MONOLITH HYDROGEOLOGIC ANALYSIS REPORT

Addendum

Prepared for:

Monolith Materials

Hallam, Nebraska

Prepared by:

Olsson, Inc.

Lincoln, Nebraska

April 2021

Olsson Project No. 020-2639

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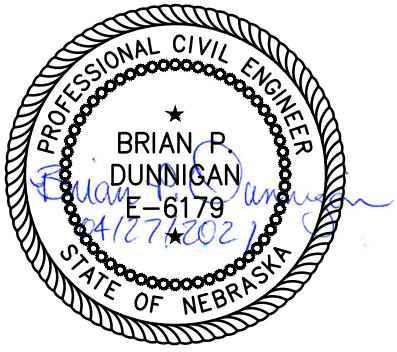


SUMMARY

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).

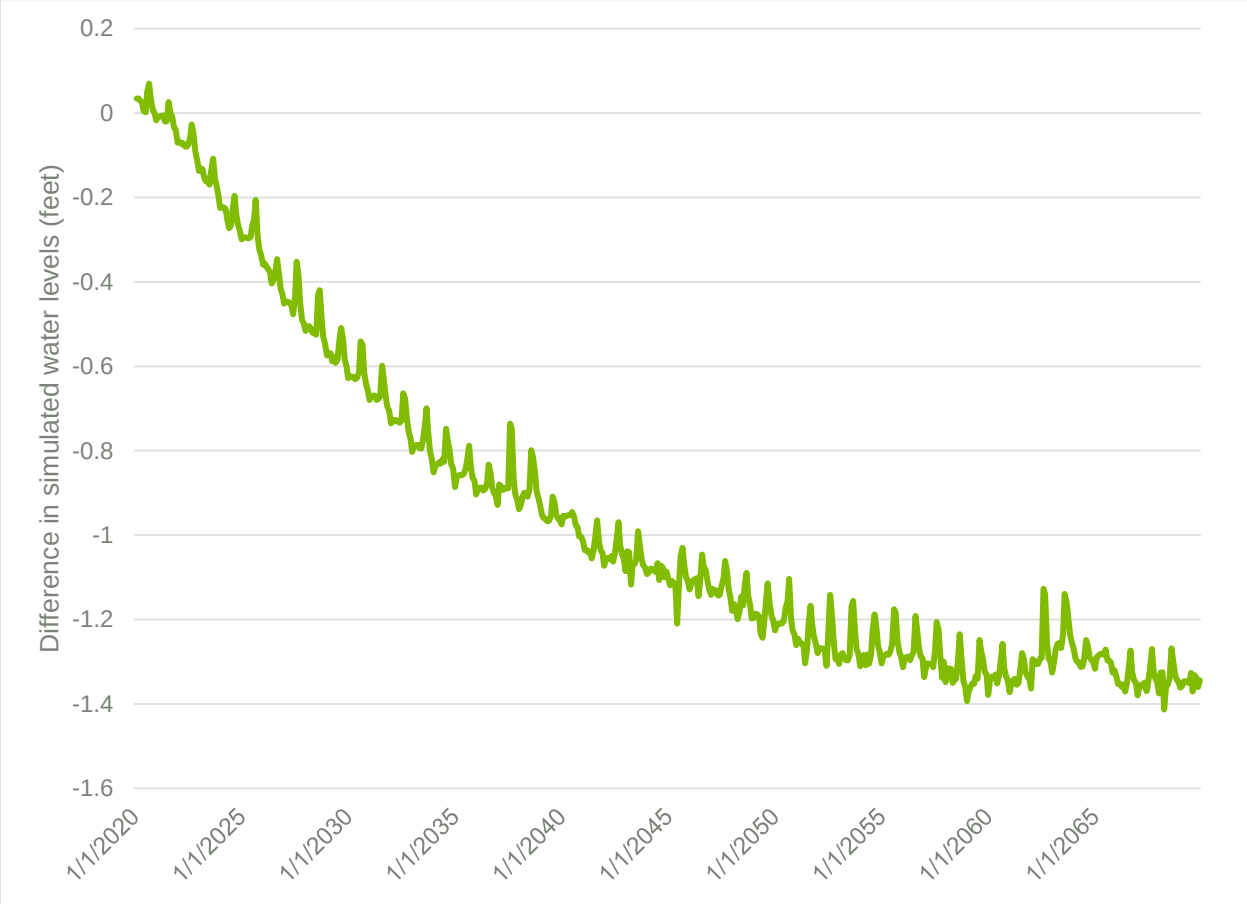


Figure 1 The difference in simulated water levels at well G-073007 (Hallam municipal well) when hydraulic conductivity in Layers 1 and 3 are reduced by a factor of 10.

