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: April 16, 2021
To: Each Director
From: Paul Zillig, General Manager
Subject: Water Resources Subcommittee Meeting – Background Information

The Water Resources Subcommittee will meet at 5:30 pm on Tuesday, April 20th.

Earlier this month we met with Monolith to review the anticipated applications/requests and determine how it would be best to package these applications/requests to simplify the process for the Directors and the public. Monolith indicated that they now plan to have 3 wells to provide the necessary groundwater for their OC2 Project. We felt it was in everyone's interest to consider all three of the applications at the same time. Monolith indicated that they would be submitting those applications in the near future and would be requesting a Variance Request to not be required to do the additional testing that's similar to what was required for the first application.

Whether the Variance Request is approved or not, Monolith would then complete and submit the additional information that was requested from the NRD, the NRD would review the new information submitted and consider if any additional information is required for the updated pumping plan from the 3 wells, and then Monolith would submit a complete application for consideration of the 3 well permit applications. The NRD would then schedule a public input session, a Water Resources Subcommittee Meeting to prepare a recommendation for the Board, and finally a Board Meeting to take action on Monolith's three well permit applications.

Please find enclosed the following information:

1. LPSNRD Groundwater Rule – Section C (water well permits) Class 2 Permit (page 3)
2. April 12th memo from Monolith outlining the Monolith Variance Request. (page 4)
3. Request for Variance Form – OC2 Well 2 (page 6)
4. Request for Variance Form – OC2 Well 3 (page 8)
5. Professional Engineer Statement Brian Dunnigan, Olsson (page 10)
6. Test boring logs for OC2 Wells 1, 2 & 3 (page 12)
7. Well Permit Application for OC2 Well 2 (page 40)
8. Well Permit Application for OC2 Well 3 (page 44)
9. Monolith Well Field Description (page 48)

10. Monolith Well Field Map (page 49)
11. LPSNRD Groundwater Rule – Section P, Request for Variance (page 50)
12. Map showing Variance Request notice neighbors. (page 51)
13. Copy of Variance Request submitted to neighbors. (page 52)
14. Memo from Dick Ehrman on Dave Hume and his review and recommendation on the Variance Requests for OC2 Well 2 and OC2 Well 3. (page 53)

I will recommend the Water Resources Subcommittee follow the recommendation outlined in Dick Ehrman's attached memo of April 16th (page 53) and recommend the Board approve the Variance Requests for OC2 Well 2 and OC2 Well 3 for Section C, Rule 2(c)(i)(A)(3 & 5) and deny the Variance Requests for Section C, Rule 2(c)(i)(A)(2 & 4).

Enc.

pc: Steve Seglin & Corey Wasserburger

Section C Water Well Permits

Rule 2 Classes of Well Permits and Required Hydrogeologic and Water Quality Information

(a) Any person who proposes to construct a well requiring a permit shall be required to provide certain hydrogeologic and water quality information before a water well permit may be approved. The District shall provide guidelines for required reports which shall be submitted to the District with each permit application.

(c) Class 2 Permit:

(i) Applies to any proposed well to be located in a Ground Water Reservoir designed and constructed to pump 1000 gallons per minute or more, or pump 250 acre-feet or more water per year;

(A) The requirements for a Class 2 permit shall be as follows and shall be included with the application:

(1) A copy of the well log to determine geologic formation;

(2) An accurate static water level measurement to estimate saturated thickness of the aquifer;

(3) An aquifer test including all necessary drawdown and pumping data as required by the District. The aquifer test must be designed and supervised by a licensed professional geologist or engineer with experience in such analysis;

(4) Water quality samples to be collected at the end of a 24-hour pump test. Any well must be pumped at 100% of its designed rate. The samples shall be submitted to a qualified laboratory for analysis of sodium, chloride and total dissolved solids; and

(5) A hydrogeologic analysis report considering the impact of the proposed withdrawal on current ground water users and a minimum twenty (20) year impact on the aquifer for potential future users shall be submitted by the Applicant. The report must be prepared by a licensed professional geologist or engineer with experience in such analysis.

MONOLITH

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

April 12, 2021

Lower Platte South Natural Resources District
Attn: Paul Zillig, General Manager
3125 Portia Street
P.O. Box 83581
Lincoln, NE 685013581

RE: Monolith Variance Request

Dear Mr. Zillig,

I want to express my appreciation to you, Chair Eagan, Director Ruth, Mr. Seglin, and Mr. Wasserburger for the discussion last week. Per that discussion, Monolith is pleased to present the additional information requested by the District with respect to Monolith's application for approval of a Variance to Section C, Rule 2 (c) Class 2 Permit.

The following information is enclosed for review and recommendation by the Water Resources Subcommittee and for approval by the Lower Platte South Board of Directors:

- Request for Variance Form – OC2 Well 2
- Request for Variance Form – OC2 Well 3
- Professional Engineer Statement
- Test boring logs for OC2 Wells 1, 2, & 3

We are also submitting two new applications for OC2 Well 2 & OC2 Well 3 and the required copy of the well log information for each well as required by Section C, Rule 2 (c) (i) (A)(1). Test boring logs for the Preliminary Well Permit Application granted for OC2 Well 1 is also included for reference. Enclosed you will find:

- Groundwater Reservoir Permit Form – OC2 Well 2
- Groundwater Reservoir Permit Form – OC2 Well 3

As you are aware through our most recent discussions, there will be a total of 3 wells that will be in series as part of the final application for OC2 Wells 1, 2, and 3. Only 2 of the 3 wells will be used concurrently. The combined estimated annual usage across all three wells is between 1,000 – 1,225 acre-feet per year (320-400 million gallons per year). Enclosed for reference:

- Monolith Well Field Description
- Monolith OC2 Well Field Map

Because all three wells are necessary for the successful operation of Monolith's facility, we ask that these applications and requests be considered collectively as a single matter. We believe the enclosed information

MONOLITH

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

fulfills the request made during our call last week. If you feel otherwise, please let me know immediately so we can discuss it further.

Thank you and the Board for your guidance through this process.

Sincerely,

Amy Ostermeyer
Vice President
Monolith Materials, Inc.

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

REQUEST FOR VARIANCE – OC2 WELL 2 APPLICATION

Landowner Name: Luhrs Hallam Investments, LLC, Leased to the applicant, Monolith Nebraska LLC

(See Lease Agreement & Letter submitted to the District on 3/12/2021)

Address: 27077 SW 42nd Street **Phone:** (402) 598.5511

City: Hallam **State & Zip:** Nebraska, 68516

Field Information:

Legal: NE ¼ NE ¼, **Section** 30, **Township** 7 North, **Range** 6 East, Lancaster **County**

Groundwater Rules and Regulations: Section C Rule 2

Explanation of Variance Request (Use additional pages if needed):

(c)(i)(A)(2) As indicated by the well log information the geology from well log #2 is substantially similar to the well log information from well #1.

(c)(i)(A)(3) As indicated by the well log information the geology from well log #2 is substantially similar to the well log information from well #1.

(c)(i)(A)(4) As indicated by the well log information the geology from well log #2 is substantially similar to the well log information from well #1.

(c)(i)(A)(5) As indicated by the well log information the geology from well log #2 is substantially similar to the well log information from well #1.

Please refer to the attached Professional Engineer Statement.

Required Attachments:

Aerial Photo (required)	[Y]	N
Map of Adjoining Landowners (Name and Addresses)	[Y]	N
Signed Acknowledgement of Notice by Adjoining Landowners / Well owners	[Y]	N

Non-refundable $500 Variance Request Fee [Y] N

Landowner Signature: _____ Date: _____

Amy Ostermeyer - applicant 4.12.2021

LPSNRD Use Only:
LPSNRD Approval: _____ Date: _____

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

REQUEST FOR VARIANCE – OC2 WELL 3 APPLICATION

Landowner Name: Luhrs Hallam Investments, LLC, Leased to the applicant, Monolith Nebraska LLC

(See Lease Agreement & Letter submitted to the District on 3/12/2021)

Address: 27077 SW 42nd Street **Phone:** (402) 598.5511

City: Hallam **State & Zip:** Nebraska, 68516

Field Information:

Legal: SE ¼ NE ¼, **Section** 30, **Township** 7 North, **Range** 6 East, Lancaster **County**

Groundwater Rules and Regulations: Section C Rule 2

Explanation of Variance Request (Use additional pages if needed):

(c)(i)(A)(2) As indicated by the well log information the geology from well log #3 is substantially similar to the well log information from well #1.

(c)(i)(A)(3) As indicated by the well log information the geology from well log #3 is substantially similar to the well log information from well #1.

(c)(i)(A)(4) As indicated by the well log information the geology from well log #3 is substantially similar to the well log information from well #1.

(c)(i)(A)(5) As indicated by the well log information the geology from well log #3 is substantially similar to the well log information from well #1.

Please refer to the attached Professional Engineer Statement.

