LOWER PLATTE SOUTH
natural resources district
3125 Portia Street | P.O. Box 83581 • Lincoln, Nebraska 68501-3581
P: 402.476.2729 • F: 402.476.6454 | www.lpsnrd.org

Memorandum

Date: May 18, 2021

To: Each Director

From: Paul D. Zillig, General Manager

RE: Water Resources Subcommittee Meeting Minutes.

The Water Resources Subcommittee met via video/teleconference at 5:00 p.m. on Monday, May 17, 2021. Subcommittee members participating included Larry Ruth, Chelsea Johnson, John Yoakum, Vern Barrett, Ken Vogel, and Gary Hellerich. Other Directors participating included Deborah Eagan. And others participating included Amy Ostermeyer of Monolith, Don Blankenau representing Monolith, Brian Dunnigan of Olsson, Steve Seglin & Corey Wasserburger, David Potter, Tracy Zayac, Chris Witthuhn, Nathan Kuhlman, Mike Murren, Maclane Scott, Dick Ehrman, Dan Schulz, and myself.

Chair Ruth opened the meeting and welcomed those in attendance. Chris Witthuhn reviewed with the Subcommittee the groundwater level information for this spring in comparison to the Spring of 2020. Attached is Witthuhn's summary and graphs showing the groundwater level changes. Generally groundwater levels are slightly down from last spring.

The next item on the agenda was to consider the Monolith variance request issue (was tabled at the April Board Meeting), additional information, and the schedule to consider the Monolith well permit applications. The background information for this item was included in the May 14, 2021 WRS Memo to the Board. I reviewed the proposed approach that would require the static water levels and water quality samples for OC2 Wells #2 & #3 be provided as a condition to the permit, this information would be submitted in the next year as the wells are completed. Amy Ostermeyer reported that Monolith has agreed to withdraw their variance request and submitted a letter to that effect (see May 14 memo) and also agreeing to a timeline to submit so the Board can consider all 3 well permit applications in June.

The Subcommittee asked staff to review the proposed impacts of the Monolith wells in 50 years, Ehrman reviewed the model results showing the 150 foot thick aquifer experiencing approx. 8 foot declines near the well, 4 foot declines within ½ mile and less than 1 foot one mile from the wells. Schulz stressed the importance of the proposed monitoring networks (both the network in the vicinity of the Monolith site and then the District's network of wells across the CPA Groundwater Reservoir). The subcommittee also discussed the neighbor well agreements, the anticipated annual water pumping of

400 Mgal/year, and that LRE Water's statement that Monolith has addressed their concerns. The Subcommittee also discussed water law, correlative water rights (sharing gw in times of shortage), state statutes, and the NRD's Groundwater Rules & Regulations.

It was moved by Vogel, seconded by Hellerich, and unanimously approved by the Subcommittee to **recommend for Monolith well permit applications for OC2 Wells #1, 2 & 3, the Board of Directors determine that no additional information is required, request that Monolith submit their application on June 4, 2021, and the District proceed with the process for public input and consideration at a Special Board Meeting in late June.**

The next item on the agenda was to consider a request from Lori and Jerome Dworak to amend their irrigation agreement for Weeping Water 15-B to change the location of the irrigated acres to accommodate a small center pivot and include some adjoining land owned by a family trust. Zayac reported there would be a small reduction in the number of acres irrigated and she reviewed her memo (in the May 14 memo) and the steps required to approve the changes. It was moved by Vogel, seconded by Youkum, and unanimously approved by the Subcommittee to **recommend the Board of Directors approve the amendment to the existing irrigation agreement with Lori and Jerome Dworak for irrigation with water from Weeping Water 15-B reservoir, and direct staff to work with the Department of Natural Resources to make the necessary changes to permit A-17206.**

There being no additional business the meeting adjourned at 5:55 pm.

PDZ/pz

cc: Steve Seglin & Corey Wasserburger

Paul Zillig

From: Chris Witthuhn
Sent: Monday, May 10, 2021 10:46 AM
To: Paul Zillig; Dan Schulz; David Potter; Dick Ehrman
Cc: Maclane Scott; Steve Herdzina; Mike Mascoe; McKenzie Barry
Subject: Spring Water Levels results

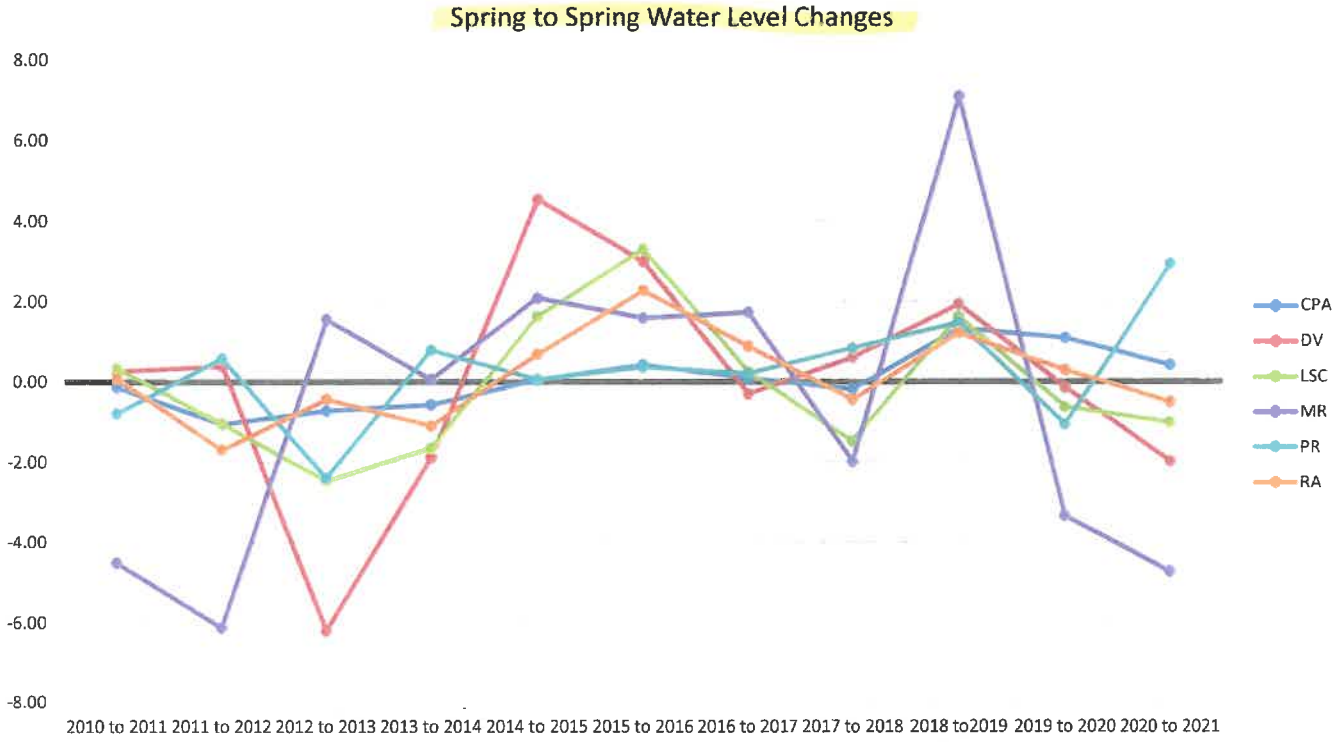
Good Morning All,

The long awaited 2021 Spring Water levels are complete! **Fall '20 to Spring '21 numbers are UP (Approx 3.54 ft on average of an average). All reservoirs showed an increase which is fairly typical of the spring levels!**
Spring '20 to Spring '21 levels are mostly down (Approx -.81 ft on average of an average) everywhere but CPA and Platte River which were up slightly. Missouri River Reservoir showed the largest Spring to Spring decline, and levels there are greatly influenced by the Missouri Rivers rise and drop.
Thank you to Maclane for helping get these done. If anyone has any questions please let me know.

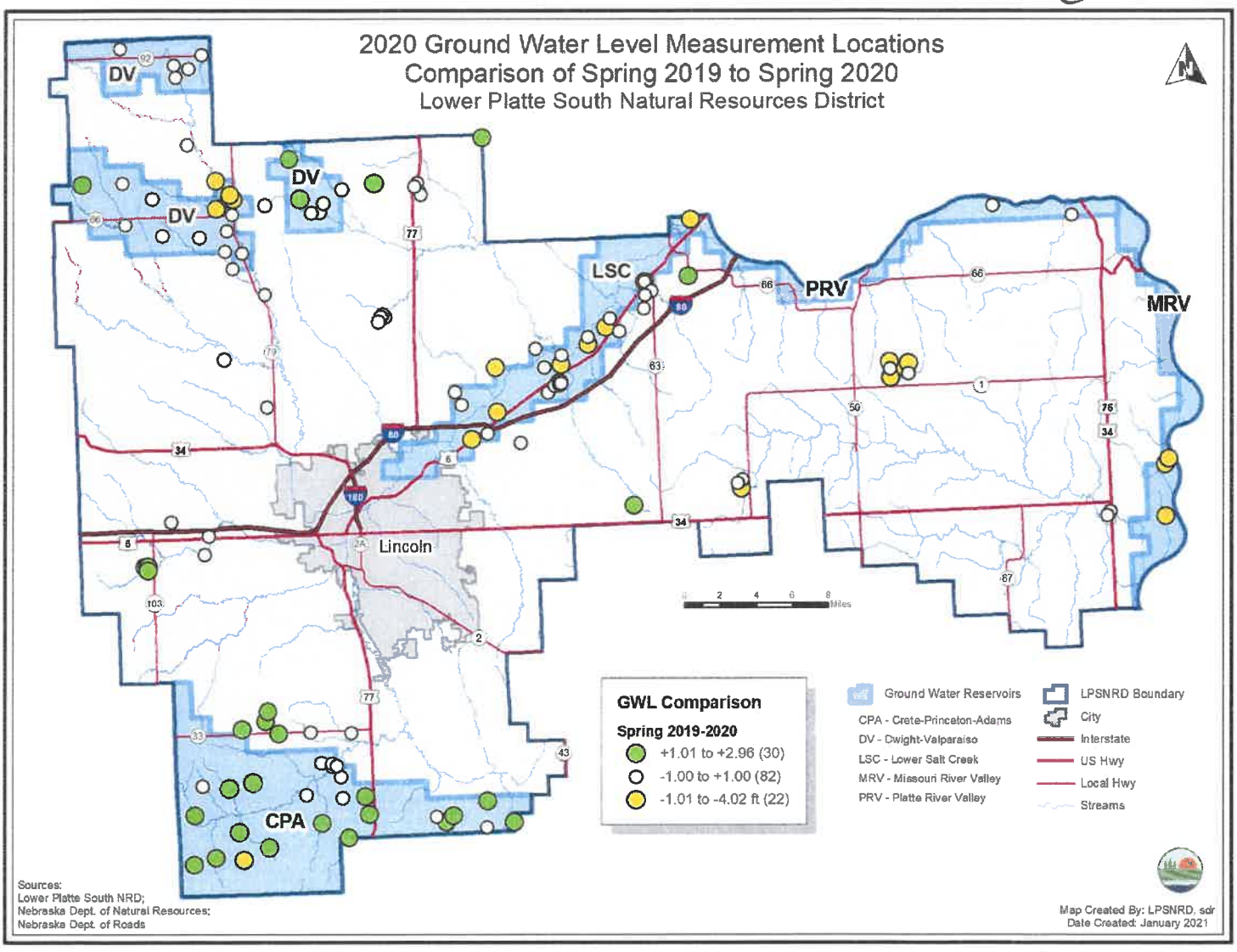
A positive number means water levels are up, a negative number means water is deeper than it was.

GWR	DepthToWater	Spring '20 to Spring '21	Fall '20 to Spring '21
CPA		0.42	0.20
DV		-1.97	10.82
LSC		-1.01	1.79
MR		-4.72	0.38
PR		2.93	6.85
RA		-0.49	1.19

	Fall '19 to Fall '20	Spring '20 to Fall '20	Fall '20 to Spring '21	Spring '20 to Spring '21
CPA	0.92	0.21	0.20	0.42
DV	-10.03	-12.79	10.82	-1.97
LSC	-2.94	-2.80	1.79	-1.01
MR	-8.12	-5.22	0.38	-4.72
PR	-3.07	-3.92	6.85	2.93
RA	-1.55	-1.69	1.19	-0.49


Spring to Spring Water Level Changes
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
2010 to 2011
2011 to 2012
2012 to 2013
2013 to 2014
2014 to 2015
2015 to 2016
2016 to 2017
2017 to 2018
2018 to2019
2019 to 2020
2020 to 2021
CPA
DV
LSC
MR
PR
RA

MAP SHOWING WATER LEVEL READING LOCATIONS. LAST YEARS INFO. (2020)



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Memorandum

Date: May 14, 2021

To: Each Director

From: Paul Zillig, General Manager

Subject: Water Resources Subcommittee Meeting – Additional Info.

The Water Resources Subcommittee will meet via video/teleconference at 5:30pm on Monday, May 17, 2021. Listed below and attached is some additional information on the agenda items that will require Board action.

Item 7a – Consideration of the variance request and additional information for the Monolith Well Permit Applications.

Following up on the April Board Meeting action to table the Monolith variance request to not require the submittal of static water readings and water quality tests for OC2 Wells #2 & #3 (see attached preliminary permit letter with the notice of the tabled variance request), we worked thru some other options and followed up with Amy Ostermeyer of Monolith to propose it would be a condition of the well permit to submit that information, no later than April 27, 2022. Attached is a letter from Ostermeyer agreeing to withdraw the variance request and that the information will be provided by that later time. No action is anticipated for the "withdrawn" variance requests.

The next issue is an update on the additional information required by the action of the Board at the March Board Meeting (see attached letter). In late April Monolith submitted an Addendum to the "Monolith Hydrogeologic Analysis Report" that included the additional information required by the NRD. A copy of the Addendum is attached (53 pages). LRE Water reviewed the Addendum and NRD staff is in agreement with the conclusion that it adequately addresses those requirements. LRE Water submitted the attached review of the Addendum (5 pages).

Staff is not aware of any additional information that is needed for the Monolith Application for OC2 Wells #1, 2, & 3. Staff anticipates that a public meeting will be held the week of June 14th, a Water Resources Subcommittee meeting the week of June 21st, and a Special Board Meeting will be held to consider the Monolith well applications for OC2 Wells #1, 2 & 3 the week of June 28th. It is anticipated that additional conditions for the permits will be considered after the public meeting is held in mid-June. Conditions to be considered, in addition to the static water level readings and water quality results, will likely be concerning groundwater monitoring requirements, pumping limits, etc. At this time, staff will recommend for Monolith well permit applications for OC2 Wells #1, 2 & 3, the Water Resources Subcommittee recommend the Board of Directors determine that

no additional information is required, request that Monolith submit their application on June 4, 2021, and the District proceed with the process for public input and consideration at a Special Board Meeting in late June.

Item 7b – Consideration of an amendment to the Dworak's Irrigation Agreement for Weeping Water Creek 15-B.

Attached is a memo from Tracy Zayac concerning a request to amend a surface water Irrigation Agreement with the landowner to pump from Weeping Water lake/dam15-B (4 miles north of Nehawka). The request is to irrigate slightly less acres and change the acres to be irrigated to include some neighboring land that they have some interests in. The Subcommittee will consider recommending approval of the amendment and updating the changes with the State (Nebraska Dept of Natural Resources).

PDZ/pz

Encl 6

Pc: Steve Seglin
Corey Wasserburger

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April 27, 2021

Monolith Nebraska LLC
134 S. 13th Street, Suite 700
Lincoln, NE 68508

Dear Amy:

The Lower Platte South NRD has approved preliminary Well Construction Permits for Monolith's two additional Water Well Permit Applications (enclosed is a copy). The Preliminary Well Permits (LPSP-210422 for OC2 Well #3 and LPSP-210423 for OC2 Well #2) are located in the NE ¼ of the NE ¼ of Section 30, Township 7 North, Range 6 East, Lancaster County. The current locations and GPS coordinates highlighted on the permit form meet current well spacing requirements. If these locations are moved, you must contact the District before beginning drilling to make certain the new location meets well spacing requirements. This is a Class II permit for a well in a Ground Water Reservoir for industrial use. This gives you one year from the date of preliminary approval to complete and submit the information required for the class of permit you are applying for.

The NRD also received and considered the two Variance Requests for each of these wells.

- Variance Request # 014 (OC2 Well #2, LPSP-210423) and
- Variance Request #015 (OC2 Well #3, LPSP-210422).

The NRD approved, for both wells, the variance request concerning the aquifer test and hydrogeologic analysis report and "tabled" until next month's Board Meeting the variance request for the static water level measurement and water quality samples for both wells. Copies of the partially approved Variance Requests for both wells are enclosed. We will need to determine a recommended solution to the tabled variance requests, and present that recommendation to the NRD's Water Resources Subcommittee in May.

Please feel free to give me a call if you have any questions.

Sincerely

Paul D. Zillig
General Manager

PDZ/pz

Encl. 4

MONOLITH

Lincoln Office
134 S. 13th Street, Suite 700
Lincoln, NE 68508
monolithmaterials.com

May 14, 2021

Mr. Paul Zillig, General Manager
Lower Platte South Natural Resources District
3125 Portia Street
Lincoln, NE 68521

Dear Mr. Zillig,

In accordance with our discussions, Monolith hereby withdraws the variance requests it made, but were tabled by the Board of Directors at the April 21, 2021 board meeting, for the two wells identified as OC2, #2 and #3. Monolith is making this withdrawal based on your representation that it is preferable for Monolith to submit final applications for those two wells with mandatory reporting for static water levels and water quality samples for both wells as a condition for the well permits to be finalized. Monolith agrees that within one year of the issuance of the preliminary permits being issued, it will provide that information as a condition of finalized permits. Both the Water Resources Subcommittee and the full Board of Directors will be advised of this process at their respective meetings next week.

