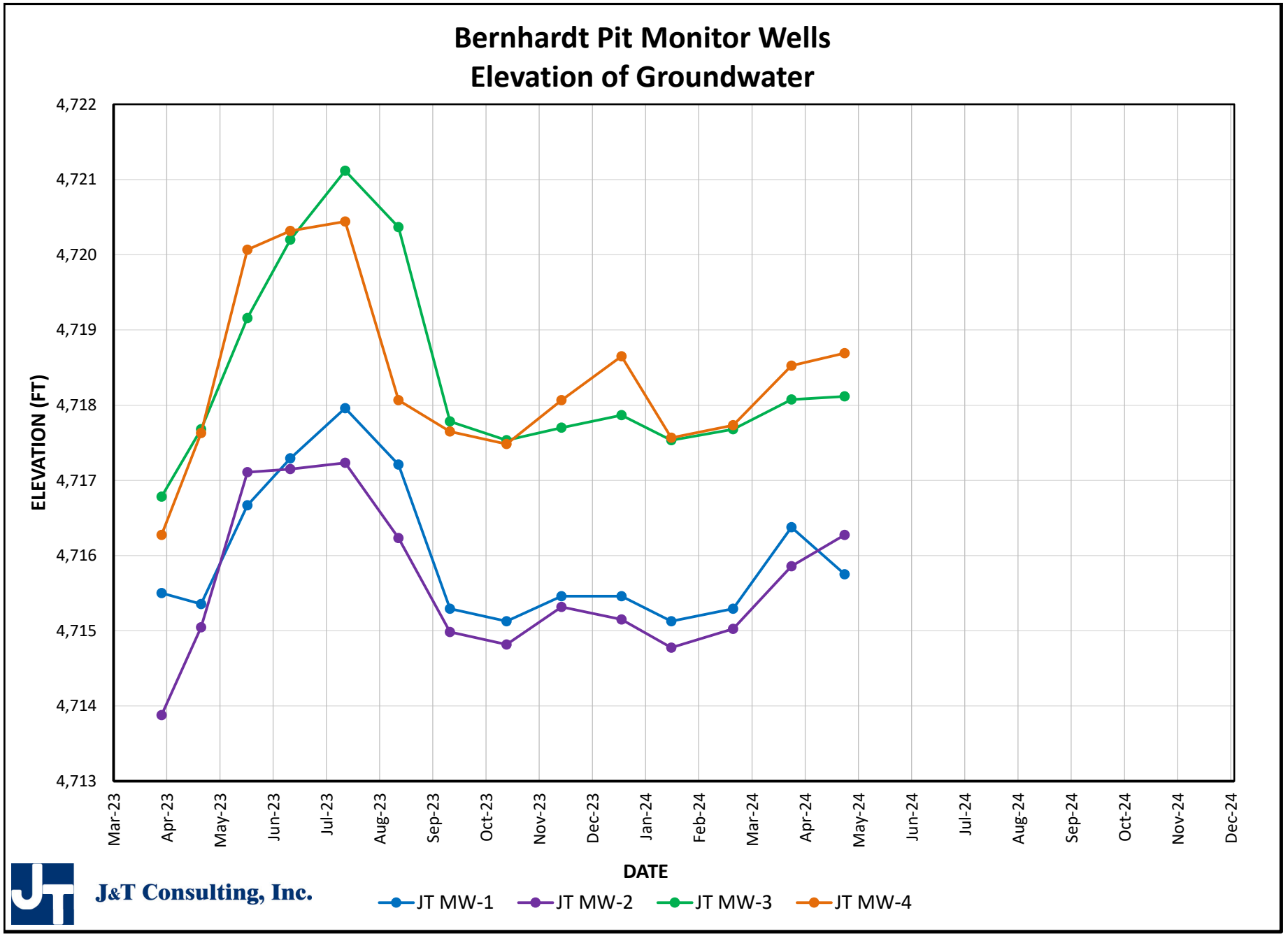
The report will include a site map with well locations, tabulated data for all parameters, graphs/plots of selected parameters, a narrative analysis of the data with any trends and/or anomalies identified, and graphs and tables of measured groundwater levels for all locations. The

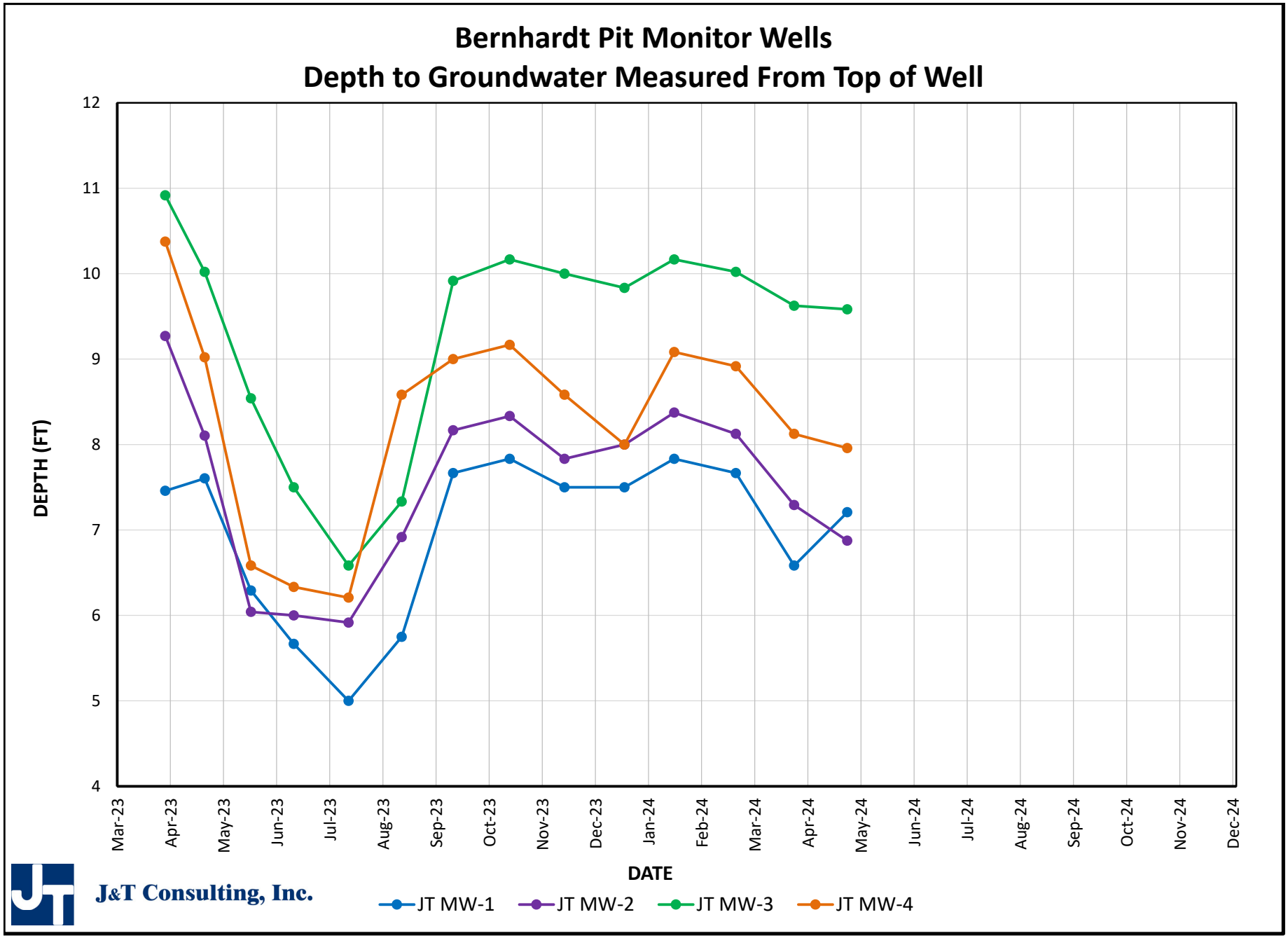
field sheets will be included in an appendix that demonstrates monitoring wells were purged and sampled according to the approved plan.

