J&T Consulting, Inc.

January 30, 2024

Ms. Hunter Ridley
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: Adequacy Review #3; Technical Revision (TR9); NCCI Pit #1 – File No. M-2001-107

Dear Ms. Ridley,

Northern Colorado Constructors, Inc. (NCC) has received the Division's Adequacy Review #3 letter dated December 19, 2023. Below are the comments and the corresponding responses that we have provided to address the comments to Mr. Patrick Lennberg's comment memo with help from Dennis McGrane or McGrane Water Engineering, LLC.

Per the memo we are addressing the comments as numbered in the memo that stated the following:

"On November 17, 2023, J & T Consulting, Inc. responded to the Division's Adequacy Review No. 2 dated October 31, 2023 for TR-9 at the NCCI Pit #1, permit no. M2001-107. Below is my review of the responses and additional questions/comments. The numbered items below correspond to the numbered items in the November 17th document."

1. Adequate.

   Response: Acknowledged.

2. The Operator provides an explanation for why the LBD may be responsible, in part, for the large seasonal fluctuation in Z1 and Z2 but does not provide an explanation for the fluctuations in other site wells that appear to be outside the influence of the LBD. Please provide the missing explanation.

   Leakage from the LBD would have to be significant to have such an influence over the wells. Wouldn't that amount of leakage decrease the efficiency of the ditch to convey water for irrigation thus necessitating repairs to the ditch or lining of the ditch? It is the Division's understanding that similar ditches do have the ability to self-seal themselves with fine sediments over time thus reduce leakage, please comment.

   Additional explanation is needed to account for the groundwater level fluctuations seen in other wells across the permit, e.g. MW-Z3, -Z4, and –Z5. These wells also have also large

fluctuations of groundwater that cannot be solely attributed to LBD. As insufficient data was collected from the existing wells prior to dewatering a baseline condition does not exist that is not influenced by dewatering.

It appears that MW-Z3 may be influenced by leakage from LDC more than other wells, please comment?

Response: We have provided updated monitor well readings for the MW-Z1 through MW-Z7 to include the monthly readings. In our previous response we also indicated that there is also leakage from LDC and not just the LBD. Another reason there have been large fluctuations in the last couple years are due to the completion of the clay liner for the south cell for water storage. NCC is proposing to install a drain on the west side of LDC that will then cross under LDC and continue north to a location in the existing ditch that was previously used for dewatering where it can be daylighted and then flow back into LDC (See attached map with proposed location of the drain pipeline). Detailed design/construction drawings will be provided to the DRMS in the coming weeks and construction is proposed for the 2nd quarter of 2024, likely commencing in April 2024.

3. Adequate.

   Response: Acknowledged.

4. The Division needs additional information to demonstrate the modeled net effect is actually occurring. As mentioned in item #9 (Division Letter Dated October 31, 2023) the current model does not account for mitigation measures being implemented at those sites.

   Please outline the berm that was installed so it is clear to the Division.

   While there was ponding near and around the site that ponding has significantly increased over time. Please provide a map of the historical discharge points used during dewatering and the time frames when they were used. The Division's review of aerial imagery indicates two points were being used as discharge areas in 2011 south of the area in question (Attachment 1). In 2008, there appears to be a ditch that was installed to drain operations to the east along with direct discharge to LDC further south (Attachment 2). While ponding conditions may have existed prior to the initiation of mining operations those operations have negatively exacerbated the preexisting conditions.

   Response: NCC is proposing to install a drain on the west side of LDC that will then cross under LDC and continue north to a location in the existing ditch that was previously used for dewatering where it can be daylighted and then flow back into LDC (See attached map with proposed location of the drain pipeline). Detailed design/construction drawings will be provided to the DRMS in the coming weeks and construction is proposed for the 2nd quarter of 2024, likely commencing in April 2024. We believe this will provide closure to the issues and NCC can move forward with their mining/reclamation plans.

   Drone photos are attached showing the existing berm on the property to the west where LDC continues to the east and north.