Required Attachments:

Aerial Photo (required)	[Y]	N
Map of Adjoining Landowners (Name and Addresses)	[Y]	N
Signed Acknowledgement of Notice by Adjoining Landowners / Well owners	[Y]	N

Non-refundable $500 Variance Request Fee [Y] N

Landowner Signature: _____ Date: _____

Amy Ostermeyer – applicants 4.12.2021

LPSNRD Use Only:
LPSNRD Approval: _____ Date: _____

olsson

April 12, 2021

Amy Ostermeyer
Vice President of Human Resources
Monolith Materials, Inc.
134 South 13th Street
Suite 700
Lincoln, NE 68508

Dear Ms. Ostermeyer:

The Olsson team has reviewed the well log information provided by Sargent Drilling (attached) for the wells identified as OC2 Well 2 and OC2 Well 3 and has compared this information to the well log information for OC2 Well 1 (originally referred to as Test Well 1R, also attached). The attached figure provides a generalized comparison of the geologic conditions encountered in the three test borings that have been conducted on the Monolith property (as well as the Observation Well).

Based on the comparison of the well logs for OC2 Well 2 and OC2 Well 3 to the well log for OC2 Well 1, it can be concluded that the underlying geology at each of the well locations is substantially similar and therefore, the hydrogeologic characteristics for all three wells will be substantially similar. For this reason, the information required under Section C, Rule 2 (c)(i)(A)(2) – (5) that has already been submitted for OC2 Well 1 can be used to evaluate the well applications for OC2 Well 2 and OC2 Well 3.

An additional groundwater flow model run was also completed to reflect the pumping associated with the three-well configuration as described in the Monolith Well Field Description (attached). This model run is documented in an Addendum to the Hydrogeologic Analysis Report that will be submitted pursuant to the rule noted above for the applications. Therefore, the results presented in the Monolith Hydrogeologic Analysis Report and associated Addendum are valid for the evaluation of OC2 Well 2 and OC2 Well 3 and the three-well configuration.

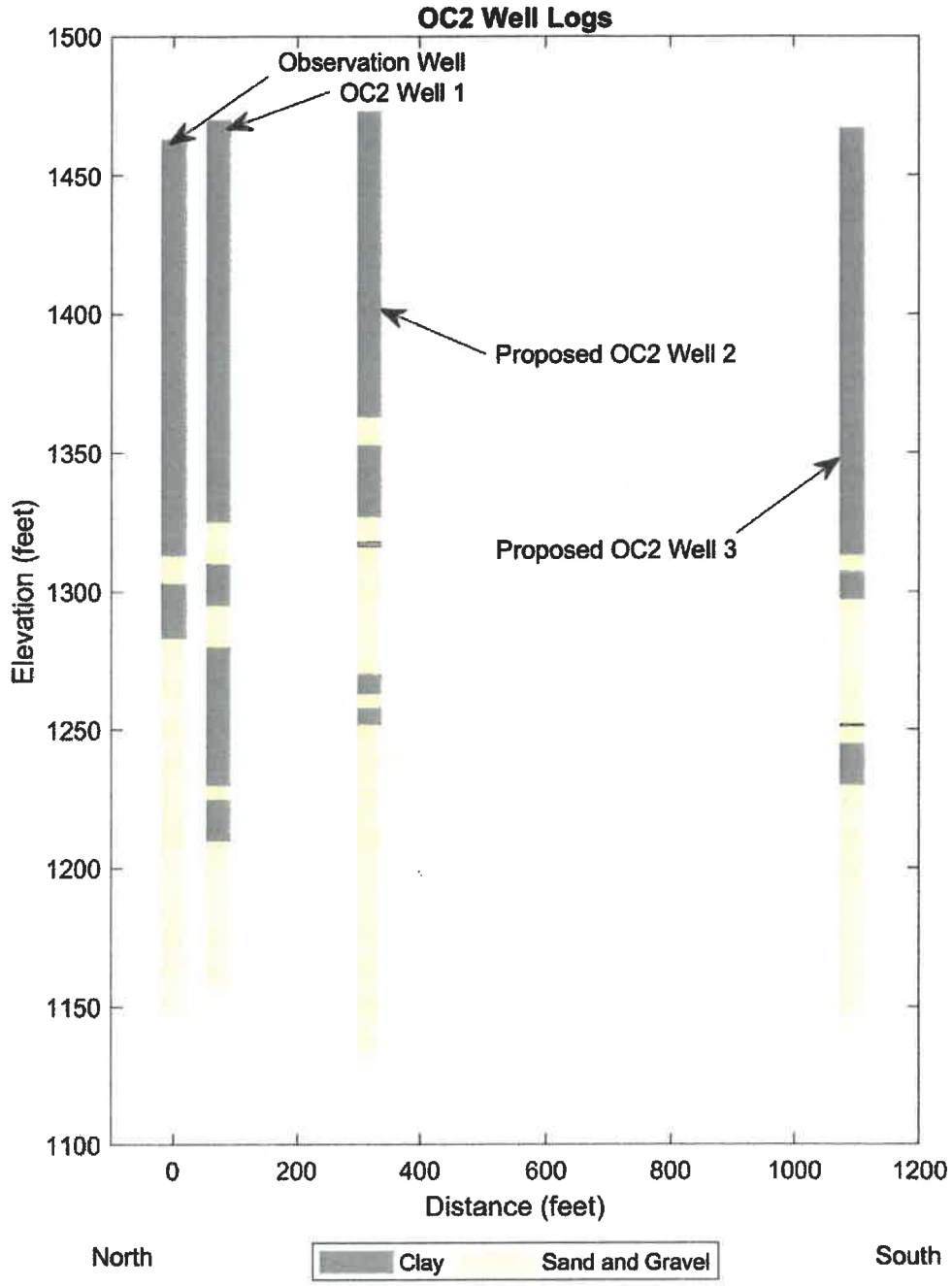
Sincerely,

Brian P. Dunnigan

Brian P. Dunnigan, PE

Encls.

601 P Street / Suite 200 / Lincoln, NE 68508
O 402.474.6311 / olsson.com


OC2 Well Logs
Observation Well
OC2 Well 1
Proposed OC2 Well 2
Proposed OC2 Well 3
Elevation (feet)
1500
1450
1400
1350
1300
1250
1200
1150
1100
0
200
400
600
800
1000
1200
Distance (feet)
North
South
Clay
Sand and Gravel

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD
DRILLING CO.:	Cahoy	**NORTHING:**	TBD
DRILLER:	Austin / Kenny	**EASTING:**	TBD
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020
BORING NO.:	Test Well 1R		
DATE DRILLED:	8/11-17/2020		
BORING METHOD:	Reverse Rotary		
TYPE OF SURFACE:	Pasture		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR4/2	CL	Silty clay, soft, moist, low plasticity, non-cohesive, thickly bedded, blocky, MOU, trace uniform fine sand <5%, Eolian, Peorian, sharp					
5			10YR4/3	CL	Silty clay, medium, low plasticity, non-adhesive, thickly bedded, blocky, Fe stains, manganese, MOU2, few uniform, fine sand, resedimentation, subjugated, Kansan Till, sharp.					
10			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, med sands, resedimented subglacial, Kansan Till					
15			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, med sand, resedimented, subglacial, Kansan Till, Fe stains					
20			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, med sand (17%), resedimented, subglacial, Kansan Till, Fe stains					
25										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Test Well 1R
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	8/11-17/2020
DRILLING CO.:	Cahoy	**NORTHING:**	TBD	**BORING METHOD:**	Reverse Rotary
DRILLER:	Austin / Kenny	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, coarse sand (4%), resedimented, subglacial, Kansan Till, Fe stains					
30			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, coarse sand (7%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
35			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, coarse sand (7%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
40			10YR5/3	CL	Silty clay, stiff, moist, med plasticity, massive, blocky, MOU2, few non-uniform, med to coarse sand (8%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
45			10YR5/3	CL	Silty clay, very stiff, med plasticity, massive, blocky, MOU2, few non-uniform, med sand (8%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
50										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	BORING DEPTH:	315 ft bgs
EA PROJECT #:	1602602 / 0002	SURFACE ELEV:	TBD
DRILLING CO.:	Cahoy	NORTHING:	TBD
DRILLER:	Austin / Kenny	EASTING:	TBD
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	163.30 ft bgs; 8/26/2020

