



**COLORADO**  
Division of Water Resources  
Department of Natural Resources

April 17, 2020

Walter M. Niccoli, P.E.  
Telesto Solutions, Inc.  
3801 Automation Way, Suite 201  
Fort Collins, CO 80525

**RE: Laporte Operations Substitute Water Supply Plan (WDID 0302532, Plan ID 5958)  
Knox Pit, DRMS M-2017-036 (WDID 0307920)  
SW ¼ Section 28, T8N, R69W, 6<sup>th</sup> P.M.  
Water Division 1, Water District 3, Larimer County**

**Approval Period: May 1, 2020 through December 31, 2021**  
*Contact Information for Mr. Niccoli: 970-484-7704; [wniccoli@telesto-inc.com](mailto:wniccoli@telesto-inc.com)*

Dear Mr. Niccoli:

We have reviewed your letter dated October 30, 2017 and revisions dated February 12, 2019, November 19, 2019, and March 31, 2020, requesting approval of the above referenced substitute water supply plan ("SWSP") in accordance with section 37-90-137(11), C.R.S. The SWSP is requested to cover depletions associated with the Knox Pit sand and gravel mining operation, operated by Loveland Ready-Mix Concrete, Inc. ("LRM" or "Applicant"). The required filing fee of \$1,593.00 has been received (receipt no. 3683275).

### **SWSP Operations**

The Knox Pit site consists of approximately 125 acres located just east of Laporte, Colorado. Mining of the site is anticipated to commence in mid-May or June of 2020 and to occur in five phases, consisting of approximately 17 acres each, and be completed over a period of 10 to 12 years. Material will be mined below the groundwater table, and the mining excavations will be dewatered. Water collected by the dewatering system will be pumped to an unlined Water Management Pond and used onsite for dust suppression, aggregate washing, concrete production, and truck washing. Storm water falling on the site is proposed to be captured in a storm water tank and pumped to the water management pond. Water placed in the Water Management Pond that is not pumped for operational uses will be allowed to seep into the ground and will be accounted for as an accretion to the river. The site will also contain a recirculated wash water/reclaim pond to help manage the water supply. This pond will be shallow and will be constructed above the groundwater table. As mining progresses, a compacted liner will be placed around the perimeter of the mine to seal the post-mining pits from the surrounding ground water system. A perimeter drain will be installed between the compacted liner and the alluvial aquifer concurrent with the placement of the compacted liner to allow for groundwater flow around the site. Upon completion of mining, the site is proposed to be reclaimed to pasture/rangeland. During this plan period, replacement water will be provided pursuant to an agreement with the North Weld County Water District.



## Water Management

You have developed a numerical groundwater model, calibrated to water level measurements taken from wells located adjacent to and around the proposed Knox Pit, to establish time- and mining-phase-dependent inflow rates, and the relationship between the water level in the Water Management Pond and anticipated groundwater inflows or outflows. The Water Management Pond will effectively act as a recharge pond when receiving dewatering water and/or storm water runoff in excess of the amount needed for operations at the site.

Dewatering at the site is anticipated to commence in mid-May or June 2020 at an initial rate of over 5,000 gpm. The dewatering rate is anticipated to swiftly decrease to approximately 700 gpm during the irrigation season and 400 gpm during the non-irrigation season. Once the compacted backfill is installed, irrigation season dewatering rates are anticipated to decrease further to approximately 500 gpm. The dewatering discharge from the active mine sump to the Water Management Pond will be measured using a totalizing flow meter.

Storm water falling on the active mine site will be collected in a settling basin and will gravity-flow to the Water Management Pond. A tipping bucket rain gage will be installed onsite to collect daily precipitation data. Storm water inflows into the Water Management Pond must either be directly measured or calculated based on the drainage area and on-site precipitation.

## Depletions

A total of 6.05 acres of groundwater is anticipated to be exposed at the site, consisting of 4.8 acres in the Water Management Pond and 1.25 acres between the Reclaim Pond and dewatering trenches. Evaporation from the Water Management Pond was calculated using a gross annual evaporation of 38.28 inches from the exposed water surface, with a credit of 10.46 inches for effective precipitation, based on an average annual precipitation of 14.94 inches obtained from the NOAA long-term average for Fort Collins. The net depletion due to evaporation of exposed groundwater surface from the Water Management Pond was calculated to be 11.13 acre-feet per year.

Evaporation from the Reclaim Pond and dewatering trenches was calculated using the gross annual evaporation of 38.28 inches from the exposed water surface, with no credit taken for effective precipitation. The net depletion due to evaporation of exposed groundwater surface from the Reclaim Pond and dewatering trenches was calculated to be 3.99 acre-feet per year.

You have estimated that 460,000 gallons of water per year will be required for dust control, based on operations at LRM's Johnstown site. All water used for dust control purposes is assumed to be 100% consumed. This amount includes water used for truck washing at the site.

The combined estimated monthly consumptive use due to evaporation and dust control purposes during this plan period are shown on the attached Table 1, column K. (Note: Table 1 assumes mining operations will commence in June 2020.)

You have projected 232,502 tons of mined material will be removed from the site each year. The material will be mined below the groundwater table, but in a dewatered state. The material will be washed, therefore the moisture content is considered to be 4% of the mined material by weight, all of which is considered to be a groundwater diversion. This results in a consumptive use of 6.84 acre-feet

for the 232,502 tons of washed material per year. The estimated monthly consumptive use due to water removed with the mined product during this plan period are shown on the attached Table 1, column N.

You have estimated that 155,000 cubic yards of concrete will be produced at the site per year. A volume of 30 gallons of water is required per cubic yard of concrete produced. Water demands for concrete production are therefore estimated at 14.27 acre-feet per year. Water used for concrete production is considered to be 100% consumed. The monthly breakdown of water requirements for concrete production is shown on the attached Table 1, column O.

The operational and evaporative consumptive use of water at the site assuming a June 2020 start date is projected to total 63.6 acre-feet for this plan period, broken down as 25.93 acre-feet for the period of June 2020 through December 2020, and 37.64 acre-feet for the period of January 2021 through December 2021 (see Table 1, column P). Should mining instead commence in May 2020, the submitted accounting for this plan must reflect actual operations at the site.

### Lagged Recharge/Depletions

The Phase 1 & 2 Sump, as shown on the attached Figure 2, is located closer to the river than the Water Management Pond where dewatering water will be placed for recharge. Therefore, it cannot be assumed that the depletions from dewatering are offset by deliveries to the Water Management Pond. The depletions from pumping of the Phase 1 & 2 Sump for dewatering purposes and the accretions for recharge from the Water Management Pond were calculated using the Alluvial Water Accounting System (AWAS) program developed by the Integrated Decision Support (IDS) Group at Colorado State University with the alluvial aquifer boundary condition.

The monthly groundwater depletions were lagged from the Phase 1 & 2 Sump to the Cache la Poudre River in the SW  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 32, Township 8 North, Range 69 West, 6<sup>th</sup> P.M. using the following parameters:

- Distance from the Phase 1 & 2 Sump to the river (X) = 3,270 feet
- Distance from the river to the no-flow boundary (W) = 6,000 feet
- Specific yield (S) = 0.20
- Transmissivity (T) = 50,000 gallons per day per foot

The AWAS model was utilized to develop a unit response function (URF) to estimate monthly lagged depletions to the river, shown in Table 2.

The monthly groundwater accretions from the Water Management Pond were calculated as the amount of water pumped for dewatering purposes, minus the operational and evaporative consumptive use of water at the site as described above. The volume of the “first fill” associated with the excavation of the Water Management Pond was accounted for by subtracting 59.3 acre-feet from the volume of groundwater considered to be recharged to the aquifer for the month of June 2020. Should excavation below the groundwater table occur in May 2020, this amount must be accounted for in the month of May instead. The “first fill” is the water that fills an unlined pit or pond and occupies the volume previously occupied by the removed sand, gravel, or other solid material. The Water Management Pond is anticipated to be excavated to a depth of 18 feet below the groundwater table, with a maximum surface area of 4.8 acres. The depletion associated with the “first fill” of the Water Management Pond was calculated as 59.3 acre-feet.