To effectuate this process, and again as we discussed, Monolith will submit final well applications to the District on or before June 4, 2021. It is our joint expectation that with the submission of the final applications, the Water Resources Subcommittee will take action at its June meeting, to recommend to the full Board of Directors, the approval of the conditional permits. The conditional permits will be addressed by the Board of Directors at a Special Meeting of the Board of Directors the week of June 28th. Although not required by law, we understand that a public comment opportunity will be conducted at some point after the June 4th submission of the applications.

Thank you and the Board for your continued attention to this matter.

Sincerely,

Amy Ostermeyer

Amy Ostermeyer

cc: Deborah Eagan
Larry Ruth
Corey Wasserburger
Steve Seglin

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March 25, 2021

Amy Ostermeyer
Vice President
Monolith – Lincoln Office
134 S. 13th Street, Suite 700
Lincoln, NE 68508

RE: Monolith Well Permit – additional information

Dear Amy:

Thank you to you and your team for participating in last night's NRD Special Board Meeting. More good discussion and education about the groundwater resources around the Monolith Olive Creek facility.

At the meeting the Board decided that the following additional information is required for the current Monolith Well Permit application. Accordingly, it is necessary and desirable that:

1. The Monolith Application submit a more detailed sensitivity analysis as recommended in LRE Water Review Recommendation 1.
2. The Monolith Application include (1) further gradient analysis of interaction of the CPA aquifer in the area with bedrock aquifers to support its assumption of little or no interaction with bedrock aquifers, (2) the likelihood of gradient reversal to upward flow direction if the further analysis shows downward gradient or little to no interaction. If bedrock well water level measurements do not exist, then identify the basis for any assumption that the gradient is downward or that there is little to no interaction of the CPA aquifer in the area with bedrock aquifers.
3. The Monolith Application include details of any groundwater monitoring plan Monolith intends to develop and implement to address future potential changes in groundwater quality and quantity at the Site and surrounding area. Further, that such details are responsive to changes in groundwater quality (as observed in points 1–3) of the recommendation.
4. The Monolith Application include details of wells and a well interference plan as provided in Recommendation 6 (the area to be considered will be increased from 1.5 miles to 3.0 miles from the site).
5. That Monolith provide additional information on (1) the use of future climate in the Monolith Hydrogeologic Analysis, and (2) the general effect of future climate on the CPA aquifer, and

6. That Monolith provide additional information on the potential for upwelling in the immediate vicinity (as that term is used on p. 57) of the Monolith well over the 50-year period of its future scenario.

Several of those items listed refer to the Recommendations of LRE Water and their review of the Monolith Materials Inc. Groundwater Flow Model, please let me know if you need a copy of that review or have other questions. Please provide me with a draft of the additional information you plan to provide so I can have LRE Water and others review your proposed response.

Sincerely,

Paul D. Zillig
General Manager

PDZ/pz

MONOLITH HYDROGEOLOGIC ANALYSIS REPORT

Addendum

Prepared for:

Monolith Materials

Hallam, Nebraska

Prepared by:

Olsson, Inc.

Lincoln, Nebraska

April 2021

Olsson Project No. 020-2639

olsson®

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APPENDICES

SUMMARY

This addendum includes further analysis and clarification of the results summarized in the *Monolith Hydrogeologic Analysis Report* (Report). The Report was prepared pursuant to the Lower Platte South Natural Resources Districts (LPSNRD) Rules and Regulations governing well permits. The proposed water use for Monolith requires a Class 2 Permit because Monolith will require more than 250 acre-feet per year of water to support their manufacturing process. A Class 2 permit requires "[a] hydrogeologic analysis report considering the impact of the proposed withdrawal on current groundwater users and a minimum twenty (20) year impact on the aquifer for potential future users." The LPSNRD Rules and Regulations further stipulate that for a Class 2 Permit (in addition to the other requirements) the "application for a permit ... *shall be granted* unless *the district finds* ... [t]he hydrogeologic analysis indicates potential short or long-term detrimental effects to the aquifer ...(emphasis added)."

The LPSNRD also has a Groundwater Management Plan (Plan), which states "[t]he dependency of water users in the LPSNRD on a sufficient supply of good quality water now and in the future has spurred the Board of Directors to adopt a policy of proactive groundwater management." The Plan further outlined that [t]he LPSNRD has designated areas of management for both groundwater quality and quantity [and] has established a limit "trigger" to the amount of contamination or decline *that is allowed* ...(emphasis added)." The first trigger for the Crete-Princeton-Adams (CPA) Aquifer is defined as:

> *... 30% of the monitoring network wells have declined from the established upper elevation of the saturated thickness to an elevation that represents greater than or equal to a[n 8%] reduction in the saturated thickness and has remained below that elevation for more than two [2] consecutive years.*

To date, 0% of the monitoring network wells in the CPA aquifer have declined by more than 8% of their saturated thickness for two consecutive years. As documented in the Report, the maximum impact to the existing monitoring well network due to the Monolith water use would be that two of the monitoring wells could experience an 8% decline over the next 50 years. However, that is only 7% of the monitoring wells in the network, falling well short of the 30% required to meet the first management trigger. Therefore, based on the policies and rules of the LPSNRD, the proposed Monolith water use should be allowed.

The LPSNRD contracted with LRE Water to provide a peer review of the groundwater model (Model) developed as part of the Monolith Hydrogeologic Analysis. Following the review of the draft report LRE Water has issued their report titled *Review of the Monolith Materials Inc. Groundwater Flow Model.* Notably, the LRE Water report contains the following conclusions:

> *Conclusion #1: The Model calibration to observed groundwater level data is adequate to meet the objectives based on our modeling experience.*
>
> *Conclusion #5: The model also reasonably represents regional drawdown in the CPA aquifer due to the Monolith Well …*
>
> *Conclusion #6: The assumptions included … into Olsson's Future Model are adequate for reasonably reliable drawdown predictions.*

The report also contains six recommendations that we address in Section 2 below.

In addition, the LPSNRD held a special board meeting on 3/24/2021 to discuss any additional information that they would like Monolith to submit with their final well permit application. Six items were identified and those are addressed in Section 3 below. To prevent confusion, and because none of these recommendations or requests result in any change to the conclusion of the Report, the draft Report has been finalized as it was submitted on December 8, 2020, and all additional requests for information are contained in this addendum.

1. PURPOSE

This addendum includes further detail and analysis of the results summarized in the *Monolith Hydrogeologic Analysis Report* (Report). Following the review of the draft Report, six recommendations were made by LRE Water in their report titled *Review of the Monolith Materials Inc. Groundwater Flow Model* (LRE Report). In addition, during a special board meeting of the LPSNRD on March 24, 2020, the board approved six motions requesting additional information or clarification. The purpose of this addendum is to address these recommendations and requests. It is intended that this document be used in conjunction with the main Report.

2. RECOMMENDATIONS FROM LRE WATER

LRE Water was retained by the Lower Platte South Natural Resources District (LPSNRD) to complete a peer-review and evaluation of the groundwater flow model and accompanying hydrogeologic analysis report. Their findings were summarized and provided to Monolith Materials, Inc. (Monolith). Included in the LRE Report were the six recommendations outlined below. Accompanying the recommendations are responses to each along with supporting information.

2.1 Recommendation 1: Complete a more detailed sensitivity analysis on the following:

a) scale of the hydraulic conductivity in model layers 1 and 3; b) horizontal/vertical hydraulic conductivity ratio in all layers.

The distribution of hydraulic conductivity in the final model was determined based on a parameter estimation routine. The primary purpose of the parameter estimation was to find the spatial distribution of hydraulic conductivity in model layers 2 and 4, the layers representing the aquifer materials. The horizontal hydraulic conductivity was initially specified at a spatially constant 10 ft/day for layers 1 and 3. Initially, the parameter estimation routine was allowed to vary the horizontal hydraulic conductivity of that constant value in layers 1 and 3, however it was found that the model was not sensitive to these parameters.

From the standpoint of the impact of groundwater use in the CPA aquifer, the important question regarding the hydraulic conductivity in layers 1 and 3 is whether the assumed values in the groundwater model are too high, and if assumed values were decreased, what impact would

that have on modeled water levels in the CPA aquifer. To answer this question, the future model simulation (the baseline future model scenario with the addition of Monolith pumping) was rerun with hydraulic conductivity values for layers 1 and 3 reduced by an order of magnitude to assess model sensitivity to changes in hydraulic conductivity of these layers. The calibrated groundwater model used values of 10 feet/day and 1 foot/day for the horizontal and vertical hydraulic conductivity, respectively. So, the new simulation was changed so that horizontal and vertical hydraulic conductivity were reduced to 1 foot per day and 0.1 feet per day, respectively. This approach allows for a comparison between the impact of the addition of the Monolith water use to this reduction in hydraulic conductivity in Layers 1 and 3 (see Figure 1).

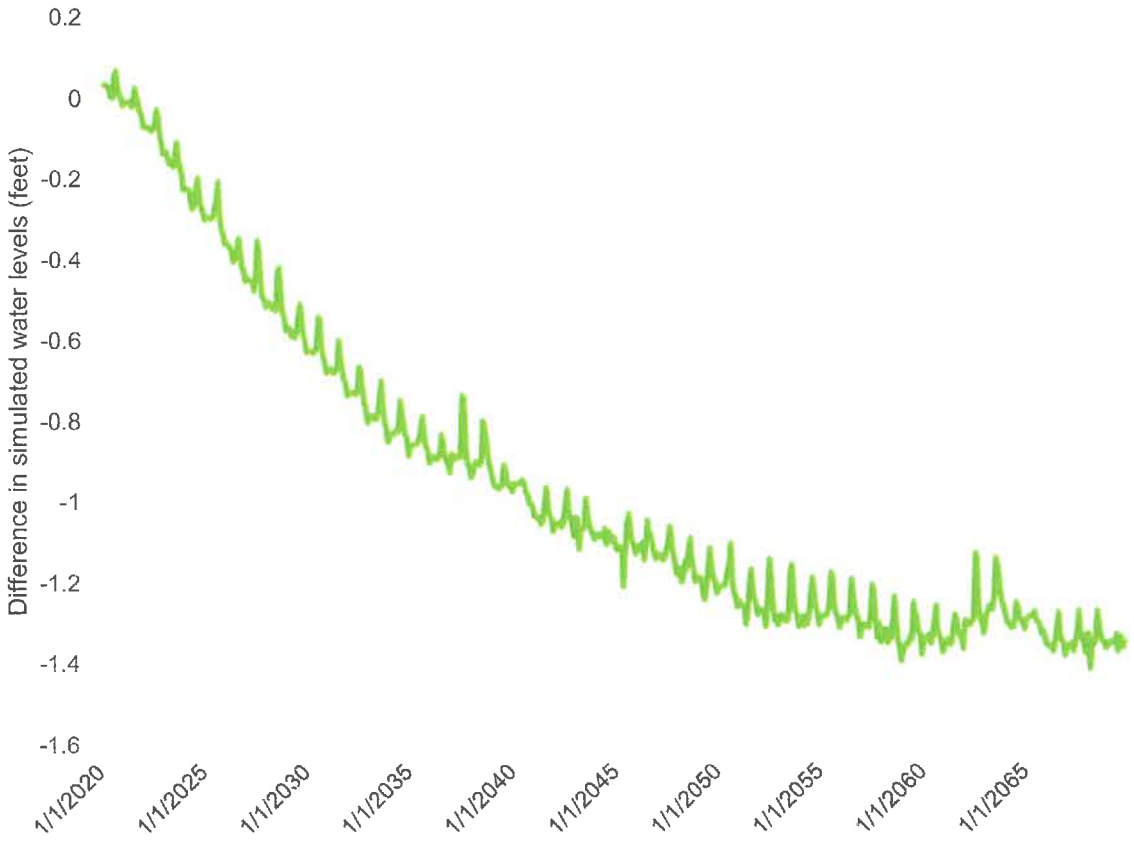


Figure 1 The difference in simulated water levels at well G-073007 (Hallam municipal well) when hydraulic conductivity in Layers 1 and 3 are reduced by a factor of 10.

The difference starts at zero because the starting heads for each simulation are the same, then it very slowly (over the first 25 years) increases to about one foot before stabilizing at around 1.25 feet. In other words, when this difference is compared to the predicted impact at this well due to the addition of the Monolith water use (which is approximately three feet, see Report Figure 4.5) its magnitude is only half despite the dramatic decrease in hydraulic conductivity for layers 1 and 3 in the model. This demonstrates the fact that simulated water levels in for the

CPA aquifer in the Monolith groundwater model are very insensitive to the specified hydraulic conductivity in Layers 1 and 3.

As for the second recommendation, to review the model sensitivity to the ratio of horizontal to vertical hydraulic conductivity in all layers, the construction of the model was conservative in that the vertical hydraulic conductivity is less than the horizontal hydraulic conductivity by a factor of ten in all layers. Standard values for this ratio range from three to ten, and any assumption of a lower ratio than ten would likely result in a slightly lower water level response to changes in stress in the CPA aquifer in the Monolith model. There is no evidence to support a value for this ratio of larger than ten. Given this, and the results summarized above that looked at reducing both the horizontal and vertical hydraulic conductivity layers 1 and 3 (the non-aquifer layers), the sensitivity of the model to the ratio of horizontal to vertical hydraulic conductivity is low and any realistic changes to this assumption would only lessen the predicted impact of added withdrawals on the CPA aquifer.

2.2 Recommendation 2: Provide an addendum with directions for exact replication of future drawdown simulations presented by model results.

The future drawdown scenario was constructed by using the calibration period model (1960-2019) as the basis. For exact replication of the future scenarios presented in the Report, the following steps should be taken:

1. All model files, with the exception of the WEL file, were built by repeating the calibration model data from 1995-2019 for a 50-year simulation.
2. The WEL file was made by using the certified irrigated acres spatial dataset provided by the LPSNRD and assigning a theoretical pumping demand per acre to each parcel. Because the certified acres dataset was only available in the LPSNRD, two methodologies were employed to fill in pumping data across the model area.
    a. Within the LPSNRD, the pumping demand per acre was calculated by summing the monthly pumped volume in a given calibration model stress period and dividing it by the total number of active certified irrigated acres. The demand per acre was then used in conjunction with the certified acres from 2019 to hold constant the current level of development.
    b. Outside of the LPSNRD, the most recent irrigated acres dataset available is the 2013 land use from the Lower Platte-Missouri Tributaries (LPMT) regional groundwater model. The same monthly pumping demand per

acre used within the LPSNRD was applied to the 2013 LPMT groundwater irrigated acres to simulate pumping outside of the LPSNRD.

3. Municipal and industrial pumping from the calibration model period 1995-2019 was repeated and added to the WEL file for the future pumping scenario.
4. To represent the Monolith pumping, a well was added to the model at the approximate location of the Monolith site. The pumping schedule for the Monolith well was determined using historical temperature data and operational design data from Monolith. The daily temperature record from 1995-2019 documented by a weather station near Crete (named CRETE 4 ESE, NE US) was downloaded from the High Plains Regional Climate Center website. Combined with the design data supplied by Monolith, a 25-year pumping schedule was developed and repeated for the full 50-year future scenario model.

2.3 Recommendation 3: Less model refinement or discretization for ease of use.

This recommendation will be considered for any future applications.

2.4 Recommendation 4: Better characterize the gradient between the bedrock units and the CPA aquifer in the area.

While there is no known data regarding water levels in the bedrock aquifer underlying the CPA aquifer, an assessment of the interaction between the bedrock aquifer and the CPA aquifer can be made utilizing the Lower-Platte Missouri Tributaries (LPMT) groundwater model. As documented in the report on the LPMT groundwater model titled *Groundwater Model for the Central and Northern Parts of the Lower Platte River and Missouri River Tributary Basins*, the gradient between the bedrock aquifer and the principal aquifer (including the CPA aquifer) is generally upward across the majority of eastern Nebraska (NDNR 2018). Detailed analysis of the LPMT model in the area covered by the CPA aquifer in Lancaster County reveals the bedrock aquifer is constantly discharging to the CPA aquifer at a rate of approximately 27 acre-feet per month, or 0.054 inches per year.

2.5 Recommendation 5: Develop a groundwater monitoring plan.

See the monitoring plan attached to this addendum as Appendix A.

2.6 Recommendation 6: Identify and document details on all private and public supply wells within 1 ½ miles of the pumping site. Provide a well interference contingency plan.

See the well protection plan attached to this addendum as Appendix B.

3. MOTIONS FROM THE LPSNRD BOARD OF DIRECTORS

3.1 Motion 1: The Monolith Application submit a more detailed sensitivity analysis as recommended in LRE Water Review Recommendation 1.

See section 2.1.

3.2 Motion 2: The Monolith Application include (1) further analysis of interaction of the CPA aquifer in the area with bedrock aquifer to support its assertion of little or no interaction with bedrock aquifers, (2) the likelihood of gradient reversal to upward flow direction if the further analysis shows downward gradient or little to no interaction.

Section 2.1.3 of the Hydrogeologic Analysis Report describes the geology of the area and Figure 2.3 presents the bedrock map of the area. As described in Section 2.4, the bedrock aquifer generally discharges to the principal aquifer across most of eastern Nebraska, as is the case for the CPA aquifer based on the results of the LPMT groundwater modeling (NDNR 2018). However, the rate of discharge appears to be extremely low (0.054 inches per year on average). The report on the LPMT groundwater model states: "As expected, the overall rates of groundwater flow in the bedrock units are much smaller than in the principal aquifer." Therefore, it is highly unlikely that there would be any significant increase in the rate of discharge, given the "sluggish" flow rates within the bedrock aquifer that would control the availability of water from the bedrock aquifer. Moreover, given the extremely low current rate of discharge, even a relatively large percentage increase in the upward flow of water from the bedrock aquifer to the CPA aquifer would not result in a significantly large amount of additional upward flow.

3.3 Motion 3: The Monolith Application include details of any groundwater monitoring plan Monolith intends to develop and implement to address future potential changes in groundwater quality and quantity at the Site and surround area.

See the monitoring plan attached to this addendum as Appendix A.