BORING NO.:	Test Well 1R
DATE DRILLED:	8/11-17/2020
BORING METHOD:	Reverse Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR5/3	CL	Silty clay, very stiff, med plasticity, massive, blocky, MOU2, few non-uniform, med sand (7%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
55			10YR5/3	CL	Silty clay, very stiff, med plasticity, massive, blocky, MOU2, few non-uniform, med sand (7%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
60			10YR4/4	CL	Silty clay, hard, mottled, 1/4 inch nodules of varying colors, moist, low plasticity, non-uniform, MOU2, coarse sand (22%), resedimented, subglacial, Kansan Till, Fe stains, manganese					
65			10YR5/3	CL	Silty clay, hard, low plasticity, massive, blocky, JOU2, few non-uniform, fine sand (6%), resedimentation, Kansan Till, Fe stains, manganese					
70			10YR7/2	CL	Silty clay, hard, low plasticity, massive, blocky, JOU2, few non-uniform, fine sand (6%), resedimentation, subglacial, Fe stains, manganese					
75										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Test Well 1R
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	8/11-17/2020
DRILLING CO.:	Cahoy	**NORTHING:**	TBD	**BORING METHOD:**	Reverse Rotary
DRILLER:	Austin / Kenny	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR5/3	CL	Silty clay, hard, low plasticity, moist, massive, blocky, JOU2, few non-uniform, fine sand (6%), resedimentation, subglacial, Fe stains, manganese, Kansan till					
80			10YR4/?	CL	Silty clay, hard, low plasticity, moist, massive, blocky, JOU2, few non-uniform, fine sand (6%), resedimentation, subglacial, Nebraskan till, sharp					
85			10YR3/1	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, few uniform, coarse sand (6%), resedimentation, subglacial, Nebraskan till					
90			10YR4/1	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform sand (3%), resedimentation, subglacial with fine root structures, Nebraskan till, gradational					
95			10YR3/1	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (4%), resedimentation, subglacial, Nebraskan till					
100										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	BORING DEPTH:	315 ft bgs
EA PROJECT #:	1602602 / 0002	SURFACE ELEV:	TBD
DRILLING CO.:	Cahoy	NORTHING:	TBD
DRILLER:	Austin / Kenny	EASTING:	TBD
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	163.30 ft bgs; 8/26/2020

BORING NO.:	Test Well 1R
DATE DRILLED:	8/11-17/2020
BORING METHOD:	Reverse Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (4%), resedimentation, subglacial, Nebraskan till					
105			10YR2/2	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (4%), resedimentation, subglacial, Nebraskan till					
110			10YR2/2	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, sand (3%), resedimentation, subglacial, Nebraskan till					
115			10YR2/2	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, sand (3%), resedimentation, subglacial, Nebraskan till					
120			10YR2/2	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, sand (3%), resedimentation, subglacial, Nebraskan till					
125										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Test Well 1R
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	8/11-17/2020
DRILLING CO.:	Cahoy	**NORTHING:**	TBD	**BORING METHOD:**	Reverse Rotary
DRILLER:	Austin / Kenny	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	CL	Silty clay, hard, med plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (3%), resedimentation, subglacial, Nebraskan till					
130			10YR2/2	CH	Clay, hard, high plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (3%), resedimentation, subglacial, Nebraskan till					
135			10YR2/2	CH	Clay, hard, high plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (2%), resedimentation, subglacial, Nebraskan till					
140			10YR2/2	CH	Clay, hard, high plasticity, moist, massive, blocky, JOU2, trace uniform, fine sand (2%), resedimentation, subglacial, Nebraskan till					
145			10YR2/2	SP	Sand, very loose, med granular, moist, non-plastic, thinly bedded, granular, UU2, uniform sand (100%), fluvial, glacial fluvial, Nebraskan till					
			10YR2/2	SC	Clayey sand, med dense, fine to coarse sand, moist, non-plastic, thickly bedded, granular, UU2, some non-uniform coarse sand (60%), resedimentation, subglacial, Nebraskan till					
150										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	BORING DEPTH:	315 ft bgs
EA PROJECT #:	1602602 / 0002	SURFACE ELEV:	TBD
DRILLING CO.:	Cahoy	NORTHING:	TBD
DRILLER:	Austin / Kenny	EASTING:	TBD
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	163.30 ft bgs; 8/26/2020

BORING NO.:	Test Well 1R
DATE DRILLED:	8/11-17/2020
BORING METHOD:	Reverse Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	SW	Sand, loose, fine to coarse sand with trace coarse gravel, very moist, non-plastic, non-cohesive, thickly bedded, granular UU2, some non-uniform coarse sand (59%), fluvial, glacial fluvial, Nebraskan till					
155			10YR2/2	SW	Sand, loose, fine to coarse sand with trace coarse gravel, very moist, non-plastic, non-cohesive, thickly bedded, granular UU2, some non-uniform coarse sand (59%), fluvial, glacial fluvial, Nebraskan till					
160			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
165			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
170			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
175										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD
DRILLING CO.:	Cahoy	**NORTHING:**	TBD
DRILLER:	Austin / Kenny	**EASTING:**	TBD
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020
BORING NO.:	Test Well 1R		
DATE DRILLED:	8/11-17/2020		
BORING METHOD:	Reverse Rotary		
TYPE OF SURFACE:	Pasture		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	SP	Sand, very loose, med granular, moist, non-plastic, thinly bedded, granular, UU2, uniform sand (100%), fluvial, glacial fluvial, Nebraskan till					
180			10YR2/2	SP	Sand, very loose, med granular, moist, non-plastic, thinly bedded, granular, UU2, uniform sand (100%), fluvial, glacial fluvial, Nebraskan till					
185			10YR2/2	SP	Sand, very loose, med granular, moist, non-plastic, thinly bedded, granular, UU2, uniform sand (100%), fluvial, glacial fluvial, Nebraskan till					
190			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
195			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
200										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	BORING DEPTH:	315 ft bgs
EA PROJECT #:	1602602 / 0002	SURFACE ELEV:	TBD
DRILLING CO.:	Cahoy	NORTHING:	TBD
DRILLER:	Austin / Kenny	EASTING:	TBD
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	163.30 ft bgs; 8/26/2020

BORING NO.:	Test Well 1R
DATE DRILLED:	8/11-17/2020
BORING METHOD:	Reverse Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
205			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
210			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
215			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
220			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
225										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD
DRILLING CO.:	Cahoy	**NORTHING:**	TBD
DRILLER:	Austin / Kenny	**EASTING:**	TBD
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020

BORING NO.:	Test Well 1R
DATE DRILLED:	8/11-17/2020
BORING METHOD:	Reverse Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
230			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
235			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
240			10YR2/2	SP	Sand, very loose, med granular, moist, non-plastic, thinly bedded, granular, UU2, uniform sand (100%), fluvial, glacial fluvial, Nebraskan till					
245			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
250										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	BORING DEPTH:	315 ft bgs
EA PROJECT #:	1602602 / 0002	SURFACE ELEV:	TBD
DRILLING CO.:	Cahoy	NORTHING:	TBD
DRILLER:	Austin / Kenny	EASTING:	TBD
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	163.30 ft bgs; 8/26/2020

BORING NO.:	Test Well 1R
DATE DRILLED:	8/11-17/2020
BORING METHOD:	Reverse Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
255			10YR2/2	CH	Clay, stiff, wet, cohesive, massive, blocky, UU2, trace fine sand (3%), resedimentation, subglacial, Nebraskan till					
260			10YR2/2	SW	Sand, loose, fine to coarse grained, wet, non-plastic, non-cohesive, bedded, granular, UU2, some non-uniform coarse sand, fluvial, resedimentation, resediment sediment flow, sharp.					
265			10YR2/2	SC	Clayey sand, fine to coarse grained, wet, low plasticity, non-cohesive, massive, granular, little non-uniform, coarse sand, fluvial, resedimented, sediment flow.					
270			10YR2/2	SC	Clayey sand, fine to coarse grained, wet, low plasticity, non-cohesive, massive, granular, little non-uniform, coarse sand, fluvial, resedimented, sediment flow.					
275										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Test Well 1R
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	8/11-17/2020
DRILLING CO.:	Cahoy	**NORTHING:**	TBD	**BORING METHOD:**	Reverse Rotary
DRILLER:	Austin / Kenny	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	SC	Clayey sand, fine to coarse grained, wet, low plasticity, non-cohesive, massive, granular, little non-uniform, coarse sand, fluvial, resedimented, sediment flow.					
280			10YR2/2	SC	Clayey sand, fine to coarse grained, wet, low plasticity, non-cohesive, massive, granular, little non-uniform, coarse sand, fluvial, resedimented, sediment flow.					
285			10YR2/2	SW	Sand, med dense, fine to coarse sand with trace coarse gravel, wet, non-plastic, non-cohesive, thickly bedded, granular, UU2, some non-uniform fine gravel (29%), fluvial, resedimented sediment flow					
290			10YR2/2	SW	Sand, med dense, fine to coarse sand with trace coarse gravel, wet, non-plastic, non-cohesive, thickly bedded, granular, UU2, some non-uniform fine gravel (29%), fluvial, resedimented sediment flow					
295			10YR2/2	SW	Sand, med dense, fine to coarse sand with trace coarse gravel, wet, non-plastic, non-cohesive, thickly bedded, granular, UU2, some non-uniform fine gravel (29%), fluvial, resedimented sediment flow					
300										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith - Test Well 1R	**BORING DEPTH:**	315 ft bgs
EA PROJECT #:	1602602 / 0002	**SURFACE ELEV:**	TBD
DRILLING CO.:	Cahoy	**NORTHING:**	TBD
DRILLER:	Austin / Kenny	**EASTING:**	TBD
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	163.30 ft bgs; 8/26/2020
BORING NO.:	Test Well 1R		
DATE DRILLED:	8/11-17/2020		
BORING METHOD:	Reverse Rotary		
TYPE OF SURFACE:	Pasture		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			10YR2/2	SW	Sand, med dense, fine to coarse sand with trace coarse gravel, wet, non-plastic, non-cohesive, thickly bedded, granular, UU2, some non-uniform fine gravel (29%), fluvial, resedimented sediment flow					
305			10YR2/2	SW	Sand, med dense, fine to coarse sand with trace coarse gravel, wet, non-plastic, non-cohesive, thickly bedded, granular, UU2, some non-uniform fine gravel (29%), fluvial, resedimented sediment flow					
310			10YR2/2	SW	Sand, med dense, fine to coarse sand with trace coarse gravel, wet, non-plastic, non-cohesive, thickly bedded, granular, UU2, some non-uniform fine gravel (29%), fluvial, resedimented sediment flow					
315					BOH @ 315					
320										
325										