The resulting accretions were lagged from the Water Management Pond to the same point on the Cache la Poudre River in the SW  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 32, Township 8 North, Range 69 West, 6<sup>th</sup> P.M. using the following parameters:

- Distance from the Water Management Pond to the river (X) = 4,250 feet
- Distance from the river to the no-flow boundary (W) = 6,000 feet
- Specific yield (S) = 0.20
- Transmissivity (T) = 50,000 gallons per day per foot

The AWAS model was utilized to develop a unit response function (URF) to estimate monthly lagged recharge accretions to the river, shown in Table 3.

After accounting for recharge accretions, lagged depletions resulting from operations at the site assuming a June 2020 start date are estimated to total 204 acre-feet for this plan period, broken down as 75 acre-feet for the period of June 2020 through December 2020, and 129 acre-feet for the period of January 2021 through December 2021 (see Table 4, row H).

## Replacements

Replacement water will be provided via a lease with the North Weld County Water District (“NWCWD”) for up to a maximum of 129 acre-feet of water per calendar year that has been decreed to allow for augmentation use or is otherwise fully consumable, including water from the Overland Trail Reservoir system. On or before October 15 of each year, LRM will provide NWCWD with an estimate of monthly depletions for the period of November through October of the following water year. The term of the lease is for a minimum of five years after exposure of groundwater in Pond 1. The lease agreement limits annual consumptive use associated with Pond 1 (mining Phases 1 & 2) to 54 acre-feet per year.

The Overland Trail Reservoir system (WDID 0303312) consists of a series of existing off-channel lined gravel pits, located in portions of Sections 32 & 33, T8N, and Section 3, T7N, R69W, 6<sup>th</sup> P.M. (see *Figure 1: Overland Trail Reservoir Project*). Water is stored in the lined ponds pursuant to the Overland Trail Reservoirs conditional water storage right decreed in case no. 2000CW0251. The liners for Overland Ponds 1-5 and Treiber Lake A have been approved by this office. The Overland Trail Reservoirs may be filled with water diverted from the Cache la Poudre River via the New Mercer Ditch, Larimer County Canal No. 2, the Overland Trail Diversion Structure, Munroe Gravity Canal (a/k/a North Poudre Supply Canal), and/or the Pleasant Valley Pipeline. The total decreed capacity of the Overland Trail Reservoirs is 10,962 acre-feet, conditional. Replacement water from the Overland Trail Reservoirs is proposed to be pumped into the Cache la Poudre River in the SE  $\frac{1}{4}$  of Section 33, Township 8 North, Range 69 West, 6<sup>th</sup> P.M., approximately one mile downstream of the Knox Pit. There are no intervening surface water diversions along this stretch of the river.

## Long Term Augmentation

All sand and gravel mining operators must comply with the requirements of the Colorado Reclamation Act and the Mineral Rules and Regulations for the protection of water resources. The Colorado Division of Reclamation, Mining, and Safety (“DRMS”) requires that you provide information to demonstrate you can replace long term injurious stream depletions that result from mining-related exposure of groundwater. Loveland Ready-Mix Concrete, Inc. has submitted a financial warranty in the amount of \$788,900.00 for the Knox Pit, which the DRMS has determined equals the estimated costs of

reclamation to the proposed post-mining land use of pastureland, including the backfilling, grading, and revegetation of the disturbed areas.

### Conditions of Approval

I hereby approve the proposed SWSP in accordance with section 37-90-137(11), C.R.S., subject to the following conditions:

1. This SWSP shall be valid for the period of May 1, 2020 through December 31, 2021 unless otherwise revoked or superseded by decree. If groundwater depletions associated with this sand and gravel mining operation will extend beyond the expiration date of this SWSP, a renewal request must be submitted to this office with the statutory fee (currently \$257) **no later than November 1, 2021**. If a renewal request is received after the expiration date of this plan, it may be considered a request for a new SWSP, in which case the \$1,593 filing fee will apply.
2. Approval of this SWSP is for the purposes as stated herein, being evaporation, dewatering, the "first fill", dust control, concrete production, and water removed with the mined product. Additional wells (gravel pits) and/or additional uses for the water that is the subject of this SWSP will be allowed only if a new SWSP is approved for those additional wells/uses.
3. A well permit must be obtained for the proposed use and exposed water surface area of the gravel pit in accordance with sections 37-90-137(2) and (11), C.R.S., in conjunction with this plan. A gravel pit well permit application was submitted to this office with the SWSP request and is currently pending under receipt no. 3683322. The application will be evaluated subsequent to approval of this SWSP. The provisions of section 37-90-137(2), C.R.S., prohibit the issuance of a permit for a well to be located within 600 feet of any existing well, unless the State Engineer finds that circumstances so warrant after a hearing in accordance with the procedural rules in 2CCR402-5. The hearing will be waived if you are able to obtain statements from the owners of all wells within 600 feet, verifying that they have no objection to the proposed well. Should a well permit be denied for reasons of 600 foot spacing, or any other legitimate reason, approval of this substitute supply plan may be cancelled.
4. The total surface area of the groundwater exposed at the site must not exceed a total of 6.05 acres in the Water Management Pond, Reclaim Pond, and dewatering trenches, which results in a maximum annual evaporative loss of 15.12 acre-feet. Should the exposed groundwater surface area exceed this amount, an amendment will need to be filed with this office.
5. The annual amount of water consumed for dust control purposes, concrete production, and lost with the mined product must not exceed 22.52 acre-feet.
6. After accounting for dewatering depletions and recharge accretions, total lagged depletions resulting from operations at the site shall not exceed 129 acre-feet per year.
7. Total consumption and depletions at the Knox Pit must not exceed these aforementioned amounts unless a new SWSP is obtained.
8. All diversions shall be measured in a manner acceptable to the division engineer. The Applicant shall install and maintain measuring devices as required by the division engineer for operation of this SWSP.
9. A staff gage must be installed in the Water Management Pond, approved by the water commissioner, and a stage-capacity table provided in order to receive credit for any accretions from dewatering or storm water delivered to the Pond.

10. The name, address and phone number of the contact person who will be responsible for the operation and accounting of this plan must be provided with the accounting form to the division engineer and water commissioner.
11. The Applicant shall provide daily accounting (including, but not limited to diversions, depletions, accretions, replacement sources, and river calls) on a monthly basis, or more frequent if required by the water commissioner. The accounting must be emailed to the water commissioner (Mark Simpson at [Mark.Simpson@state.co.us](mailto:Mark.Simpson@state.co.us)) and [DNR.Div1Accounting@state.co.us](mailto:DNR.Div1Accounting@state.co.us) within 30 days of the end of the month for which the accounting applies. Accounting and reporting procedures are subject to approval and modification by the division engineer. Accounting forms need to identify the WDID number for each well operating under this SWSP. NOTE: Monthly accounting, even during the winter non-irrigation season, is required.

The Applicant shall verify that the entity making replacements (the North Weld County Water District) has included the Applicant on their accounting submitted to this office.