Those locations provided were setup as recharge ponds with overflow pipes to LDC as there were initial complaints from the adjacent property owner about keeping groundwater levels up to avoid having issues with their domestic wells.

5. When did dewatering activities begin at the site? The historical water level (WL) data is very short and appears to overlap when dewatering activities had begun at the site. At MW-6 there appears to have been only 10 WL records, some of which overlap dewatering, which makes comparison of data difficult because the WLs are influenced by the effects of dewatering.

   What and when, was the highest WL in MW-6 measured compared to highest levels measured in Z1 and Z2? The graphs provided are missing approximately the most recent four months of data from the Z wells. Please update the graphs provided to show the most recent water level data.

   The graph that compares MW-4 and -5 to MW-Z5 and –Z6 should be updated to include the water levels from MW-Z7. From the map provided it appear -Z7 is closer to MW-5 and MW-4 is closest to MW-Z5 while MW-Z6 is between wells -Z4 and -Z5.

   Response: The dewatering activities started in 2003. NCC is proposing to install a drain on the west side of LDC that will then cross under LDC and continue north to a location in the existing ditch that was previously used for dewatering where it can be daylighted and then flow back into LDC (See attached map with proposed location of the drain pipeline). Detailed design/construction drawings will be provided to the DRMS in the coming weeks and construction is proposed for the 2nd quarter of 2024, likely commencing in April 2024. We believe this will provide closure to the issues and NCC can move forward with their mining/reclamation plans.

6. Adequate.

   Response: Acknowledged.

7. Pursuant to Rule 3.1.6 disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quantity or quality of water in surface and groundwater systems both during and after the mining operation and during reclamation shall be minimized. Please provide a plan on how the Operator plans to minimize impacts to the hydrologic balance. An updated water level monitoring program needs to be submitted, through a Technical Revision, that includes monthly WL measurements submitted quarterly and no later than the end of each quarter.

   Response: NCC is proposing to install a drain on the west side of LDC that will then cross under LDC and continue north to a location in the existing ditch that was previously used for dewatering where it can be daylighted and then flow back into LDC (See attached map with proposed location of the drain pipeline). Detailed design/construction drawings will be provided to the DRMS in the coming weeks and construction is proposed for the 2nd quarter of 2024, likely commencing in April 2024. We believe this will provide closure to the issues and NCC can move forward with their mining/reclamation plans.

   Per conversations with Mr. Michael Cunningham with the DRMS NCC commits to providing monthly monitor well readings to the DRMS and submit those readings quarterly, and

requests that the monitoring program be updated with this current Technical Revision No. 9. We have discussed this with the City of Thornton and they will continue to read the monitor wells monthly as they have been doing over the last several years.

8. The Division acknowledges the first half of 2023 was wetter than usual, however, it is still the Operators responsibility to minimize impacts to the hydrologic balance pursuant to Rule 3.1.6.

   Response: Acknowledged.

9. The site model needs to be updated to describe the mitigation measures being taken by the surrounding operations and the effect those measures have on the predicted water levels round the site.

   Response: NCC is proposing to install a drain on the west side of LDC that will then cross under LDC and continue north to a location in the existing ditch that was previously used for dewatering where it can be daylighted and then flow back into LDC (See attached map with proposed location of the drain pipeline). Detailed design/construction drawings will be provided to the DRMS in the coming weeks and construction is proposed for the 2nd quarter of 2024, likely commencing in April 2024. We believe this will provide closure to the issues and NCC can move forward with their mining/reclamation plans.

10. Please update Figure 3B to show the most recent groundwater level data observed at the site.

    Response: We have provided updated monitor well readings for the MW-Z1 through MW-Z7 to include the most recent monthly readings.

11. Adequate.

    Response: Acknowledged.

12. Adequate.

    Response: Acknowledged.