Bernhardt Pit - Monitor Well Readings

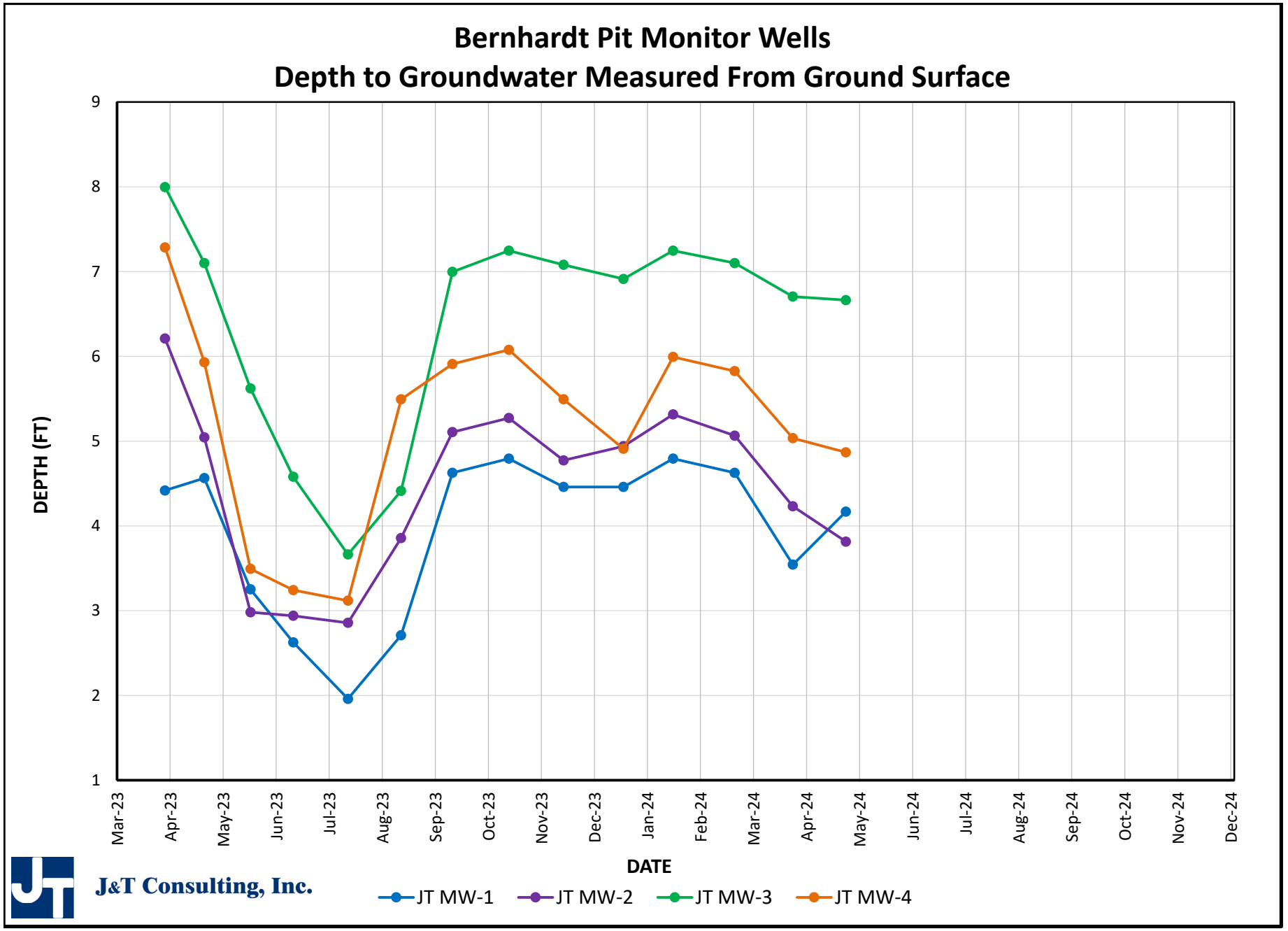
Well Designation	JT MW-1				JT MW-2				JT MW-3				JT MW-4			
Description	North Side				East Side				West Side				South Side			
Top of Well Elevation (ft)	4722.96				4723.15				4727.70				4726.65			
Ground Elevation (ft)	4719.92				4720.09				4724.78				4723.56			
Date	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Average Elevation of Groundwater for Month (ft) (average readings for each month for different years i.e. March 2023 and 2024 divided by 2)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Average Elevation of Groundwater for Month (ft) (average readings for each month for different years i.e. March 2023 and 2024 divided by 2)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Average Elevation of Groundwater for Month (ft) (average readings for each month for different years i.e. March 2023 and 2024 divided by 2)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Average Elevation of Groundwater for Month (ft) (average readings for each month for different years i.e. March 2023 and 2024 divided by 2)
March 29, 2023	7.46	4.42	4715.50	4715.50	9.27	6.21	4713.88	4713.88	10.92	8.00	4716.78	4716.78	10.38	7.29	4716.28	4716.28
April 21, 2023	7.60	4.56	4715.36	4715.36	8.10	5.04	4715.05	4715.05	10.02	7.10	4717.68	4717.68	9.02	5.93	4717.63	4717.63
May 18, 2023	6.29	3.25	4716.67	4716.67	6.04	2.98	4717.11	4717.11	8.54	5.62	4719.16	4719.16	6.58	3.49	4720.07	4720.07
June 12, 2023	5.67	2.63	4717.29	4717.29	6.00	2.94	4717.15	4717.15	7.50	4.58	4720.20	4720.20	6.33	3.24	4720.32	4720.32
July 14, 2023	5.00	1.96	4717.96	4717.96	5.92	2.86	4717.23	4717.23	6.58	3.66	4721.12	4721.12	6.21	3.12	4720.44	4720.44
August 14, 2023	5.75	2.71	4717.21	4717.21	6.92	3.86	4716.23	4716.23	7.33	4.41	4720.37	4720.37	8.58	5.49	4718.07	4718.07
September 13, 2023	7.67	4.63	4715.29	4715.29	8.17	5.11	4714.98	4714.98	9.92	7.00	4717.78	4717.78	9.00	5.91	4717.65	4717.65
October 16, 2023	7.83	4.79	4715.13	4715.13	8.33	5.27	4714.82	4714.82	10.17	7.25	4717.53	4717.53	9.17	6.08	4717.48	4717.48
November 17, 2023	7.50	4.46	4715.46	4715.46	7.83	4.77	4715.32	4715.32	10.00	7.08	4717.70	4717.70	8.58	5.49	4718.07	4718.07
December 22, 2023	7.50	4.46	4715.46	4715.46	8.00	4.94	4715.15	4715.15	9.83	6.91	4717.87	4717.87	8.00	4.91	4718.65	4718.65
January 20, 2024	7.83	4.79	4715.13	4715.13	8.38	5.32	4714.78	4714.78	10.17	7.25	4717.53	4717.53	9.08	5.99	4717.57	4717.57
February 25, 2024	7.67	4.63	4715.29	4715.29	8.13	5.07	4715.03	4715.03	10.02	7.10	4717.68	4717.68	8.92	5.83	4717.73	4717.73
March 30, 2024	6.58	3.54	4716.38	4715.94	7.29	4.23	4715.86	4714.87	9.63	6.70	4718.08	4717.43	8.13	5.04	4718.53	4717.40
April 30, 2024	7.21	4.17	4715.75	4715.55	6.88	3.82	4716.28	4715.66	9.58	6.66	4718.12	4717.90	7.96	4.87	4718.69	4718.16
May 31, 2024																
June 30, 2024																
July 31, 2024																
August 31, 2024																
September 30, 2024																
October 31, 2024																
November 30, 2024																
December 31, 2024																
Minimum	5.00	1.96	4715.13		5.92	2.86	4713.88		6.58	3.66	4716.78		6.21	3.12	4716.28	
Maximum	7.83	4.79	4717.96		9.27	6.21	4717.23		10.92	8.00	4721.12		10.38	7.29	4720.44	
Average	6.97	3.93	4715.99		7.52	4.46	4715.63		9.30	6.38	4718.40		8.28	5.19	4718.37	