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.

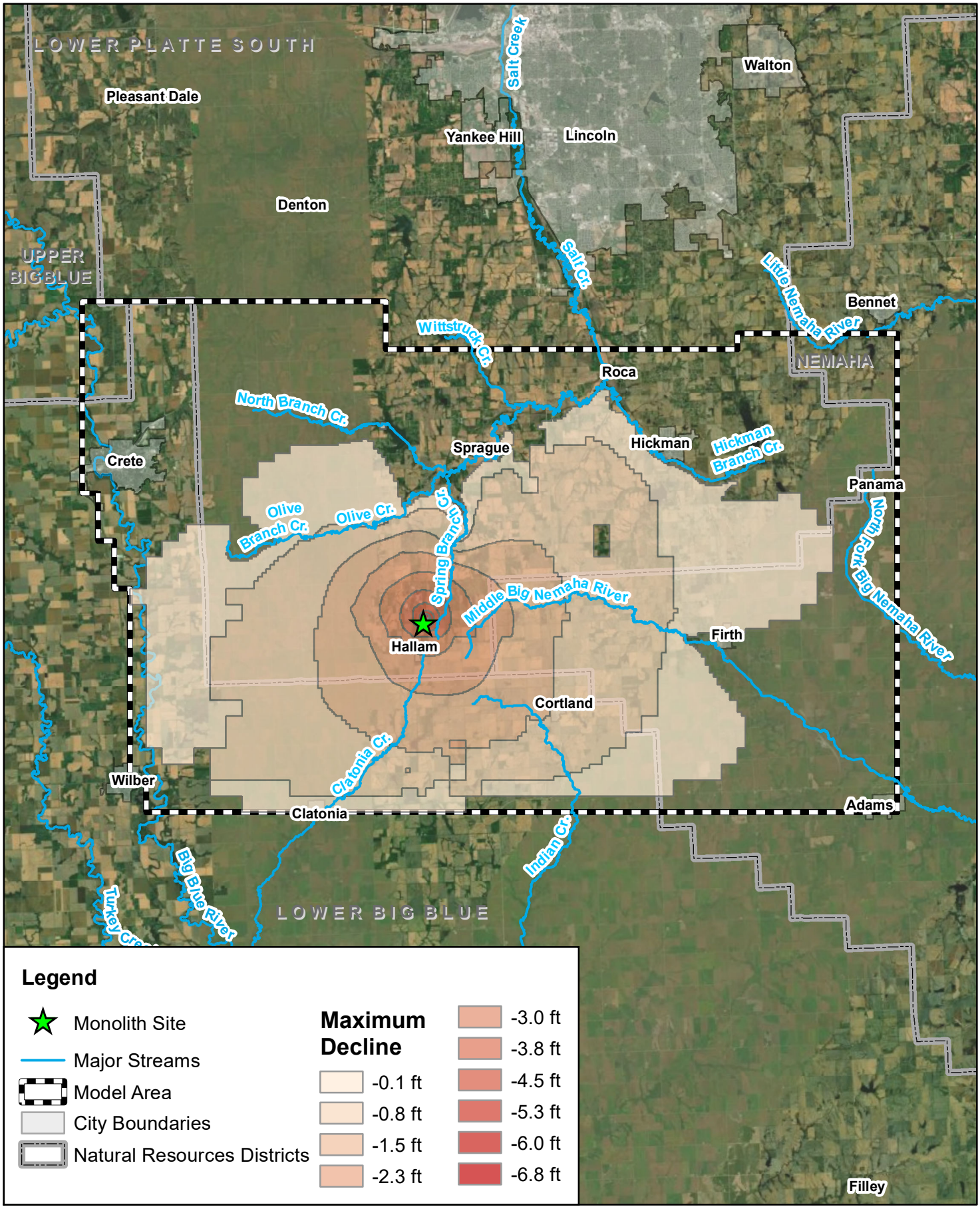
4.1 Future Scenario A

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

FIGURE

3

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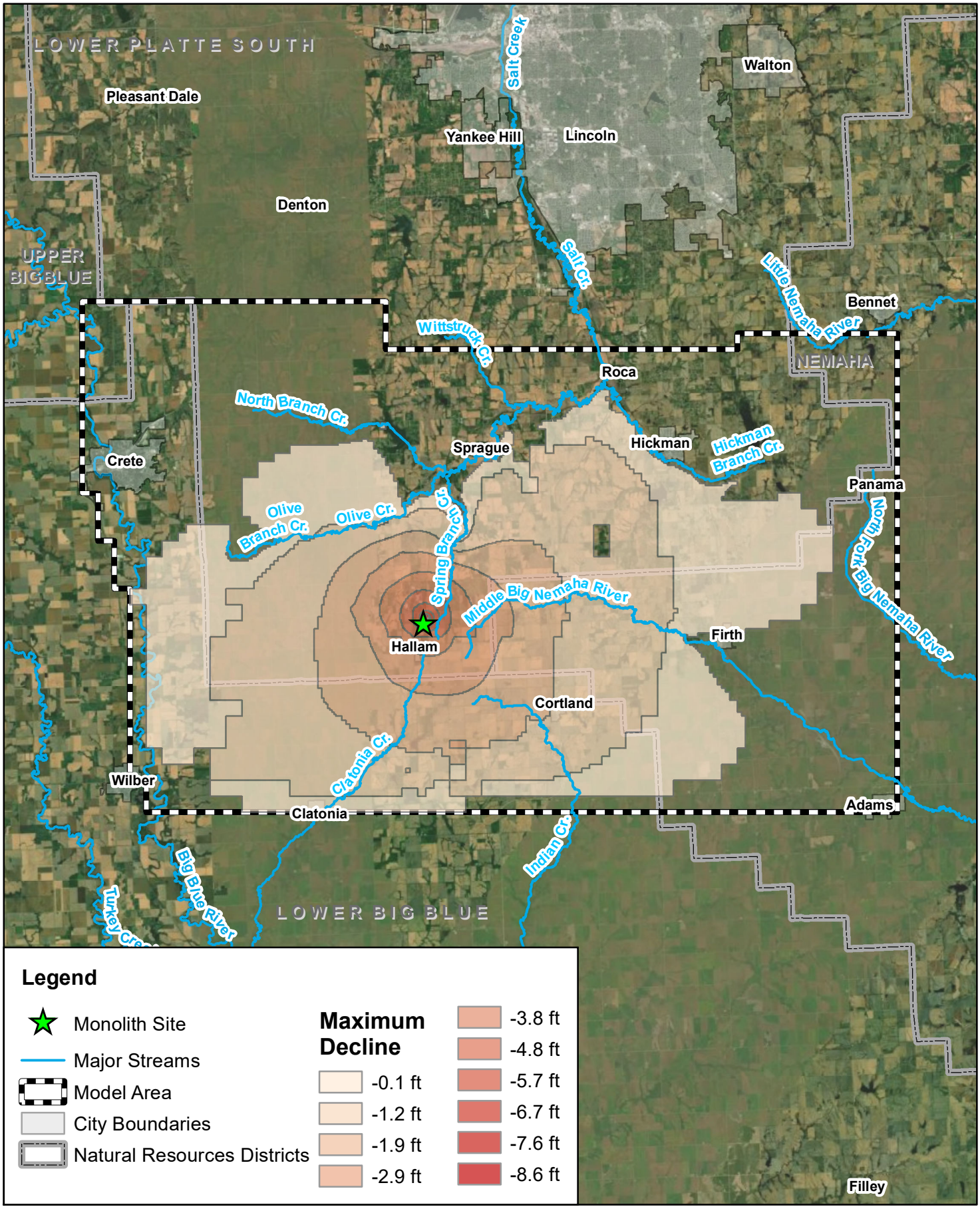

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NAD 1983 StatePlane Nebraska FIPS 2600 Feet

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

FIGURE

4

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.