13. Pursuant to Rule 3.1.6 disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quantity or quality of water in surface and groundwater systems both during and after the mining operation and during reclamation shall be minimized. Please demonstrate, through an update groundwater model, how the Operator is or will minimize the affects of mining to the hydrologic balance.

    Response: NCC is proposing to install a drain on the west side of LDC that will then cross under LDC and continue north to a location in the existing ditch that was previously used for dewatering where it can be daylighted and then flow back into LDC (See attached map with proposed location of the drain pipeline). Detailed design/construction drawings will be provided to the DRMS in the coming weeks and construction is proposed for the 2nd quarter of 2024, likely commencing in April 2024. We believe this will provide closure to the issues and NCC can move forward with their mining/reclamation plans.

NCC appreciates your consideration of this adequacy review response.

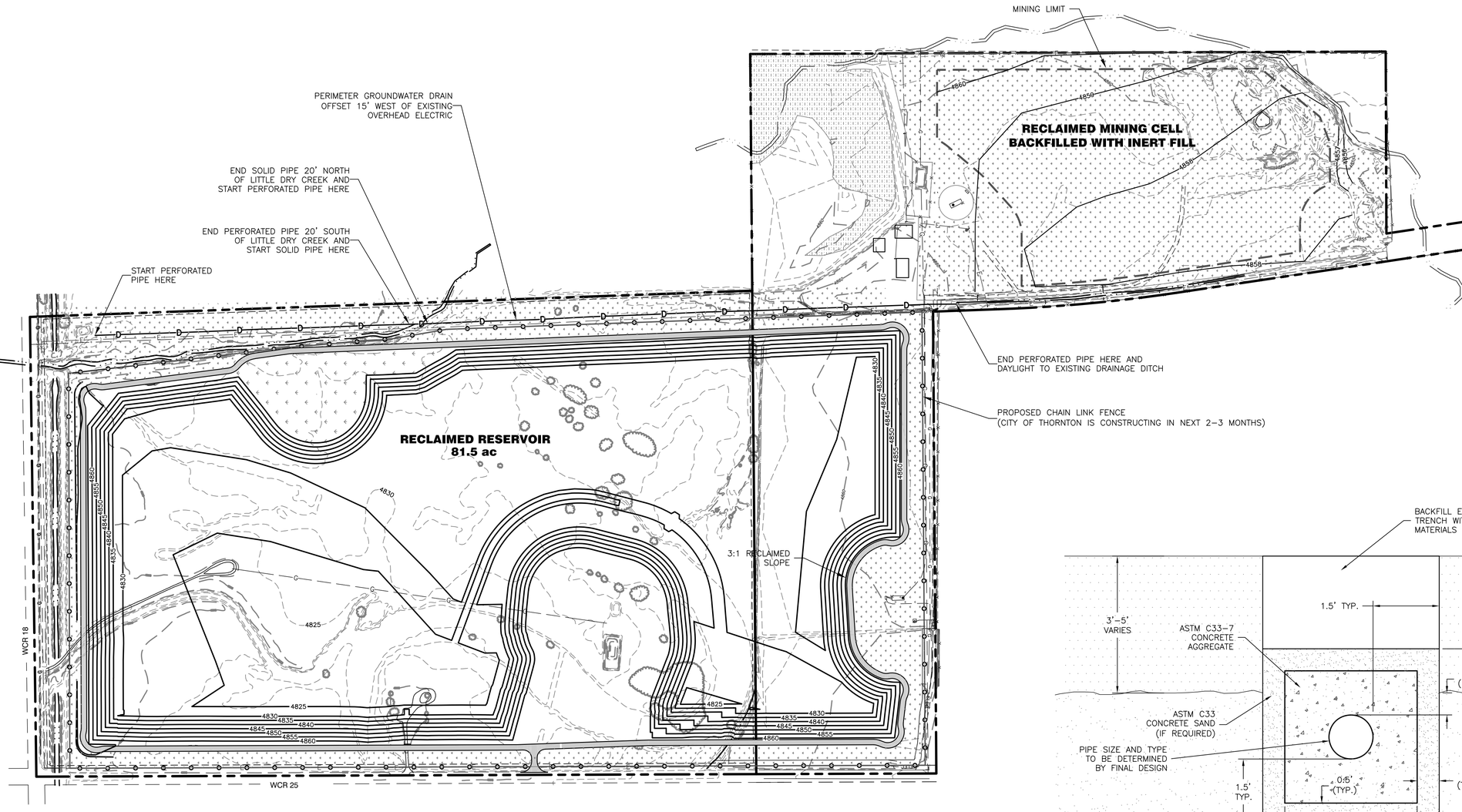
Please feel free to contact me with any questions or comments.