12. All releases of replacement water must be sufficient to cover all out-of-priority depletions in time, place, and amount and must be made under the direction and/or the approval of the water commissioner. Notice must be provided and approval made by the water commissioner at least 48 hours prior to the release of replacement water, or as required by the water commissioner. The release of replacement water may be aggregated to maximize beneficial use. The water commissioner and/or the division engineer shall determine the rate and timing of an aggregated release.
13. The Applicant shall follow the attached Augmentation Plan Accounting and Recharge Protocols for the operation of this SWSP.
14. Conveyance loss for delivery of augmentation water is subject to assessment and modification as determined by the division engineer.
15. The replacement water which is proposed to be utilized in this SWSP cannot be sold or leased to any other entity during the term of this plan. All replacement water must be concurrent with depletions in quantity, timing and location.
16. Dewatering at this site will produce delayed depletions to the stream system. As long as the site is continuously dewatered, the water returned to the stream system via recharge will be used to partially offset the depletions, thus dewatering is required to continue during the term of this plan. Once dewatering at the site ceases, the delayed depletions must be addressed, including depletions resulting from the gradual refilling of the pit. At least three years prior to completion of dewatering, a plan must be submitted that specifies how the post-pumping dewatering depletions will be replaced, in time, place and amount.
17. The approval of this SWSP does not relieve the Applicant and/or landowner of the requirement to ensure the permanent replacement of all depletions, including long-term evaporation losses and/or lagged depletions after gravel mining operations have ceased. If reclamation of the mine site will produce a permanent water surface exposing groundwater to evaporation, an application for a plan for augmentation must be filed with the Division 1 Water Court at least three (3) years prior to the completion of mining to include, but not be limited to, long-term evaporation losses and lagged depletions. If a lined pond results after reclamation, replacement of lagged depletions shall continue until there is no longer an effect on stream flow.

18. To assure that depletions from groundwater evaporation do not occur in the unforeseen event, or events, which would lead to the abandonment of the pit, the Applicant has obtained a bond in the amount of \$788,900.00, which includes the cost of backfilling the pond(s).
19. The state engineer may revoke this SWSP or add additional restrictions to its operation if at any time the state engineer determines that injury to other vested water rights has occurred or will occur as a result of the operation of this SWSP. Should this SWSP expire without renewal or be revoked prior to adjudication of a permanent plan for augmentation, all use of water at the pit must cease immediately.
20. In accordance with amendments to section 25-8-202(7), C.R.S., and Senate Bill 89-181 Rules and Regulations adopted on February 4, 1992, the state engineer shall determine whether the substitute supply is of a quality to meet requirements of use of senior appropriators. As such, water quality data or analysis may be requested at any time to determine if the water quality is appropriate for downstream water users.
21. The decision of the state engineer shall have no precedential or evidentiary force, shall not create any presumptions, shift the burden of proof, or serve as a defense in any pending water court case or any other legal action that may be initiated concerning this plan. This decision shall not bind the state engineer to act in a similar manner in any other applications involving other SWSPs, or in any proposed renewal of this SWSP, and shall not imply concurrence with any findings of fact or conclusions of law contained herein, or with the engineering methodologies used by the Applicant.

Please contact Sarah Brucker in Denver at (303) 866-3581, or Michael Hein in Greeley at (970) 352-8712, if you have any questions concerning this approval.

Sincerely,



Jeff Deatherage, P.E.  
Chief of Water Supply

Attachments: Tables 1-4  
Figures 1 & 6  
NWCWD lease agreement  
Administration Protocol - Augmentation Plan Accounting  
Administration Protocol - Recharge

Cc: Michael Hein, Lead Assistant Division Engineer, [Michael.Hein@state.co.us](mailto:Michael.Hein@state.co.us)  
810 9<sup>th</sup> Street, Ste. 200, Greeley, CO 80631, (970) 352-8712

Louis Flink, Tabulation/Diversion Records Coordinator, [Louis.Flink@state.co.us](mailto:Louis.Flink@state.co.us)

Mark Simpson, Water Commissioner, Water District 3, [Mark.Simpson@state.co.us](mailto:Mark.Simpson@state.co.us)

Jared Ebert, Division of Reclamation Mining and Safety, [jared.ebert@state.co.us](mailto:jared.ebert@state.co.us)



Table 1 Estimated Consumptive Use Over the Requested SWSP Period	
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Inputs									
WMP Evap surf Areas (acre) [A]								4.8	
Filter Press Recaim Pond and Gravel Pit Water Conveyance (acres) [B]								1.25	
Effective Precip Percent [C]								0.7	
Water Entrained in Aggregate (% wt) [D]								4%	
Water used in concrete mix (gal/cy) [E]								30	
Yearly Surface Evap (in) [F]								38.28	
Dust Control(gal/yr) [G]								460,000	
Calculations									
End of Month	[H] Evap Distributi on	[I] Monthly Lake Evap (in)	[J] Average Precip (in)	[K] Projected Net Evaporative Loss (af)	[L] Projected Concrete Production (cy)	[M] Aggregate Produced (ton)	[N] Water Entrained in Aggregate (4% by wt) (AF)	[O] Water Added to Concrete Mix (AF)	[P] Total Consumed Water (AF)
Jun-20	14.5%	5.55	1.86	2.48	17,748	26,621	0.78	1.6	4.9
Jul-20	15.0%	5.74	2.12	2.51	17,748	26,621	0.78	1.6	4.9
Aug-20	13.5%	5.17	1.56	2.36	15,500	23,250	0.68	1.4	4.5
Sep-20	10.0%	3.83	1.22	1.73	15,500	23,250	0.68	1.4	3.8
Oct-20	7.0%	2.68	0.99	1.17	15,500	23,250	0.68	1.4	3.3
Nov-20	4.0%	1.53	0.58	0.67	13,253	19,879	0.59	1.2	2.5
Dec-20	3.0%	1.15	0.36	0.52	11,083	16,624	0.49	1.0	2.0
Jan-21	3.0%	1.15	0.34	0.53	8,835	13,253	0.39	0.8	1.7
Feb-21	3.5%	1.34	0.35	0.63	8,835	13,253	0.39	0.8	1.8
Mar-21	5.5%	2.11	1.16	0.81	8,835	13,253	0.39	0.8	2.0
Apr-21	9.0%	3.45	1.71	1.39	11,083	16,624	0.49	1.0	2.9
May-21	12.0%	4.59	2.69	1.73	11,083	16,624	0.49	1.0	3.2
Jun-21	14.5%	5.55	1.86	2.48	17,748	26,621	0.78	1.6	4.9
Jul-21	15%	5.74	2.12	2.51	17,748	26,621	0.78	1.6	4.9
Aug-21	13.5%	5.17	1.56	2.36	15,500	23,250	0.68	1.4	4.5
Sep-21	10.0%	3.83	1.22	1.73	15,500	23,250	0.68	1.4	3.8
Oct-21	7.0%	2.68	0.99	1.17	15,500	23,250	0.68	1.4	3.3
Nov-21	4.0%	1.53	0.58	0.67	13,253	19,879	0.59	1.2	2.5
Dec-21	3.0%	1.15	0.36	0.52	11,083	16,624	0.49	1.0	2.0
	<b>Sub Total</b>	<b>63.9</b>	<b>23.6</b>	<b>28.0</b>	<b>261,330</b>	<b>391,995</b>	<b>11.54</b>	<b>24.06</b>	
<b>Total for Consumed (AF)</b>									<b>63.6</b>
Notes									
[A] - Maximum area from stage-area relationship for water management pond design									
[B] - Maximum area from planned foot print									
[C] - from DWR guidelines (applies only to the WMP)									
[D] - from DWR guidelines for washed aggregate									
[E] - Industry standard (entrained water makes up a portion of this, but assumed full 30 gal/cy for SWSP request)									
[F] – NOAA Technical Report 33									
[G] - Annual Usage at LRM's Johnstown Plant									
[H] - DWR guidelines									
[I] = [F] x [H]									
[J] - NOAA long-term average for Fort Collins									
[K] = (([I]-[J] x [C]) x [A] + [I] x [B])/12 + [G] / 7.481 / 43560 x [H]									
[L] - 155,000 cy/yr permitted production, distributed per LRM's Johnstown records									
[M] = [L] x 1.5 {industry standard}									
[N] = [M] x [D] x 2000 / 62.4 / 43560									
[O] = [E] x [L] / 7.481 / 43560									
[P] =[K] + [N] + [O]									