Sargent Drilling

INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
WELL AND PUMP SERVICE

PO Box 367
Geneva, NE 68361-0367

846 South 13th St.

Phone: (402) 759-3902
1-888-496-3902

TEST HOLE LOG

CUSTOMER: Monolith	
WELL ID: 2021-2 Proposed OC2 Well #2 LOCATION: NE ¼ NE ¼, 30-T7N-R6E, Lancaster Co., NE	
LATITUDE: 40° 32' 59.5" LONGITUDE: 96° 46' 49.4" FOOTAGES: 846 feet from the North section line and 98 feet from the East section line. ELEVATION: 1518'	
DATE: 4-7-2021	DRILLED BY: Scott

from feet	- to feet	
0	20	Top soil, brown and yellow clay
20	60	Brown clay
60	80	Brown and gray clay
80	100	Gray clay
100	120	Gray clay with sand and gravel layer
120	140	Gray clay with sand strip
140	146	Gray clay
146	155	Fine medium coarse sand and fine gravel
155	157	Gray clay
157	160	Fine medium coarse sand and fine medium coarse gravel and rocks
160	180	Fine medium coarse sand and fine medium gravel with some coarse gravel and rocks
180	200	Fine medium coarse sand and fine medium to coarse gravel and rocks
200	203	Fine medium coarse sand and fine medium coarse gravel
203	210	Gray clay
210	215	Fine medium coarse sand and fine gravel
215	221	Gray clay
221	250	Fine medium sand with some coarse sand and fine gravel
250	260	Fine medium sand with some coarse sand and fine medium gravel
260	280	Fine medium coarse sand and fine medium gravel with gray clay strips
280	300	Fine medium coarse sand and fine gravel with gray clay strip with some medium gravel
300	320	Fine medium coarse sand and fine gravel with some medium gravel
320	340	Fine medium coarse sand and fine medium gravel

Sargent Drilling

INDUSTRIAL ENGINEERING
COMPLETE MUNICIPAL AND INDUSTRIAL
WELL AND PUMP SERVICE

PO Box 367
Geneva, NE 68361-0367

846 South 13th St.

Phone: (402) 759-3902
1-888-496-3902

TEST HOLE LOG

CUSTOMER: Monolith	
WELL ID: 2021-1 Proposed OC2 Well #3 LOCATION: SE ¼ NE ¼, 30-T7N-R6E, Lancaster Co., NE	
LATITUDE: 40° 32' 51.9" LONGITUDE: 96° 46' 49.9" FOOTAGES: 1617 feet from the North section line and 138 feet from the East section line. ELEVATION: 1472'	
DATE:4-7-2021	DRILLED BY: Scott

from feet	- to feet	
0	20	Top soil and brown clay
20	60	Brown and tan clay
60	80	Brown, tan and gray clay
80	100	Gray clay with rocks
100	154	Gray clay
154	160	Fine medium to coarse sand
160	170	Gray clay
170	180	Fine medium coarse sand and fine gravel with some medium gravel
180	215	Fine medium coarse sand and fine to medium gravel
215	216	Gray clay
216	222	Fine medium coarse sand and fine medium coarse gravel
222	237	Gray clay
237	240	Fine medium coarse sand
240	260	Fine medium coarse sand and fine gravel with rocks
260	288	Fine medium sand with some coarse sand
288	300	Fine medium coarse sand and fine gravel
300	320	Fine medium coarse sand and fine gravel with medium gravel

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD
DRILLER:	Bill Christopherson	**EASTING:**	TBD
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020

BORING NO.:	Observation Well
DATE DRILLED:	6/30/2020 - 7/01/2020
BORING METHOD:	Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
5			10YR5/2	CL	Silty clay, moist, firm, low plasticity, blocky, Fe stains, manganese	Grab				
10			10YR5/2	CL	Silty clay, moist, firm, med plasticity, blocky, Fe stains, manganese	Grab				
15			10YR5/2	CL	Silty clay, moist, firm, med plasticity, blocky, Fe stains, manganese	Grab				
			10YR5/1	CL	Silty clay, (Till), moist, hard, med plasticity, blocky, $CaCO_3$, nodules, Fe stains, manganese	Grab				
20			10YR5/2	CL	Silty clay, (Till), moist, hard, med plasticity, blocky, CaCO3, nodules, Fe stains, manganese, trace coarse gravel	Grab				
25										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
30			10YR5/1	CL	Silty clay, (Till), moist, hard, med plasticity, blocky, Fe stains, manganese, trace fine sand	Grab				
35										
40			10YR6/2	CL	Silty clay, (Till), moist, hard, med plasticity, blocky, trace CaCO3, Fe stains, manganese, fine to coarse sand 20%	Grab				
45										
50										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	BORING DEPTH:	315 ft bgs	BORING NO.:	Observation Well
EA PROJECT #:	1602602	SURFACE ELEV:	TBD	DATE DRILLED:	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	NORTHING:	TBD	BORING METHOD:	Rotary
DRILLER:	Bill Christopherson	EASTING:	TBD	TYPE OF SURFACE:	Pasture
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
55			10YR6/2	CL	Silty clay, (till), moist, hard, med plasticity, blocky, Fe stains, fine to coarse sand, in matrix.	Grab				
60			10YR6/2	CL	Silty clay, (till), moist, hard, med plasticity, blocky, Fe stains, fine to coarse sand, in matrix.	Grab				
65										
70			10YR6/2	CL	Silty clay, (till), moist, hard, med to high plasticity, blocky, Fe stains, fine to coarse sand, in matrix, trace fine gravel	Grab				
75										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
80			2.5YR4/1	CL	Silty clay, (till), moist, very hard, high plasticity, blocky, trace of fine sand	Grab				
85										
90					Hard drilling					
			10YR6/2	CL	Silty clay, (till), moist, very hard, high plasticity, blocky, Fe stains, manganese, fine to med sand in matrix.	Grab				
95										
100					Hard drilling.					

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD
DRILLER:	Bill Christopherson	**EASTING:**	TBD
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020

BORING NO.:	Observation Well
DATE DRILLED:	6/30/2020 - 7/01/2020
BORING METHOD:	Rotary
TYPE OF SURFACE:	Pasture

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
105			2.5Y4/1	CL	Silty clay, (till), moist, very hard, high plasticity, blocky, fine to coarse sand in matrix	Grab				
110			2.5Y4/1	CL	Silty clay, (till), moist, hard, high plasticity, blocky, Fe stains, fine to med sand in matrix.	Grab				
115										
120			2.5Y5/1	CL	Silty clay, (till), moist, firm, high plasticity, blocky, fine to med sand in matrix.	Grab				
125										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
130			2.5Y4/1	CL	Silty clay, (till), moist, firm, high plasticity, blocky, fine to med sand in matrix.	Grab				
135										
140			2.5Y4/1	CL	Silty clay, (till), moist, firm, high plasticity, blocky, fine to med sand, 40-60%	Grab				
145										
150			2.5Y4/1	SC	Clayey sand, very moist, loose fine to med grained 60-80% sand, grains are angular, 40-60% silty clay	Grab				