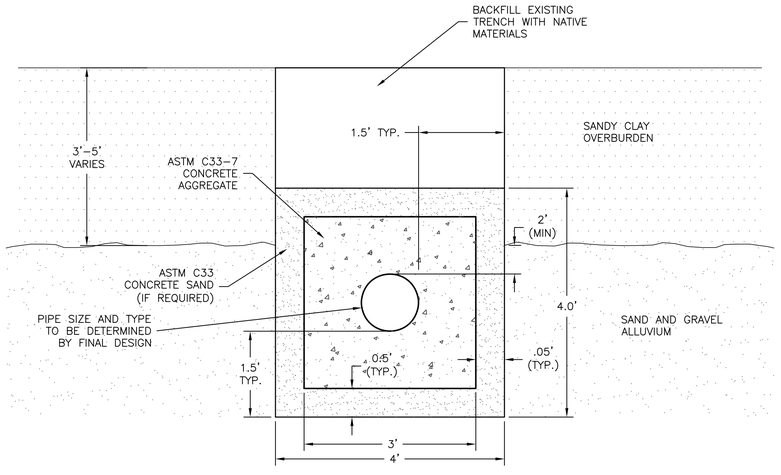
Sincerely,

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

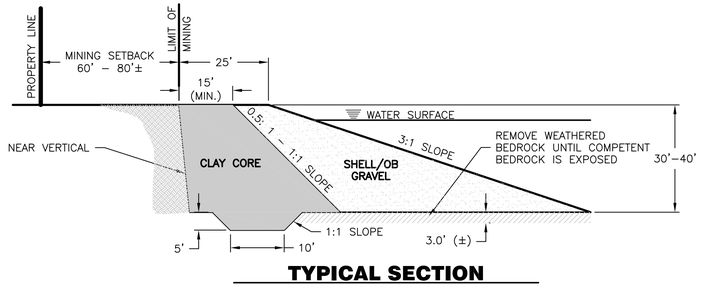
Enclosures:

Proposed Drain Map
Drone Photos
Monitor Well Readings and Monitor Well Map





PERIMETER DRAIN DETAIL
N.T.S.



TYPICAL SECTION
N.T.S.

LEGEND:

- 4852 — EXISTING CONTOURS
- PROPERTY BOUNDARY
- 4852 — PROPOSED CONTOURS
- PROPOSED FENCE
- PROPOSED PERIMETER DRAIN
- SEEDING AREA

200 100 0 200 400 600
SCALE IN FEET

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NCCI Pit #1

Exhibit F - Reclamation Plan Map

Northern Colorado Constructors, Inc.

M-2001-107

REVISIONS

No.	Date	By	Chk	DNR Comments
1	11/30/07	WSS	TPY	Technical Revision No. 8
2	1/27/22	TPY	TPY	Perimeter Drain & Fence
3	1/30/24	TWT	JCY	

J&T CONSULTING

J.C. York

Job #	06109
Date	7/26/07
Drawn By	WSS
Designed By	TPY
Checked By	JCY
File	JT-Reclamation Plan
Scale	1"=200'

Sheet: 1 Of: 1

P:\06109 NCCI Pit 1\Drawings\Reclamation Plan\JT-Reclamation Plan 2022.dwg, JT-Rec Plan, 1/30/2024 5:03:24 PM