3.4 Motion 4: The Monolith Application include details of wells and a well interference plan as provided in Recommendation 6 (the area to be considered will be increased from 1.5 miles to 3.0 miles from the site).

See the well protection plan attached to this addendum as Appendix B.

3.5 Motion 5: That Monolith provide additional information on (1) the use of future climate in the Monolith Hydrogeologic Analysis, and (2) the general effect of future climate on the CPA aquifer.

Actual future climate in eastern Nebraska is inherently unknowable. However, it is generally recognized in water resources management that a recent period of climate is most representative of the potential future climate conditions. Also, it has been documented by the Nebraska Department of Natural Resources that a 25-year period of climate conditions provides for a representative period of wet, normal, and dry years. Therefore, the Future Model for the Monolith hydrogeologic analysis was set up using the climate conditions experienced during 1995-2019. The model started at the beginning of 2020 with the modeled water levels from the end of 2019 from the historic calibration model. As noted above, the LRE Water Review supported the use of the Future Model for the purpose of predicting the likely drawdown that would result from Monoliths water use.

As for the general effect of future climate on the CPA aquifer, water levels are likely to fluctuate somewhat based on the occurrence of wet and dry periods. See for example Figure 2, which is a plot of the predicted water levels in well G-073007 (one of the water supply wells for the Village of Hallam). The 25-year climate pattern has periods of water level increases and

decreases, with the water level ending up being about three feet higher after 50 years. Moreover, the dips in water levels representing the dry periods are more than made up for by subsequent wet periods, so that during the second two periods of drought (occurring around 2057 and 2065), water levels bottom out at levels that are higher than the low water levels experienced during the first two periods of drought (occurring around 2032 and 2040). While not shown on Figure 2, these first two low water levels simulated in the Future Model are greater than the water level lows experienced during the actual years these droughts represent (around 2004 and 2012).

The reason for the general upward trend in water levels in the historic and future models is the general upward trend in precipitation being experienced in eastern Nebraska and much of the northern Midwest. In fact, the six-year period between 2014 and 2019 is generally the wettest six-year period experienced in eastern Nebraska in 120 years of climatic records. This is consistent with the general predictions that come from global climate circulation models, which predict that eastern Nebraska is likely to experience greater precipitation into the future.

The actual water level variability that will be experienced in the CPA aquifer may not turn out to be as optimistic as the model prediction contained in Figure 2. However, that does not change the predicted impact of the Monolith water use on the CPA aquifer, as that prediction does not depend on a certain climate pattern. This is because the prediction of the Monolith water use impact is done by subtracting the results in one model run (without the Monolith water use) from another model run (with the Monolith water use), thereby canceling out the underlying climate pattern (assuming the model behaves linearly, which it appears to do) and isolating the predicted impact of the Monolith water use on the CPA aquifer. As discussed in Section 1, this impact is not expected to cause the CPA aquifer to be "triggered" into being a Phase 2 management area, because it is not expected to cause more than an 8% decline in saturated thickness in 30% or more of the monitoring wells in the CPA aquifer. However, if a prolonged dry period should occur in the future, the groundwater management triggers may be reached due to reduced recharge. If this should occur, the aquifer would enter Phase 2 management would be triggered and all existing water users would share in needed reductions in water use under the correlative rights doctrine which governs groundwater management in Nebraska.

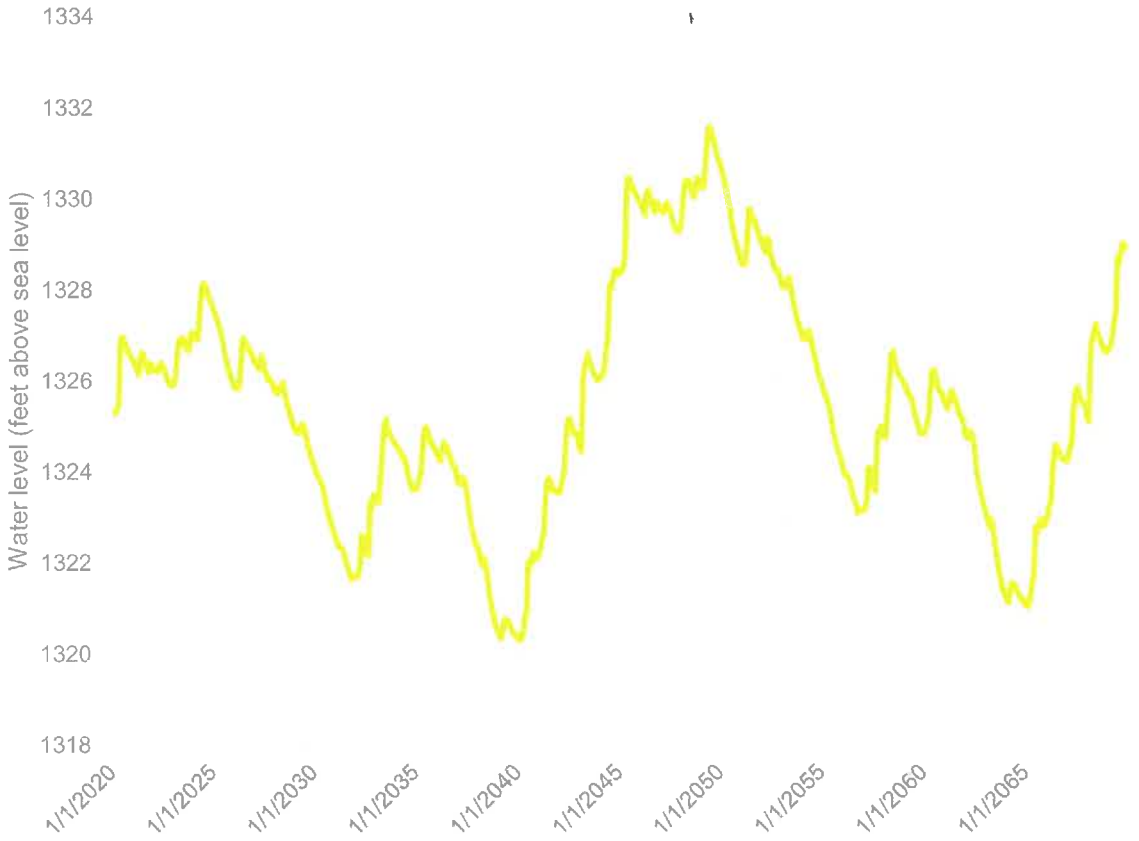


Figure 2 Water level in well G-073007 (Hallam municipal well) over the 50-year Future Model simulation.

3.6 Motion 6: That Monolith provide additional information on the potential for upwelling in the immediate vicinity (as that term is used on page 57 [of the Monolith Hydrogeologic Report]) of the Monolith well over the 50-period of its future scenario.

The Monolith Hydrogeologic Analysis Report states on page 57:

> *While declines of up to 8.5 feet can be anticipated in the immediate vicinity of the Monolith well, impacts of this extent will be localized and are generally less than 1-2 feet over most of the aquifer.*

In the Monolith Future Model, a decline of 8.5 feet is experienced in the model cell that contains the well simulating Monolith's water use. Groundwater model cells are 165 feet by 165 feet (or approximately 0.6 acres) in the area of the Monolith site. This model cell (along with many surrounding cells) is wholly contained within the property on which Monolith intends to construct

its Olive Creek 2 manufacturing facility. Given the extremely limited spatial extent of the area in the "immediate vicinity" of the Monolith well, and for the reasons described in Sections 2.4 and 3.2, this level of drawdown is not expected to cause new upwelling of water from the bedrock aquifer to the principal aquifer.

4. WELLFIELD SCENARIOS

Monolith anticipates annual water usage between 320-400 million gallons per year during the operation of Olive Creek 2. An estimated 30 million gallons or less will be used in total for construction purposes of the Olive Creek 2 facility between the start of construction and an anticipated completion date of Q1 2024. Following construction, most of the water will be used for cooling of equipment, and usage will vary depending on ambient conditions and plant production level. Ambient temperature and humidity factor into the cooling water usage at the plant. Higher temperatures will require more water to keep equipment cool, so water usage will vary between day and night, and through the year as temperatures change with the seasons. If the plant is operating at a production level that uses 700 gallons per minute (gpm) during the day in Spring, the same production level could use 1,100 gpm during the hottest mid-day temperatures in summer or 500 gpm in the middle of winter.

While OC2 is designed to operate 12 carbon black reactors simultaneously, the facility will not always operate in this condition. Regular maintenance outages and other operational factors will require reactors to be shut down periodically. With fewer equipment to keep cool, the water usage at the plant will decrease until equipment is restarted.

Considering that ambient conditions and plant operation will vary the water usage at OC2, a service water tank is used to ensure there is always enough water to meet demand. A single well pump supplying this tank at 600 gpm will meet demand in many cases, but a second well supplying 600 gpm will be used to maintain the required level in the service water tank on those hotter days when plant production levels require more water for cooling. A third well is included for redundancy and operational cycling.

To facilitate the permitting of the total of three wells that Monolith will require to operate their facility, three additional future simulations were conducted at the request of the LPSNRD. Scenarios A, B, and C described below simulate varying levels of pumping at one or three locations on the Monolith site.

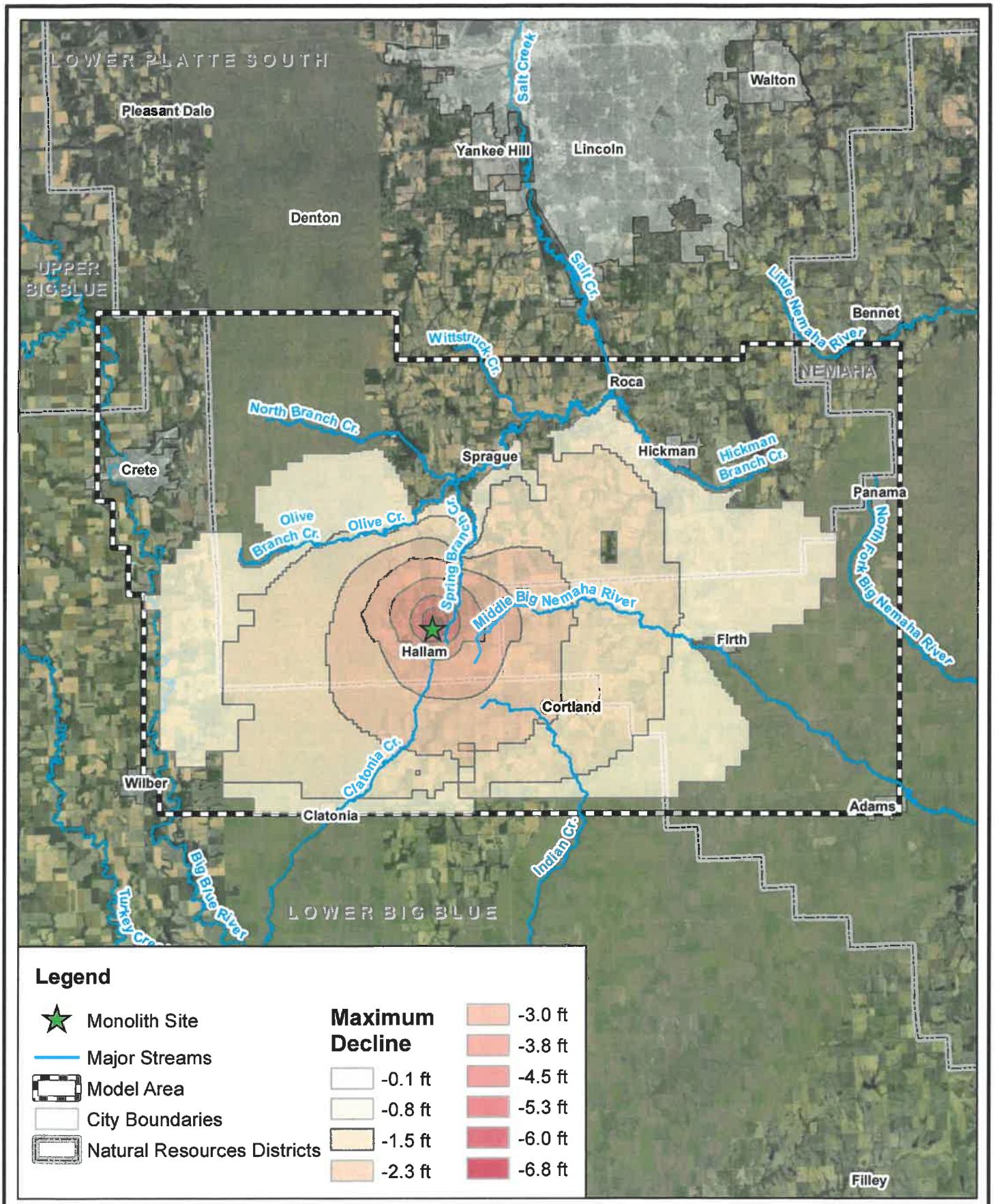
4.1 Future Scenario A

Under Scenario A, 320 million gallons per year was divided evenly between three wells pumping approximately 203 gpm on average. This scenario represents the low end of the operational range Monolith will pump from the wellfield. Drawdown in this scenario is shown in Figure 3.

Maximum drawdown after 50 years reaches about 6.8 feet in the immediate vicinity of the three wells, which is less than the drawdown simulated in the future scenario in the Report (8.5 feet).

4.2 Future Scenario B

In Scenario B, 400 million gallons per year was divided evenly between three wells pumping approximately 254 gpm on average. This scenario represents the highest amount of pumping that Monolith might require from the wellfield. Drawdown in this scenario is shown in Figure 4. Maximum drawdown is slightly greater than in the future scenario included in the Report (8.6 feet versus 8.5 feet). However, the maximum drawdown is experienced in three model cells (the cells that contain the three wells) as opposed to the one model cell experiencing maximum drawdown in the original future scenario with only one well. Visual comparison with the drawdown map in the Report (Figure 3.14) reveals a very similar drawdown pattern and extent. The cumulative water budget for the 50-year simulation period (2020-2069) is presented in Table 1. Model budget terms along with average annual values are shown for both the baseline and Scenario B. To aid in comparison to the future model simulation from the Report, the difference between the baseline scenario and the monolith pumping scenario is displayed for this Scenario B simulation and the simulation in the Report.



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olsson

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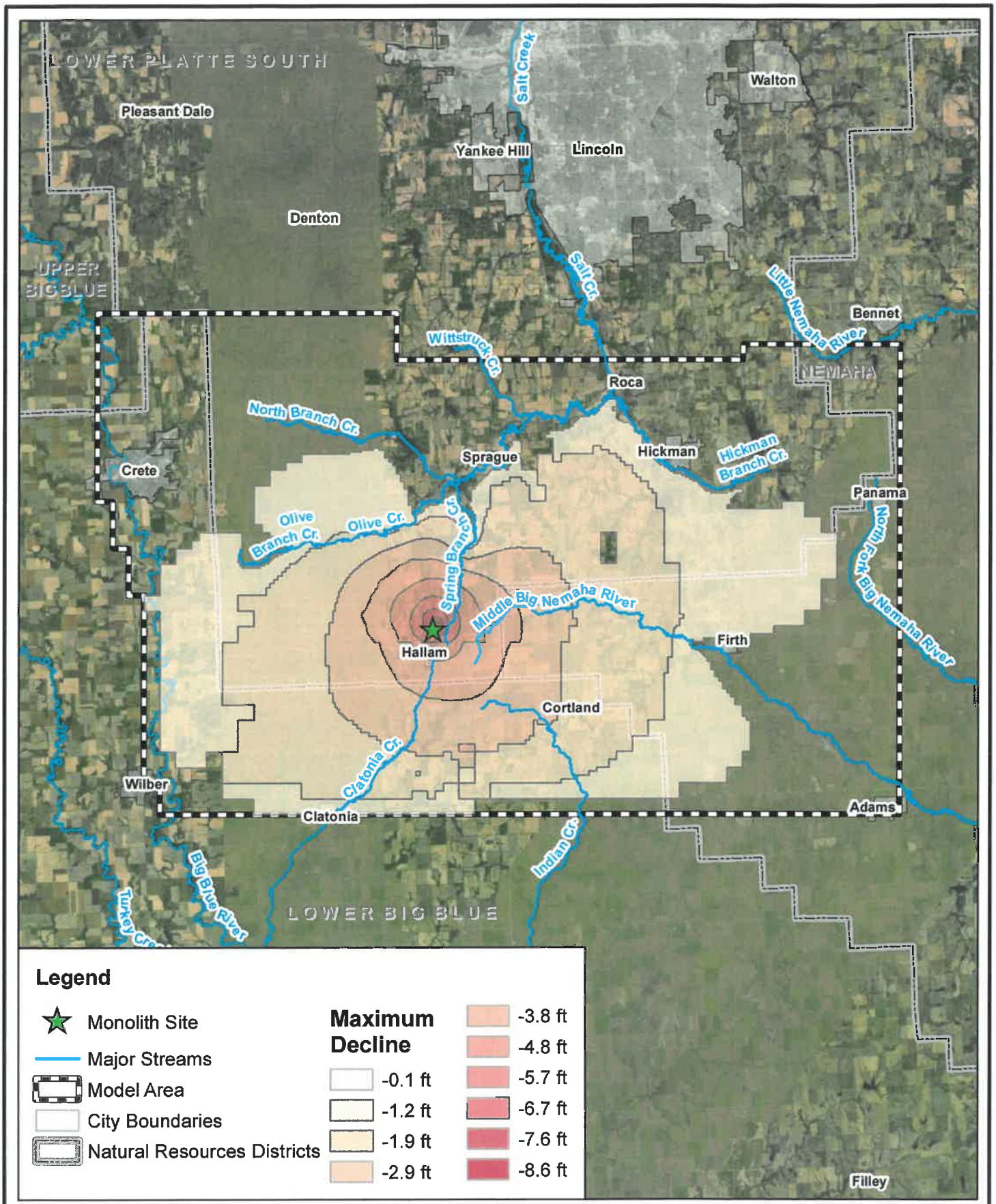
1 in = 4 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Future Declines With Monolith Pumping at Three Wells (320 MGY)
Monolith OC2
Groundwater Modeling Report
Lancaster County, NE

FIGURE 3



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1 in = 4 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Future Declines With Monolith Pumping at Three Wells (400 MGY)
Monolith OC2
Groundwater Modeling Report
Lancaster County, NE

FIGURE

4

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Table 1 The cumulative water budget for the future model simulation scenarios in acre-feet per year.