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			2.5Y5/1	SP	Sand, poorly graded, loose, slight wet, fine to med grained, grains are angular	Grab				
155			10YR6/2	SS/SM	Sandstone, loosely cemented, moist, fine grained, silty sand, trace fine gravel	Grab				
160										
			2.5Y4/1	CL/SC	Silty clay w/interbedded clayey sand, moist to wet, soft, blocky, fine to coarse sand, trace coarse gravel, grains are angular in shape.	Grab				
165										
170										
175										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
180			2.5Y5/1	SP	Sand, wet, loose, fine to med grained, well rounded, manganese	Grab				
185										
190			2.5Y4/1	SP/GP	Sand and gravel, wet, loose fine to coarse sand, fine to med gravel, manganese, trace of chert in gravel.	Grab				
195										
200										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	BORING DEPTH:	315 ft bgs	BORING NO.:	Observation Well
EA PROJECT #:	1602602	SURFACE ELEV:	TBD	DATE DRILLED:	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	NORTHING:	TBD	BORING METHOD:	Rotary
DRILLER:	Bill Christopherson	EASTING:	TBD	TYPE OF SURFACE:	Pasture
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			2.5Y4/1	SP	Sand, wet, loose, fine grained, well rounded, trace coarse sand with trace fine gravel, manganese	Grab				
205			2.5Y4/1	SP	Sand, wet, loose, poorly graded, fine grained, manganese	Grab				
210										
215			2.5Y4/1	SP	Sand, wet, loose, poorly graded, fine grained, well rounded, manganese, trace fine gravel	Grab				
220										
225										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
230										
235			2.5Y4/1	SP	Sand, wet, loose, fine grained, well rounded, manganese	Grab				
240			2.5Y4/1	SW	Sand, wet, loose, fine to coarse grained, well rounded, manganese	Grab				
245										
250										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			2.5Y5/1	SW	Sand, wet, loose, fine to coarse grained, well rounded, manganese	Grab				
255										
260			2.5Y5/1	SW	Sand, loose, wet, fine to coarse grained, well rounded, manganese	Grab				
265										
270			2.5Y5/1	SW/GP	Sand and gravel, wet, fine to coarse sand, fine gravel, well rounded, manganese	Grab				
275										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	BORING DEPTH:	315 ft bgs
EA PROJECT #:	1602602	SURFACE ELEV:	TBD
DRILLING CO.:	GeoSpec Drilling	NORTHING:	TBD
DRILLER:	Bill Christopherson	EASTING:	TBD
GEOLOGIST:	Dave Cookston	DEPTH TO WATER:	161.41 ft bTOC; 8/26/2020

BORING NO.:	Observation Well		
DATE DRILLED:	6/30/2020 - 7/01/2020		
BORING METHOD:	Rotary		
TYPE OF SURFACE:	Pasture		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
280			2.5Y5/1	SW	Sand, wet, loose, fine to coarse grained, well rounded, manganese	Grab				
285			2.5Y5/1	SW	Sand, wet, loose, fine to coarse grained, trace fine gravel, well rounded, small silty clay nodules in matrix, well rounded, manganese	Grab				
290										
295										
300										

EA Engineering, Science and, Technology, Inc., PBC

BORING LOG

PROJECT:	Monolith	**BORING DEPTH:**	315 ft bgs	**BORING NO.:**	Observation Well
EA PROJECT #:	1602602	**SURFACE ELEV:**	TBD	**DATE DRILLED:**	6/30/2020 - 7/01/2020
DRILLING CO.:	GeoSpec Drilling	**NORTHING:**	TBD	**BORING METHOD:**	Rotary
DRILLER:	Bill Christopherson	**EASTING:**	TBD	**TYPE OF SURFACE:**	Pasture
GEOLOGIST:	Dave Cookston	**DEPTH TO WATER:**	161.41 ft bTOC; 8/26/2020		

DEP. (FT)	ELEV (FT)	WELL CONST.	COLOR	USCS CODE	GEOLOGIC DESCRIPTION	SAMPLE METHOD	LENGTH (IN.)	% RE-COVERY	BLOW COUNT	LAB DATA
			2.5Y5/1	SP	Sand, wet, loose, fine grained, well rounded, manganese	Grab				
305										
310			2.5Y5/1	SW	DC sand, wet, loose, fine to coarse grained, trace fine gravel, well rounded, manganese	Grab				
315					BOH@315' Drilling mud weight at end = 8.4 Viscosity = 32.20 sec 28oz.					
320										
325										

Lower Platte South
Natural Resources District

PRELIMINARY WELL CONSTRUCTION PERMIT
LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

1. Fill out #'s 1-10 on the attached Water Well Permit Application.
2. Sign below and submit to the District.

I, Amy Ostermeyer (print name) acknowledge that I have received and read the guidance document, aquifer test procedures, and the water well permit classes flow chart. I also acknowledge this Preliminary Well Construction Permit is for constructing a well to gather the required information to complete a Water Well Permit application. I also acknowledge that approval of this Preliminary Well Construction Permit by the District does not assure me that I will receive a Water Well Permit, and I understand there is one year to complete the Water Well Permit application.

Amy Ostermeyer
Signature

4·12·2024
Date

NRD – Preliminary Well Construction Permit site inspection by:

_____
Inspector

_____
Date

Preliminary Well Construction Permit Approval

_____
Preliminary Permit Number

_____
Paul D. Zillig, General Manager

_____
Date

APPLICATION FOR A PERMIT TO CONSTRUCT A WATER WELL IN THE LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

GROUNDWATER RESERVOIR PERMIT FORM - DC2 Well #2

1. PERMIT CLASS (indicate one)
Class I (50 gpm < X < 1000gpm and < 250 acre-feet/ year)
(Class II) (≥ 1000gpm and/ or ≥ 250 acre-feet/year)

Is this well intended to pump salt water for a beneficial use? ( ) Yes (✓) No
If Yes, then application will be considered for a Salt Water Well Permit

DNR & NRD USE ONLY
Permit No. _____
Reg. No. _____

2. IS THIS PERMIT FOR A SERIES OF WELLS? (X) Yes ( ) No
If Yes, how many wells? 3

3. NAME AND ADDRESS OF APPLICANT:
Monolith Nebraska LLC
134 S 13 St. Suite 700
Lincoln NE 68508
Phone (402) 413 - 5763

4. NAME AND ADDRESS OF WELL DRILLER:
Sargent
PO Box 367
Geneva NE 68361
Phone (402) 759 - 3902

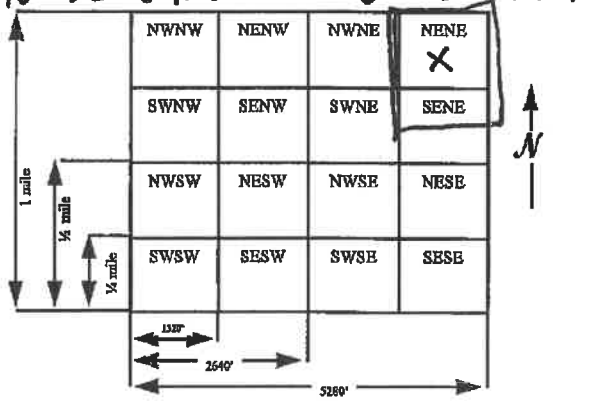
5. PURPOSE OF WELL (Indicate one)
( ) Public Water Supply ( ) Irrigation ( ) Domestic ( ) Livestock
( ) Dewatering (over 90 days) ( ) Geothermal ( ) Monitoring ( ) Aquaculture (✓) Industrial
( ) Recovery ( ) Other _____

6. IDENTIFY THE LOCATION OF THE PROPOSED WELL:
Lancaster County,
Township 7 North, Range 6 East, Section 30

40° 32' 59.5" - 96° 46' 49.4"

The box at the right represents one square mile, (section). Indicate with an "X", the proposed location of the well. Outline the proposed water use area, if water is to be used outside the above written legal description, give legal description of water use area,
Township ____ North, Range ____ East, Section ____

The well will be located _____ feet from the North/South section line, and will be _____ feet from the East/West section line.



If possible mark (with a flag) the well site in the field

7. COMMINGLED, COMBINED, CLUSTERED, OR JOINED WELLS:
Will the proposed well be connected to another well(s) or be used to supplement an existing water use from another well? ( ) Yes (✓) No
If yes, list registration numbers of other well(s) _____

8. IRRIGATION WELLS:
How many acres will be irrigated? N A
Type of irrigation system: ( ) Center Pivot ( ) Gravity ( ) Other (specify) _____.
Will Fertilizer, Chemicals or Animal Waste be applied through the system? ( ) Yes ( ) No

9. REPLACEMENT AND ABANDONMENT WELL INFORMATION:
Is this a replacement well? ( ) Yes (✓) No Registration number of well to be replaced: _____
Well to be replaced was last operated _____, 20____ Replacement well is _____ feet from the original well.
Will new well water the same tract of land or provide water for the same use as the decommissioned well? ( ) Yes ( ) No

10. SPECIFICATIONS OF INTENDED WELL AND PUMP:
Approximate date when construction will begin: July 1, 20 21
Estimated total well depth 310 feet. Estimated water well capacity: 600 gallons per minute
Pump column diameter: 6-8 inches. Well casing diameter: 12 inches.

DO NOT BEGIN CONSTRUCTION UNTIL AN APPROVED PRELIMINARY WELL CONSTRUCTION PERMIT FORM IS RETURNED TO THE LANDOWNER

See Other Side

Revised August 2014

11. I certify that I am familiar with the information contained in this application, and its restrictions, rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate. The necessary supporting material, under the district's Groundwater Rules and Regulations (Section B), is attached for the well permit class to which I am applying. A copy of the Groundwater Rules and Regulations is available upon request.