**Table 2 Unit Discharge Function Pumping from Phase 1-2 Sumps**

Month	Percent of First Month's Flow	Cumulative Percentage	Month	Percent of First Month's Flow	Cumulative Percentage	Month	Percent of First Month's Flow	Cumulative Percentage
1	0.45	0.45	37	0.54	92.43	73	0.04	99.39
2	5.84	6.28	38	0.52	92.95	74	0.04	99.43
3	8.62	14.90	39	0.48	93.44	75	0.04	99.47
4	7.30	22.20	40	0.44	93.87	76	0.04	99.50
5	6.33	28.53	41	0.42	94.29	77	0.03	99.54
6	5.28	33.81	42	0.38	94.67	78	0.03	99.57
7	4.83	38.64	43	0.37	95.04	79	0.03	99.60
8	4.36	43.00	44	0.34	95.38	80	0.03	99.62
9	3.62	46.62	45	0.30	95.67	81	0.02	99.65
10	3.71	50.32	46	0.30	95.97	82	0.02	99.67
11	3.32	53.65	47	0.27	96.24	83	0.02	99.69
12	3.19	56.84	48	0.26	96.50	84	0.02	99.71
13	2.87	59.71	49	0.23	96.73	85	0.02	99.73
14	2.77	62.48	50	0.22	96.95	86	0.02	99.75
15	2.57	65.05	51	0.21	97.16	87	0.02	99.77
16	2.32	67.37	52	0.19	97.35	88	0.02	99.78
17	2.24	69.61	53	0.18	97.53	89	0.01	99.80
18	2.02	71.63	54	0.16	97.70	90	0.01	99.81
19	1.94	73.57	55	0.16	97.85	91	0.01	99.82
20	1.81	75.38	56	0.15	98.00	92	0.01	99.84
21	1.53	76.91	57	0.12	98.12	93	0.01	99.85
22	1.58	78.50	58	0.13	98.25	94	0.01	99.86
23	1.43	79.92	59	0.12	98.37	95	0.01	99.87
24	1.38	81.30	60	0.11	98.48	96	0.01	99.88
25	1.24	82.54	61	0.10	98.58	97	0.01	99.88
26	1.20	83.74	62	0.10	98.68	98	0.01	99.89
27	1.11	84.85	63	0.09	98.77	99	0.01	99.90
28	1.01	85.86	64	0.08	98.85	100	0.01	99.91
29	0.97	86.83	65	0.08	98.93	101	0.01	99.91
30	0.87	87.70	66	0.07	99.00	102	0.01	99.92
31	0.84	88.55	67	0.07	99.07	103	0.01	99.92
32	0.79	89.33	68	0.06	99.13	104	0.01	99.93
33	0.66	89.99	69	0.05	99.19	105	0.00	99.93
34	0.69	90.68	70	0.06	99.24	106	0.00	99.94
35	0.62	91.30	71	0.05	99.29	107	0.00	99.94
36	0.60	91.90	72	0.05	99.34	108	0.00	99.95

**Table 3      Unit Discharge Function for Recharge**

Month	Percent of First Month's Flow	Cumulative Percentage	Month	Percent of First Month's Flow	Cumulative Percentage	Month	Percent of First Month's Flow	Cumulative Percentage
1	0.04	0.04	37	0.64	91.02	73	0.0519	99.27
2	1.63	1.67	38	0.62	91.63	74	0.05	99.32
3	4.53	6.20	39	0.57	92.20	75	0.0466	99.37
4	5.38	11.58	40	0.52	92.72	76	0.0421	99.41
5	5.66	17.23	41	0.50	93.22	77	0.0405	99.45
6	5.30	22.53	42	0.45	93.67	78	0.0366	99.49
7	5.20	27.74	43	0.43	94.11	79	0.0352	99.52
8	4.90	32.63	44	0.40	94.51	80	0.0328	99.55
9	4.16	36.79	45	0.35	94.86	81	0.0277	99.58
10	4.32	41.11	46	0.35	95.21	82	0.0287	99.61
11	3.90	45.01	47	0.32	95.53	83	0.0259	99.64
12	3.76	48.77	48	0.31	95.84	84	0.0249	99.66
13	3.40	52.17	49	0.28	96.11	85	0.0225	99.68
14	3.28	55.45	50	0.27	96.38	86	0.0217	99.71
15	3.05	58.50	51	0.25	96.63	87	0.0202	99.73
16	2.76	61.26	52	0.22	96.85	88	0.0182	99.74
17	2.66	63.91	53	0.22	97.07	89	0.0176	99.76
18	2.40	66.31	54	0.19	97.26	90	0.0158	99.78
19	2.31	68.62	55	0.19	97.45	91	0.0153	99.79
20	2.15	70.77	56	0.17	97.63	92	0.0142	99.81
21	1.82	72.59	57	0.15	97.77	93	0.0124	99.82
22	1.88	74.46	58	0.15	97.93	94	0.0124	99.83
23	1.70	76.16	59	0.14	98.06	95	0.0112	99.84
24	1.63	77.79	60	0.13	98.20	96	0.0108	99.85
25	1.47	79.27	61	0.12	98.32	97	0.0097	99.86
26	1.42	80.69	62	0.12	98.43	98	0.0094	99.87
27	1.32	82.01	63	0.11	98.54	99	0.0087	99.88
28	1.19	83.21	64	0.10	98.64	100	0.0079	99.89
29	1.15	84.36	65	0.09	98.73	101	0.0076	99.90
30	1.04	85.40	66	0.08	98.81	102	0.0069	99.90
31	1.00	86.40	67	0.08	98.90	103	0.0066	99.91
32	0.93	87.33	68	0.08	98.97	104	0.0061	99.92
33	0.79	88.12	69	0.06	99.03	105	0.0052	99.92
34	0.81	88.93	70	0.07	99.10	106	0.0054	99.93
35	0.74	89.67	71	0.06	99.16	107	0.0049	99.93
36	0.71	90.38	72	0.06	99.22	108	0.0047	99.94