Model Budget Term	Baseline Scenario Value (acre-feet per year)	Scenario B Value (acre-feet per year)	Difference (acre-feet per year)	Difference from Report (acre-feet per year)
Storage	-1,889	-1,499	-390	-301
Wells	-12,016	-13,246	1230	959
River	-7,452	-7,395	-56	-45
Evapotranspiration	-1,130	-1,124	-6	-4
General Head Boundary	-6,839	-6,638	-201	-157
Recharge	72,309	72,309	0	0
Stream Leakage	-42,983	-42,406	-576	-453
Total (In-Out)	-1	-1	0	0

As the groundwater pumping in Scenario B is approximately 25% greater than the scenario in the Report, the difference between the baseline scenario and the Monolith pumping scenario for the computed budget terms (e.g., storage, baseflow) is also approximately 25% greater.

For comparison of predicted drawdown from the Report, Figure 5 provides the predicted drawdown for the two municipal wells in Hallam for this additional scenario (compare with Figure 4.5 in the Report). The total drawdown after 50 years is approximately 25% greater under this scenario (3.75 feet versus 3 feet). This level of additional drawdown would not change any of the conclusions contained in the Report.

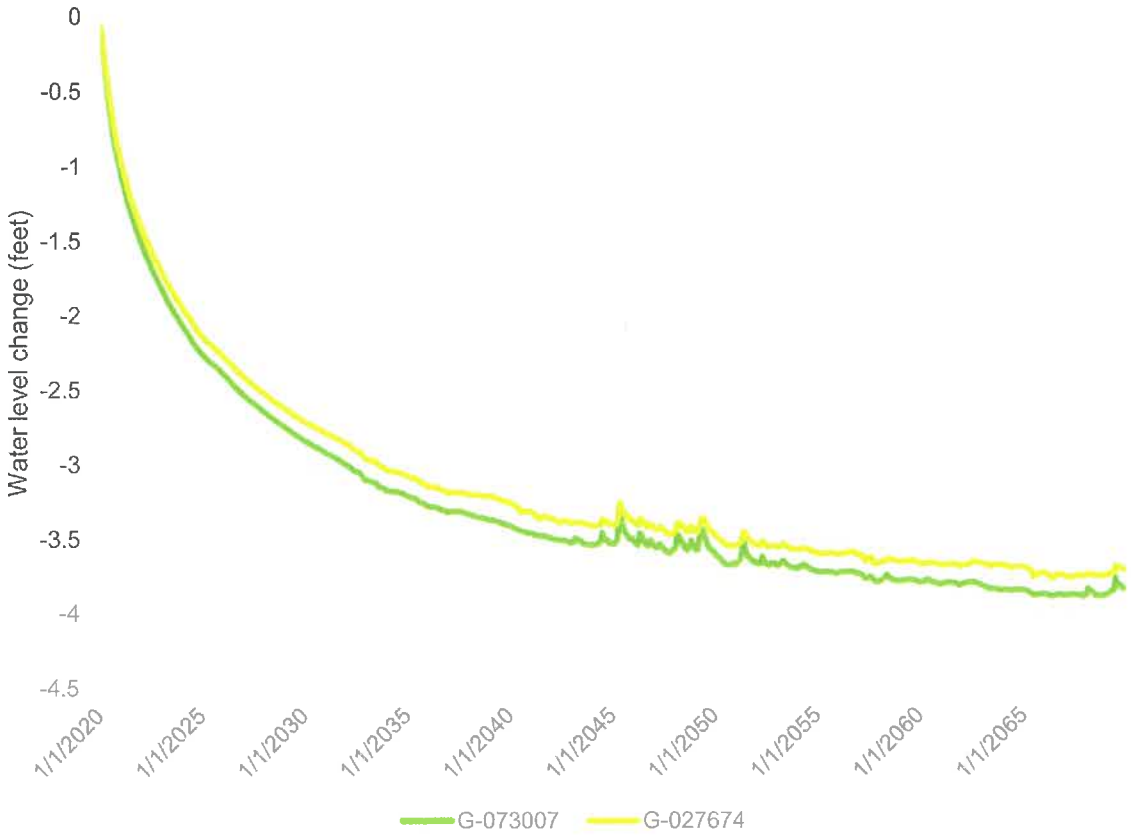


Figure 5 Predicted drawdown at Hallam's municipal wells after 50 years under Scenario B.

4.3 Future Scenario C

Under Scenario C, one well pumping a constant 1200 gpm from April to September for a hypothetical future year was simulated. This scenario is meant to represent an extreme example of the impact of heavy, continued pumping at the Monolith site in the event of a hot summer and does not represent a realistic scenario that Monolith ever intends to operate under. The pumping rate compared to the original pumping rate of the future scenario in the Report is shown in Figure 6.

Figure 6 Pumping rate at the Monolith site in Scenario C overlaid on the pumping rate from the future scenario in the Report.

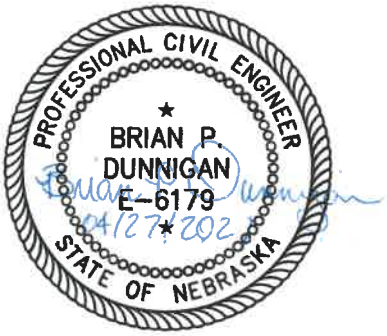
Model results from this modified pumping schedule show an additional 0.5 feet of drawdown at the Hallam municipal well site during the year of increased pumping. Additional drawdown gradually lessens to two inches or less within 18 months of the increased pumping (Figure 7).

Figure 7 Drawdown in feet and the difference between the original future scenario and Scenario C at a Hallam municipal well.

5. REFERENCES

LRE Water. (2021). "Review of the Monolith Materials Inc. Groundwater Flow Model." <https://www.lpsnrd.org/sites/default/files/lre_lsp_model_review_feb_23_2021.pdf>

Nebraska Department of Natural Resources (NDNR). (2018). "Groundwater Model for the Central and Northern Parts of the Lower Platte River and Missouri River Tributary Basins." < https://dnr.nebraska.gov/Lower-Platte-Missouri-Tributaries-Groundwater-Model >



MONOLITH HYDROGEOLOGIC ANALYSIS REPORT - ADDENDUM

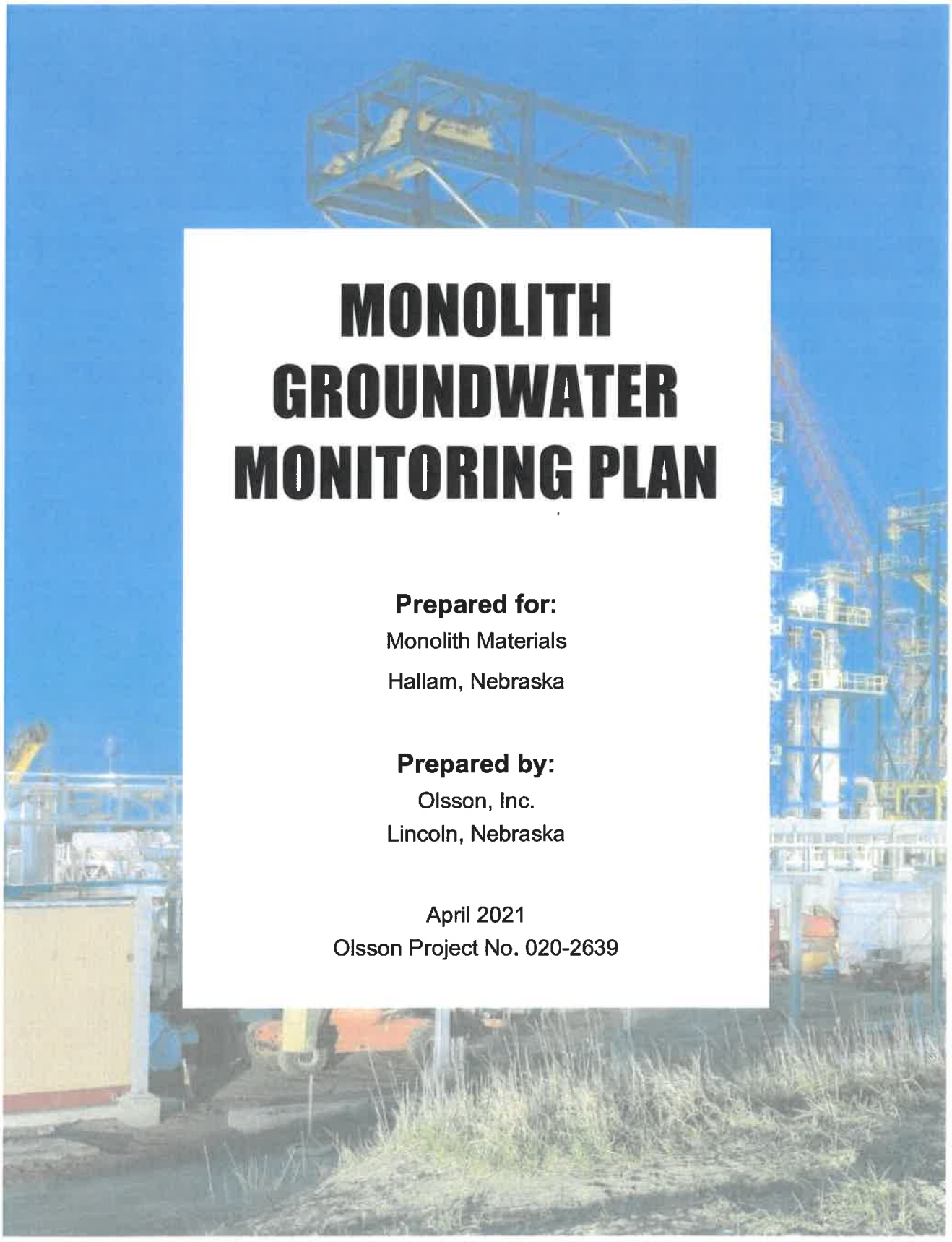
Monolith Materials, Hallam, Nebraska

April 2021

Olsson Project No. 020-2639

APPENDIX A

Groundwater Monitoring Plan



MONOLITH GROUNDWATER MONITORING PLAN

Prepared for:

Monolith Materials

Hallam, Nebraska

Prepared by:

Olsson, Inc.

Lincoln, Nebraska

April 2021

Olsson Project No. 020-2639

olsson®

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1. INTRODUCTION

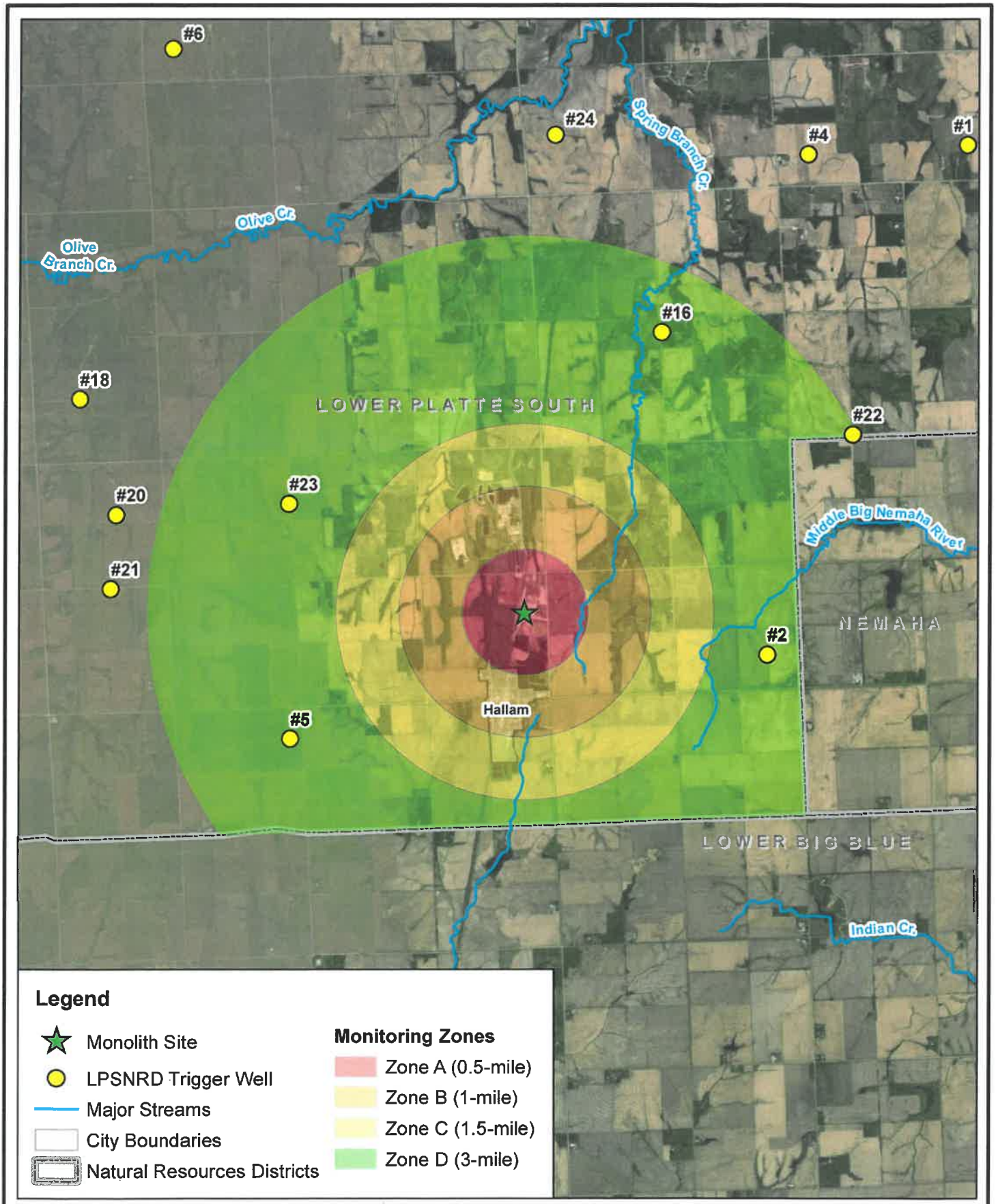
The purpose of this Groundwater Monitoring Plan (Plan) is to outline how Monolith Materials Inc. (Monolith) intends to monitor groundwater levels and water quality in a 3-mile radius of the Monolith site. This Plan proposes the addition of three monitoring wells within specified monitoring zones around the Monolith facility to bolster the existing monitoring network maintained by the Lower Platte South Natural Resources District (LPSNRD). It is anticipated that the Plan will be in place and operational within one year of the granting of the water well permits. The success of this Plan relies on the LPSNRD partnering with Monolith to conduct an annual review of data collected from the monitoring network.

1.1 Monitoring Area

The monitoring area covered by this Plan was established based on the recommendation from the LPSNRD Board of Directors of a 3-mile radius around the Monolith site. Originally recommended by LRE Water in their report titled *Review of the Monolith Materials Inc. Groundwater Flow Model*, the 1.5-mile radius was expanded to a 3-mile radius (see Figure 1). Only the portion of the 3-mile radius within the LPSNRD is considered as part of this Plan. Five wells currently a part of the LPSNRD monitoring network are identified in Figure 1 as "trigger wells" and detailed in Table 1. These five wells (and others) are used in the LPSNRD's Groundwater Management Plan (GMP), as evaluation points to determine what phase of groundwater management the surrounding area is to be held to (LPSNRD 1995).

Table 1 LPSNRD trigger wells within the 3-mile radius Monitoring Area. (Data provided by the LPSNRD via email communication, October 15, 2020)

Trigger Well No.	Registration No.	Well Name	Saturated Thickness (ft)	Lat	Lon
#2	G-048152	Countryside Pivot	194.63	40.542	-96.747
#5	G-143912	Gerlach Irr	113.16	40.534	-96.820
#16	G-131380	Nyhoff MW	253.47	40.579	-96.761
#22	G-070767	Princeton Recorder	268.43	40.567	-96.733
#23	G-131364	Rejcha MW	106.25	40.561	-96.818



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1 in = 1 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Recommended Monitoring Zones
Monolith OC2
Groundwater Monitoring Plan
Lancaster County, NE

FIGURE
1

1.2 Proposed Monitoring Locations

The Plan area has been divided into four monitoring zones (A, B, C, and D) which form concentric rings around the Monolith site out to three miles (Figure 1). Upon review of the Plan area, it is evident that Zone D has a good distribution of monitoring locations represented by the LPSNRD's trigger wells. Additional wells would add the most value to the monitoring network if they were placed within zones A, B, and C. It is recommended that three new wells (one per zones A, B, and C) be installed to fill in the monitoring network distribution. The exact placement of these wells will depend on landowner cooperation. The new monitoring well closest to the Monolith site will be a nested well which will provide additional information on any vertical gradients that may exist or form.

2. MONITORING INSTRUMENTATION

Each new monitoring well will be outfitted with a device from Paige Wireless that transmits a water level reading in real-time (Figure 2). The device is combined with a pressure transducer that is dropped down into the well column. Once the monitoring well location is selected, the static water level must be determined to select an appropriate cable length for the pressure transducer. The Paige Wireless device sends the water level reading in 1-hour increments using Long Range Wide Area Network (LoRaWAN) technology. LoRaWAN offers a low cost communications network to send small data packets across miles. The data is stored using cloud computing and accessible through an online platform that will be made available to the LPSNRD. Monolith will be responsible for maintaining the Paige Wireless devices and ensuring collection and review of the data. Wells will be tested for water quality in a manner consistent with the LPSNRD's water quality program. For the first few years of the program, the samples will be collected on a quarterly basis (or on a more frequent basis as specified by the LPSNRD). For water coming into the system at the Olive Creek 2 facility, water will be monitored manually by the operations team. In addition, a water treatment vendor will be identified to periodically sample the influent for water quality to ensure the water treatment processes are appropriately calibrated.