Monitor Well Locations in decimal degrees
MW -1 - LAT N40.303936, LONG W104.834394
MW -2 - LAT N40.301374, LONG W104.830132
MW - 3 - LAT N40.301151, LONG W104.838891
MW - 4 - LAT N40.297684, LONG W104.834826


Bernhardt Pit Monitor Wells
Elevation of Groundwater
ELEVATION (FT)
4,722
4,721
4,720
4,719
4,718
4,717
4,716
4,715
4,714
4,713
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Nov-24
Dec-24
DATE
J&T Consulting, Inc.
JT MW-1
JT MW-2
JT MW-3
JT MW-4


Bernhardt Pit Monitor Wells
Depth to Groundwater Measured From Top of Well
DEPTH (FT)
12
11
10
9
8
7
6
5
4
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
May-24
Jun-24
Jul-24
Aug-24
Sep-24
Oct-24
Nov-24
Dec-24
DATE
J&T Consulting, Inc.
JT MW-1
JT MW-2
JT MW-3
JT MW-4

Bernhardt Pit Monitor Wells
Depth to Groundwater Measured From Ground Surface



J&T Consulting, Inc.

Report of Analysis

Client Sample ID:	BARNHARDT SAND AND GRAVEL PIT (MW-2)		
Lab Sample ID:	DA62542-3	**Date Sampled:**	03/01/24
Matrix:	AQ - Ground Water	**Date Received:**	03/01/24
		Percent Solids:	n/a
Project:	Material Sites WQ Testing		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
9056A							
Fluoride	0.80	0.20	mg/l	2	03/01/24 21:45	MB	SW846 9056A
Chloride	135	5.0	mg/l	10	03/01/24 22:28	MB	SW846 9056A
Nitrogen, Nitrite	0.11	0.040	mg/l	10	03/01/24 22:28	MB	SW846 9056A
Nitrogen, Nitrate	5.7	0.25	mg/l	25	03/02/24 17:00	MB	SW846 9056A
Sulfate	320	13	mg/l	25	03/02/24 17:00	MB	SW846 9056A
9056A NO2 + NO3O							
Nitrogen, Nitrate + Nitrite [a]	5.8	0.29	mg/l	1	03/02/24 17:00	MB	SW846 9056A
Solids, Total Dissolved	888	10	mg/l	1	03/04/24 07:00	JW	SM 2540C-2011

(a) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BARNHARDT SAND AND GRAVEL PIT (MW-2)		
Lab Sample ID:	DA62542-3F	**Date Sampled:**	03/01/24
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/01/24
		Percent Solids:	n/a
Project:	Material Sites WQ Testing		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By		Method	Prep Method
Aluminum	0.0193 B	0.10	0.015	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Antimony	0.0068 U	0.030	0.0068	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Arsenic	0.0046 U	0.025	0.0046	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Barium	0.0557	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Beryllium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Boron	0.206	0.050	0.0063	mg/l	1	03/12/24	03/19/24	CDL	SW846 6010C [3]	SW846 3010A [4]
Cadmium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Chromium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Cobalt	0.0024 B	0.0050	0.00063	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Copper	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Iron	0.012 U	0.070	0.012	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Lead	0.0063 U	0.050	0.0063	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Manganese	0.322	0.0050	0.00063	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Mercury	0.000050 U	0.00010	0.000050	mg/l	1	03/13/24	03/13/24	CDL	SW846 7470A [1]	SW846 7470A [5]
Molybdenum	0.0031 B	0.010	0.0028	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Nickel	0.0040 B	0.030	0.0038	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Selenium	0.022 U	0.050	0.022	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Silver	0.0038 U	0.030	0.0038	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Thallium	0.0043 U	0.010	0.0043	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Uranium	0.0319 B	0.050	0.0085	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Vanadium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Zinc	0.0038 U	0.030	0.0038	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA17745
(2) Instrument QC Batch: MA17751
(3) Instrument QC Batch: MA17763
(4) Prep QC Batch: MP39056
(5) Prep QC Batch: MP39057

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	BARNHARDT SAND AND GRAVEL PIT (MW-2)		
Lab Sample ID:	DA62542-3FC	**Date Sampled:**	03/01/24
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/01/24
		Percent Solids:	n/a
Project:	Material Sites WQ Testing		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lithium [a]	0.0189	0.010	0.0043	mg/l	1	03/07/24	03/08/24	ALA	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: L:MA27325
(2) Prep QC Batch: L:MP27849

(a) Analysis performed at SGS Scott, LA.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	BARNHARDT SAND AND GRAVEL PIT (MW-3)		
Lab Sample ID:	DA62542-4	**Date Sampled:**	03/01/24
Matrix:	AQ - Ground Water	**Date Received:**	03/01/24
		Percent Solids:	n/a
Project:	Material Sites WQ Testing		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
9056A							
Fluoride	0.77	0.20	mg/l	2	03/01/24 22:42	MB	SW846 9056A
Chloride	77.6	5.0	mg/l	10	03/01/24 22:56	MB	SW846 9056A
Nitrogen, Nitrite [a]	< 0.040	0.040	mg/l	10	03/01/24 22:56	MB	SW846 9056A
Nitrogen, Nitrate	0.54	0.020	mg/l	2	03/01/24 22:42	MB	SW846 9056A
Sulfate	237	5.0	mg/l	10	03/01/24 22:56	MB	SW846 9056A
9056A NO2 + NO3O							
Nitrogen, Nitrate + Nitrite [b]	0.54	0.060	mg/l	1	03/01/24 22:56	MB	SW846 9056A
Solids, Total Dissolved	655	10	mg/l	1	03/04/24 07:00	JW	SM 2540C-2011

(a) Elevated detection limit due to matrix interference.
(b) Calculated as: (Nitrogen, Nitrate) + (Nitrogen, Nitrite)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	BARNHARDT SAND AND GRAVEL PIT (MW-3)		
Lab Sample ID:	DA62542-4F	**Date Sampled:**	03/01/24
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/01/24
		Percent Solids:	n/a
Project:	Material Sites WQ Testing		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	0.0177 B	0.10	0.015	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Antimony	0.0068 U	0.030	0.0068	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Arsenic	0.0046 U	0.025	0.0046	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Barium	0.0329	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Beryllium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Boron	0.202	0.050	0.0063	mg/l	1	03/12/24	03/19/24	CDL	SW846 6010C [3]	SW846 3010A [4]
Cadmium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Chromium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Cobalt	0.0045 B	0.0050	0.00063	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Copper	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Iron	0.012 U	0.070	0.012	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Lead	0.0063 U	0.050	0.0063	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Manganese	0.582	0.0050	0.00063	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Mercury	0.000050 U	0.00010	0.000050	mg/l	1	03/13/24	03/13/24	CDL	SW846 7470A [1]	SW846 7470A [5]
Molybdenum	0.0087 B	0.010	0.0028	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Nickel	0.0038 U	0.030	0.0038	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Selenium	0.022 U	0.050	0.022	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Silver	0.0038 U	0.030	0.0038	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Thallium [a]	0.0043 U	0.015	0.0043	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Uranium	0.0190 B	0.050	0.0085	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Vanadium	0.0013 U	0.010	0.0013	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]
Zinc	0.0192 B	0.030	0.0038	mg/l	1	03/12/24	03/14/24	CDL	SW846 6010C [2]	SW846 3010A [4]