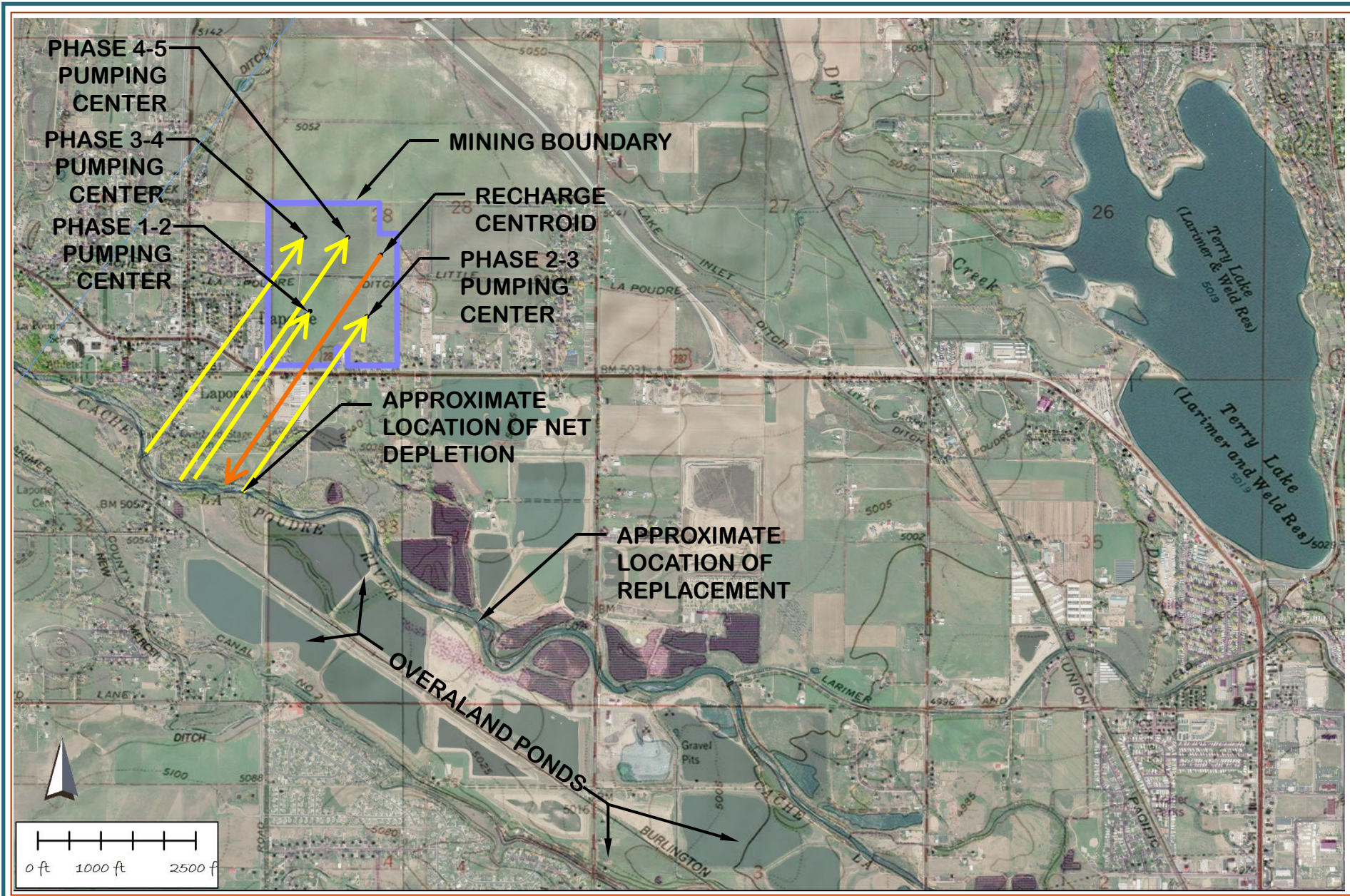
Table 4      Estimated Lagged Depletions to the Cache la Poudre River

End of Month	Site Pumping (AF) [B]	Jun-2020	Jul-2020	Aug-2020	Sep-2020	Oct-2020	Nov-2020	Dec-2020	Jan-2021	Feb-2021	Mar-2021	Apr-2021	May-2021	Jun-2021	Jul-2021	Aug-2021	Sep-2021	Oct-2021	Nov-2021	Dec-2021
		Pumping UDF [A]																		
Jun-20	92.80	0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873	2.765	2.574	2.322	2.237	2.019	1.945
Jul-20	95.89		0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873	2.765	2.574	2.322	2.237	2.019
Aug-20	95.89			0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873	2.765	2.574	2.322	2.237
Sep-20	92.80				0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873	2.765	2.574	2.322
Oct-20	95.89					0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873	2.765	2.574
Nov-20	92.80						0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873	2.765
Dec-20	95.89							0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190	2.873
Jan-21	95.89								0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323	3.190
Feb-21	86.61									0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705	3.323
Mar-21	95.89										0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618	3.705
Apr-21	92.80											0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362	3.618
May-21	95.89												0.447	5.836	8.621	7.299	6.329	5.276	4.832	4.362
Jun-21	92.80													0.447	5.836	8.621	7.299	6.329	5.276	4.832
Jul-21	95.89														0.447	5.836	8.621	7.299	6.329	5.276
Aug-21	95.89															0.447	5.836	8.621	7.299	6.329
Sep-21	92.80																0.447	5.836	8.621	7.299
Oct-21	95.89																	0.447	5.836	8.621
Nov-21	92.80																		0.447	5.836
Dec-21	95.89																			0.447
		Pumping Depletions at River [C]																		
		0.41	5.42	8.00	6.77	5.87	4.90	4.48	4.05	3.36	3.44	3.08	2.96	2.67	2.57	2.39	2.15	2.08	1.87	1.80
			0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18	3.47	3.55	3.19	3.06	2.76	2.65	2.47	2.23	2.15	1.94
				0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18	3.47	3.55	3.19	3.06	2.76	2.65	2.47	2.23	2.15
					0.41	5.42	8.00	6.77	5.87	4.90	4.48	4.05	3.36	3.44	3.08	2.96	2.67	2.57	2.39	2.15
						0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18	3.47	3.55	3.19	3.06	2.76	2.65	2.47
							0.41	5.42	8.00	6.77	5.87	4.90	4.48	4.05	3.36	3.44	3.08	2.96	2.67	2.57
								0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18	3.47	3.55	3.19	3.06	2.76
									0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18	3.47	3.55	3.19	3.06
										0.39	5.05	7.47	6.32	5.48	4.57	4.18	3.78	3.13	3.21	2.88
											0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18	3.47	3.55
												0.41	5.42	8.00	6.77	5.87	4.90	4.48	4.05	3.36
													0.43	5.60	8.27	7.00	6.07	5.06	4.63	4.18
														0.41	5.42	8.00	6.77	5.87	4.90	4.48
															0.43	5.60	8.27	7.00	6.07	5.06
																0.43	5.60	8.27	7.00	6.07
																	0.41	5.42	8.00	6.77
																		0.43	5.60	8.27
																			0.41	5.42
																				0.43
		0.41	5.84	14.03	21.05	26.98	31.98	36.50	40.64	44.16	47.26	50.23	53.28	56.05	58.71	61.17	63.53	65.63	67.53	69.36
	Site Recharge (AF) [E]	Recharge UDF [D]																		
Jun-20	28.60	0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40	3.28	3.05	2.76	2.66	2.40	2.31
Jul-20	90.96		0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40	3.28	3.05	2.76	2.66	2.40
Aug-20	91.42			0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40	3.28	3.05	2.76	2.66
Sep-20	88.96				0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40	3.28	3.05	2.76
Oct-20	92.61					0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40	3.28	3.05
Nov-20	90.33						0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40	3.28
Dec-20	93.86							0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76	3.40
Jan-21	94.16								0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90	3.76
Feb-21	84.78									0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32	3.90
Mar-21	93.87										0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16	4.32
Apr-21	89.90											0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90	4.16
May-21	92.65												0.04	1.63	4.53	5.38	5.66	5.30	5.20	4.90
Jun-21	87.90													0.04	1.63	4.53	5.38	5.66	5.30	5.20
Jul-21	90.96														0.04	1.63	4.53	5.38	5.66	5.30
Aug-21	91.42															0.04	1.63	4.53	5.38	5.66
Sep-21	88.96																0.04	1.63	4.53	5.38
Oct-21	92.61																	0.04	1.63	4.53
Nov-21	90.33																		0.04	1.63
Dec-21	93.86																			0.04
		Recharge Accretions at River [F]																		









**FIGURE 6**  
**APPROXIMATE LOCATIONS OF DEPLETION AND REPLACEMENT**



## WATER RENTAL AGREEMENT

THIS WATER RENTAL AGREEMENT ("Lease" or "Agreement") is made and entered into this 25<sup>th</sup> day of October, 2019 ("Effective Date"), by and between NORTH WELD COUNTY WATER DISTRICT, acting by and through the North Weld County Water District Enterprise ("Lessor"), and LOVELAND READY-MIX CONCRETE, INC., a Colorado corporation ("Lessee"), whose address is 644 N Namaqua Ave., Loveland, Colorado 80537. The Lessor and the Lessee are collectively referred to herein as the "Parties".