Figure 2 A Paige Wireless device coupled with a pressure transducer on a monitoring well in western Nebraska.

Water level readings (including historic data) from the monitoring network devices will be used to establish a baseline of water levels in the area without Monolith pumping. Once production begins at the Monolith facility, water levels will be compared to the baseline to determine whether changes can be attributed to pumping at Monolith or some other water use. Water level readings at the proposed monitoring wells will be reported annually to the LPSNRD in full transparency.

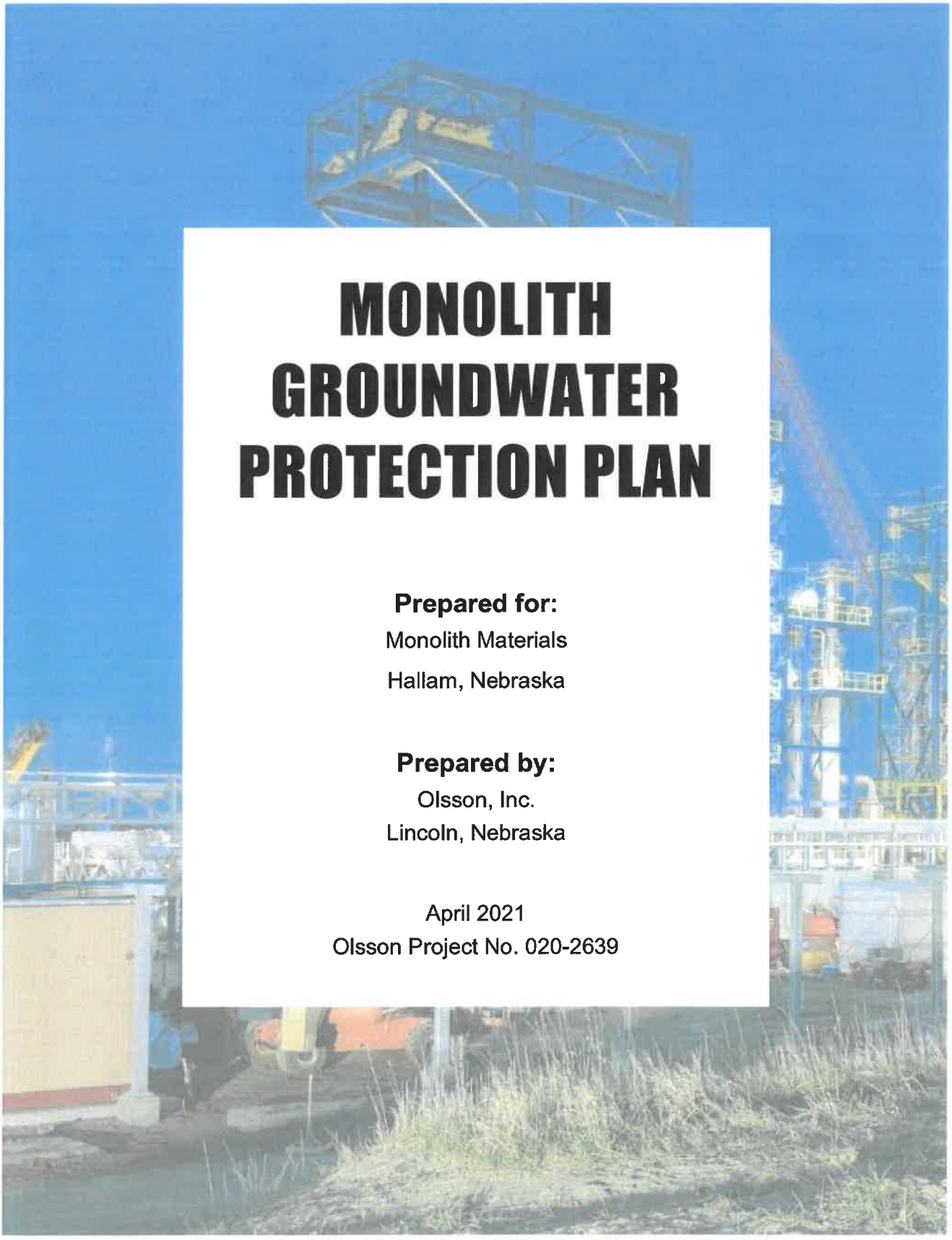
3. REFERENCES

Lower Platte Natural Resources District (LPSNRD). (1995). "Ground Water Management Plan." < https://www.lpsnrd.org/sites/default/files/files/1/gwmpsummary.pdf >

LRE Water. (2021). "Review of the Monolith Materials Inc. Groundwater Flow Model." <https://www.lpsnrd.org/sites/default/files/lre_lsp_model_review_feb_23_2021.pdf>

APPENDIX B

Groundwater Protection Plan



MONOLITH GROUNDWATER PROTECTION PLAN

Prepared for:

Monolith Materials

Hallam, Nebraska

Prepared by:

Olsson, Inc.

Lincoln, Nebraska

April 2021

Olsson Project No. 020-2639

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Monolith Well Protection Agreement – Domestic Wells
Monolith Well Protection Agreement – Irrigation Wells

1. INTRODUCTION

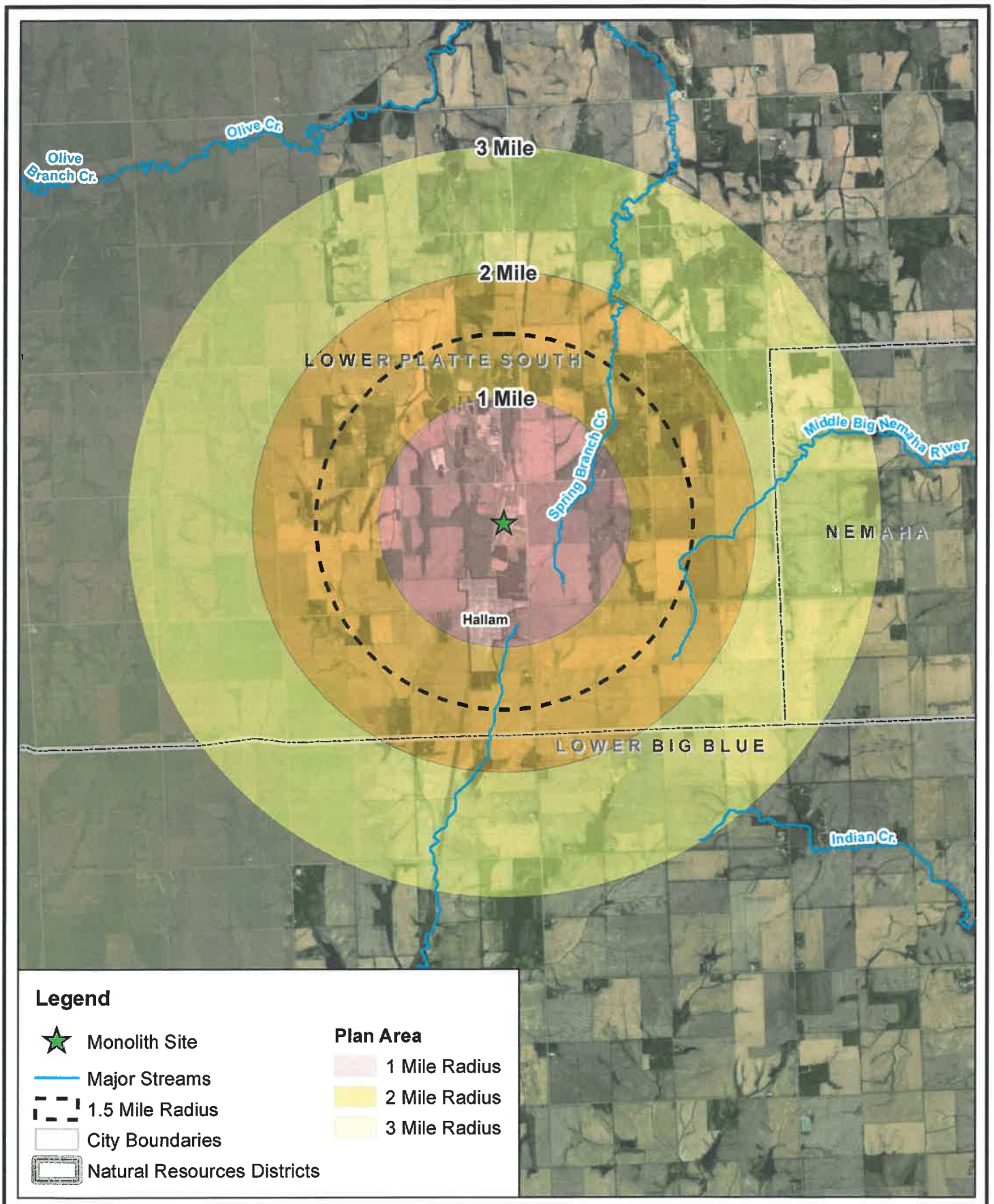
The purpose of this Groundwater Protection Plan (Plan) is to outline the steps Monolith Materials, Inc. (Monolith) will take in the event of well interference issues within a 3-mile radius of the Monolith site. Monolith is committed to addressing concerns that may arise and working with landowners to resolve potential issues. Included in this Plan is an inventory of all active irrigation and domestic supply wells within the Plan area.

1.1 Plan Area

This Plan addresses potential well interference due to pumping at the Monolith site within a 3-mile radius (see Figure 1). Radii of 1-mile and 2-miles are shown as a spatial reference. The 1.5-mile radius represents the area originally recommended by LRE Water in their report titled *Review of the Monolith Materials Inc. Groundwater Flow Model* (LRE 2021). Upon direction from the Lower Platte South Natural Resources District (LPSNRD) Board of Directors, the Plan area was expanded to the 3-mile radius shown in Figure 1.

1.2 Well Inventory

All irrigation and domestic wells registered as active as of March 26, 2021, are included in the well inventory. There are a total of 61 active irrigation and domestic wells within the plan area. The Registered Well Database was retrieved from the Nebraska Department of Natural Resources' website. An annual review of this well inventory will be completed by Monolith to add any new wells that fall within the Plan area (see Figure 2). Information about each well such as static water level, pumping water level, and total depth is included in Table 1. Monolith has initiated the process of identifying active, unregistered wells that fall within the Plan area to establish communication with landowners not included in this well inventory. Monolith's effort will be expanded to include a 3-mile radius.



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NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Plan Area
Monolith OC2
Groundwater Protection Plan
Lancaster County, NE

FIGURE
1

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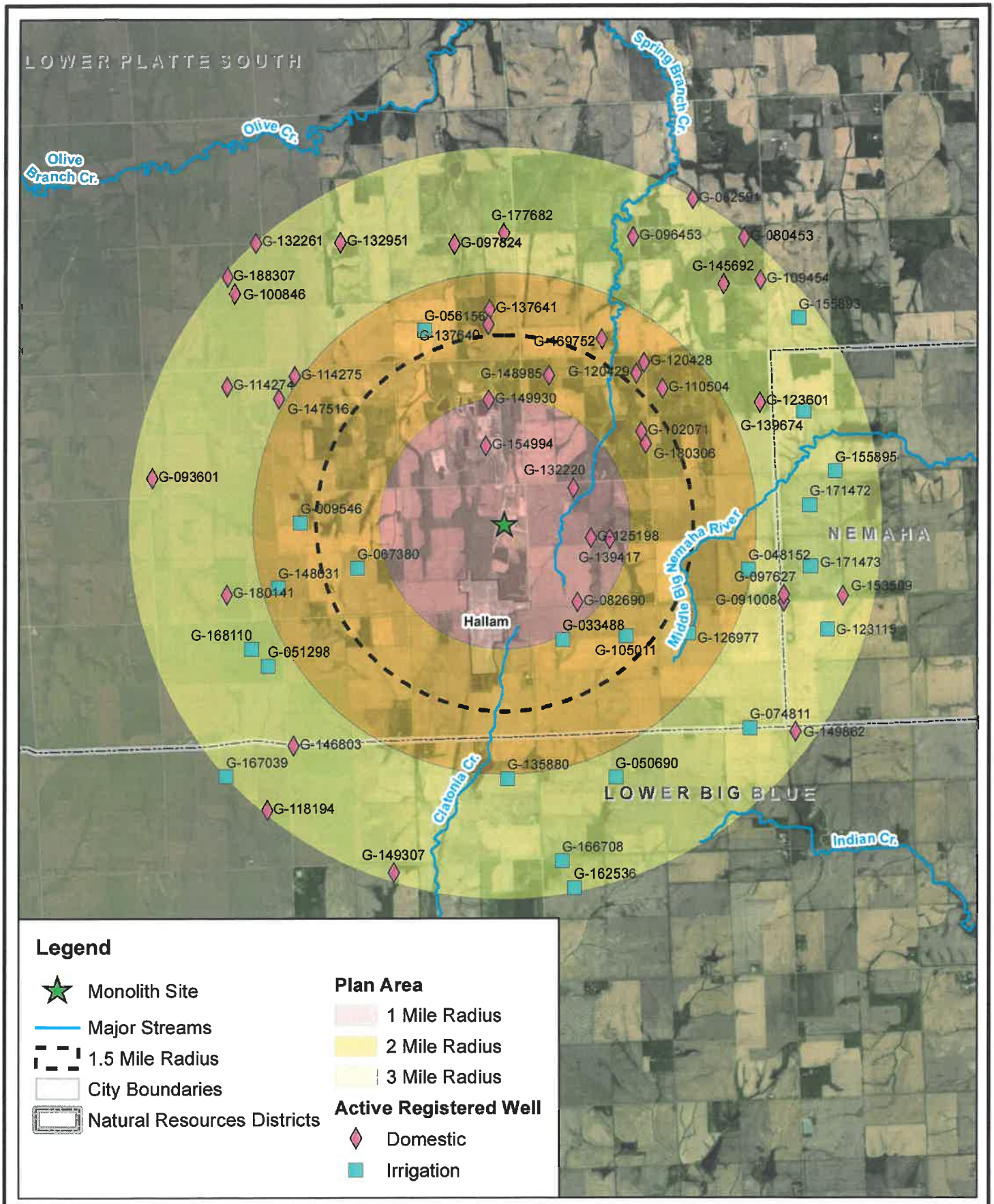

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1 in = 1 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Well Inventory
Monolith OC2
Groundwater Protection Plan
Lancaster County, NE

FIGURE
2

Table 1 Inventory of active registered domestic and irrigation wells within a 3-mile radius of the Monolith site. (NDNR 2021)

No.	Reg. No.	Use	NRD	Pump Rate (gpm)	Pump Column Dia. (in)	Pump Depth (ft)	Total Depth (ft)	Static Water Level (ft)	Pumping Water Level (ft)	Lat	Lon
1	G-009546	Irrigation	Lower Platte South	900	8	N/A	310	180	220	40.549	-96.814
2	G-033488	Irrigation	Lower Platte South	1000	8	N/A	282	188	197	40.534	-96.775
3	G-048152	Irrigation	Lower Platte South	900	8	N/A	300	150	190	40.541	-96.747
4	G-050690	Irrigation	Lower Big Blue	750	7	N/A	329	185	300	40.518	-96.768
5	G-051298	Irrigation	Lower Platte South	1200	8	N/A	273	166	194	40.532	-96.820
6	G-056156	Irrigation	Lower Platte South	1500	8	N/A	208	40	140	40.570	-96.795
7	G-067380	Irrigation	Lower Platte South	1280	8	N/A	358	181	190	40.543	-96.806
8	G-074811	Irrigation	Lower Big Blue	800	8	N/A	301	168	200	40.523	-96.748
9	G-080453	Domestic	Lower Platte South	50	5	N/A	141	64	80	40.580	-96.746

No.	Reg. No.	Use	NRD	Pump Rate (gpm)	Pump Column Dia. (in)	Pump Depth (ft)	Total Depth (ft)	Static Water Level (ft)	Pumping Water Level (ft)	Lat	Lon
10	G-082591	Domestic	Lower Platte South	30	6	80	186	38	N/A	40.584	-96.753
11	G-082690	Domestic	Lower Platte South	25	N/A	N/A	303	180	220	40.538	-96.773
12	G-091008	Domestic	Nemaha	22	1	220	282	162	190	40.537	-96.742
13	G-093601	Domestic	Lower Platte South	30	1	80	123	59	80	40.554	-96.837
14	G-096453	Domestic	Lower Platte South	15	4	3	171	50	75	40.580	-96.762
15	G-097627	Domestic	Nemaha	10	1	200	273	158	165	40.538	-96.742
16	G-097824	Domestic	Lower Platte South	18	1	80	107	25	48	40.580	-96.790
17	G-100846	Domestic	Lower Platte South	15	1	140	231	112	115	40.575	-96.823
18	G-102071	Domestic	Lower Platte South	15	1	160	200	115	135	40.558	-96.762
19	G-105011	Irrigation	Lower Platte South	1200	8	240	304	179	204	40.534	-96.766

No.	Reg. No.	Use	NRD	Pump Rate (gpm)	Pump Column Dia. (in)	Pump Depth (ft)	Total Depth (ft)	Static Water Level (ft)	Pumping Water Level (ft)	Lat	Lon
20	G-109454	Domestic	Lower Platte South	10	1	160	201	81	100	40.575	-96.743
21	G-110504	Domestic	Lower Platte South	20	1.25	160	202	92	110	40.563	-96.759
22	G-114275	Domestic	Lower Platte South	12	1	200	229	147	170	40.566	-96.814
23	G-114274	Domestic	Lower Platte South	12	1	120	178	88	95	40.565	-96.825
24	G-118194	Domestic	Lower Big Blue	20	1.25	120	131	90	115	40.516	-96.821
25	G-120428	Domestic	Lower Platte South	20	1.25	160	206	92	110	40.566	-96.762
26	G-120429	Domestic	Lower Platte South	20	1.25	160	212	105	120	40.564	-96.763
27	G-123115	Irrigation	Nemaha	800	N/A	N/A	356	N/A	220	40.534	-96.735
28	G-123601	Domestic	Lower Platte South	10	1	180	276	126	130	40.561	-96.744
29	G-125198	Domestic	Lower Platte South	30	1.25	200	254	159	170	40.546	-96.770