(1) Instrument QC Batch: MA17745
(2) Instrument QC Batch: MA17751
(3) Instrument QC Batch: MA17763
(4) Prep QC Batch: MP39056
(5) Prep QC Batch: MP39057

(a) Elevated reporting limit due to matrix interference.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	BARNHARDT SAND AND GRAVEL PIT (MW-3)		
Lab Sample ID:	DA62542-4FC	**Date Sampled:**	03/01/24
Matrix:	AQ - Groundwater Filtered	**Date Received:**	03/01/24
		Percent Solids:	n/a
Project:	Material Sites WQ Testing		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lithium [a]	0.0105	0.010	0.0043	mg/l	1	03/07/24	03/08/24	ALA	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: L:MA27325
(2) Prep QC Batch: L:MP27849

(a) Analysis performed at SGS Scott, LA.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	46	15	1.4	<100
Antimony	30	14	6.8	-9.9	<30
Arsenic	25	22	4.6	3.1	<25
Barium	10	.3	1.3	-0.10	<10
Beryllium	10	1	1.3	0.0	<10
Boron	50	3.3	6.3	-3.9	<50
Cadmium	10	1.9	1.3	-0.10	<10
Calcium	400	6.6	50		
Chromium	10	1.1	1.3	0.10	<10
Cobalt	5.0	2.7	.63	0.30	<5.0
Copper	10	4.6	1.3	-1.4	<10
Iron	70	8.9	12	0.30	<70
Lead	50	13	6.3	4.2	<50
Lithium	5.0	.6	1.3		
Magnesium	200	50	25		
Manganese	5.0	.5	.63	0.50	<5.0
Molybdenum	10	8.5	2.8	-0.10	<10
Nickel	30	6.2	3.8	0.40	<30
Phosphorus	100	91	16		
Potassium	1000	84	130		
Selenium	50	30	22	20.5	<50
Silicon	200	41	150		
Silver	30	.6	3.8	-0.10	<30
Sodium	400	13	50		
Strontium	5.0	.1	.63		
Thallium	10	17	4.3	2.1	<10
Tin	60	41	51		
Titanium	10	.5	1.3		
Uranium	50	3.9	8.5	-5.4	<50
Vanadium	10	.9	1.3	-0.10	<10
Zinc	30	9	3.8	9.9	<30

Associated samples MP39056: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	RL	IDL	MDL	MB raw	final

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	DA61679-1F Original	MS	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	0.00	1010	1000	101.0	75-125
Antimony	0.0	98.1	100	98.1	75-125
Arsenic	0.0	211	200	105.5	75-125
Barium	0.0	414	400	103.5	75-125
Beryllium	0.0	105	100	105.0	75-125
Boron	0.0	409	400	102.5	75-125
Cadmium	0.0	102	100	102.0	75-125
Calcium					
Chromium	0.0	105	100	105.0	75-125
Cobalt	0.0	104	100	104.0	75-125
Copper	0.0	105	100	105.0	75-125
Iron	15.6	1040	1000	102.4	75-125
Lead	0.0	201	200	100.5	75-125
Lithium					
Magnesium					
Manganese	0.80	210	200	104.5	75-125
Molybdenum	0.0	102	100	102.0	75-125
Nickel	0.0	101	100	101.0	75-125
Phosphorus					
Potassium					
Selenium	0.0	215	200	107.5	75-125
Silicon					
Silver	0.0	41.6	40	104.0	75-125
Sodium	anr				
Strontium					
Thallium	0.0	199	200	99.5	75-125
Tin					
Titanium					
Uranium	0.0	209	200	104.5	75-125
Vanadium	0.0	104	100	104.0	75-125
Zinc	15.8	125	100	109.2	75-125

Associated samples MP39056: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	DA61679-1F Original MS	Spikelot ICPALL5	% Rec	QC Limits

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	DA61679-1F Original	MSD	Spikelot ICPALL5	% Rec	MSD RPD	QC Limit
Aluminum	0.00	1020	1000	102.0	1.0	20
Antimony	0.0	106	100	106.0	7.7	20
Arsenic	0.0	218	200	109.0	3.3	20
Barium	0.0	415	400	103.8	0.2	20
Beryllium	0.0	106	100	106.0	0.9	20
Boron	0.0	413	400	103.5	1.0	20
Cadmium	0.0	104	100	104.0	1.9	20
Calcium						
Chromium	0.0	107	100	107.0	1.9	20
Cobalt	0.0	106	100	106.0	1.9	20
Copper	0.0	107	100	107.0	1.9	20
Iron	15.6	1060	1000	104.4	1.9	20
Lead	0.0	206	200	103.0	2.5	20
Lithium						
Magnesium						
Manganese	0.80	211	200	105.0	0.5	20
Molybdenum	0.0	107	100	107.0	4.8	20
Nickel	0.0	101	100	101.0	0.0	20
Phosphorus						
Potassium						
Selenium	0.0	218	200	109.0	1.4	20
Silicon						
Silver	0.0	41.8	40	104.5	0.5	20
Sodium	anr					
Strontium						
Thallium	0.0	195	200	97.5	2.0	20
Tin						
Titanium						
Uranium	0.0	218	200	109.0	4.2	20
Vanadium	0.0	106	100	106.0	1.9	20
Zinc	15.8	111	100	95.2	11.9	20

Associated samples MP39056: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	DA61679-1F Original MSD	Spikelot ICPALL5 % Rec	MSD RPD	QC Limit

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits
Aluminum	995	1000	99.5	80-120
Antimony	102	100	102.0	80-120
Arsenic	220	200	110.0	80-120
Barium	415	400	103.8	80-120
Beryllium	106	100	106.0	80-120
Boron	407	400	102.0	80-120
Cadmium	104	100	104.0	80-120
Calcium				
Chromium	105	100	105.0	80-120
Cobalt	106	100	106.0	80-120
Copper	106	100	106.0	80-120
Iron	1040	1000	104.0	80-120
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese	213	200	106.5	80-120
Molybdenum	104	100	104.0	80-120
Nickel	101	100	101.0	80-120
Phosphorus				
Potassium				
Selenium	219	200	109.5	80-120
Silicon				
Silver	41.5	40	103.8	80-120
Sodium	anr			
Strontium				
Thallium	203	200	101.5	80-120
Tin				
Titanium				
Uranium	209	200	104.5	80-120
Vanadium	106	100	106.0	80-120
Zinc	109	100	109.0	80-120

Associated samples MP39056: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	BSP Result	Spikelot ICPALL5	% Rec	QC Limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/12/24

Metal	DA61679-1F Original	SDL 1:5	%DIF	QC Limits
Aluminum	0.00	0.00	NC	0-10
Antimony	0.00	0.00	NC	0-10
Arsenic	0.00	0.00	NC	0-10
Barium	0.00	0.00	NC	0-10
Beryllium	0.00	0.00	NC	0-10
Boron	0.00	0.00	NC	0-10
Cadmium	0.00	0.00	NC	0-10
Calcium				
Chromium	0.00	0.00	NC	0-10
Cobalt	0.00	0.00	NC	0-10
Copper	0.00	0.00	NC	0-10
Iron	15.6	0.00	23.7 (a)	0-10
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium				
Manganese	0.800	0.00	100.0(a)	0-10
Molybdenum	0.00	0.00	NC	0-10
Nickel	0.00	0.00	NC	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Strontium				
Thallium	0.00	0.00	NC	0-10
Tin				
Titanium				
Uranium	0.00	0.00	NC	0-10
Vanadium	0.00	0.00	NC	0-10
Zinc	15.8	0.00	10.1 (a)	0-10