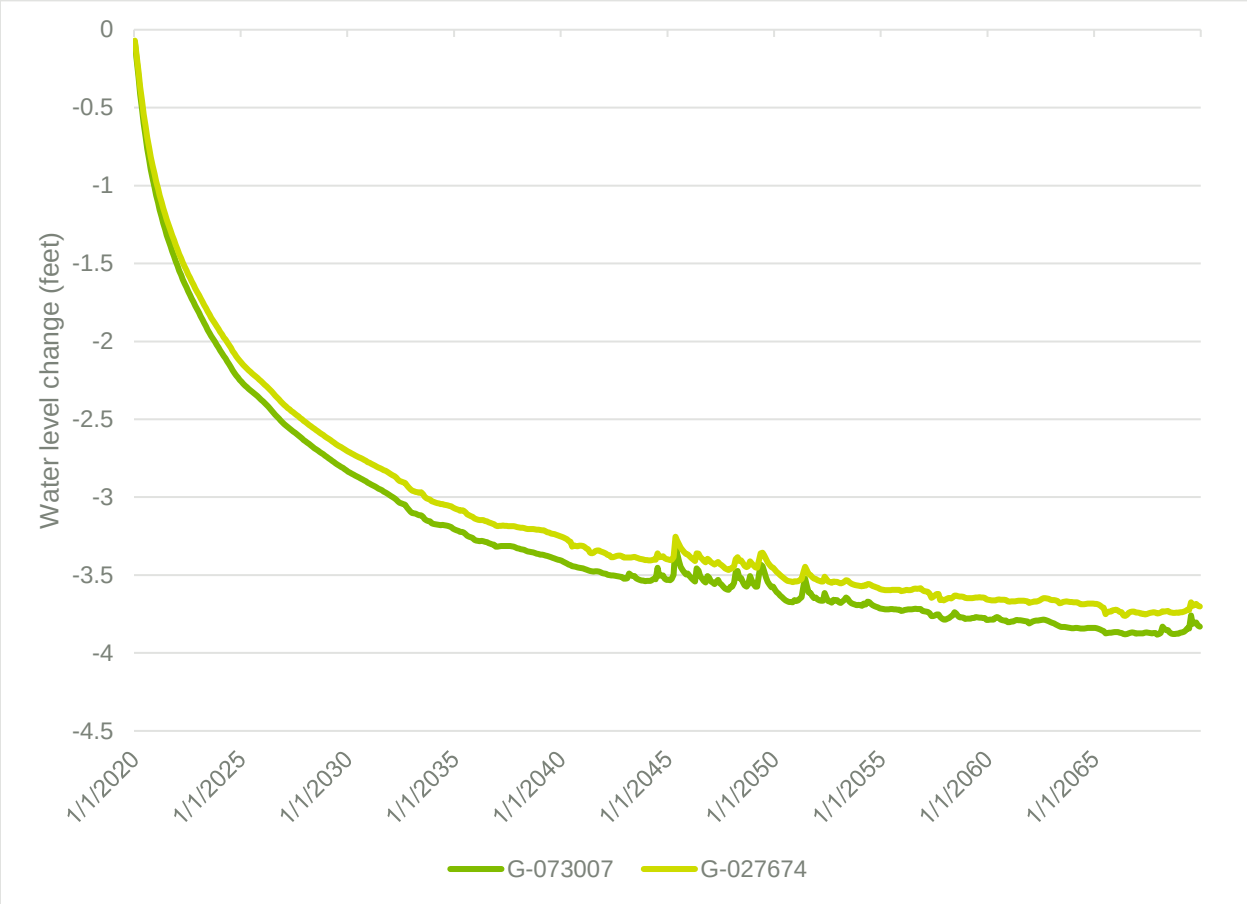

Figure 5 Predicted drawdown at Hallam's municipal wells after 50 years under Scenario B.

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.