No.	Reg. No.	Use	NRD	Pump Rate (gpm)	Pump Column Dia. (in)	Pump Depth (ft)	Total Depth (ft)	Static Water Level (ft)	Pumping Water Level (ft)	Lat	Lon
30	G-126977	Irrigation	Lower Platte South	1200	8	250	287	170	208	40.534	-96.756
31	G-132261	Domestic	Lower Platte South	20	1.25	140	212	87	90	40.581	-96.820
32	G-132220	Domestic	Lower Platte South	20	1.25	180	272	136	140	40.551	-96.773
33	G-132951	Domestic	Lower Platte South	15	1.25	140	205	81	85	40.581	-96.807
34	G-135880	Irrigation	Lower Big Blue	700	8	270	303	N/A	270	40.518	-96.784
35	G-137641	Domestic	Lower Platte South	15	1	180	240	103	130	40.572	-96.785
36	G-139674	Irrigation	Nemaha	800	6	220	320	164	220	40.559	-96.738
37	G-137640	Domestic	Lower Platte South	15	1.25	160	263	101	130	40.571	-96.785
38	G-139417	Domestic	Nemaha	35	1.25	200	236	144	154	40.545	-96.768
39	G-145692	Domestic	Lower Platte South	15	1.25	140	192	68	80	40.574	-96.749
40	G-146803	Domestic	Lower Big Blue	10	1.25	160	163	115	130	40.523	-96.817

No.	Reg. No.	Use	NRD	Pump Rate (gpm)	Pump Column Dia. (in)	Pump Depth (ft)	Total Depth (ft)	Static Water Level (ft)	Pumping Water Level (ft)	Lat	Lon
41	G-154994	Domestic	Lower Platte South	50	3	205	240	136	187	40.557	-96.786
42	G-148631	Irrigation	Lower Platte South	1050	8	240	292	189	212	40.541	-96.818
43	G-147516	Domestic	Lower Platte South	12	1.25	200	239	152	152	40.563	-96.817
44	G-149307	Domestic	Lower Big Blue	15	1	145	180	135	135	40.508	-96.802
45	G-148985	Domestic	Lower Platte South	10	1.25	180	256	140	160	40.565	-96.776
46	G-149862	Domestic	Lower Big Blue	17	1.25	220	320	168	190	40.522	-96.741
47	G-149930	Domestic	Lower Platte South	20	1.25	220	260	147	157	40.562	-96.785
48	G-153509	Domestic	Nemaha	40	2	240	296	160	190	40.538	-96.733
49	G-155893	Irrigation	Lower Platte South	900	8	180	258	102	114	40.570	-96.738
50	G-155895	Irrigation	Nemaha	1200	8	210	267	147	169	40.552	-96.733
51	G-162536	Irrigation	Lower Big Blue	415	6	260	280	148	246	40.505	-96.775

No.	Reg. No.	Use	NRD	Pump Rate (gpm)	Pump Column Dia. (in)	Pump Depth (ft)	Total Depth (ft)	Static Water Level (ft)	Pumping Water Level (ft)	Lat	Lon
52	G-167039	Irrigation	Lower Big Blue	500	6	170	180	126	150	40.520	-96.827
53	G-166708	Irrigation	Lower Big Blue	225	3	260	270	170	250	40.508	-96.777
54	G-171472	Irrigation	Nemaha	1200	8	220	360	164	164	40.548	-96.737
55	G-171473	Irrigation	Nemaha	1200	8	220	306	170	188	40.541	-96.738
56	G-168110	Irrigation	Lower Platte South	1200	8	220	280	162	175	40.534	-96.822
57	G-169752	Domestic	Lower Platte South	20	1.25	120	201	71	90	40.569	-96.768
58	G-177682	Domestic	Lower Platte South	20	1.25	140	170	66	76	40.581	-96.782
59	G-180141	Domestic	Lower Platte South	20	1.25	180	220	153	163	40.541	-96.826
60	G-180306	Domestic	Lower Platte South	15	1.25	180	205	133	143	40.556	-96.762
61	G-188307	Domestic	Lower Platte South	15	1.25	160	178	92	118	40.577	-96.824

2. WELL PROTECTION RESPONSE

Monolith and the LPSNRD will agree to an annual Monitoring Program. This Program will create and provide publicly available information that will be used to make decisions to avoid, or respond to and protect, negative impacts to surrounding wells. The Monitoring Program will include establishing baseline water level conditions for each well prior to Monolith's expected water use. This plan will be updated annually (See Monitoring Program) through the operation of the facility. This data, along with examination of each well by a professional driller will be used to determine the extent to which any impact to a well owner's operation is determined to be due to Monolith's usage. If the impact is due to Monolith's usage, Monolith will agree on a mitigation strategy following the recommendation of the professional driller. (See Attachment 1, Monolith Well Protection Agreement – Domestic Wells, Monolith Well Protection Agreement – Irrigation Wells).

Monolith will offer well owners within the 3-mile radius Monitoring area the opportunity to enter into Well Protection Agreements (Agreements). The offers to enter into the Agreements will be open for the duration of the operation of the Olive Creek Facility. Examples of these Agreements are attached hereto.

The Agreements establish the process, conditions, and actions to be undertaken to ensure wells can safely and efficiently operate now and into the future. Monolith has already offered all registered domestic and irrigation well owners, including the Village of Hallam, within 1.5-miles of the Olive Creek Facility an opportunity to enter into the Agreements. Monolith will extend these offers to all domestic and irrigation well owners within the 3-mile radius Monitoring area upon direction from the LPSNRD Board of Directors.

3. REFERENCES

LRE Water. (2021). "Review of the Monolith Materials Inc. Groundwater Flow Model." <https://www.lpsnrd.org/sites/default/files/lre_lsp_model_review_feb_23_2021.pdf>

Nebraska Department of Natural Resources (NDNR). (2021). "Registered Well Database." <https://www.nebraskamap.gov/datasets/registered-wells-dnr> (March 26, 2021).

Olsson. (2021). "Monolith Groundwater Monitoring Plan:"

ATTACHMENT 1

Monolith Well Protection Agreement – Domestic Wells

Monolith Well Protection Agreement – Irrigation Wells

WATER PROTECTION AGREEMENT – DOMESTIC WELL USERS

This Water Protection Agreement – Domestic Well Users (hereinafter the "Agreement") is made and entered into this ____ day of _____, 20_____ ("Effective Date"), by and between Monolith Materials, a Nebraska corporation, its successors and assigns (hereinafter "Monolith") and _____, the owner of the domestic well(s) located on the real property described herein, its successors and assigns (hereinafter the "Owner") (each individually a "Party" and collectively the "Parties").

WHEREAS, Monolith owns and is developing a manufacturing plant near Hallam, Nebraska (hereinafter the "Plant"); and

WHEREAS, the daily operation of the Plant requires an adequate groundwater supply and Monolith will construct three (3) wells adjacent to the Plant to be operated throughout the each year of the Plant's operation; and

WHEREAS, the Owner owns the domestic well(s) located on the real property as described within this Agreement; and

WHEREAS, Monolith has hired engineering firm Olsson and Associates to develop a groundwater model (hereinafter, the "Groundwater Model"), designed to evaluate the potential groundwater impacts to the area surrounding the Plant, which is based on expected normal Plant operations that result in the use of 400 million gallons of water per year; and

WHEREAS, said Groundwater Model indicates that the operation of Monolith's wells may cause impacts to the groundwater resources in the vicinity of the Plant thereby reducing the amount of groundwater available to the domestic well(s) of the Owner; and

WHEREAS, the Groundwater Model has determined the impacts to the Owner to be a groundwater drawdown of less than ____ feet after fifty years of operation; and

WHEREAS, Monolith is committed to protecting the groundwater resources that supply all existing wells within the vicinity of the Plant and as such desires to establish a protection plan for the benefit of the domestic well(s) of the Owner that could be impacted by Monolith's operation of its wells;

NOW, THEREFORE, in consideration of the foregoing conditions, the Parties agree as follows:

1. Owner's Domestic Wells. The Owner owns the following described property located in Lancaster County, Nebraska: [legal] (the "Owner's Property"). Owner owns the following domestic well(s) which are located on the Owner's Property:

[well registration numbers] (the "Owner's Domestic Well(s)")

2. Owner's Obligations.

   a. The Owner represents that all registered water well(s) used for domestic purposes are listed in Section 1 above.

   b. The Owner hereby agrees to notify Monolith upon experiencing any reduced accessibility to the groundwater that supplies Owner's Domestic Well(s). Such notice shall be provided as soon as possible.

   c. The Owner hereby grants to Monolith, its employees, officers, agents, consultants, and representatives, the right of ingress and egress to the Owner's Domestic Well(s) during the term of this Agreement, and the authority to enter upon the Owner's Property where the Owner's Domestic Well(s) are located, at a mutually agreed upon time, without any further permission necessary or notice given, for the purpose of consulting with the Owner, inspecting the Owner's Domestic Well(s), or any other purpose necessary to ensure the provisions of this Agreement are fully complied with.

3. Monolith's Obligations.

   a. In the event that the Owner notifies Monolith of reduced accessibility to the groundwater that supplies Owner's Domestic Well(s), Monolith will engage in an investigation of the actual impact to the Owner's Domestic Well(s) to determine whether the impacts are a result of the operation of the Plant wells and to assess the actual impact to the groundwater levels, if any.

   b. Upon the conclusion of the investigation, if Owner's Domestic Well(s) have experienced a reduction in groundwater access, Monolith will take action to protect the continued function and use of Owner's Domestic Well(s). Said protection may include:

      i. Deepening the existing Owner's Domestic Well(s) that are experiencing a reduction in groundwater access, or

      ii. Constructing a suitable secondary well to compensation for any groundwater access lost by the existing Owner's Domestic Well(s).

   c. Monolith will be solely responsible for all costs associated with implementing any protection action necessitated to protect the Owner's Domestic Well(s).

   d. Monolith will continuously engage in monitoring the groundwater levels throughout the area surrounding the Plant through the utilization of the Groundwater Model and additional data.

e. Monolith will continue to work with Lower Platte South Natural Resources District to evaluate hydrologic conditions in the area and refine the Groundwater Model.

f. Monolith agrees to incorporate this Agreement as a condition to any permits issued by the Lower Platte South

4. Term. The Term of the Agreement shall be for a period of ninety-nine (99) years or the cessation of the Plant's operations, whichever comes first.

5. Sale, Assignment, or Transfer. This Agreement shall be binding upon the heirs, executors, administrators, successors, or assigns of the Owner and of Monolith.

6. Notice. All notices, requests, and other communications provided for or permitted under this Agreement shall be in writing and shall be (a) personally delivered, (b) sent by first class United States mail, or (c) transmitted by e-mail, in each case addressed to the party to whom notice is being given as its mailing or e-mail address as set forth below:

   a. If to Monolith: [contact information]
   b. If to Owner: [contact information]

7. Entire Agreement. This Agreement constitutes the entire agreement among the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, among the Parties with respect to the subject matter of this Agreement.

8. Governing Law. The validity, interpretation, and performance of this Agreement and each of its provisions shall be governed by the laws of the state of Nebraska.

9. Venue. The Parties agree that any action arising out of or related to this Agreement brought by the Owner against Monolith shall be brought only in the federal or state courts in and for the State of Nebraska

10. Waiver. The waiver of one breach of any term, condition, covenant, obligation, or provision of this Agreement shall not be considered to be a waiver of that or any other term, condition, covenant, obligation, or provision or of any subsequent breach thereof.

11. Severability. If any provision of this Agreement or any portion of such provision or the application thereof to any person or circumstance is held invalid, the remainder of the Agreement (or the remainder of such provision) and the application thereof to other persons or circumstances shall not be affected thereby.

Signature Page to Follow

MONOLITH MATERIALS **OWNER**

By:_____ _____

Title:_____ _____

Date:_____ Date:_____

STATE OF NEBRASKA)
) ss.
COUNTY OF _____)

Before me, a notary public qualified in said county, personally came _____ _____, _____, of Monolith, a corporation, known to me to be the officer and identical person who signed the foregoing instrument, and acknowledged the execution thereof to be his voluntary act and deed as such officer and the voluntary act and deed of said corporation.

Witness my hand and notarial seal on _____, 20___.

_____

Notary Public

STATE OF NEBRASKA)
) ss.
COUNTY OF _____)

Before me, a notary public qualified in said county, personally came _____, and _____ of _____ _____, known to me to be the identical person(s) who signed the foregoing instrument and acknowledged the execution to be their voluntary act and deed.

Witness my hand and notarial seal on _____, 20___.

_____

Notary Public

WATER PROTECTION AGREEMENT – IRRIGATION WELL USERS

This Water Protection Agreement – Irrigation Well Users (hereinafter the "Agreement") is made and entered into this ____ day of _____, 20_____ ("Effective Date"), by and between Monolith Materials, a Nebraska corporation, its successors and assigns (hereinafter "Monolith") and _____, the owner of the irrigation well(s) located on the real property described herein, its successors and assigns (hereinafter the "Owner") (each individually a "Party" and collectively the "Parties").

WHEREAS, Monolith owns and is developing a manufacturing plant near Hallam, Nebraska (hereinafter the "Plant"); and

WHEREAS, the daily operation of the Plant requires an adequate groundwater supply and Monolith will construct three (3) wells adjacent to the Plant to be operated throughout the each year of the Plant's operation; and

WHEREAS, the Owner owns the irrigation well(s) located on the real property as described within this Agreement; and

WHEREAS, Monolith has hired engineering firm Olsson and Associates to develop a groundwater model (hereinafter, the "Groundwater Model"), designed to evaluate the potential groundwater impacts to the area surrounding the Plant, which is based on expected normal Plant operations that result in the use of 400 million gallons of water per year; and

WHEREAS, said Groundwater Model indicates that the operation of Monolith's wells may cause impacts to the groundwater resources in the vicinity of the Plant thereby reducing the amount of groundwater available to the irrigation well(s) of the Owner; and

WHEREAS, the Groundwater Model has determined the impacts to the Owner to be a groundwater drawdown of less than ____ feet after fifty years of operation; and

WHEREAS, Monolith is committed to protecting the groundwater resources that supply all existing wells within the vicinity of the Plant and as such desires to establish a protection plan for the benefit of the irrigation well(s) of the Owner that could be impacted by Monolith's operation of its wells;

NOW, THEREFORE, in consideration of the foregoing conditions, the Parties agree as follows:

1. Owner's Irrigation Wells. The Owner owns the following described property located in Lancaster County, Nebraska: [legal] (the "Owner's Property"). Owner owns the following irrigation well(s) which are located on the Owner's Property:

[well registration numbers] (the "Owner's Irrigation Well(s)")

2. Owner's Obligations.

   a. The Owner represents that all registered water well(s) used for irrigation purposes are listed in Section 1 above.

   b. The Owner hereby agrees to notify Monolith upon experiencing any reduced accessibility to the groundwater that supplies Owner's Irrigation Well(s). Such notice shall be provided as soon as possible.

   c. The Owner hereby grants to Monolith, its employees, officers, agents, consultants, and representatives, the right of ingress and egress to the Owner's Irrigation Well(s) during the term of this Agreement, and the authority to enter upon the Owner's Property where the Owner's Irrigation Well(s) are located, at a mutually agreed upon time, without any further permission necessary or notice given, for the purpose of consulting with the Owner, inspecting the Owner's Irrigation Well(s), or any other purpose necessary to ensure the provisions of this Agreement are fully complied with.

3. Monolith's Obligations.

   a. In the event that the Owner notifies Monolith of reduced accessibility to the groundwater that supplies Owner's Irrigation Well(s), Monolith will engage in an investigation of the actual impact to the Owner's Irrigation Well(s) to determine whether the impacts are a result of the operation of the Plant wells and to assess the actual impact to the groundwater levels, if any.

   b. Upon the conclusion of the investigation, if Owner's Irrigation Well(s) have experienced a reduction in groundwater access, Monolith will take action to protect the continued function and use of Owner's Irrigation Well(s). Said protection may include:

      i. Deepening the existing Owner's Irrigation Well(s) that are experiencing a reduction in groundwater access, or

      ii. Constructing a suitable secondary well to compensation for any groundwater access lost by the existing Owner's Irrigation Well(s).

   c. Monolith will be solely responsible for all costs associated with implementing any protection action necessitated to protect the Owner's Irrigation Well(s).

   d. Monolith will continuously engage in monitoring the groundwater levels throughout the area surrounding the Plant through the utilization of the Groundwater Model and additional data.

e. Monolith will continue to work with Lower Platte South Natural Resources District to evaluate hydrologic conditions in the area and refine the Groundwater Model.

f. Monolith agrees to incorporate this Agreement as a condition to any permits issued by the Lower Platte South

4. Term. The Term of the Agreement shall be for a period of ninety-nine (99) years or the cessation of the Plant's operations, whichever comes first.

5. Sale, Assignment, or Transfer. This Agreement shall be binding upon the heirs, executors, administrators, successors, or assigns of the Owner and of Monolith.

6. Notice. All notices, requests, and other communications provided for or permitted under this Agreement shall be in writing and shall be (a) personally delivered, (b) sent by first class United States mail, or (c) transmitted by e-mail, in each case addressed to the party to whom notice is being given as its mailing or e-mail address as set forth below:

   a. If to Monolith: [contact information]
   b. If to Owner: [contact information]

7. Entire Agreement. This Agreement constitutes the entire agreement among the Parties with reference to the subject matter hereof, and supersedes all prior and contemporaneous understandings or agreements, oral or written, among the Parties with respect to the subject matter of this Agreement.

8. Governing Law. The validity, interpretation, and performance of this Agreement and each of its provisions shall be governed by the laws of the state of Nebraska.