Associated samples MP39056: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39056 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/12/24

	DA61679-1F		QC
Metal	Original	SDL 1:5 %DIF	Limits

(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39057
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 03/13/24

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.015	.05	0.0087	<0.10

Associated samples MP39057: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39057
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 03/13/24

Metal	DA62542-4F Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.0	1.1	1	110.0	75-125

Associated samples MP39057: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39057 Methods: SW846 7470A
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 03/13/24

Metal	DA62542-4F Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0	1.1	1	110.0	0.0	20

Associated samples MP39057: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

QC Batch ID: MP39057
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 03/13/24

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	1.0	1	100.0	80-120

Associated samples MP39057: DA62542-1F, DA62542-2F, DA62542-3F, DA62542-4F, DA62542-5F, DA62542-6F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP36124/GN62778	0.050	0.0	mg/l	0.5	0.474	94.8	90-110%
Chloride	GP36124/GN62778	0.50	0.0	mg/l	5	4.71	94.2	90-110%
Fluoride	GP36124/GN62778	0.10	0.0	mg/l	1	0.951	95.1	90-110%
Nitrogen, Nitrate	GP36124/GN62778	0.010	0.0	mg/l	0.1	0.0923	92.3	90-110%
Nitrogen, Nitrate	GP36126/GN62780	0.010	0.0	mg/l	0.1	0.0985	98.5	90-110%
Nitrogen, Nitrite	GP36124/GN62778	0.0040	0.0	mg/l	0.05	0.0508	101.6	90-110%
Nitrogen, Nitrite	GP36126/GN62780	0.0040	0.0	mg/l	0.05	0.0525	105.0	90-110%
Solids, Total Dissolved	GN62770	10	0.0	mg/l	250	241	96.4	90-110%
Sulfate	GP36124/GN62778	0.50	0.0	mg/l	5	4.75	95.0	90-110%

Associated Samples:
Batch GN62770: DA62542-1, DA62542-2, DA62542-3, DA62542-4, DA62542-5, DA62542-6
Batch GP36124: DA62542-1, DA62542-2, DA62542-3, DA62542-4, DA62542-5, DA62542-6
Batch GP36126: DA62542-1, DA62542-2, DA62542-3
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN62770	DA62542-6	mg/l	723	748	3.4	0-5.44%

Associated Samples:
Batch GN62770: DA62542-1, DA62542-2, DA62542-3, DA62542-4, DA62542-5, DA62542-6
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP36124/GN62778	DA62422-1	mg/l	0.0	12.5	12.0	96.0	80-120%
Chloride	GP36124/GN62778	DA62422-1	mg/l	302	125	416	91.2	80-120%
Fluoride	GP36124/GN62778	DA62422-1	mg/l	0.0	25	24.5	98.0	80-120%
Nitrogen, Nitrate	GP36124/GN62778	DA62422-1	mg/l	1.7	2.5	3.9	88.0	80-120%
Nitrogen, Nitrate	GP36126/GN62780	DA62560-6	mg/l	2.4	2.5	4.8	96.0	80-120%
Nitrogen, Nitrite	GP36124/GN62778	DA62422-1	mg/l	0.0	1.25	1.0	80.0	80-120%
Nitrogen, Nitrite	GP36126/GN62780	DA62560-6	mg/l	0.25	1.25	1.4	92.0	80-120%
Sulfate	GP36124/GN62778	DA62422-1	mg/l	287	125	405	94.4	80-120%

Associated Samples:
Batch GP36124: DA62542-1, DA62542-2, DA62542-3, DA62542-4, DA62542-5, DA62542-6
Batch GP36126: DA62542-1, DA62542-2, DA62542-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: DA62542
Account: JTCOCOW - J&T Consulting
Project: Material Sites WQ Testing

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP36124/GN62778	DA62422-1	mg/l	0.0	12.5	12.1	0.8	20%
Chloride	GP36124/GN62778	DA62422-1	mg/l	302	125	418	0.5	20%
Fluoride	GP36124/GN62778	DA62422-1	mg/l	0.0	25	24.8	1.2	20%
Nitrogen, Nitrate	GP36124/GN62778	DA62422-1	mg/l	1.7	2.5	4.0	2.5	20%
Nitrogen, Nitrate	GP36126/GN62780	DA62560-6	mg/l	2.4	2.5	4.7	2.1	20%
Nitrogen, Nitrite	GP36124/GN62778	DA62422-1	mg/l	0.0	1.25	1.0	0.0	20%
Nitrogen, Nitrite	GP36126/GN62780	DA62560-6	mg/l	0.25	1.25	1.4	0.0	20%
Sulfate	GP36124/GN62778	DA62422-1	mg/l	287	125	407	0.5	20%

Associated Samples:
Batch GP36124: DA62542-1, DA62542-2, DA62542-3, DA62542-4, DA62542-5, DA62542-6
Batch GP36126: DA62542-1, DA62542-2, DA62542-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Misc. Forms

Custody Documents and Other Forms

(SGS Scott, LA)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS North America Inc. - Wheat Ridge
4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.sgs.com/ehsusa

FED-EX Tracking #:
Bottle Order Control #:
SGS Quote #:
SGS Job #: DA62542

Client / Reporting Information	Project Information	Billing Information (if different from Report to)
Company Name: SGS North America Inc.	Project Name: Material Sites WQ Testing	
Street Address: 4036 Youngfield Street	Street:	Company Name:
City: Wheat Ridge, State: CO Zip: 8003	City: State:	Street Address:
Project Contact: Kelly.Blanchard@sgs.com E-mail:	Project #:	City State Zip:
Phone #: 303-425-6021 Fax #:	Client Purchase Order #:	Attention:
Sampler(s) Name(s): TT Phone:	Project Manager:	

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	FILTERMET, LI.	LAB USE ONLY
1FC	OGILVY RIVER FARM PIT (MW-1)		3/1/24	10:13:00 AM	TT	AQ										X	1
2FC	OGILVY RIVER FARM PIT (MW-4)		3/1/24	10:35:00 AM	TT	AQ										X	1
3FC	BARNHARDT SAND AND GRAVEL PIT		3/1/24	12:40:00 PM	TT	AQ										X	1
4FC	BARNHARDT SAND AND GRAVEL PIT		3/1/24	12:30:00 PM	TT	AQ										X	1
5FC	SWEET VALLEY PIT (MW-1)		3/1/24	12:55:00 PM	TT	AQ										X	1
6FC	SWEET VALLEY PIT (MW-3)		3/1/24	1:10:00 PM	TT	AQ										X	1

Turnaround Time (Business days)

Approved By (SGS PM): / Date:

- [ ] Standard 10 Day (business)
- [ ] 5 Business Days RUSH
- [ ] 3 Business Days RUSH
- [ ] 2 Business Days RUSH
- [ ] 1 Business Day EMERGENCY
- [X] other Due 3/8/2024

Emergency & Rush T/A data available via Lablink. Approval needed for RUSH/Emergency TAT

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] REDT1 (Level 3)
- [ ] FULT1 (Level 4)
- [ ] Commercial "C"
- [ ] State Forms
- [ ] EDD Format
- [ ] Other
- [X] CC