WHEREAS, the Lessee is the owner of approximately one hundred twenty-five (125) acres of real property legally described on Exhibit A attached hereto and has granted to North Weld County Water District an option to purchase a portion of said real property pursuant to an Option Agreement dated effective as of October 25, 2019, 2019 ("Option Agreement"). As set forth in the Option Agreement, the Lessee will mine portions of the 125-acre parcel to remove sand, gravel and other aggregate products pursuant to Division of Reclamation Mining and Safety Permit No. M2017-036; and

WHEREAS, for convenience of reference, capitalized terms used but not defined herein shall have the meanings ascribed to such terms in the Option Agreement; and

WHEREAS, Lessee wishes to lease from the Lessor upon the terms set forth below, certain water rights that may lawfully be used for augmentation purposes, including the replacement of all out-of-priority depletion to the Poudre River resulting from mining operations, including depletions occurring subsequent to the conclusion of mining ("lagged depletions"); all as necessary and sufficient to fulfill its Substitute Water Supply Plan ("SWSP") obligations with the Colorado Division of Water Resources; and

WHEREAS, the Lessor owns certain water rights which may lawfully be used for such augmentation purposes; and

WHEREAS, the Lessor is willing to lease to Lessee a portion of such water rights, pursuant to certain terms and conditions as set forth in this Lease.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and other good and valuable consideration, the receipt of which is hereby acknowledged, the Parties agree as follows:

1. Definitions. For purposes of this Lease, the following terms shall have the following meanings:
  - A. "Augmentation Supply" shall mean and refer to certain water rights owned by the Lessor which may lawfully be used for augmentation purposes.
  - B. "Pond 1 Augmentation Supply" shall mean and refer to the Augmentation Supply leased by the Lessor to the Lessee pursuant to the terms of this Lease with respect to Pond 1.
  - C. "Pond 2 Augmentation Supply" shall mean and refer to the Augmentation Supply leased by the Lessor to the Lessee pursuant to the terms of this Lease with respect to Pond 2.
  - D. "Leased Augmentation Supply" shall mean and refer to the Pond 1 Augmentation Supply and/or the Pond 2 Augmentation Supply, as applicable.
  - E. "Pond 1 Augmentation Supply Period" shall mean and refer to the period of time during which the Lessor will be obligated to lease the Pond 1 Augmentation Supply to the Lessee, which period of time shall commence thirty days after Lessee provides notice to Lessor that it has started

## WATER RENTAL AGREEMENT

mining activities and will be exposing ground water in Pond 1, and continue thereafter until five years after the expiration or termination of the Option with respect to Pond 1 pursuant to the Option Agreement or, in the event of the purchase of Pond 1 by the Lessor, such additional period of time as is necessary and sufficient to fulfill the Lessee's Pond 1 SWSP obligations pursuant to the Option Agreement.

F. "Pond 2 Augmentation Supply Period" shall mean and refer to the period of time during which the Lessor will be obligated to lease the Pond 2 Augmentation Supply to the Lessee, which period of time shall commence thirty days after Lessee provides notice to Lessor that it has started mining activities and will be exposing ground water in Pond 2, and continue thereafter until the expiration or termination of the Option with respect to Pond 2 pursuant to the Option Agreement or, in the event of the purchase of Pond 2 by the Lessor, such additional period of time as is necessary and sufficient to fulfill the Lessee's Pond 2 SWSP obligations pursuant to the Option Agreement.

G. "Lease Expiration" shall mean and refer, unless earlier terminated as provided for herein, to the later to expire of the Pond 1 Augmentation Supply Period and the Pond 2 Augmentation Supply Period, as applicable.

2. Amount and Term: The Lessor hereby leases to the Lessee the right to receive up to a total maximum of 129 acre-feet (AF) of Augmentation Supply, annually, as more fully set forth herein during the period commencing on the Effective Date hereof and continuing thereafter until Lease Expiration.
3. Leased Water: The Lessor shall deliver, as applicable, Pond 1 Augmentation Supply during the Pond 1 Augmentation Supply Period and Pond 2 Augmentation Supply during the Pond 2 Augmentation Supply Period in such amounts and at such times as reasonably agreed to between the parties and in conformance with the SWSP ("Leased Water"). Notwithstanding the foregoing, the combined Augmentation Supply with respect to both Pond 1 and Pond 2, jointly, shall not exceed 54 acre-feet (AF), annually.
4. Payment: In consideration of the right to receive the Leased Augmentation Supply, Lessee shall, during the first water year in which any part of the Augmentation Supply is first delivered to Lessee, pay the Lessor a sum equal to the initial rate of [REDACTED] per acre-foot of Augmentation Supply leased and delivered. The initial rate for the Leased Water shall be [REDACTED] per acre-foot of Augmentation Supply leased and delivered, with the fair market value of such Leased Water being adjusted upon every five (5) year anniversary of the Pond Closing with respect to such Pond throughout the applicable Pond Augmentation Supply Period. Notwithstanding the foregoing, the rate for the Leased Water prior to Lease Expiration shall not be less than [REDACTED] per acre-ft and shall not exceed a per annum increase of [REDACTED] per year, non-compounded.

The Lessor shall submit an Invoice to the Lessee on November 15 of each year for Lessee's previous water year's lease, including November 15 of the year following Lease Expiration. The total water leased for each year shall be determined from the monthly releases as documented in Lessee's Monthly accounting reports.

5. Default: If any required payment is not made or tendered as required herein, the Lessor shall provide the Lessee with written notice of the specific default alleged. If the Lessee fails to cure a monetary default within fifteen (15) days after receipt of notice from the Lessor or, if a non-monetary default is not capable of being cured within said fifteen (15) day period, if the Lessee fails to commence such cure within said fifteen (15) day period and diligently prosecute the same to completion, the Lessor may elect to terminate this Agreement in addition to seeking whatever damages and further legal remedies it may be entitled to.



## WATER RENTAL AGREEMENT

In the event the Lessor defaults in the performance of any condition or covenant to be performed by it, the Lessee shall provide written notice to the Lessor of the specific default alleged. If the Lessor fails to cure a default within fifteen (15) days after receipt of notice from the Lessee or, if a default is not capable of being cured within said fifteen (15) day period, if the Lessor fails to commence such cure within said fifteen (15) day period and diligently prosecute the same to completion, the Lessee may elect to terminate this Agreement and seek damages, or may elect to treat this Agreement as being in full force and effect and thereby retain the right to specific performance.

6. Accounting: The Lessor agrees to cooperate with Lessee with issues related to accounting for deliveries of Leased Augmentation Supply, as the same may be required by the SWSP or personnel from Colorado Division of Water Resources from time to time.

Lessee shall be responsible for submitting all monthly accounting reports to the Colorado Division of Water Resources Division 1 Accounting Coordinator and the Cache La Poudre River Water Commissioner as required by the SWSP. A copy of the monthly accounting will be provided to the Lessor.

On or before October 15th of each year, Lessee shall provide the Lessor with an estimate of monthly depletions for November through October of the following water year.