This form must be completed in full and be accompanied by a non-refundable $50.00 filing fee (payable to the Lower Platte South Natural Resources District). Forward this application and filing fee to Lower Platte South Natural Resources District, P.O. Box #83581, 3125 Portia Street, Lincoln, Nebraska 68501-3581. Please take the time to fill out the information correctly. An incomplete or defective application will be returned by the District, with 60 days being allowed for resubmission. All permits shall be issued by the District with or without conditions attached, or denied no later than 30 days after receipt of a complete and properly prepared application pursuant to §46-736.

Date: 4-12-2021 Signature of Applicant: Amy Ostermeyer

Date Approved: _____ Date Denied: _____ Reason for Denial Attached _____ NRD Representative: _____

PERMIT RESTRICTIONS & TERMS

1. ***Water well permits are required prior to completing construction and use of the water, if construction and use of the water well is commenced prior to obtaining a permit, a late permit must be obtained from the District along with a $250.00 application fee.***

2 Any person who, on or after August 13, 1996, commences or causes construction of such a water well for which the required permit has not been obtained, or who knowingly furnishes false information regarding such permit, shall be guilty of a Class IV misdemeanor pursuant to §46-602.02 and §46-613.02.

3. Prior to construction of a water well, a water well contractor shall take those steps necessary to satisfy himself or herself that the person for whom the well is to be constructed has obtained a permit pursuant to §46-602.

4. No irrigation or industrial water well or water well of any other public water supplier shall be drilled within 1,000 feet of any registered water well of any pubic water supplier; No water well of any such public water supplier shall be drilled within 1,000 feet of any registered irrigation or industrial water well; No irrigation water well shall be drilled within 1,000 feet of a registered industrial or within 600 feet of a registered irrigation water well; No industrial water well shall be drilled within 1,000 feet of a registered irrigation or industrial water well pursuant to §46-609 and §46-651. These spacing requirements shall not apply to water wells owned by the same person. Any person may apply to the Nebraska Department of Natural Resources for a special permit to drill a water well without regard to the spacing requirements pursuant to §46-653.

5. This permit does not register the water well with the Nebraska Department of Natural Resources. All water wells are required to be registered by the water well contractor constructing the well with the Nebraska Department of Natural Resources within 60 days after the water well is completed pursuant to §46-602.

6. A replacement water well is one which replaces an abandoned water well that has been operated within the last three years, and is constructed to water the same tract of land as the abandoned water well which is being replaced. As of August 13, 1996 replacement wells **DO** need a permit from the Lower Platte South Natural Resources District. If a water well is being replaced it must be properly abandoned according to state guidelines. A copy of these guidelines are available from the Lower Platte South Natural Resources District.

7. If the water well is not constructed and equipped within a one year period from the date of approval, a new water well permit is required.

8. Water wells may not be drilled within 50 feet of a stream bank without first getting a surface water right for that stream from the Nebraska Department of Natural Resources pursuant to §46-637.

9. Permits are not required for test holes, temporary dewatering wells with an intended use of less than 90 days, or a single water well designed and constructed to pump (yield) 50 gallons per minute or less pursuant to §46-656.29.

10. The issuance by the District of this permit or registration of a water well by the Director of the Nebraska Department of Natural Resources pursuant to §46-602 shall not vest in any person the right to violate any rule, regulation, or control in effect on the date of issuance of the permit or the registration of the water well or to violate any rule, regulation, or control properly adopted after such date.

11. All wells permitted after March 31, 2008 must be equipped with a NRD approved flow meter (See Section C, Rule 1 of the District's Ground Water Rules & Regulations)

12. All applicants for a water well permit shall, as a condition of the permit, agree to cooperate with the district, at its request, in ground water monitoring activities to include water level measurement and water quality sampling (See Section B, Rule 7 of the District's Ground Water Rules & Regulations)

COMMENTS / RESTRICTIONS / TERMS _____

Supporting Documentation For LPSNRD Groundwater Reservoir Water Well Permits

Class I Permit

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken after 24 hour pump test at 100% of the designed pumping rate. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

Class II Permit

☒ A copy of the well log to determine the geologic formation.

☐ An accurate static water level.

☐ An aquifer test with at least observation well, and all necessary drawdown and pumping data, as required by the District. Aquifer test must be designed by and supervised a licensed professional geologist or engineer.

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken after 24 hour pump test at 100% of the designed pumping rate. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

☐ A hydrogeologic analysis report considering the impact of the proposed withdrawal on the current groundwater users and the minimum twenty (20) year impact on the aquifer for potential users shall be prepared and submitted. The report must be prepared by a licensed professional geologist or engineer.

Name, Address and License Number of the Licensed Professional Geologist or Engineer

Brian P. Dunnigan, PE
601 P Street, Suite 200
Lincoln NE 68508
License # E-6179

Salt Water Well Permit

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken during pumping at various pumping rates. One sample each shall be taken at a pumping rate of 5 gallon per minute or less, at 50% of designed pumping rate, and at 100% of the designed pumping rate. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken during a 24 hour pump test at 100% of the designed pumping rate. One sample each shall be taken within the first 15 minutes of the beginning of the test, within 15 minutes of the halfway point of the test, and within 15 minutes of the end of pumping. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

http://www.lpsnrd.org/docs/GroundWater/Slides/rec1.pdf#page=11

Lower Platte South
Natural Resources District

PRELIMINARY WELL CONSTRUCTION PERMIT
LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

1. Fill out #'s 1-10 on the attached Water Well Permit Application.
2. Sign below and submit to the District.

I, Amy Ostermeyer (print name) acknowledge that I have received and read the guidance document, aquifer test procedures, and the water well permit classes flow chart. I also acknowledge this Preliminary Well Construction Permit is for constructing a well to gather the required information to complete a Water Well Permit application. I also acknowledge that approval of this Preliminary Well Construction Permit by the District does not assure me that I will receive a Water Well Permit, and I understand there is one year to complete the Water Well Permit application.

Amy Ostermeyer
Signature

4·12·2021
Date

NRD – Preliminary Well Construction Permit site inspection by:

Inspector

Date

Preliminary Well Construction Permit Approval

Preliminary Permit Number

Paul D. Zillig, General Manager

Date

APPLICATION FOR A PERMIT TO CONSTRUCT A WATER WELL IN THE LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICT

GROUNDWATER RESERVOIR PERMIT FORM OC2 Well #3

1. PERMIT CLASS (indicate one)
Class I (50 gpm < X < 1000gpm and < 250 acre-feet/ year)
Class II (≥ 1000gpm and/ or ≥ 250 acre-feet/year)

Is this well intended to pump salt water for a beneficial use? ( ) Yes (X) No
If Yes, then application will be considered for a Salt Water Well Permit

DNR & NRD USE ONLY
Permit No. _____
Reg. No. _____

2. IS THIS PERMIT FOR A SERIES OF WELLS? (X) Yes ( ) No
If Yes, how many wells? 3

3. NAME AND ADDRESS OF APPLICANT:
Monolith NE LLC
134 S 13th St. Suite 700
Lincoln NE 68508
Phone (402) 413 – 5763

4. NAME AND ADDRESS OF WELL DRILLER:
Sargent
PO Box 367
Geneva NE 68361
Phone (402) 759 – 3902

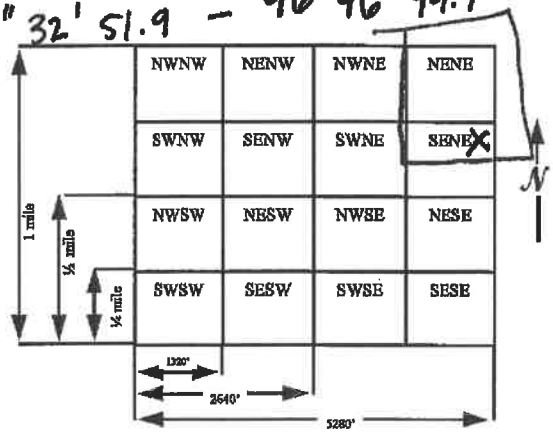
5. PURPOSE OF WELL (Indicate one)
( ) Dewatering (over 90 days) ( ) Recovery ( ) Public Water Supply ( ) Geothermal ( ) Other _____ ( ) Irrigation ( ) Monitoring ( ) Domestic ( ) Aquaculture (X) Industrial ( ) Livestock

6. IDENTIFY THE LOCATION OF THE PROPOSED WELL:
Lancaster County,
Township 7 North, Range 6 East, Section 30

The box at the right represents one square mile, (section). Indicate with an "X", the proposed location of the well. Outline the proposed water use area, if water is to be used outside the above written legal description, give legal description of water use area,
Township ___ North, Range ___ East, Section ___

The well will be located _____ feet from the North/South section line, and will be _____ feet from the East/West section line.