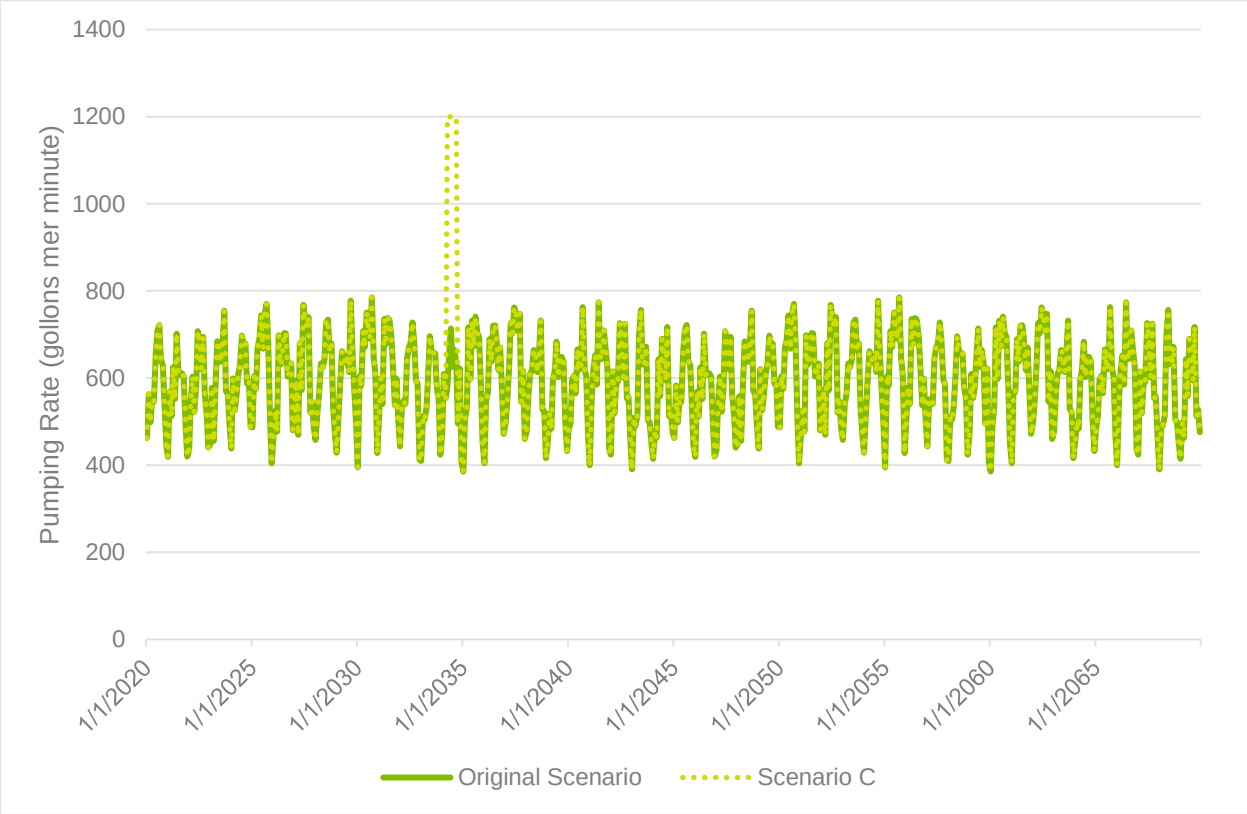

Figure 6 Pumping rate at the Monolith site in Scenario C overlaid on the pumping rate from the future scenario in the Report.

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).

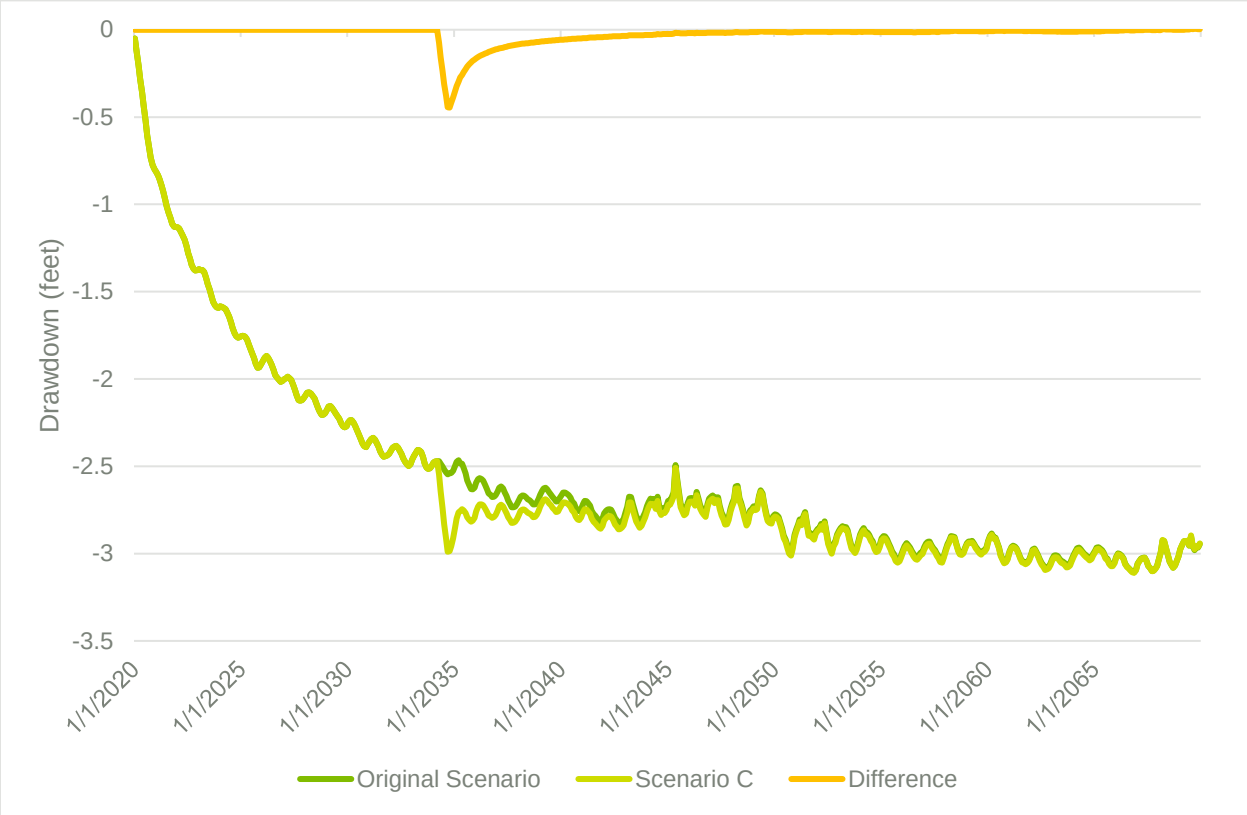

Figure 7 Drawdown in feet and the difference between the original future scenario and Scenario C at a Hallam municipal well.