7. Sources of Augmentation Water: In supplying the Leased Water pursuant to this Lease, the Lessor may use only water that has been decreed specifically to allow for augmentation uses or is otherwise considered fully consumable, including water from The Overland Ponds.
8. Delivery Location: Delivery of the Leased Water shall be made at a location on the Cache La Poudre River adjacent to The Overland Ponds, or at such other downstream or upstream location(s) as agreed to by the Lessee and the Lessor, which is in accordance with the SWSP and which is acceptable to the Colorado Division of Water Resources.
9. Lagged Depletions: As requested by Lessee, deliveries of Leased Water shall include replacements for lagged depletions as set forth and described in Lessee's SWSP Request dated February 2019. The parties acknowledge that depletions to the surface stream do not occur simultaneously with evaporation and consumption at the gravel mine, consequently depletions to the surface stream will extend beyond the conclusion of mining activities in 2031. However, as illustrated on the Calculation Documentation attached hereto as Exhibit B, such depletions asymptotically approach zero. Therefore, it is expected that Lessee may be able to satisfy replacement requirements prior to Lease Expiration, if any, by making less frequent replacements and in amounts larger than otherwise required. The parties hereby acknowledge that the term of this Lease, if not sooner terminated as herein provided, will expire on Lease Expiration as defined in Paragraph 1.G. above.
10. Post-Completion Date Replacement: Following the closing of the purchase of each Reservoir Parcel pursuant to the terms of the Option Agreement, the Lessor shall be responsible for replacing the depletions caused by Pond 1 or Pond 2 on and after the date of the closing of the Reservoir Parcel on which such Pond is located and obtaining all replacement water for evaporation and other losses required by any permits relating to Reservoirs to be replaced to the stream system, except for the ongoing lagged depletions due to the Lessee's gravel mining and described above. Nothing stated herein shall alter that requirement or contemplates such replacements.
11. Assignment of Rights to Augmentation Water: Upon thirty (30) days advance written notice, Lessee may assign its interest in this Agreement to any successor for the same augmentation purposes on the same property as provided herein. Similarly, upon thirty (30) days advance written notice, Lessor may assign and delegate all or any part of its obligations under this Agreement to one (1) or

## WATER RENTAL AGREEMENT

more water districts and/or governmental entities capable of providing suitable augmentation water at the time, place and amount necessary for satisfaction of Lessee's SWSP requirements.

12. Notices: All notices shall be in writing and shall be deemed given (i) on the date and at the time of delivery if delivered personally to the party to whom notice is given at the address specified below; or (ii) on the date and at the time of delivery or refusal of acceptance of delivery if delivered or attempted to be delivered by an overnight courier service to the party to whom notice is given at the address specified below; or (iii) on the date of delivery or attempted delivery shown on the return receipt if mailed to the party to whom notice is to be given by first-class mail, sent by registered or certified mail, return receipt requested, postage prepaid and properly addressed as specified below; or (iv) on the date and at the time shown on the electronic mail message if sent electronically to the address specified below and receipt of such electronic mail message is acknowledged by the intended recipient thereof.

If to the Lessor, to:

North Weld County Water District  
Attention: Eric Reckentine, District Manager  
32825 Weld CR 39  
PO Box 56  
Lucerne, CO 80646  
Telephone: 970.356.3020  
Email: [ericr@nwcwd.org](mailto:ericr@nwcwd.org)

If to Lessee, to:

Loveland Ready-Mix Concrete, Inc.  
Attention: Stephanie Fancher English  
PO Box 299  
Loveland, CO 80539  
Telephone: 970.667.2680 ext 4  
Email: [stephanief@Lrmconcrete.com](mailto:stephanief@Lrmconcrete.com)

13. Modifications: No alteration or other modification of this Lease shall be effective unless such modification shall be in writing and signed by the parties.
14. Invalidity: In the event any portion of this Lease should become invalid, the remainder of the Lease shall remain in full force and effect.
15. Successors: This Lease shall inure to the benefit of, and be binding upon, the successors in interest of the respective parties.
16. Waiver: A waiver of a breach of any provision of this Agreement shall not waive any subsequent breach of the same or different provision of this Agreement.
17. Governing Law and Construction: This Agreement and the legal relations between the parties hereto shall be governed by and construed in accordance with the laws of the State of Colorado. The parties hereby agree that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement or any amendments or Exhibits hereto.


[Remainder of Page Intentionally Blank]

WATER RENTAL AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the dates set opposite their respective signatures below.


LESSEE: LOVELAND READY-MIX CONCRETE, INC.,  
a Colorado corporation

DATE: October 25, 2019

By   
Name Brad Farner  
Title V.P.

LESSOR: NORTH WELD COUNTY WATER DISTRICT,  
acting by and through the North Weld County  
Water District Enterprise

DATE: November 12, 2019

By   
Name Gene Stille  
Title President

# ADMINISTRATION PROTOCOL

## Augmentation Plan Accounting

### Division One – South Platte River

This protocol establishes the accounting and reporting process required to enable the division engineer's office to confirm that depletions from all out-of-priority diversions are being replaced so as to prevent injury to vested water rights. The accounting must comport with established "cradle to grave" accounting standards, which allow an audit of the information to track exactly how the data is manipulated as it is translated from raw input data to the resultant impact on the river. While this protocol is subordinate to any decreed language addressing specific accounting requirements, it generally addresses the minimum requirements of such accounting.

The accounting must use the standard convention where a depletion is "negative" and an accretion or other replacement source is "positive". The sum of the impacts will then result in either a "negative" or "positive" impact on the stream.

Wells in plans that have a negative stream impact must provide additional replacement water, curtail pumping or both until the impact is no longer negative. Plans with a negative stream impact that fail to curtail pumping will be ordered to stop pumping until such time as the projected impact of the wells is no longer negative.

1. Accounting must be submitted electronically to the water commissioner ([call 970-352-8712 to obtain email address](tel:970-352-8712)) and division engineer at [Div1Accounting@state.co.us](mailto:Div1Accounting@state.co.us) within 30 days of the end of the month for which the accounting is being submitted.
2. The accounting must provide the **contact information** including name and address for:
  - a. the owner(s) of each well
  - b. the person responsible for submitting the accounting
  - c. the plan administrator and/or the plan attorney.
3. All **input data** must be in one location, such as an "Input" worksheet, etc. The accounting must show all pumping. Input data includes the information listed below.
  - a. The required input data for each **well** is:
    - i. the monthly meter reading for wells that use a **presumptive depletion factor** (PDF) to determine the associated consumptive use (CU); or
    - ii. the monthly CU in acre-feet (AF) for wells that have a decree or approved SWSP that allows the wells to use a **water balance methodology** to determine the CU of the well. The analysis used to determine the CU must be included with the accounting.
    - iii. Wells that are decreed as an **alternate point of diversion** (APOD) to a surface water right must report pumping on a daily basis if any of the diversion during the month is claimed as being "in priority". (See *Administration Protocol – APOD Wells* for more details.)



- iv. The well meter serial readings for each meter shall be included if there is more than one meter on a well.
  - b. Each **recharge site** must comply with the *Administration Protocol - Recharge* and must report the:
    - i. daily volume in AF diverted into the site;
    - ii. monthly volume in AF released from the site;
    - iii. monthly net evaporative loss in AF;
    - iv. volume of water in AF remaining at the end of the month.
  - c. The accounting must identify each source of **fully consumable replacement water** actually delivered to the location impacted by the depletions. To demonstrate the water was actually delivered to the required location will require the following information:
    - i. the originating source of the water, date released and volume of water released;
    - ii. transportation losses to point of diversion or use, if any, using stream loss factors approved by the water commissioner;
    - iii. the volume of water actually delivered on a daily basis past any surface water diversion that was sweeping the river as corroborated by the water commissioner.

(See *Administration Protocol – Delivery of Water* for more details on delivering water.)
  - d. For each source of **replacement water that has been “changed”** for use as a source of augmentation, such as changed reservoir shares, ditch bypass credits or credits from dry-up, etc., the following input information must be reported:
    - i. the basis and volume of the return flow obligation;
    - ii. the location the changed water was historically used; this will be the location used to determine the timing of the return flow impact on the river.
- 4. The accounting must include a monthly **projection** of the plan’s operation at least through March 31 of the next calendar year.
- 5. The accounting must include all input and output files associated with **modeling the delayed impact** of diversions. The output from the modeling must report to a summary table that shows, by month, the ongoing depletions associated with pumping, return flow obligations, etc. and accretions from recharge operations.
- 6. A **net impact** summary must show the out-of-priority depletions, accretions from each recharge site, volume of replacement water actually delivered to the location of the depletions and the resultant net impact on **a daily basis**. If necessary, the net impact must be done by river reach.