40° 32' 51.9 – 96° 46' 49.9"



If possible mark (with a flag) the well site in the field

7. COMMINGLED, COMBINED, CLUSTERED, OR JOINED WELLS:
Will the proposed well be connected to another well(s) or be used to supplement an existing water use from another well? ( ) Yes (X) No
If yes, list registration numbers of other well(s) _____

8. IRRIGATION WELLS:
How many acres will be irrigated? NA
Type of irrigation system: ( ) Center Pivot ( ) Gravity ( ) Other (specify) _____
Will Fertilizer, Chemicals or Animal Waste be applied through the system? ( ) Yes ( ) No

9. REPLACEMENT AND ABANDONMENT WELL INFORMATION:
Is this a replacement well? ( ) Yes (X) No Registration number of well to be replaced: _____
Well to be replaced was last operated _____, 20_____ Replacement well is _____ feet from the original well.
Will new well water the same tract of land or provide water for the same use as the decommissioned well? ( ) Yes ( ) No

10. SPECIFICATIONS OF INTENDED WELL AND PUMP:
Approximate date when construction will begin: July 1, 2021
Estimated total well depth 310 feet. Estimated water well capacity: 600 gallons per minute
Pump column diameter: 6-8 inches. Well casing diameter: 12 inches.

DO NOT BEGIN CONSTRUCTION UNTIL AN APPROVED PRELIMINARY WELL CONSTRUCTION PERMIT FORM IS RETURNED TO THE LANDOWNER

See Other Side

Revised August 2014

11. I certify that I am familiar with the information contained in this application, and its restrictions, rules and regulations and that to the best of my knowledge and belief such information is true, complete and accurate. The necessary supporting material, under the district's Groundwater Rules and Regulations (Section B), is attached for the well permit class to which I am applying. A copy of the Groundwater Rules and Regulations is available upon request.

This form must be completed in full and be accompanied by a non-refundable $50.00 filing fee (payable to the Lower Platte South Natural Resources District). Forward this application and filing fee to Lower Platte South Natural Resources District, P.O. Box #83581, 3125 Portia Street, Lincoln, Nebraska 68501-3581. Please take the time to fill out the information correctly. An incomplete or defective application will be returned by the District, with 60 days being allowed for resubmission. All permits shall be issued by the District with or without conditions attached, or denied no later than 30 days after receipt of a complete and properly prepared application pursuant to §46-736.

Date: 4.12.2021 Signature of Applicant: Amy Ostermeyer

Date Approved: _____ Date Denied: _____ Reason for Denial Attached _____ NRD Representative: _____

PERMIT RESTRICTIONS & TERMS

1. ***Water well permits are required prior to completing construction and use of the water, if construction and use of the water well is commenced prior to obtaining a permit, a late permit must be obtained from the District along with a $250.00 application fee.***

2 Any person who, on or after August 13, 1996, commences or causes construction of such a water well for which the required permit has not been obtained, or who knowingly furnishes false information regarding such permit, shall be guilty of a Class IV misdemeanor pursuant to §46-602.02 and §46-613.02.

3. Prior to construction of a water well, a water well contractor shall take those steps necessary to satisfy himself or herself that the person for whom the well is to be constructed has obtained a permit pursuant to §46-602.

4. No irrigation or industrial water well or water well of any other public water supplier shall be drilled within 1,000 feet of any registered water well of any pubic water supplier; No water well of any such public water supplier shall be drilled within 1,000 feet of any registered irrigation or industrial water well; No irrigation water well shall be drilled within 1,000 feet of a registered industrial or within 600 feet of a registered irrigation water well; No industrial water well shall be drilled within 1,000 feet of a registered irrigation or industrial water well pursuant to §46-609 and §46-651. These spacing requirements shall not apply to water wells owned by the same person. Any person may apply to the Nebraska Department of Natural Resources for a special permit to drill a water well without regard to the spacing requirements pursuant to §46-653.

5. This permit does not register the water well with the Nebraska Department of Natural Resources. All water wells are required to be registered by the water well contractor constructing the well with the Nebraska Department of Natural Resources within 60 days after the water well is completed pursuant to §46-602.

6. A replacement water well is one which replaces an abandoned water well that has been operated within the last three years, and is constructed to water the same tract of land as the abandoned water well which is being replaced. As of August 13, 1996 replacement wells **DO** need a permit from the Lower Platte South Natural Resources District. If a water well is being replaced it must be properly abandoned according to state guidelines. A copy of these guidelines are available from the Lower Platte South Natural Resources District.

7. If the water well is not constructed and equipped within a one year period from the date of approval, a new water well permit is required.

8. Water wells may not be drilled within 50 feet of a stream bank without first getting a surface water right for that stream from the Nebraska Department of Natural Resources pursuant to §46-637.

9. Permits are not required for test holes, temporary dewatering wells with an intended use of less than 90 days, or a single water well designed and constructed to pump (yield) 50 gallons per minute or less pursuant to §46-656.29.

10. The issuance by the District of this permit or registration of a water well by the Director of the Nebraska Department of Natural Resources pursuant to §46-602 shall not vest in any person the right to violate any rule, regulation, or control in effect on the date of issuance of the permit or the registration of the water well or to violate any rule, regulation, or control properly adopted after such date.

11. All wells permitted after March 31, 2008 must be equipped with a NRD approved flow meter (See Section C, Rule 1 of the District's Ground Water Rules & Regulations)

12. All applicants for a water well permit shall, as a condition of the permit, agree to cooperate with the district, at its request, in ground water monitoring activities to include water level measurement and water quality sampling (See Section B, Rule 7 of the District's Ground Water Rules & Regulations)

COMMENTS / RESTRICTIONS / TERMS _____

Supporting Documentation For LPSNRD Groundwater Reservoir Water Well Permits

Class I Permit

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken after 24 hour pump test at 100% of the designed pumping rate. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

Class II Permit

☒ A copy of the well log to determine the geologic formation.

☐ An accurate static water level.

☐ An aquifer test with at least observation well, and all necessary drawdown and pumping data, as required by the District. Aquifer test must be designed by and supervised a licensed professional geologist or engineer.

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken after 24 hour pump test at 100% of the designed pumping rate. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

☐ A hydrogeologic analysis report considering the impact of the proposed withdrawal on the current groundwater users and the minimum twenty (20) year impact on the aquifer for potential users shall be prepared and submitted. The report must be prepared by a licensed professional geologist or engineer.

Name, Address and License Number of the Licensed Professional Geologist or Engineer

Brian P Dunnigan, PE
601 P Street Suite 200
Lincoln NE 68508
License Number E-6179

Salt Water Well Permit

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken during pumping at various pumping rates. One sample each shall be taken at a pumping rate of 5 gallon per minute or less, at 50% of designed pumping rate, and at 100% of the designed pumping rate. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

☐ Water quality analysis of samples from a qualified laboratory. Samples are to be taken during a 24 hour pump test at 100% of the designed pumping rate. One sample each shall be taken within the first 15 minutes of the beginning of the test, within 15 minutes of the halfway point of the test, and within 15 minutes of the end of pumping. Results to be attached include Sodium (Na), Chloride (Cl), and Total Dissolved Solids (TDS).