9. Venue. The Parties agree that any action arising out of or related to this Agreement brought by the Owner against Monolith shall be brought only in the federal or state courts in and for the State of Nebraska.

10. Waiver. The waiver of one breach of any term, condition, covenant, obligation, or provision of this Agreement shall not be considered to be a waiver of that or any other term, condition, covenant, obligation, or provision or of any subsequent breach thereof.

11. Severability. If any provision of this Agreement or any portion of such provision or the application thereof to any person or circumstance is held invalid, the remainder of the Agreement (or the remainder of such provision) and the application thereof to other persons or circumstances shall not be affected thereby.

Signature Page to Follow

MONOLITH MATERIALS **OWNER**

By:_____ _____

Title:_____ _____

Date:_____ Date:_____

STATE OF NEBRASKA)
) ss.
COUNTY OF _____)

Before me, a notary public qualified in said county, personally came _____ _____, _____, of Monolith, a corporation, known to me to be the officer and identical person who signed the foregoing instrument, and acknowledged the execution thereof to be his voluntary act and deed as such officer and the voluntary act and deed of said corporation.

Witness my hand and notarial seal on _____, 20___.

_____

Notary Public

STATE OF NEBRASKA)
) ss.
COUNTY OF _____)

Before me, a notary public qualified in said county, personally came _____, and _____ of _____ _____, known to me to be the identical person(s) who signed the foregoing instrument and acknowledged the execution to be their voluntary act and deed.

Witness my hand and notarial seal on _____, 20___.

_____

Notary Public

CONNECTING WATER TO LIFE

Memorandum

To:	Dick Ehrman and Dan Schulz - LPSNRD
From:	Clinton Meyer, Jacob Bauer - LRE Water
Reviewed by:	Dave Hume - LRE Water
Date:	5/14/21
Project:	Monolith Wells and Pumping Evaluation
Subject:	LRE Water Summary and Response to Olsson's Monolith Hydrogeologic Analysis Report Addendum (Final) and Additional Requested Model Runs

INTRODUCTION

The purpose of this memorandum is to provide the Lower Platte South Natural Resources District (LPSNRD) with LRE Water's (LRE) review of Olsson, Inc.'s (Olsson) Monolith Hydrogeologic Analysis Report Addendum (final Addendum) that was submitted to LPSNRD on April 28, 2021 on behalf of Monolith Materials (Monolith) and in support of Monolith's application for new water supply wells.

The final Addendum was prepared by Olsson following LRE and LPSNRD's review of Olsson's draft Addendum submitted to LPSND on April 2, 2021. The draft Addendum was prepared in response to requests for additional information following review of Olsson's December 2020 Hydrogeologic Analysis Report (Report), and a follow up meeting between with LPSNRD staff, Monolith, Olsson and LRE on April 12, 2021. Following this meeting, Olsson provided the model files that were reviewed by LRE.

COMMENTS ON ADDITIONAL MODEL RUNS

The final Addendum addresses final requests and describes Olsson's additional groundwater model runs that focus on the following, which are referenced herein and defined as follows:

- **Future Scenario A: Three-Well Moderate Demand -** Pumping demand is distributed across three wells at 320 million gallons per year (MGY) or 609 gallons per minute (gpm) each rather than one well as discussed in Olsson's Report.
    - This scenario captures the potential drawdown within the CPA aquifer. It is reasonable to expect that the maximum drawdown of the aquifer in the wells

and immediate area of the Monolith facility would decrease if the pumping was distributed spatially in three wells.

- **Future Scenario B: Three-Well High Demand -** Pumping demand is supported using three wells pumping at a combined rate of 762 gpm rather than one well, which supports a potential increase in the total pumping rate due to changes in planned operations at Monolith to 400 MGY.

    - This scenario also captures the potential drawdown within the CPA aquifer. It is reasonable to expect that the maximum drawdown of the aquifer in the wells and immediate area of the Monolith facility would decrease if the pumping was distributed spatially in three wells rather than one.

    - This run shows a minor increase in drawdown further away from the Monolith wells compared to the Original Future Demand run and Scenario A.

- **Future Scenario C: Peak Demand** - Pumping demand is set to 1,200 gpm for a short period during the summer using one well, and was summated by running this on top of the Original Future Demand model in the Olsson's Report.

    - This run represents what Monolith may need to pump (up to 1,200 gpm) during a particularly hot summer. This scenario was represented by using the Original Future Demand run and adding 6 months of pumping from one well at 1,200 gpm from April through August in the 14th year of the 50 year model.

    - Reviewing the interpretations for Scenario C it becomes apparent that any additional drawdowns from a short period of time pumping at 1200 gpm will eventually return to the original overall prediction of total drawdown within 18 months. We agree with this interpretation and do not believe an additional 0.5 feet added to the 8.6 feet is significant.

CONCLUSIONS ON ADDITIONAL MODELING FINAL ADDENDUM

LRE reviewed the final Addendum, and for documentation purposes, we provide the following conclusions regarding Olsson's responses to LRE's recommendations and LPSNRD's Board of Director's motions to Olsson's Report:

1. LRE received output files for the three additional model runs listed above. The output files received were the MODFLOW "WEL" and "LST" files of each run. LRE reviewed these runs and compared them to the Original Future Demand run detailed in Olsson's Report. A summary of the runs are listed in Table 1. Based on our review of the input well pumping files, and the associated model output files, the model files were constructed properly and accurately represent the scenario run.

2. The requested sensitivity runs were completed by Olsson, and it is our opinion that the updated sensitivity runs incorporate a reasonable range of possible model parameters. In our opinion, further sensitivity runs are not required.

3. The explanation and directions provided by Olsson on the replication of future drawdown simulations are acceptable.

4. Olsson provides drawdown maps and drawdown versus time plots for Scenario A and Scenario B, and a difference drawdown over time graph for Scenario C.

5. In general, our opinion is that the additional model runs and information provided in the final Addendum capture the requests of the LPSNRD staff, LPSNRD Board of Directors, and LRE. The fact that the three-well models only have a constant pumping rate throughout the model time period as opposed to the variable rate based on predicted demand likely would not change the overall maximum drawdown after the 50 year period aside from some extremely local effects near Monolith's pumping well(s).

6. The additional information submitted regarding the upward gradient from the lower bedrock aquifers is sufficient and addresses the potential for large-scale changes in the upward gradient leading to regional issues in TDS values. Some small increases in TDS are a possibility in the immediate vicinity of the Monolith wells,

but these increases are unlikely to lead to regional issues. Monolith's groundwater monitoring plan will also be in place to monitor for possible changes in quality.

7. The monitoring and well interference protection plans described within Olsson's Addendum will provide protection to other water users and a reasonable level of aquifer monitoring to trigger and identify if drawdown from Monolith's pumping is exceeding threshold values. Upon implementation, the monitoring plan will track drawdown of Monolith's three-well pumping system over the next 50 years.

8. In LRE's opinion, the Report and Addendum addresses Monolith future water use on the CPA aquifer and accounts for the possible effects from climate change.

9. The final Addendum addresses all of LRE's original recommendations and questions.

LRE WATER
CONNECTING WATER TO LIFE

TABLE 1. SUMMARY OF MODEL RUNS PROVIDED

Model Run	Scenario/ Model Run Name	Average Monolith Pumping Rate For 50 Years (MGY)	Percent Difference in Pumping from Original Model Reviewed	Note on Pumping Rate	Number of Monolith Wells Pumping	Predicted Maximum Drawdown Produced by Olsson
1	Original Future Demand*	312.64	-	Each time step has variable Monolith pumping based off of what Olsson considered to be predicted demand peaking one month at 774 gpm	1	Olsson's Dec. 2020 Draft Hydrogeologic Analysis Report: 8.5 feet
2	Scenario A: Three-Well Moderate Demand	320	2.35%	Constant pumping at every time step divided into 3 wells (i.e., combined sustained rate = 609 gpm, or 203 gpm each)	3	Final Addendum: 6.8 feet
3	Scenario B: Three-Well High Demand	400	27.30%	Constant pumping at 762 gpm every time step divided into 3 wells (i.e., combined sustained rate = 762 gpm)	3	Final Addendum: 8.6 feet
4	Scenario C: Original Future Monolith with Peak Demand	315.54	0.93%	Each time step has variable Monolith pumping based off of what Olsson considered to be predicted demand with 6 months of pumping at 1,200 gpm starting in April of the 14th year of the 50 year simulation	1	~ 0.5 feet additional drawdown at the Hallam wells

* LRE also received a Calibration Model to the Olsson Future Monolith Prediction, but that is not discussed here.
MGY - Million gallons per year

LOWER PLATTE SOUTH
natural resources district

3125 Portia Street | P.O. Box 83581 • Lincoln, Nebraska 68501-3581
P: 402.476.2729 • F: 402.476.6454 | www.lpsnrd.org

Memorandum

Date: May 12, 2021

To: Water Resources Subcommittee

From: Tracy Zayac, Stormwater/Watershed Specialist

RE: Weeping Water 15-B irrigation agreement amendment

The District signed an agreement with Lori B. and Jerome Dworak on January 5, 1993, to irrigate with water from Weeping Water 15-B reservoir. The District currently holds a permit from the Department of Natural Resources to store water in the reservoir, A-17098, and permit A-17206 to authorize this irrigation, which is limited to a maximum of 30.7 acre-feet per year for use on 43.41 acres, which are shown in blue on the attached map.

The Dworaks intend to change both their method of irrigation (to a center pivot system) and the location of some of the acres being irrigated with reservoir water. The proposed location of the center pivot and the acres that would be irrigated after the change (a total of 43.09 acres) are shown in pink on the attached map. A portion of the acres in the NE¼NE¼ of Section 32 are currently owned by Stuart T. and Lavera Y. Schlichtemeier, Trustees; the Dworaks have an interest in this trust.

To make these changes, the District will need to take the following actions:

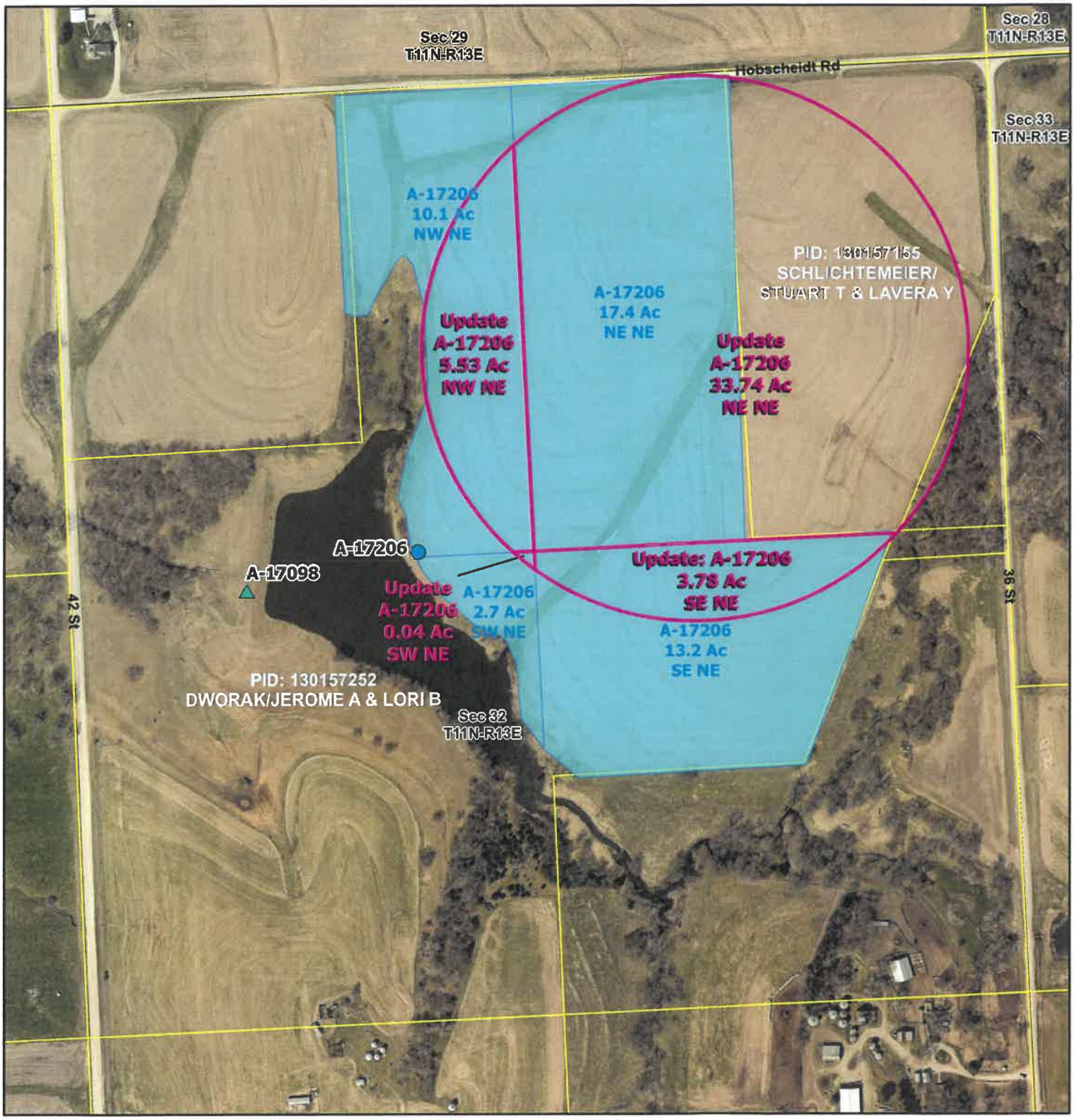
1. Amend the existing irrigation agreement with the Dworaks to reflect the new location of acres and the change in the method of irrigation. No other provisions of the existing agreement will change. The District and the Dworaks will need to sign this amendment, which is attached.

2. File an application for a transfer of the location of water use with the Department of Natural Resources. The District and the Dworaks, as well as a representative of the Schlichtemeier trust, will need to sign the application form, which is attached.

Staff recommended motion: Recommend the Board of Directors approve the amendment to the existing irrigation agreement with Lori and Jerome Dworak for irrigation with water from Weeping Water 15-B reservoir, and direct staff to work with the Department of Natural Resources to make the necessary changes to permit A-17206.

3 attachments

Weeping Water 15-B Irrigation Agreement
NE Sec 32, T11N-R13E



Points of Diversion
- Water Storage
- Irrigation from Reservoir

Surface Water Right Boundaries
- Irrigation from Reservoir
- SW Irrigation Proposed Update

Map By: Lower Platte South NRD - May 2021

AMENDMENT TO

IRRIGATION AGREEMENT

THIS AMENDMENT is made and entered into this _____ day of _____, 2021, by and between the LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT ("District") and Lori B. and Jerome Dworak, husband and wife (the "Landowners"), hereinafter collectively referred to as the "Parties".

WITNESSETH:

RECITALS

A. Landowners are the owners of portions of the NE¼ of Section 32, Township 11 North, Range 13 East of the 6th P.M., Cass County, Nebraska (the "Property"), shown on the attached Exhibit A; and

B. The District has constructed a flood-control structure, Weeping Water Reservoir 15-B, upon a portion of Property, which permanently impounds water and sediment from a tributary to Weeping Water Creek in a reservoir ("Reservoir"); and

C. Landowners currently withdraw water from Reservoir for irrigation of the lands shown in Exhibit A under an irrigation agreement ("Agreement") with the District, entered into on January 5, 1993, and attached as Exhibit B; and

D. Landowners desire to change the location and method of irrigation of some of the acres irrigated on the Property to a center pivot irrigation system which will include acres shown on Exhibit C, a portion of which is currently owned by Stuart T and Lavera Y Schlichtemeier, Trustees; and

E. District intends to apply for a transfer of irrigated acres ("Transfer") from the Nebraska Department of Natural Resources (the "Department") to allow for the use of storage water from the Reservoir for irrigation purposes on the acres shown on Exhibit C; and

F. The Parties desire to amend the existing Agreement to reflect a change of the location of a portion of the Landowners' existing irrigated acres and the method of irrigation to a center pivot system.

NOW, THEREFORE, in consideration of the above Recitals and the mutual promises and covenants contained herein, the Parties agree as follows:

1. The District agrees to apply for a Transfer from the Department to allow the District to make storage water available to Landowners, for irrigation purposes only, in an

amount not to exceed 30.7 acre-feet of water from Reservoir, subject to the following terms and conditions.

2. The District will use its best efforts to apply for and obtain a Transfer from the Department. Nothing in this Amendment or in the original Agreement shall be considered as a guarantee that the Department will grant said Transfer to the District.

3. Landowners agree to pay all costs incurred by the District in applying for and obtaining the Transfer. Landowners further agree to assist the District in obtaining the Transfer, including providing any information requested by the District or the Department for the purpose of obtaining the Transfer.

4. All other terms, conditions, and provisions of the Agreement, except for the changes provided herein, shall remain in full force and effect. No other changes are made to the Agreement with this Amendment.

IN WITNESS WHEREOF, the Parties have executed this Amendment the date and year last above written.

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT
3125 Portia Street
P.O. Box 83581
Lincoln, NE 68501-3581
(402) 472-2729

BY: _____
Paul D. Zillig, General Manager

STATE OF NEBRASKA)
) SS
COUNTY OF LANCASTER)

I hereby certify that the foregoing Amendment was signed in my presence and sworn to before me this ____ day of _____, 2021.