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions: 6010 3W2F

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		3/4/24	Fedex	Fedex	3/6/24 0915	
2						
3	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal # ☐ Intact ☐ Not intact	Preserved where applicable ☐ Therm. ID:	On Ice ☐ Cooler Temp. 3.6

7.1 7

DA62542: Chain of Custody
Page 1 of 3
SGS Scott, LA

7.1

7

DA62542: Chain of Custody
Page 2 of 3

SGS Sample Receipt Summary

Job Number: da62542 **Client:** SGS NORTH AMERICA **Project:** MATERIALS SITE WQ TESTING

Date / Time Received: 3/5/2024 9:15:00 AM **Delivery Method:** FEDEX **Airbill #'s:** 646648977174

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.6);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (direct contact)		
4. No. Coolers:	1		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: _____ pH 12+: _____ Other: (Specify) _____ _____

Comments NP metals (6-250ml bottles) expired upon receipt. Samples taken 3/1/2024 between 10:13-13:10

SM089-03
Rev. Date 12/7/17

7.1

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DA62542: Chain of Custody
Page 3 of 3

Metals Analysis

QC Data Summaries

(SGS Scott, LA)

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: DA62542
Account: ALMS - SGS Wheat Ridge, CO
Project: JTCOCOW: Material Sites WQ Testing

QC Batch ID: MP27849
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/07/24

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	13	25		
Antimony	6.0	2	3.6		
Arsenic	10	2.4	8.6		
Barium	10	.36	1.7		
Beryllium	4.0	.06	.9		
Boron	100	.72	42		
Cadmium	5.0	.14	.9		
Calcium	100	3.8	32		
Chromium	10	.39	1.2		
Cobalt	10	.26	1.1		
Copper	10	.77	2.8		
Iron	100	2.9	18		
Lead	10	1.4	3.7		
Lithium	10	2.4	4.3	1.5	<10
Magnesium	100	22	40		
Manganese	10	.11	.9		
Molybdenum	10	.16	1.7		
Nickel	10	.29	1.5		
Potassium	500	50	120		
Selenium	10	1.5	4.3		
Silver	10	.57	3.7		
Sodium	500	20	120		
Strontium	10	.1	3		
Thallium	10	1.5	4.6		
Tin	10	.74	1.7		
Titanium	10	.41	.8		
Vanadium	10	.39	1.5		
Zinc	20	.18	12		

Associated samples MP27849: DA62542-1FC, DA62542-2FC, DA62542-3FC, DA62542-4FC, DA62542-5FC, DA62542-6FC

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: ALMS - SGS Wheat Ridge, CO
Project: JTCOCOW: Material Sites WQ Testing

QC Batch ID: MP27849
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/07/24

Metal	LA98821-13 Original MS		Spikelot ICPSPIKE1% Rec		QC Limits
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium					
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	anr				
Lithium	0.0	1740	2000	87.0	75-125
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Potassium					
Selenium	anr				
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin	anr				
Titanium					
Vanadium					
Zinc	anr				

Associated samples MP27849: DA62542-1FC, DA62542-2FC, DA62542-3FC, DA62542-4FC, DA62542-5FC, DA62542-6FC

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: DA62542
Account: ALMS - SGS Wheat Ridge, CO
Project: JTCOCOW: Material Sites WQ Testing

QC Batch ID: MP27849
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/07/24

Metal	LA98821-13 Original MSD		Spikelot ICPSPIKE1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Lithium	0.0	1740	2000	87.0	0.0	20
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin	anr					
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP27849: DA62542-1FC, DA62542-2FC, DA62542-3FC, DA62542-4FC, DA62542-5FC, DA62542-6FC

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: DA62542
Account: ALMS - SGS Wheat Ridge, CO
Project: JTCOCOW: Material Sites WQ Testing

QC Batch ID: MP27849
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/07/24

Metal	BSP Result	Spikelot ICPSPIKE1	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium	915	1000	91.5	80-120
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin	anr			
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP27849: DA62542-1FC, DA62542-2FC, DA62542-3FC, DA62542-4FC, DA62542-5FC, DA62542-6FC

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: DA62542
Account: ALMS - SGS Wheat Ridge, CO
Project: JTCOCOW: Material Sites WQ Testing

QC Batch ID: MP27849
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 03/07/24

Metal	LA98821-13 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Lithium	0.00	13.2	NC	0-10
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin	anr			
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP27849: DA62542-1FC, DA62542-2FC, DA62542-3FC, DA62542-4FC, DA62542-5FC, DA62542-6FC

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MEMORANDUM

To: JC York – J&T Consulting, LLC

From: Dennis McGrane, P.E., C.P.G. – McGrane Water Engineering, LLC

Date: February 23, 2024

Project: Bernhardt Pit Groundwater Model

Subject: Response to Questions by DRMS (10/20/23)

BACKGROUND

McGrane Water Engineering, LLC (MWE) prepared a report dated May 31, 2023 titled, "Bernhardt Pit – Groundwater Evaluation" to support a mine application permit for the Bernhardt Pit prepared by the applicant by J&T Consulting, Inc (J&T). The Colorado Division of Reclamation, Mining and Safety (DRMS) reviewed the report in an internal memorandum dated October 20, 2023, titled, "Bernhardt Sand and Gravel Pit, New Permit Application, Groundwater Review, File No. M2023-025. JC York (J&T Consulting) requested MWE address DRMS's questions no 6 and 7.

DRMS QUESTION No. 6

"In review of Figure 10A along with the predicted mounding of ~2.5 feet on the upstream side of the proposed permit boundary, it appears the predicted mounding combined with high groundwater levels seen in July 2023 will bring groundwater elevations to within 0.5 feet of ground surface at MW-3. Additionally, extrapolating the potential mounding groundwater elevations during high groundwater levels away from the permit boundary in the southwestern area, it appears that the mounding will result in groundwater being exposed at the surface.

Please update the groundwater model using the highest groundwater elevations to evaluate the potential of groundwater being exposed at the surface along the boundary of the permit. It should be noted that groundwater elevations approaching the surface can cause offsite land user issues due to saturated ground conditions. When updating the groundwater model figures, please label the individual well location I.D.'s."

Response:

We can do this calculation without creating a transient groundwater model due to the principal of superposition (Reilly and Others, 1987), which means that the solution to a problem involving multiple inputs (or stresses) is equal to the sum of the solutions to a set of simpler individual problems. This is accomplished by first measuring water levels at monitoring wells surrounding

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E-Mail: dennis@mcgranewater.com Web: http://www.mcgranewaterengineering.com

the proposed pit to record and evaluate the factual variability. Second, we determine how the predicted modeled change in water levels affects the seasonal depth measurements. Third, we used the model to determine how effective various drain depth designs mitigate upgradient mounding; and lastly we add the changes from the various model runs to the observed seasonal water level values using the concept of superposition.

By using the superposition approach, we do not need to spend additional time creating and calibrating a transient groundwater model. Such a model would require estimating or measuring other variables such as precipitation, river stage and evapotranspiration and estimating seasonal recharge which have their own range of measurement error and variability. Then, the process of calibration, which is to match observed to modeled heads in a transient condition would be a waste of time. Since groundwater flow is primarily a function of aquifer properties and gradient, we can use the steady state model and the principal of superposition to achieve an accurate result.

Water levels were initially measured in March 2023 and used as model water level targets in the pre-pit model simulation (**Report Figure A4**). Coincidentally, the levels happen to be when seasonal water levels were deepest. The March 2023 depth to water ranged from 4.42 ft at MW-1 to 8.0 ft at MW-3. By July however, water levels had risen to within 1.96 ft at MW-1 and 3.66 ft at MW-3. The maximum seasonal water table fluctuation (ie. change) between March and July (highlighted) ranges from 2.46 (MW-1) to 4.33 ft (MW-3). The observed depths to water at various monitoring wells are shown in the **Table 1** below.