http://www.lpsnrd.org/docs/GroundWater/Slides/rec1.pdf#page=11

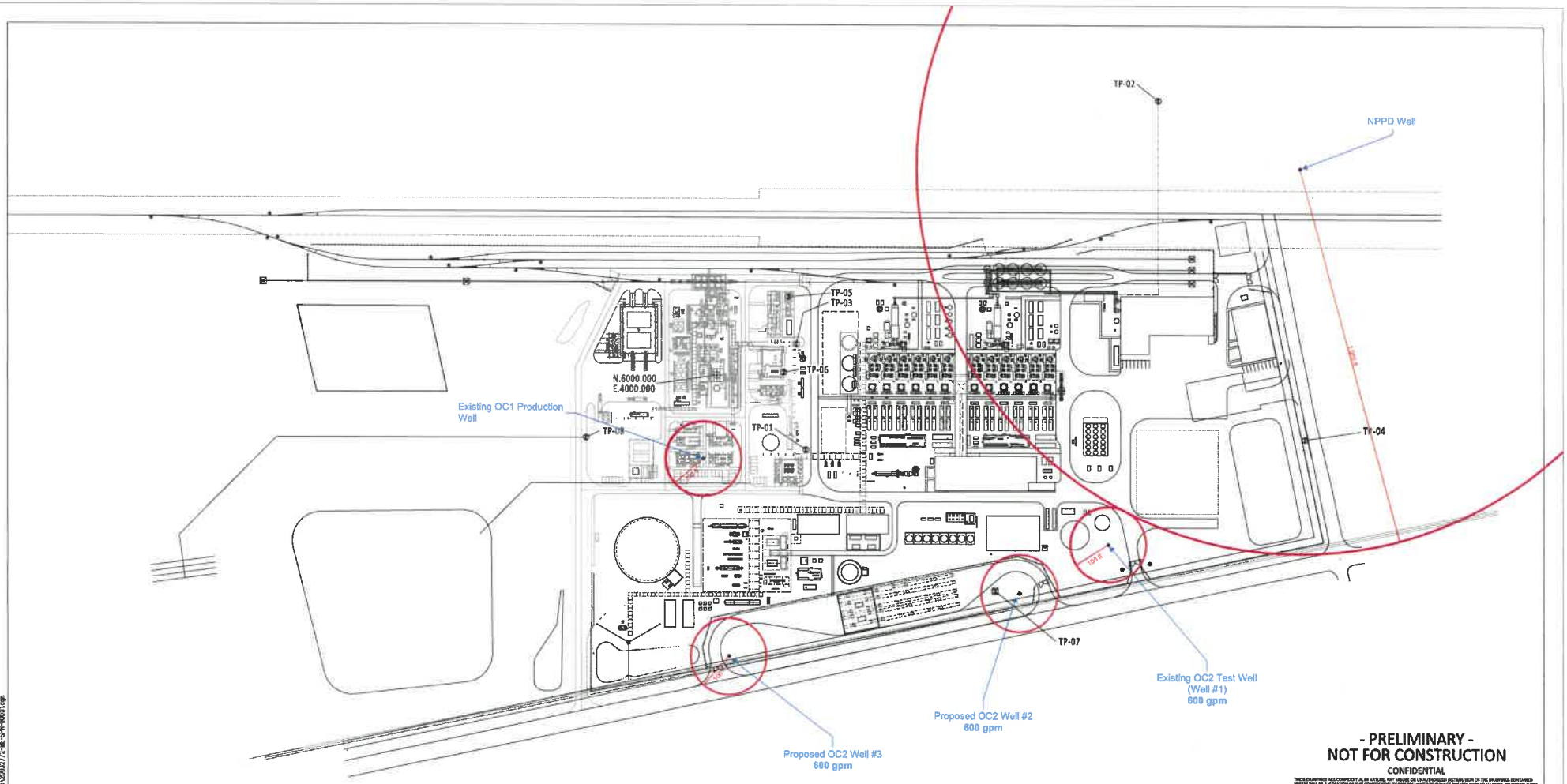
MONOLITH

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

Monolith Well Field Description

Monolith initially applied for a single well permit (Permit No. LPSP-200412) for the facility's service water supply. Our expected annual water usage is between 320 million and 400 million gallons. Well #1R was test pumped at various rates (up to 1200 gpm) for several hours, showing high well efficiency, and a continuous pump test was then conducted at a rate of 800 gpm for 72 hours, with minimal drawdown (2.3 feet) at the observation well located 72.5 feet away.

At peak facility operation during the highest ambient daytime temperatures, we will require approximately 1200 gpm supply. The recommended final design for Monoliths operations is for a three-well configuration with each well capable of providing 50% of the peak demand, or three wells sized at 600 gpm in our case. This allows continuous operation of one of the wells during normal operation, a second well that supplements water supply during higher demand conditions, and a third well that is included for redundancy and cycling. While the existing well #1R has been constructed and test pumped for 800 gpm supply, Monolith intends to install a 600 gpm pump at this well and construct the two additional wells to each supply 600 gpm when in operation. As shown in the attached well field plan, the three wells will be separated by at least 250ft and up to 1025ft.



- PRELIMINARY -
NOT FOR CONSTRUCTION

CONFIDENTIAL

E	ISSUED FOR INFORMATION		
	T. CAREY	--	OPEN
D	ISSUED FOR INFORMATION		
	T. CAREY	A. COLE	12-11-20
C	ISSUED FOR APPROVAL		
	T. CAREY	A. COLE	11-03-20
B	ISSUED FOR INFORMATION		
	T. CAREY		10-05-20
A	ISSUED FOR INFORMATION		
	T. CAREY	--	09-29-20
NO.	ISSUED BY	CHECKED BY	DATE

MONOLITH NEBRASKA LLC
OLIVE CREEK 2

Kiewit

SITE PLAN
Site Plan with Well Field Details

		DRAWING NUMBER
ENGINEER/DESIGN ORIGINATOR	T. CAREY	20032772-ME-SPN-00001
LEAD ENG	D. DIECKMANN	
ENG MGR	A. COLE	
PROJ MGR	N. STEWART	

TIE-IN LOCATIONS			
TP-01	FIRE PROTECTION TIE-IN	TP-05	34.5kV FOR OC1
TP-02	NATURAL GAS TIE-IN	TP-06	FIBER FROM OC1 FOR CONTROL SYSTEM AND SECURITY
TP-03	OC-1 HYDROGEN, NITROGEN, ARGON, POTABLE WATER	TP-07	13.8kV FROM NPPD
TP-04	WASTE WATER TIE-IN	TP-08	SANITARY DRAIN

TRUE NORTH
PLANT NORTH
11.9907°

SCALE IN FEET
SCALE: 1" = 100'-0"

V:\Projects\20032772-EPC_Monolith\Proc\ARCVP-Prel_Plan\20032772-ME-SPN-00001.dgn
Tom.Carey
8/3/2021 AM
2/10/2021

Section P Request for Variance

Rule 1 Information Required

(a) Name, address, phone number, e-mail address;
(b) State the section and rule pertaining to the variance request;
(c) Aerial photo showing location of the variance request;
(d) State why the variance is needed;
(e) Map showing the name and address of all adjoining landowners;
(f) A signed acknowledgement of notice by the adjoining landowners and water well owners;
(g) Any other information the person making the request deems relevant; and
(h) Any other information the District deems necessary.

Rule 2 Fee For Variance Request

(a) Any applicant for a variance shall deliver to the District a non-refundable fee of $500.00 for each variance request.

Rule 3 Appearance Before the Directors of the Lower Platte South NRD

(a) Variance applicant may be required to appear before the Water Resources Subcommittee to explain the variance request.
(b) Variance applicant may be required to appear before the Board of Directors.

Rule 4 Consideration of the Variance Request

(a) All variance requests will be considered on a case by case basis.
(b) All variance requests shall be acted upon by the Board of Directors.

Rule 5 Variance Terms and Conditions

(a) The Board of Directors may place terms and conditions on the variance that the applicant must agree to by signing an affidavit which shall be recorded with the Register of Deeds.
(b) If such terms and conditions are required by the Board, the applicant must provide the District with documentation that the affidavit was recorded within thirty (30) days of the granting of the variance.

Review - Monolith (NE Sec 30, T7N-R6E, Lancaster), Adjacent Landowners

Map By: LPSNRD, sdr - April 2021

Monolith Property

Parcel Lines

0 0.5

Miles

MONOLITH

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

April 12, 2021

RE: NOTICE OF REQUEST FOR VARIANCE FOR WATER WELL PERMIT

Dear Landowner:

Monolith Nebraska LLC ("Monolith") is seeking a variance for water well permits from the Lower Platte South Natural Resources District ("LPSNRD"). A copy of the Variance Request that will be provided to the LPSNRD is enclosed for your review.

Monolith is located at 27077 SW 42nd Street, Hallam, NE 68368 and intends to drill three (3) wells at that location. As an adjoining landowner, you are being provided this Notice in accordance with the requirements of the LPSNRD. If you would like additional information regarding the operation of these wells and the impacts created by them, please contact Monolith at the address above.

Please sign below to acknowledge that you have received this Notice and please return this Notice to us in the enclosed stamped envelope. Please keep the enclosed Variance Request for your records.

_____ _____

Union Pacific Railroad Company – Signature Date

_____

Union Pacific Railroad Company – Printed Name

Union Pacific Railroad Company
Attn: Chris Samuelson
1400 Douglas Street
#Stop 1640
Omaha, NE 68179-1640

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

TO: LPSNRD Board of Directors

FROM: Dick Ehrman, Water Resources Specialist

DATE: April 16, 2021

RE: Monolith Variance Request

Dave Hume of LRE Water and I have reviewed the existing geologic information for the Monolith site, including the logs of the additional test holes for the 2nd and 3rd proposed wells submitted in the past weeks. It is our opinion that the geology and groundwater resources of the Monolith site are reasonably uniform, and therefore certain additional testing and analysis would not provide any information significantly different than what has already been submitted in connection with the application for the 1st proposed well.

It is therefore our recommendation that Monolith be granted a variance with respect to its applications for the 2nd and 3rd proposed wells from certain LPSNRD Regulations, specifically Section C, Rule 2(c)(i)(A)(3) ("aquifer test"), and Section C, Rule 2(c)(i)(A)(5) ("hydrogeologic analysis report"). Specifically, the variance would allow the aquifer testing and hydrogeologic analysis report submitted with Monolith's well permit application for the 1st proposed well to also be submitted for the purposes of Monolith's well applications for the 2nd and 3rd proposed wells.

Further, it is our recommendation that all other variance requests with respect to Monolith's applications for the 2nd and 3rd proposed wells be denied, including the variance requests relating to Section C, Rule 2(c)(i)(A)(2) ("accurate static water level measurement"), and Section C, Rule 2(c)(i)(A)(4) ("water quality samples"). This information is readily obtainable and would help establish baseline conditions on the site.

/de