_____
Notary Public

LANDOWNERS
Lori B. and Jerome Dworak
3400 S Habitat Lane
Boise, ID 83706
(208) 344-6747
lbdworak@aol.com

_____ _____

Lori B. Dworak Jerome Dworak

STATE OF IDAHO)
) SS
COUNTY OF _____)

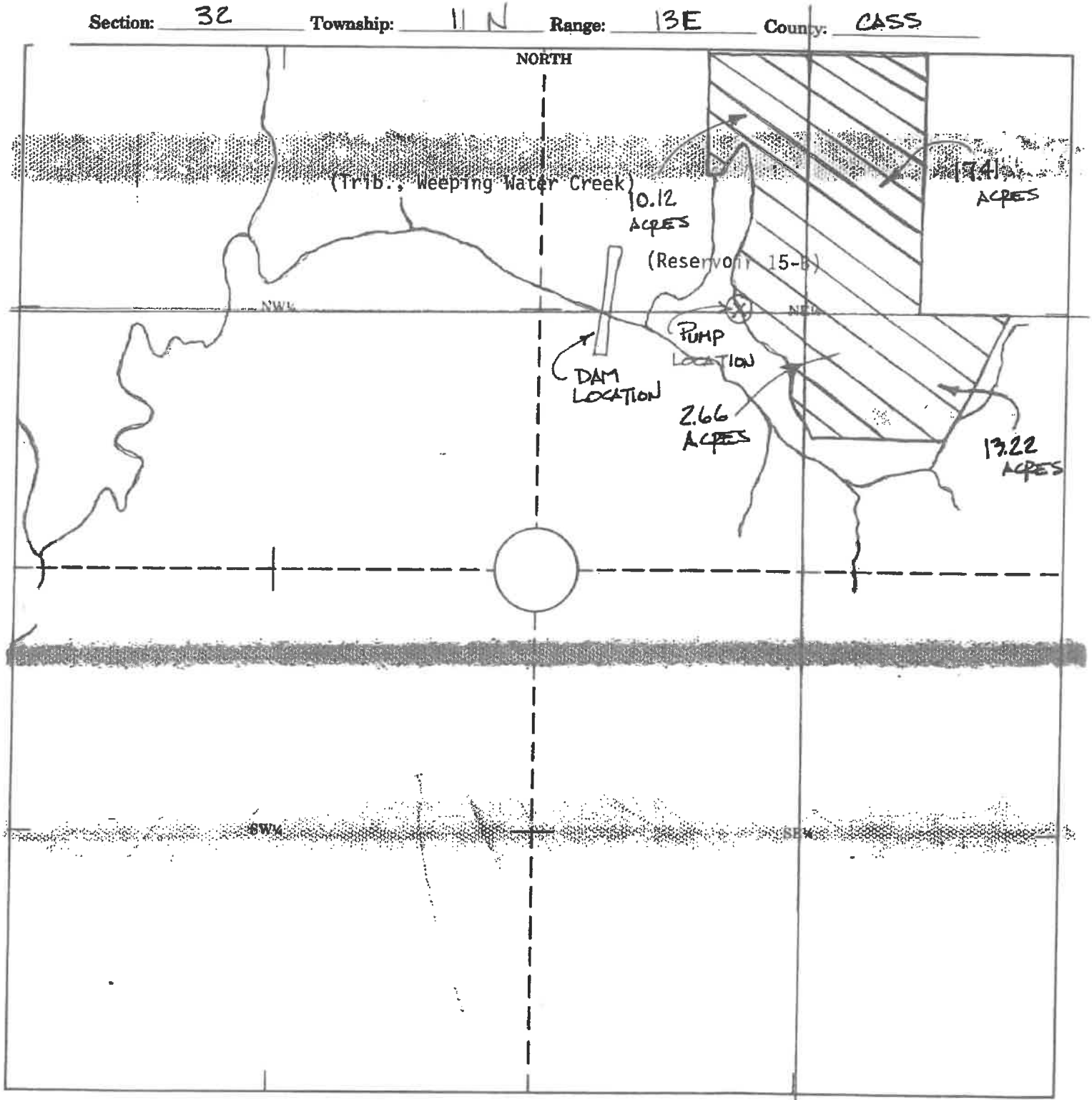
I hereby certify that the foregoing Amendment was signed in my presence and sworn to before me this ____ day of _____, 2021.

_____
Notary Public

Exhibit A

STATE OF NEBRASKA
DEPARTMENT OF WATER RESOURCES

Section: 32 Township: 11 N Range: 13E County: CASS



I certify that this map, consisting of 1 page(s), accurately represents A-17286
AREAS OF IRRIGATION FOR PROPOSED WATER APPROPRIATION

Date: 7-2-92 (Signature)

FOR DEPARTMENT USE ONLY

Map No. 14956
Date Filed: July 7, 1992

Approved by Order Dated:

IRRIGATION AGREEMENT

THIS AGREEMENT made and entered into this 5th day of January, 1993, by and between LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT, a political subdivision of the State of Nebraska, with its principal office located at 3125 Portia, Post Office Box 83581, Lincoln, Nebraska, 68501, hereinafter referred to as the "District" and Lori B. & Jerome Dworak of 15317 HICKORY Omaha, NE 68144, hereinafter referred to as the "Landowner."

WITNESSETH;

RECITALS:

A. Landowner owns the following described real estate, to wit: The portions of the NE1/4 of Section 32, Township 11, North, Range 13, East of the 6th P.M., Cass County, Nebraska, hereinafter referred to as the "Property."

B. Landowner has granted District an easement over a portion of the Property for the purpose of constructing, operating, maintaining, repairing and inspecting a flood water retarding structure (the "Structure"), which contains a reservoir for the storage of water.

C. Landowner has requested District to contract with Landowner for the purpose of making storage water from the reservoir available to Landowner for the watering of lands for agricultural purposes, hereafter referred to as "irrigation".

D. District desires to contract with Landowner to make storage water from the reservoir available to Landowner for irrigation, under the terms and conditions hereafter set forth.

NOW, THEREFORE, IN CONSIDERATION OF THE ABOVE RECITALS AND THE MUTUAL PROMISES AND COVENANTS CONTAINED HEREIN, THE PARTIES AGREE AS FOLLOWS:

1. District agrees that Landowner may have the privilege to withdraw and utilize storage water from the reservoir for irrigation only, pursuant to the terms and conditions hereafter set forth.

2. Landowner shall not withdraw or utilize storage water from the reservoir until the necessary storage and use permits have been obtained by the District from the Nebraska Department of Water Resources.

3. Landowner shall not withdraw or utilize water from storage if the water level in the reservoir is more than 6.8 feet below riser elevation 1138.8.

4. If more than one Landowner has granted the District an easement or easements for the construction, operation, maintenance, repair and inspection of the Structure, and more than one Landowner has obtained an agreement from the District to use water stored in the reservoir for irrigation, then whatever water that is available for irrigation from the reservoir shall be equitable allocated among the Landowners, on a pro rata basis, by the District determining the percentage that the number of acres of permanent storage over each Landowner's land bears to the total number of acres of permanent storage in the entire reservoir. If any Landowner uses more than his or her proportionate share which has been allocated by him or her by the District, then the District may, in its sole discretion, summarily suspend such Landowner's privilege to use water from storage fro such period or periods of time as the District in its sole discretion deems appropriate.

5. This Agreement is subject to the laws governing appropriations including rights of prior appropriation, preferences, and administrative rules, regulations or orders of the Department of Water Resources pertaining thereto.

6. Landowner acknowledges and understands that the District is not contracting to deliver water to Landowner for irrigation, but merely granting Landowner the privilege of using such water pursuant to the terms and conditions of this Agreement.

7. The District agrees to make application to the Department of Water Resources for a permit or permits to store water in and use water from the Reservoir.

8. Landowner agrees to assist the District in obtaining the necessary permit or permits for irrigation, and further agrees to provide the District with any information that the District deems necessary for the purpose of obtaining such permit or permits.

9. The parties agree that this Agreement is subject to the provisions of any prior agreements or amendments thereto entered into between the District, the United States Department of Agriculture, Soil Conservation Service, the Department of Water Resources, including easements granted to the District by the Landowner. Any provisions in the foregoing agreements which conflict with or are contrary to the provisions of this Agreement, shall control.

10. Landowner may not assign this Agreement without the prior express written consent of the District, which will not be unreasonably withheld.

11. Landowner acknowledges and understands that sediment will gradually accumulate in the reservoir thereby diminishing the amount of water available for irrigation.

12. Landowner shall furnish at his or her own cost and expense the appropriate and necessary equipment to withdraw water from the reservoir for irrigation. Landowner agrees that he or she shall not utilize any means or devices to withdraw such water which will penetrate or breach in any manner the dam structure itself.

13. Landowner agrees to enter into a cooperative agreement with the District for soil and water conservation measures on the land which he or she proposes to irrigate with water from the reservoir, and further agrees to establish and implement such conservation practices which the District in its sole discretion deems appropriate.

14. Landowner acknowledges and understands that if he or she fails to utilize the water provided for herein for more than three consecutive years, that the District may be subject to proceedings by the Nebraska Department of Water Resources to cancel the District's right to use such storage water for irrigation.

15. Landowner agrees to abide by any terms and conditions imposed by the Department of Water Resources upon the District with respect to the utilization of water from storage in the reservoir for irrigation.

16. This Agreement, in the sole discretion of the District is subject to cancellation by the District for failure to comply with the terms and conditions of this Agreement, upon 30 days written notice to the Landowner at the above address.

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year last above written.

LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT, A political Subdivision of the State of Nebraska,

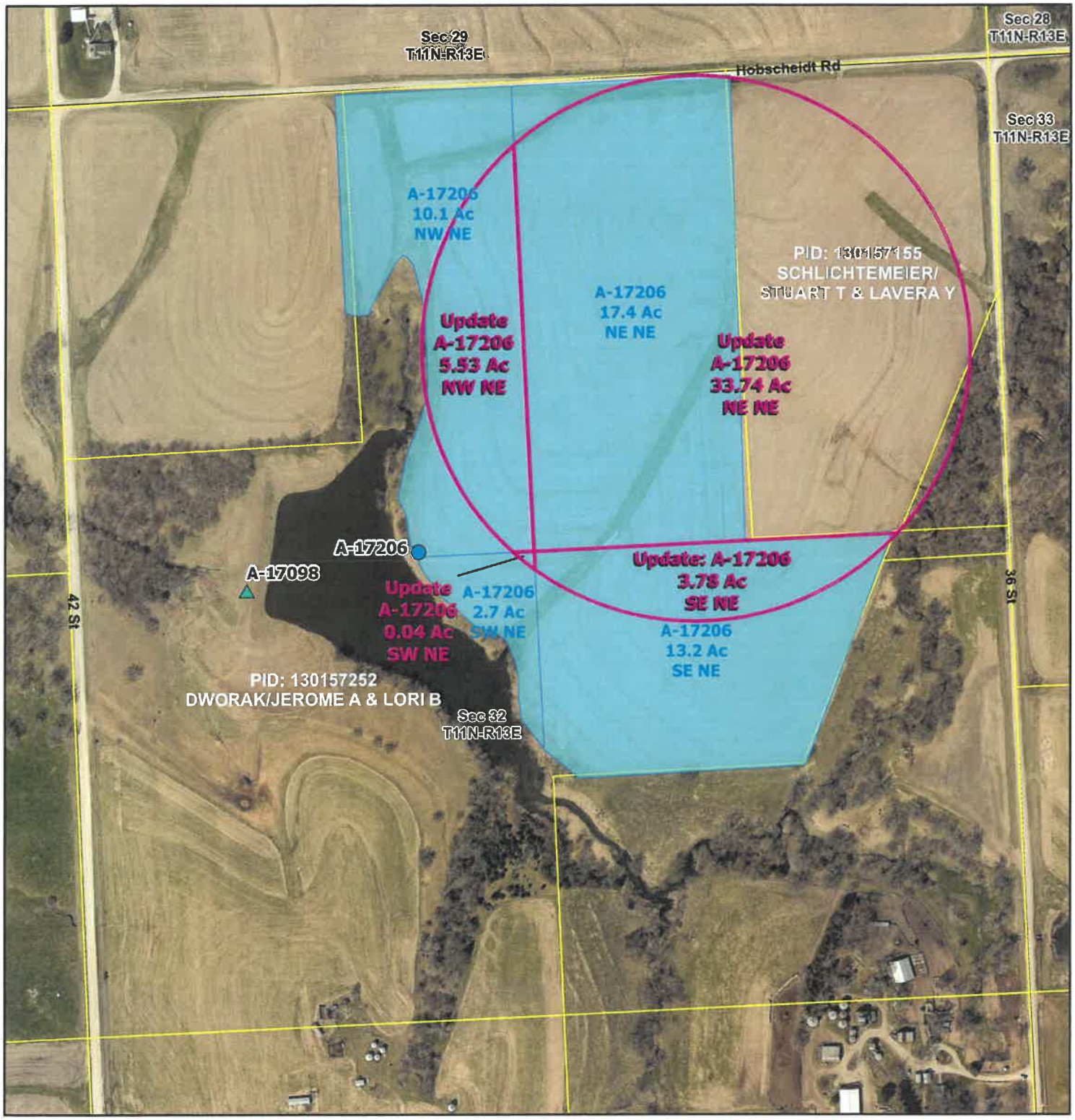
By _____
Glenn D. Johnson
General Manager

_____
Landowner

_____
Landowner

Exhibit C

Weeping Water 15-B Irrigation Agreement
NE Sec 32, T11N-R13E



Points of Diversion
- Water Storage
- Irrigation from Reservoir

Surface Water Right Boundaries
- Irrigation from Reservoir
- SW Irrigation Proposed Update

Map By: Lower Platte South NRD - May 2021

January 18, 2005
DNR Form 962-3

STATE OF NEBRASKA
DEPARTMENT OF NATURAL RESOURCES
APPLICATION FOR A PERMIT FOR AN EXPEDITED TRANSFER OF THE LOCATION OF USE

INSTRUCTIONS: See DNR Form 962-5

1. Name and address of appropriator of record:
Lower Platte South Natural Resources District
3125 Portia Street, PO Box 83581
Lincoln, NE
Zip Code 68501 Telephone Number (402) 476-2729
Cell Phone Number ( )
e-mail address: pzillig@lpsnrd.org

FOR DEPARTMENT USE ONLY
Filed in the office of the Department of Natural Resources
at _____ a.m./p.m.
on _____, 20 ____
Transfer No. _____
Map No. _____
Water Division _____
Receipt No. _____ Amount _____

2. Name and address of each mortgage holder or deed of trust holder for land now under permit:
(If more than one, please use DNR form 962-4)
see attached
Zip Code _____ Telephone Number ( ) _____
Cell Phone Number ( ) _____
e-mail address: _____

3. For individual water rights, the names, addresses and titles of tenants and other persons who should receive water administration notices during times of shortage concerning this appropriation. If the appropriator is not the landowner, the landowner must be listed here and must sign the application. (If more than one, please use DNR form 962-7.)
see attached
Zip Code _____ Telephone Number ( ) _____
Cell Phone Number ( ) _____
e-mail address: _____
Check one:
☐ Landowner ☐ Tenant ☐ Farm Manager ☐ Power of Attorney ☐ Other _____

4. List the water appropriation number that this application proposes to modify: A-17206

5.A. The present point of diversion is identified as follows:
☑ Pump ☐ Headgate of Reservoir 15B
NW ¼ NE ¼ Section 32 Township 11 North, Range 13 E ☑ W ☐ Cass County

B. This transfer will result in a change in the point of diversion ☐ Yes ☑ No

6. Amount of water requested to be transferred: Rate _____ Total Annual Volume 30.7 acre-feet

7. Are there other sources of water available at the original location of use? ☐ Yes ☑ No
If Yes, describe and state whether any provisions have been made to prevent the use of a new source or increased use from an existing source.

8. Legal description of land currently under permit*:

SEC.	TWP.	RANGE	NW¼				NE¼				SW¼				SE¼				TOTALS
			NW¼	NE¼	SW¼	SE¼	NW¼	NE¼	SW¼	SE¼	NW¼	NE¼	SW¼	SE¼	NW¼	NE¼	SW¼	SE¼	
32	11	13E					10.1	17.4	2.7	13.2									43.4
																			0.0
																			0.0
																			0.0
																			0.0
																			0.0

TOTAL: 43.4

*Additional sheets may be obtained from the Department.

9. Legal description of land where water will be used after proposed transfer*:

SEC.	TWP.	RANGE	NW¼				NE¼				SW¼				SE¼				TOTALS
			NW¼	NE¼	SW¼	SE¼	NW¼	NE¼	SW¼	SE¼	NW¼	NE¼	SW¼	SE¼	NW¼	NE¼	SW¼	SE¼	
32	11	13E					5.5	33.7	0.0	3.8									43.1
																			0.0
																			0.0
																			0.0
																			0.0
																			0.0

TOTAL: 43.1

*Additional sheets may be obtained from the Department.

10. For lands listed in 9 above, check all the boxes that apply:
- [x] All lands have been cultivated
- [ ] Some of the lands have been cultivated
- [ ] The lands contain no native grass
- [ ] None of the lands have been cultivated

11. All lands listed for paragraphs 8 and 9 are under the same ownership or within the same irrigation district, reclamation district, public power and irrigation district, or mutual irrigation or canal company? [ ] Yes [x] No

12. Describe historical water use of this appropriation for each of the last five years. If lands have been in a government program, information shall be given for last five years of use, and documentation of government programs shall be provided.

YEAR	ACRES IRRIGATED	MAXIMUM PUMPING RATE
2020	43.4	14.5 acre-feet
2019	0	0
2018	43.4	14.5 acre-feet
2017	43.4	14.5 acre-feet
2016	43.4	14.5 acre-feet

13. Current use permitted (check one):
- [x] Irrigation
- [ ] Irrigation and Incidental

14. This is a (check one):
- [x] Permanent Transfer
- [ ] Temporary Transfer

If Temporary Transfer, indicate proposed duration of transfer _____ Years

15. All facilities used are owned or operated by the applicant.
- [x] Yes
- [ ] No

If No, provide documentation that the owner or operator of the facilities agrees to transfer.

16. If the proposed transfer is for increasing the quantity of water available for use pursuant to another appropriation, what is the other water appropriation? n/a

17. I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete and accurate.

DATE: _____ SIGNATURE OF APPROPRIATOR OF RECORD

A non-refundable filing fee of $10 payable to the Department of Natural Resources must accompany this form. Mail to:

State of Nebraska
Department of Natural Resources
301 Centennial Mall South
P.O. Box 94676
Lincoln, Nebraska 68509
(402) 471-2363