Table 1 – Bernhardt Pit Monitoring Well Water Level Depths and Elevations.

Well Designation	JT MW-1			JT MW-2			JT MW-3			JT MW-4		
Location:	North Side			East Side			West Side			South Side		
Top of Well Elevation (ft)	4722.96			4723.15			4727.70			4726.65		
Ground Elevation (ft)	4719.92			4720.09			4724.78			4723.56		
Date	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)	Depth to Groundwater from Top of Well (ft)	Depth to Groundwater from Ground (ft)	Elevation of Groundwater (ft)
March 29, 2023	7.46	4.42	4715.50	9.27	6.21	4713.88	10.92	8.00	4716.78	10.38	7.29	4716.28
April 21, 2023	7.60	4.56	4715.36	8.10	5.04	4715.05	10.02	7.10	4717.68	9.02	5.93	4717.63
May 18, 2023	6.29	3.25	4716.67	6.04	2.98	4717.11	8.54	5.62	4719.16	6.58	3.49	4720.07
June 12, 2023	5.67	2.63	4717.29	6.00	2.94	4717.15	7.50	4.58	4720.20	6.33	3.24	4720.32
July 14, 2023	5.00	1.96	4717.96	5.92	2.86	4717.23	6.58	3.66	4721.12	6.21	3.12	4720.44
August 14, 2023	5.75	2.71	4717.21	6.92	3.86	4716.23	7.33	4.41	4720.37	8.58	5.49	4718.07
September 13, 2023	7.67	4.63	4715.29	8.17	5.11	4714.98	9.92	7.00	4717.78	9.00	5.91	4717.65
October 16, 2023	7.83	4.79	4715.13	8.33	5.27	4714.82	10.17	7.25	4717.53	9.17	6.08	4717.48
Max Fluctuations (ft) =	2.46			3.35			4.33			4.17		

As requested in this question, we will evaluate the depth to water relative to the ground surface in our response to question No. 7 below and reference the monitoring well locations on the accompanying figures.

QUESTION No. 7

"Please provide a groundwater model analysis to demonstrate how effective installing the proposed underdrain will be to mitigate the predicted groundwater mounding on the upstream side of the proposed slurry wall."

Response:

We used the model to evaluate pit liner impacts as discussed in our modeling report. For drain runs, we used the MODFLOW "Drain" package which simulates a drain using a cross sectional area, assumed permeability around the drain and a specified setting depth. The deeper the pipe, the more it lowers the water table and therefore flows (removes water from the model). Water level flow into a drain is controlled by the conductance term (COND) which is a function of the drain area, permeability of the gravel fill around the drain and depth below the water surface. We assume a 1-ft cross-sectional drain surrounded by gravel with a hydraulic conductivity (K) of 400 ft/day. For a 200-ft long model cell, COND = 80,000 ft^2day (400 ft/day x 1 ft x 200 ft). COND is calculated internally by the model using the digitized length of drain across each model cell.

After running the model with a MODFLOW drain, we iteratively reinject the cumulative drain volume (divided by the number of cells) using the MODFLOW "Well" package which allows us to "inject" groundwater in adjacent cells similarly to how a horizontal drain would release water into the aquifer along the drain. Note: drain flow from a horizontal exfiltration drain would occur more in response to gravity and be a function of aquifer levels, whereas injecting through wells causes a more equal distribution. Regardless, positive water level changes reflect mounding on the upgradient side of the proposed pit and negative (-) reflect shadowing on the downgradient side of the pit. **Table 2** shows the measured depth to water in July (Column "a") which is when the depth to water is shallowest. Modeled "Mounding (+) and Shadowing (-) "changes" were determined by calculating the differences in water table elevation for model cells where monitoring wells are present. MW-3 is where shallow groundwater is most vulnerable to reach the surface which is why those levels are highlighted in red.

Table 2 – Modeled Changes Due to Pit Lining and Drain Installation

Well	Measured July Depth to Water (ft)	Modeled Mounding (+)/Drawdown (-)			Forecast July Depth to Water (ft)	
		With Pit	With Drain (Elev. 4718 ft)	With Drain (Elev. 4717 ft)	With Drain (Elev. 4718 ft)	With Drain (Elev. 4717 ft)
	(a)	(b)	(c)	(d)	(e) (a+c)	(f) (a+d)
Run:		<Bern_SS7>	<Bern_SS9_d4>	<Bern_SS9_d5>		
Upgradient (MW-3) =	-1.96	2.52	0.33	-0.67	-1.63	-2.63
Upgradient (MW-4) =	-2.86	0.86	0.52	0.2	-2.34	-2.66
Downgradient (MW-1) =	-3.66	-2.61	-2.54	-2.61	-6.2	-6.27
Downgradient (MW-2) =	-3.12	-0.68	-0.44	-0.72	-3.56	-3.84
Drain flow (gpm) =					**260**	**-400**

Column "b" is the calculated modeled change caused by the pit liner (Run Bern_SS7), which causes mounding at upgradient wells MW-3 (2.52 ft) and MW-4 (0.86 ft), and downgradient shadowing at wells MW-1 (-2.61 ft) and MW-2 (-0.68 ft) as shown in report **Figure A-10** and **Figure 1** below.

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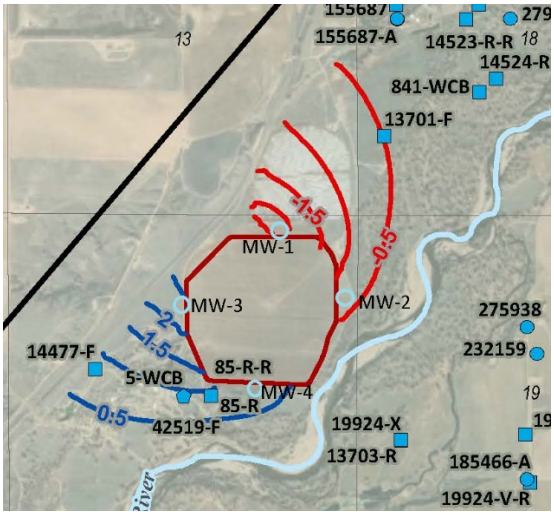
E-Mail: dennis@mcgranewater.com Web: http://www.mcgranewaterengineering.com

Figure 1 – Change Associated with the Pit Liner (Report Figure A10 with Labels)

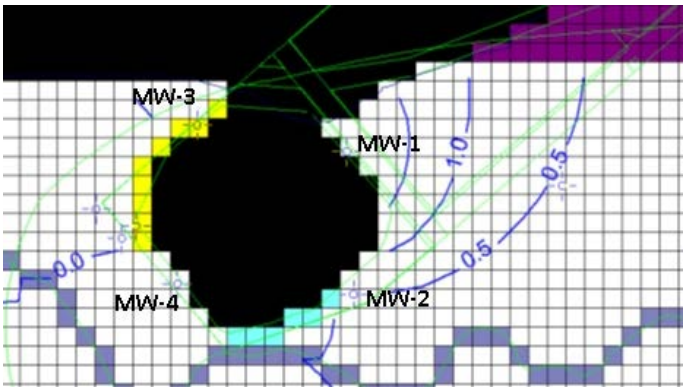


As discussed in the modeling report, the contours show upgradient mounding and downgradient shadowing in the range of +/- 2.5 feet.