Zadel Pit

	Off-site Monitoring Wells																	
Piezometer Number	**MW-Z1**			**MW-Z2**			**MW-Z3**			**MW-Z4**			**MW-Z5**			**MW-Z6**			**MW-Z7**		
Ground Surface Elevation (ft) [1]	4870.33			4870.66																	
Top of PVC Elevation (ft) [1]	4869.73			4870.05			4862.14			4862.72			4869.24			4869.47			4868.39		
Date of Measurement	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)	Depth to water from top of PVC (ft)	Water Surface Elevation (ft)	Change (ft)
8/6/2019	8.79	4860.94	(0.16)	8.63	4861.42	0.68	14.58	4847.56		15.79	4846.93		27.36	4841.88		26.65	4842.82		26.85	4841.54	
9/18/2019	7.01	4862.72	1.78	7.57	4862.48	1.06															
1/15/2020	8.97	4860.76	(1.96)	10.40	4859.65	(2.83)	17.77	4844.37	(3.19)	19.94	4842.78	(4.15)	19.73	4849.51	7.63	26.81	4842.66	(0.16)	26.88	4841.51	(0.03)
2/26/2020	10.42	4859.31	(1.45)	11.72	4858.33	(1.32)	18.20	4843.94	(0.43)	19.92	4842.80	0.02	19.98	4849.26	(0.25)	27.05	4842.42	(0.24)	26.94	4841.45	(0.06)
3/13/2020	10.84	4858.89	(0.42)	11.98	4858.07	(0.26)	20.38	4841.76	(2.18)	17.78	4844.94	2.14	15.25	4853.99	4.73	26.74	4842.73	0.31	26.00	4842.39	0.94
4/22/2020	10.30	4859.43	0.54	11.12	4858.93	0.86	16.64	4845.50	3.74	19.93	4842.79	(2.15)	15.96	4853.28	(0.71)	25.85	4843.62	0.89	26.50	4841.89	(0.50)
6/18/2020	7.46	4862.27	2.84	7.41	4862.64	3.71	13.10	4849.04	3.54	17.00	4845.72	2.93	14.54	4854.70	1.42	23.73	4845.74	2.12	24.71	4843.68	1.79
7/24/2020	6.90	4862.83	0.56	7.60	4862.45	(0.19)	12.15	4849.99	0.95	19.93	4842.79	(2.93)	9.45	4859.79	5.09	17.10	4852.37	6.63	20.40	4847.99	4.31
9/16/2020	7.02	4862.71	(0.12)	7.21	4862.84	0.39	8.62	4853.52	3.53	19.93	4842.79	0.00	18.47	4850.77	(9.02)	25.57	4843.90	(8.47)	26.60	4841.79	(6.20)
9/30/2020	7.05	4862.68	(0.03)	7.33	4862.72	(0.12)	8.60	4853.54	0.02	16.85	4845.87	3.08	21.42	4847.82	(2.95)	26.69	4842.78	(1.12)	26.90	4841.49	(0.30)
1/7/2021	9.10	4860.63	(2.05)	10.00	4860.05	(2.67)	12.90	4849.24	(4.30)	20.00	4842.72	(3.15)	25.80	4843.44	(4.38)	27.75	4841.72	(1.06)	27.25	4841.14	(0.35)
3/3/2021	10.21	4859.52	(1.11)	11.27	4858.78	(1.27)	14.16	4847.98	(1.26)	22.06	4840.66	(2.06)	26.73	4842.51	(0.93)	27.89	4841.58	(0.14)	27.32	4841.07	(0.07)