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>

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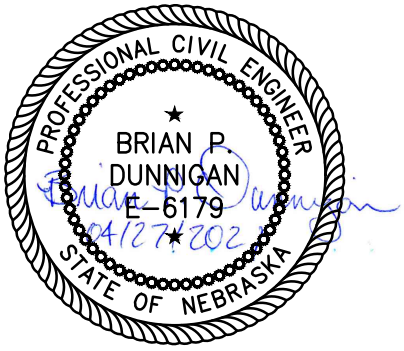

MONOLITH HYDROGEOLOGIC ANALYSIS REPORT - ADDENDUM

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

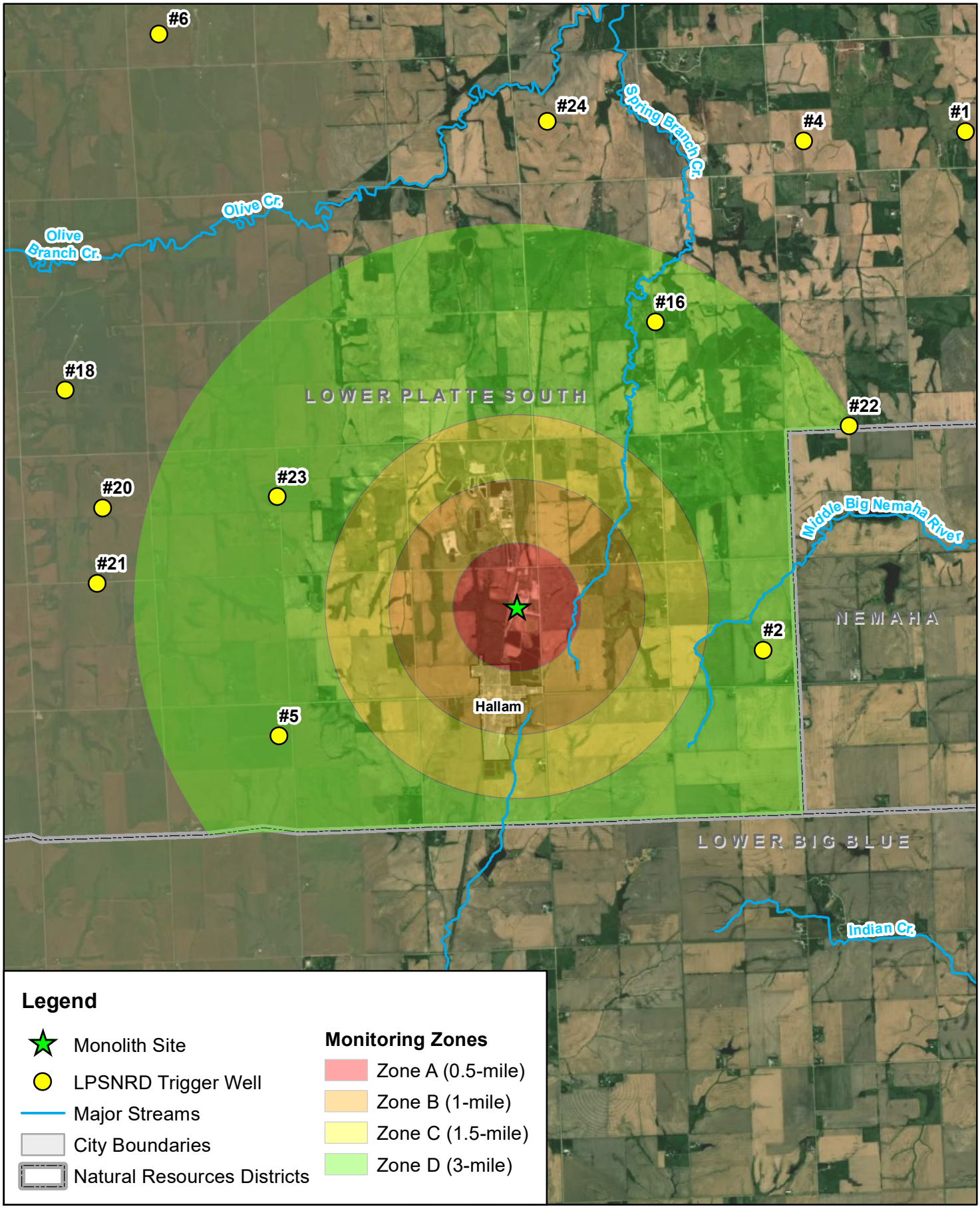
The purpose of this Groundwater Monitoring Plan (Plan) is to outline how Monolith Materials Inc. (Monolith) intends to monitor groundwater levels and water quality in a 3-mile radius of the Monolith site. This Plan proposes the addition of three monitoring wells within specified monitoring zones around 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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0 0.25 0.5 1 Miles