Drain Runs

In drain run <Bern_SS9_d4>, we establish an upgradient drain at elevation 4718 ft (yellow cells). The resulting mounding (**Figure 2**) compared to the pre-pit run at MW-3 (+0.33) and MW-4 (+0.52 ft) are insignificant, but the downgradient shadowing in MW-2 (-0.44 ft) and MW-1 (-2.54 ft) provides only a minor improvement over the non-drain pit impact run (**Figure 1)**. We suspect that most of the exfiltrating groundwater recharges the SPR instead of filling up the shadow zone further to the west. We believe this is not a big problem since there are no downgradient wells within the shadow zone. The modeled drain flow is approximately 260 gpm.

Figure 2 – Drain Run (Drain Elev. 4818 ft.)



If we add the maximum "change" caused by the drain to the observed shallowest level measurement in July, then the predicted depth to water in upgradient wells (MW-3 to MW-4)

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E-Mail: dennis@mcgranewater.com Web: http://www.mcgranewaterengineering.com

ranges from -1.63 to -2.34 ft as shown in **Table 2** (column e) above. The predicted July depth to water at MW-3 will likely therefore be shallower than observed in 2023. On the downgradient side, the expected depths to water at both MW-1 and MW-2 will likely be deeper than recently measured because the exfiltrating groundwater will likely flow to the SPR instead of filling the shadow zone. Again, we believe this is not a problem since there are no downgradient wells within the shadow zone (>0.5 ft).

To be conservative, we recommend installing a deeper drain (at the 4,717 ft elevation) to reduce seasonal upgradient water level depths. Not surprising, by lowering the drain 1-ft, the predicted water level drop at MW-3 is the same amount. Overall, the predicted water level at MW-3 will be drop -0.67 ft compared to pre-pit conditions. MW-4 still rises 0.2 ft because there is no drain in that model cell. Downgradient shadowing at MW-2 (-0.72 ft) and MW-1 (-2.61 ft) increases due to the increased drain flow (~400 gpm). We did not include the modeled drawdown because it looks very similar to **Figure 2**. If we add the modeled "change" to the original depth to water, we predict the upgradient depth at wells MW-3 (-2.63ft) to be a foot deeper than observed and MW-4 (-2.66 ft) to be about the same as measured (-2.86). On the downgradient side, the expected depths to water at both MW-1 and MW-2 will likely be deeper than recently measured. Again, we do not expect this to be an issue since no wells are within the shadow zone in excess of >0.5 ft as shown on **Figures 1** and **2.**

Conclusion

We conclude:

1. Using the concept of superposition, we can use the steady state groundwater model to estimate seasonal groundwater conditions. A drain can be installed that stabilizes the seasonal fluctuations such that groundwater will not reach the ground surface and upset the hydrologic balance.
2. A drain installed at a depth of 4,817 ft (across model cells shown in **Figure 2**) could reduce seasonally high water levels at upgradient well MW-3. Most exfiltrating groundwater will return directly to the SPR thereby leaving downgradient shadowing unmitigated. However, this should not be a problem since there are no downgradient wells within the shadow zone.
3. Based on a simulated drain elevation of 4717 ft bgl, we predict drain flow to be approximately 400 gpm. To account for uncertainty, we recommend that it be designed to flow approximately 800 gpm.

Sources

Reilly, T.E., O.L. Franke, and G.D. Bennett, 1987. The Principal of Superposition and its implication in Ground-water Hydraulics. U.S. Geological Survey Techniques and Methods 3-B6. Reston, Virginia.

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E-Mail: dennis@mcgranewater.com Web: http://www.mcgranewaterengineering.com

EXHIBIT H

Wildlife Information

The project area was surveyed for general wildlife habitat by Ecological Resource Consultants (ERC). The Screening Report for Federal and State Listed Threatened and Endangered Species from ERC is attached which describes the wildlife habitat present on the site and the common species that may be found in the habitat area.

ERC conducted this screening for federal and state threatened, endangered and species of concern for the approximately 134-acre survey area. The following provides key items identified as part of the report:

1. Two primary land use class/vegetation cover type exists within the survey area. Habitat within the survey area is characterized as the Great Plains Ruderal Grassland and Shrubland (98%) and disturbed (2%). Historic land use for agricultural practices has led to degradation of the native vegetation community.

2. Generally, there are features on the survey area and the surrounding area that provide general habitat for local songbirds, raptors, and small to mid-size mammals. However, habitat within the survey area is somewhat degraded and of lower ecological value from a wildlife perspective due to historic and current land use for agriculture, which has restricted overall growth and establishment of vegetation. The South Platte River and adjacent eastern cottonwood floodplain and woodland, provides suitable habitat for wildlife species and MBTA species. The South Platte River and associated vegetative community will not be impacted by the proposed project.

3. <u>Non-raptor birds</u>
   No non-raptor migratory bird nests were observed within the survey area. However, prior to vegetation removal a nest survey should be completed to ensure that no nests have become established within the survey area and active nests, if any, are not disturbed.
   <u>Non-eagle Raptors</u>
   No non-eagle raptor nests were observed and no CPW mapped non-eagle raptor nest protection zones are located within the survey area (CPW 2023a). However, nest activity status can vary seasonally and from year-to-year. Future land use changes may require additional nest surveys (generally between February 1 and September 15 (CPW 2020)) to determine activity status within ½ to ¼ mile of the survey area to ensure compliance with CPW recommendations.
   <u>Eagles</u>
   CPW SAM data identifies a bald eagle nest listed as “destroyed” being directly northeast of the survey area. Per CPW monitoring logs, the eagle nest has been inactive from 2019-2021, and destroyed in 2022. A field visit by ERC on January 25, 2023 confirmed the identified nest no longer exists and the nest area is no longer being utilized with no efforts by eagles to rebuild the nest. Therefore, the nest site and the survey area is not subject to any restriction per CPW protective buffer zone recommendations or USFWS Bald Eagle Protection Act.

4. No federally listed threatened and endangered species and/or habitat protected under the ESA were identified within the survey area. The survey area is not within designated critical habitat of any federally listed species. The vegetation community and features

within the survey area were investigated as potential habitat for federally listed species. Any future land use changes will result in No Take on any federal listed species, their habitats, or proposed or designated critical habitat.

5. No State listed threatened or endangered species and/or habitat protected by CPW under Colorado Statute Title 33 were identified within the survey area. The vegetation communities within the survey area were investigated as potential habitat for state listed species. Any future land use changes will have no effect on any state listed species, their habitats, or proposed or designated critical habitat.

ERC 2023 provided a detailed evaluation of potential critical wildlife habitat and use within the Permit Area. The Permit Area was determined to be comprised of 100% ruderal grassland and disturbed lands which is generally considered low-value wildlife habitat. No federal or state listed threatened and endangered species/habitat were identified.

Following the preparation of ERC 2023, CPW issued (~March 2023) new wildlife Species Activity Mapping (polygons) that depict the Permit Area within Mule Deer High Priority Habitat (HPH). This CPW polygon encompasses more than 955 square miles (~611,000 acres) acres along the South Platte and Big Thompson Rivers (refer to Figure 1 in ERC's Adequacy Review Responses to CPW below). The Permit Area represents less than 0.02 % of this entire HPH polygon. In order to minimize potential disturbances to the HPH, the project will implement CPW recommendations addressed in Item 10 of their comment e-mail to DRMS also attached below.

No other critical habitat or seasonal wildlife use has been identified within the Permit Area.
It is not anticipated that operations (increased traffic, noise, light) will have a significant effect on wildlife in the area.

Refer to ERC 2023 for further explanation.

Attached are ERC's Adequacy Review Responses to CPW's comments and the Screening Report for Federal and State Listed Threatened and Endangered Species.

W.W. Clyde & Co. commits to conducting a raptor survey prior to mobilization of earth-moving equipment or excavation at the site. The survey will be conducted and results submitted to the DRMS as a technical revision 30 days prior to mobilization of earth-moving equipment or excavation.