4/1/2021	10.41	4859.32	(0.20)	11.32	4858.73	(0.05)	13.40	4848.74	0.76	20.34	4842.38	1.72	24.56	4844.68	2.17	27.74	4841.73	0.15	27.24	4841.15	0.08
5/10/2021	9.14	4860.59	1.27	9.66	4860.39	1.66	10.43	4851.71	2.97	14.41	4848.31	5.93	18.65	4850.59	5.91	26.04	4843.43	1.70	25.88	4842.51	1.36
6/14/2021	8.57	4861.16	0.57	8.78	4861.27	0.88	7.20	4854.94	3.23	12.11	4850.61	2.30	18.97	4850.27	(0.32)	25.96	4843.51	0.08	24.80	4843.59	1.08
7/19/2021	7.34	4862.39	1.23	7.40	4862.65	1.38	7.17	4854.97	0.03	10.88	4851.84	1.23	20.54	4848.70	(1.57)	26.44	4843.03	(0.48)	26.68	4841.71	(1.88)
8/12/2021	6.93	4862.80	0.41	7.00	4863.05	0.40	8.63	4853.51	(1.46)	10.94	4851.78	(0.06)	20.94	4848.30	(0.40)	26.79	4842.68	(0.35)	26.85	4841.54	(0.17)
9/7/2021	6.22	4863.51	0.71	5.54	4864.51	1.46	9.30	4852.84	(0.67)	11.21	4851.51	(0.27)	16.68	4852.56	4.26	24.88	4844.59	1.91	26.12	4842.27	0.73
10/12/2021	6.61	4863.12	(0.39)	7.11	4862.94	(1.57)	8.75	4853.39	0.55	11.63	4851.09	(0.42)	23.55	4845.69	(6.87)	27.09	4842.38	(2.21)	26.91	4841.48	(0.79)
11/9/2021	6.78	4862.95	(0.17)	7.50	4862.55	(0.39)	10.10	4852.04	(1.35)	11.99	4850.73	(0.36)	24.25	4844.99	(0.70)	26.24	4843.23	0.85	20.72	4847.67	6.19
12/2/2021	8.30	4861.43	(1.52)	9.13	4860.92	(1.63)	11.69	4850.45	(1.59)	12.26	4850.46	(0.27)	24.50	4844.74	(0.25)	22.82	4846.65	3.42	21.50	4846.89	(0.78)
1/10/2022	10.00	4859.73	(1.70)	11.10	4858.95	(1.97)	12.91	4849.23	(1.22)	12.65	4850.07	(0.39)	25.38	4843.86	(0.88)	23.30	4846.17	(0.48)	22.50	4845.89	(1.00)
2/10/2022	10.75	4858.98	(0.75)	12.05	4858.00	(0.95)	13.95	4848.19	(1.04)	13.10	4849.62	(0.45)	25.71	4843.53	(0.33)	23.90	4845.57	(0.60)	23.15	4845.24	(0.65)
3/14/2022	11.30	4858.43	(0.55)	12.50	4857.55	(0.45)	14.23	4847.91	(0.28)	13.08	4849.64	0.02	23.70	4845.54	2.01	23.83	4845.64	0.07	20.40	4847.99	2.75
4/19/2022	11.65	4858.08	(0.35)	12.94	4857.11	(0.44)	14.41	4847.73	(0.18)	12.50	4850.22	0.58	23.25	4845.99	0.45	23.32	4846.15	0.51	23.02	4845.37	(2.62)
5/13/2022	9.78	4859.95	1.87	11.20	4858.85	1.74	10.63	4851.51	3.78	11.77	4850.95	0.73	20.90	4848.34	2.35	20.54	4848.93	2.78	18.29	4850.10	4.73
6/14/2022	6.66	4863.07	3.12	8.05	4862.00	3.15	7.93	4854.21	2.70	11.13	4851.59	0.64	7.80	4861.44	13.10	5.49	4863.98	15.05	3.65	4864.74	14.64