While **modeling** may use a **monthly step function** to determine the depletions from pumping and accretions from recharge, the monthly result must then be **divided by the number of days in the month** in order to **simulate a daily impact**, as water rights are administered on a daily and not monthly basis.

Replacement water must be provided such that the **daily net impact** (using the simulated daily numbers from the modeling) **is not negative**. If a well is out-of-priority for 15 days during a month, replacement must be made only for the 15 days the well is out-of-priority. The replacement must be made, however, on a daily basis as opposed to, for instance, making an aggregated release equal to the volume of the out-of-priority depletions. Likewise, the simulated daily accretion will only count toward replacing the depletion on the days the well is out-of-priority. The accretions that report to the river when the well is in priority cannot be used to replace the out-of-priority depletions.

The **accretions that impact the river when the well is in priority** are not considered “excess” unless the cumulative net impact of the well is not negative for the entire irrigation year to date. (The irrigation year for this purpose is April 1 thru the following March 31.) Until such time as the cumulative net impact is not negative, the accretions must simply be released to the river and cannot be leased to other plans or recaptured. Plans that show a positive cumulative net impact are still required to make replacements on a daily basis; the cumulative analysis only effects whether or not accretions reporting to the river when the well is in priority are considered “excess” and are, therefore, able to be recaptured.

7. The basis for determining that the depletions are **out-of-priority** must be clearly established and all steps in the calculation included in the accounting. The analysis may be done, unless otherwise limited by decree, for each well or groups of wells, provided the most junior water right associated with the group of wells is used as the reference water right for the group’s out-of-priority status.
8. Accounting must include **actual information** for the irrigation year through the month for which the accounting is being submitted **AND projections** of the plan operation through March 31 of the next calendar year.
9. The following **naming convention** must be used for all files submitted pursuant to item 1:

“Plan**WDID**\_YYMMDD”

where: PlanWDID is the WDID assigned by the division engineer’s office  
YYMMDD corresponds to the date the accounting is submitted.

As an example, the assigned WDID for the former GASP plan was 0103333. If accounting using Excel® was submitted for that plan on May 15, 2004, the file name would be:

“0103333\_040515.xls”

The name of the file must be in the subject line of the email.

10. All accounting must be reported using the **WDID** for the structure, at a minimum. Other information such as well name, permit number, etc. may also be included as desired. All wells must be decreed by the water court, permitted by the state engineer or included in a decreed plan for augmentation. Unregistered and undeclared wells cannot, in the opinion of the division engineer, be effectively administered because of the need to know the location, allowable diversion rate and use of the well - information that is only available from the decree or permitting process.

11. If a well is covered in multiple SWSP's or augmentation plans, the monthly meter readings must be the same in the accounting for each plan covering the subject well. The accounting for every plan covering the well shall state the proportionate pumping amount covered by each plan to assure all out-of-priority depletions are replaced.
12. The following additional accounting is required for sources of replacement water used for more than one plan. The water right owner of the replacement water is responsible for accounting for the total replacement amount and how much each plan is using of that total amount. The accounting for portions of the replacement water by other users must match the accounting of the water right owner. The amount of replacement water used by the water right owner and other users together shall not exceed the total replacement amount available.

(See *Administration Protocol – Use Of Unnamed Sources For Replacement* for additional requirements concerning required notice and approval of sources of replacement not specifically described in a SWSP or augmentation plan)



# ADMINISTRATION PROTOCOL

## Recharge

### Division One – South Platte River

The purpose of a “recharge structure” as referenced in this document is to introduce water to the river alluvium that will result in accretions to a live stream. For the purposes of this document, a recharge structure does not include a well that is used to artificially recharge a Denver Basin bedrock aquifer. With that qualification, a recharge structure is defined as:

- A section of ditch, the losses from which can be reasonably modeled as a single source of water.
  - A pond or group of ponds that receive water from the same delivery location and can be reasonably modeled as a single source of water.
1. A written notification for each recharge structure must be provided to the water commissioner and division engineer. **The Division of Water Resources will not acknowledge any recharge activity conducted without the knowledge of the water commissioner.** The notification must include:
    - a. a map showing the location of the structure and the court case number of the plan for augmentation authorized to use the structure;
    - b. a map showing the location of the diversion point and the court case number for the decree authorizing the diversion, if any;
    - c. a map showing the location of and all information for the metering location;
    - d. the maximum water surface area of the structure;
    - e. for ditch structures, if the ditch is divided into more than one recharge reach, an explanation of how the volume diverted will be allocated to the various sections.
  2. Upon receiving written notification or decree by the water court, the division engineer will assign the structure a WDID number. The WDID number is the identification number that will be used for the administration of the structure and must be included in all correspondence and accounting reports. **(For structures that were included in a decreed plan for augmentation but were not physically constructed at the time of the decree, a written notification of the intent to construct the structure must be provided.)**
  3. Any structure that intercepts groundwater must be permitted as a well and included in a plan for augmentation or substitute water supply plan approved by the state engineer. The division engineer strongly recommends avoiding recharge structures that intercept groundwater, in order to simplify the accounting process.
  4. The flow into **EVERY** recharge structure **MUST** be metered and equipped with a continuous flow recorder unless the water commissioner in conjunction with the division engineer determines adequate records may be kept without such equipment. If the recharge structure is designed to discharge water via a surface outlet, such discharge must also be metered and equipped with a continuous flow recorder. The water commissioner **MUST** approve the use of the recharge structure **BEFORE** any credit will be given for water placed into recharge.

5. All recharge ponds must have a staff gauge installed such that the gauge registers the lowest water level in the pond. The staff gauge must be readable from a readily accessible location adjacent to the pond.
6. All recharge areas must be maintained in such a way as to minimize consumptive use of the water by vegetation. **No recharge area may be used for the planting of crops during the same irrigation year that it is used as a recharge site without prior approval from the water commissioner or division engineer.**
7. The amount of water recharged to the alluvial aquifer is determined by measuring the amount of water delivered to the recharge structure and subtracting:
  - a. the amount of water discharged from the recharge structure,
  - b. the amount of water lost to evaporation (see item 8, below),
  - c. the amount of water lost to consumptive use due to vegetation located within the recharge structure, and
  - d. the amount of water retained in the recharge structure that has not yet percolated into the ground.
8. Net evaporative losses from the recharge structure must be subtracted from the volume of water delivered to the pond. Evaporative losses must be taken every day the pond has a visible water level. If the pond does not have a stage-surface area curve approved by the water commissioner, the maximum surface area of the pond must be used to determine the evaporative losses. Monthly loss factors prorated for the number of days the pond had a visible water level may be used as may real time evaporation data from NOAA or a local weather station. If the pond is not inspected on a routine basis through the month, no prorating of monthly factors will be allowed.
9. The amount of accretions from the recharge structure will be credited only in accordance with a decreed plan of augmentation or substitute water supply plan approved by the State Engineer.
10. All water delivered for recharge must be fully consumable:
  - a. changed reservoir rights or the CU portion of changed senior ditch rights;
  - b. transbasin water that has been imported into the South Platte River basin;
  - c. nontributary water;
  - d. excess (unused) accretions from the previous recharge of fully consumable water;
  - e. water diverted in priority after "notice" of intent to fully consume the water;
  - f. water diverted under free river.
11. Water may be delivered to recharge only if the net impact of the associated plan for augmentation is not negative. Water must first be delivered or exchanged to offset negative impacts of the plan for augmentation before it may be diverted for recharge.
12. Accounting must be performed on a daily basis with reports submitted at least monthly and within 30 days of the end of the month for which the accounting is being made. The volume of water diverted into recharge must be provided to the water commissioner weekly when requested by the water commissioner.