1 in = 1 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Recommended Monitoring Zones

Monolith OC2

Groundwater Monitoring Plan

Lancaster County, NE

FIGURE

1

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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

olsson®

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1. INTRODUCTION

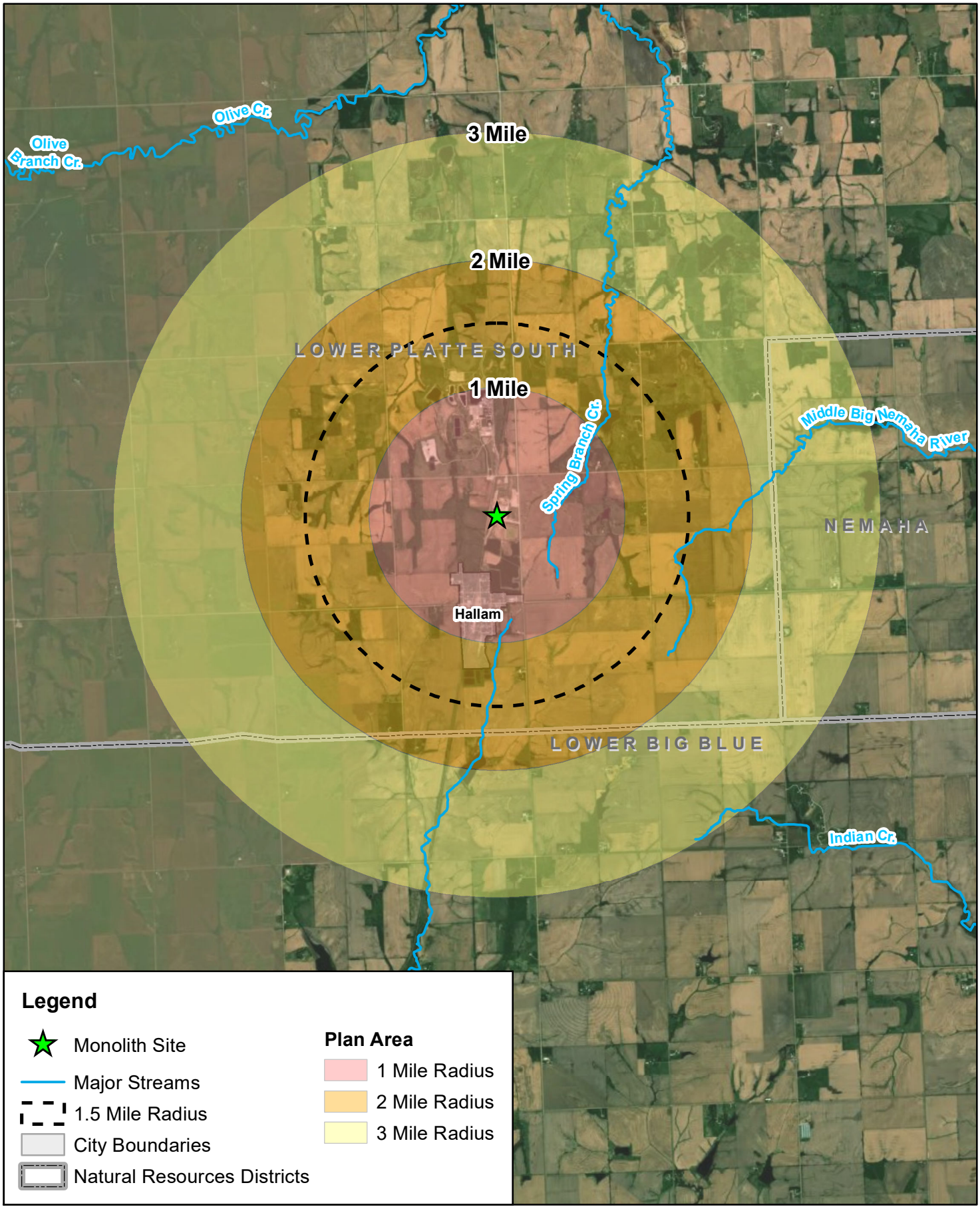
The purpose of this Groundwater Protection Plan (Plan) is to outline the steps Monolith Materials, Inc. (Monolith) will take in the event of well interference issues within a 3-mile radius of the Monolith site. Monolith is committed to addressing concerns that may arise and working with landowners to 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.