7/11/2022	5.95	4863.78	0.71	6.76	4863.29	1.29	9.55	4852.59	(1.62)	10.96	4851.76	0.17	12.33	4856.91	(4.53)	11.77	4857.70	(6.28)	8.90	4859.49	(5.25)
8/10/2022	3.96	4865.77	1.99	4.70	4865.35	2.06	9.33	4852.81	0.22	11.23	4851.49	(0.27)	10.52	4858.72	1.81	9.39	4860.08	2.38	7.60	4860.79	1.30
10/14/2022	1.40	4868.33	2.56	2.30	4867.75	2.40	6.80	4855.34	2.53	10.72	4852.00	0.51	10.64	4858.60	(0.12)	8.54	4860.93	0.85	6.23	4862.16	1.37
11/15/2022	1.82	4867.91	(0.42)	2.44	4867.61	(0.14)	7.21	4854.93	(0.41)	10.98	4851.74	(0.26)	10.63	4858.61	0.01	8.64	4860.83	(0.10)	6.40	4861.99	(0.17)
12/17/2022	2.05	4867.68	(0.23)	2.76	4867.29	(0.32)	9.28	4852.86	(2.07)	12.84	4849.88	(1.86)	11.64	4857.60	(1.01)	10.00	4859.47	(1.36)	7.92	4860.47	(1.52)
2/14/2023	2.42	4867.31	(0.37)	3.13	4866.92	(0.37)	9.96	4852.18	(0.68)	13.60	4849.12	(0.76)	12.14	4857.10	(0.50)	10.45	4859.02	(0.45)	8.38	4860.01	(0.46)
3/13/2023	3.44	4866.29	(1.02)	4.08	4865.97	(0.95)	10.35	4851.79	(0.39)	13.67	4849.05	(0.07)	12.55	4856.69	(0.41)	10.93	4858.54	(0.48)	8.91	4859.48	(0.53)
4/24/2023	3.32	4866.41	0.12	4.08	4865.97	0.00	9.88	4852.26	0.47	13.46	4849.26	0.21	11.49	4857.75	1.06	10.28	4859.19	0.65	8.40	4859.99	0.51
6/27/2023	1.40	4868.33	1.92	2.03	4868.02	2.05	7.15	4854.99	2.73	7.10	4855.62	6.36	4.27	4864.97	7.22	4.10	4865.37	6.18	2.87	4865.52	5.53
8/24/2023	0.60	4869.13	0.80	1.04	4869.01	0.99	3.38	4858.76	3.77	6.70	4856.02	0.40	5.30	4863.94	(1.03)	4.89	4864.58	(0.79)	3.25	4865.14	(0.38)
9/11/2023	0.45	4869.28	0.15	0.75	4869.30	0.29	3.17	4858.97	0.21	6.76	4855.96	(0.06)	6.25	4862.99	(0.95)	5.75	4863.72	(0.86)	4.05	4864.34	(0.80)
10/18/2023	0.50	4869.23	(0.05)	0.90	4869.15	(0.15)	3.22	4858.92	(0.05)	7.15	4855.57	(0.39)	5.78	4863.46	0.47	5.39	4864.08	0.36	3.81	4864.58	0.24
11/13/2023	1.02	4868.71	(0.52)	1.45	4868.60	(0.55)				7.18	4855.54	(0.03)	6.53	4862.71	(0.75)	6.04	4863.43	(0.65)	4.42	4863.97	(0.61)
12/13/2023	1.52	4868.21	(0.50)	2.07	4867.98	(0.62)	4.15	4857.99	(0.93)	7.30	4855.42	(0.12)	7.09	4862.15	(0.56)	6.50	4862.97	(0.46)	4.82	4863.57	(0.40)
Max	14.71	4869.28	6.04	14.75	4869.30	5.92															
Min	0.45	4855.02	(4.32)	0.75	4855.30	(4.48)															
Max Change	14.26	14.26		14.00	14.00																
Average	7.83	4861.90	0.02	8.58	4861.47	0.03															