olsson

N

0 0.25 0.5 1 Miles

1 in = 1 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Plan Area

Monolith OC2

Groundwater Protection Plan

Lancaster County, NE

FIGURE

1

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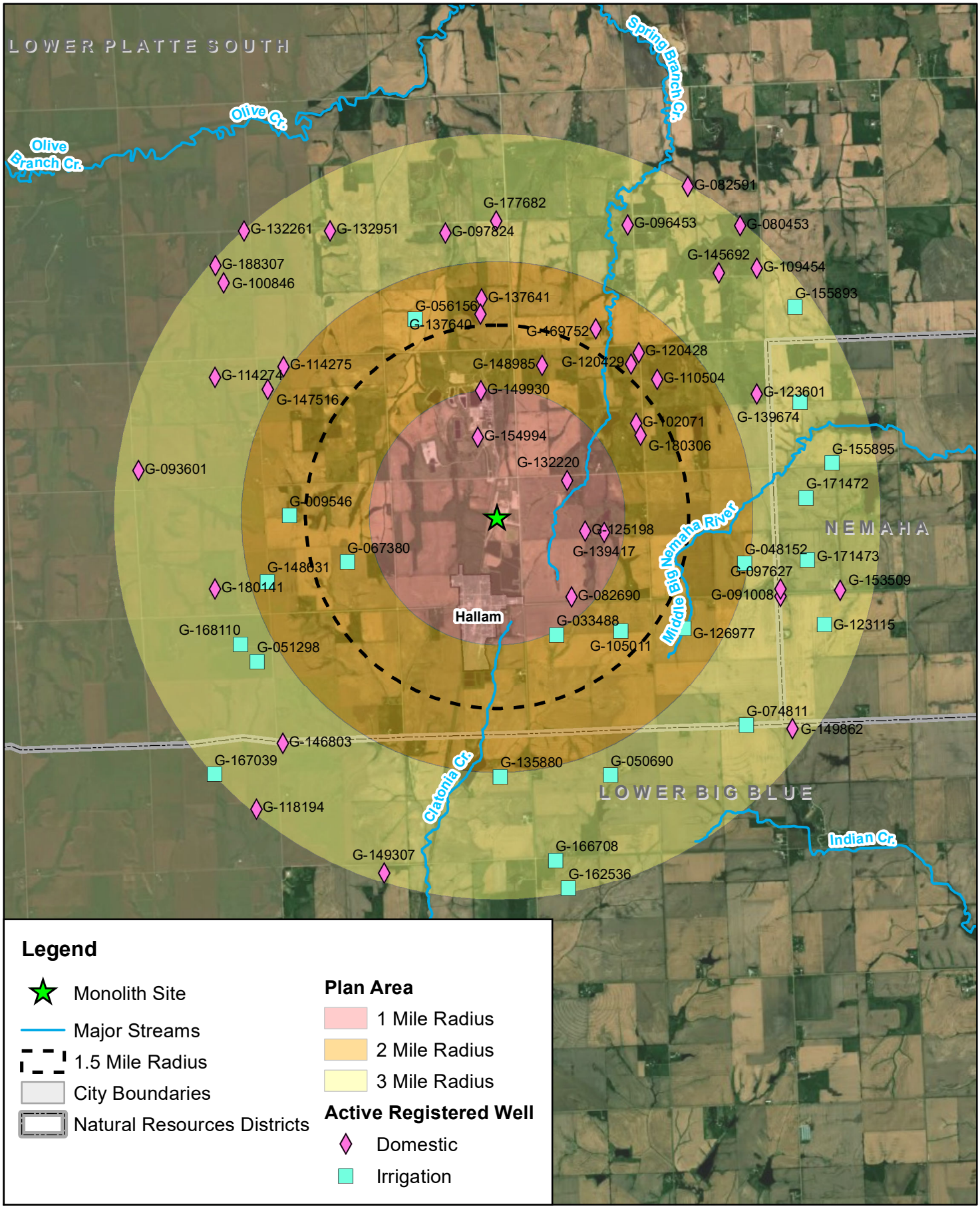

olsson

N

0 0.25 0.5 1 Miles

1 in = 1 miles

NAD 1983 StatePlane Nebraska FIPS 2600 Feet

Well Inventory

Monolith OC2

Groundwater Protection Plan

Lancaster County, NE

FIGURE

2

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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