[1] Elevations surveyed by Survey Systems, Evergreen, Colorado (July, 2011).

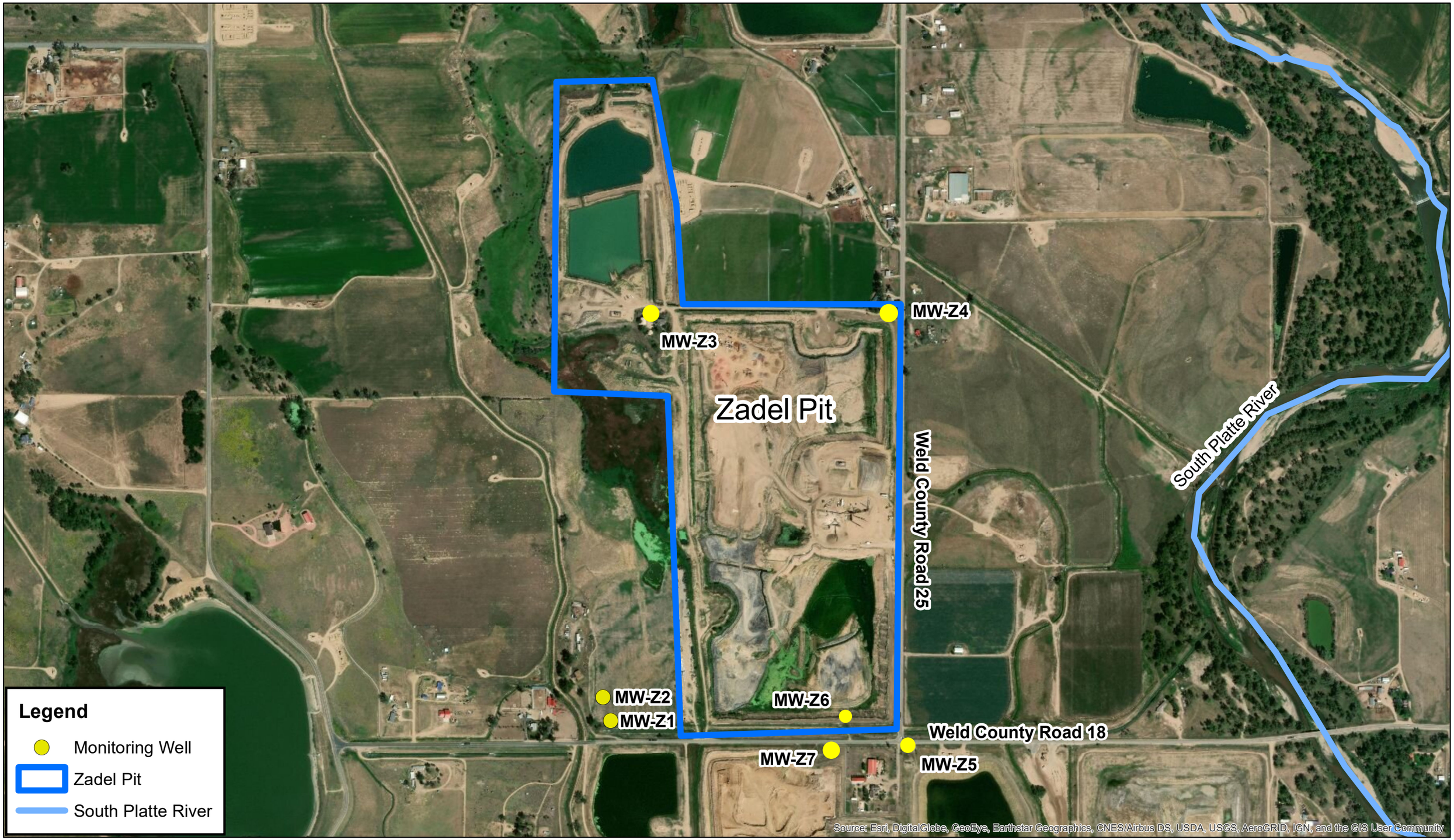
Figure 1.1

Thornton 2019 Gravel Pit Monitoring
Map of Monitoring Wells at Zadel Pit

DRCOG 2012 DRAPP AERIAL PHOTOGRAPHY
Map Created 9/19/19

0 295 590 1,180 1,770 2,360 Feet

NORTH



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