

Winthrop, Shelby

To: Cramer, Robert
Subject: RE: Response to ADEQ NOD regarding monitoring well repairs

From: Cramer, Robert
Sent: Monday, October 08, 2018 3:14 PM
To: Winthrop, Shelby
Subject: FW: Response to ADEQ NOD regarding monitoring well repairs

Shelby,

Can you put this in the sw database for NABORS?

Thanks.

From: Fowler, Robert [<mailto:RFowler@scsengineers.com>]
Sent: Monday, October 08, 2018 3:12 PM
To: Cramer, Robert; Lee, Weston; Sadler, Bill
Cc: McCullough, Daniel
Subject: Response to ADEQ NOD regarding monitoring well repairs

Mr. Cramer

Attached you will find a NOD response letter to ADEQ's Review for Extending and Repairs to Monitoring Wells MW-3, MW-NAB-2, MW-NAB-8, MW-NAB-4, and CAO-2 at the NABORS Class 1 Landfill. If you have any questions or comments feel free to contact me at your convenience.

Sincerely,

Robert Fowler
Project Geologist

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North Little Rock, Arkansas 72113
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501-672-9320 cell
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Rec'd Digitally	
AFIN: 03-00051	
PMT#: 0249-S1-R2	
RECEIVED <small>By Shelby Winthrop at 8:28 am, Oct 09, 2018</small>	
DOC ID#: 74678	
TO: BS>File	<SW
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SCS ENGINEERS

October 8, 2018

Mr. Robert D. Cramer
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

RE: Response to ADEQ Review of Report for Extending and Repairs to Monitoring Wells MW-3, MW-NAB-2, MW-NAB-8, MW-NAB-4, and CAO-2 at the NABORS Class 1 Landfill
AFIN: 0249-S1-R2 Permit No. 03-00051

Dear Mr. Cramer:

SCS Engineers (SCS) is submitting the following response to ADEQ comments dated August 22, 2018 regarding the Report for Extending and Repairs to Monitoring Wells MW-3, MW-NAB-2, MW-NAB-8, MW-NAB-4, and CAO-2 at the NABORS Class 1 Landfill.

ADEQ Comment: *Table 1 references a well survey that was conducted upon the completion of extending the wells. Please submit the referenced well survey certified by an Arkansas licensed surveyor.*

Response: A revised report that includes the certified well survey has been included as an attachment to this letter.

If you have any questions or require additional information, please feel free to contact us at your convenience.

Sincerely,



Robert Fowler
Project Geologist
SCS ENGINEERS



Dan McCullough, PG
Project Director
SCS ENGINEERS

Attachments: revised report



SCS ENGINEERS

July 18, 2018

Bill Sadler
Arkansas Department of Environmental Quality
Office of Land Resources
5301 Northshore Drive
North Little Rock, AR 72118-5317

Subject: Report for Extending and Repairs to Monitoring Wells MW-3, MW-NAB-2, MW-NAB-8, MW-NAB-4, and CAO-2 at the NABORS Class 1 Landfill.
AFIN: 03-00051; Permit No. 0249-S1-R2

Dear Mr. Sadler:

SCS Engineers (SCS) is pleased to present you with this Report for Extending and Repairs to Monitoring Wells MW-NAB-8, MW-NAB-2, MW-NAB-4, MW-3, and CAO-2 at the NABORS Class 1 Landfill. These groundwater monitoring wells at the NABORS Landfill were below the proposed final grade within the construction area and therefore needed to be raised.

All work was completed under the supervision of an SCS geologist. Each monitoring well was raised by first removing the concrete pad and protective cover. Once the pad and protective cover were removed, a six-inch in diameter PVC protective pipe was placed around the existing monitoring well stick up. Additional riser pipe was added to raise the monitoring point to the desired elevation. Bentonite holeplug was then added to the annulus of between the inside of the six inch pipe and the riser. Fill dirt was placed around the six inch outer pipe until the desired elevation was reached.

During the placement of dirt around MW-NAB-2 and MW-3, the PVC well casing was damaged and therefore the wells could not be sampled. To repair the damage, the surrounding fill dirt was excavated until the damage to the PVC casing was located. The pipe was then repaired by adding a new section of PVC casing. The new casing was joined with the old casing via rubber boot with stainless steel bands. In addition, rebar was placed along two sides of the pipe. The rebar was secured with two stainless steel bands above and two bands below the joint to prevent movement in the PVC casing during placement of the dirt around the newly repaired casing. Fill dirt was then placed around the pipe until the desired elevation was reached. A new protective cover and pad were installed to complete each well at the new ground surface.

Since MW-NAB-2, MW-NAB-4, MW-3, and CAO-2 are located on a 2:1 slope, riprap was placed above and below the concrete pad for stormwater diversion to prevent slope failure around the newly installed concrete pad. **Attachment 1** depicts the design of the stormwater diversion structure at these locations. **Attachment 2** is a photo log of each of these locations.



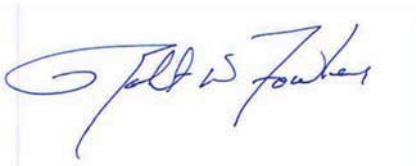
Upon completion of raising the wells, the location, top of casing and ground surface elevation for the monitoring wells was surveyed by Consolidated Land Services (CLS) an Arkansas licensed Surveyor. **Table 1** depicts the survey information for each of the newly raised monitoring wells.

TABLE 1

Well	Northing	Easting	Ground Surface (fmsl)	Top of Casing (fmsl)
NAB-2	774557.30	1181484.26	1001.26	1004.94
NAB-4	773703.13	1181234.18	1012.28	1015.41
NAB-8	773831.32	1180543.89	1046.98	1050.38
MW-3	774056.81	1179607.56	997.44	1000.81
CAO-2	774030.80	1179744.45	988.79	991.58

If you have any questions or comments regarding this document, please do not hesitate to contact me at (501) 812-4551 or email at rfowler@scsengineers.com.

Sincerely,

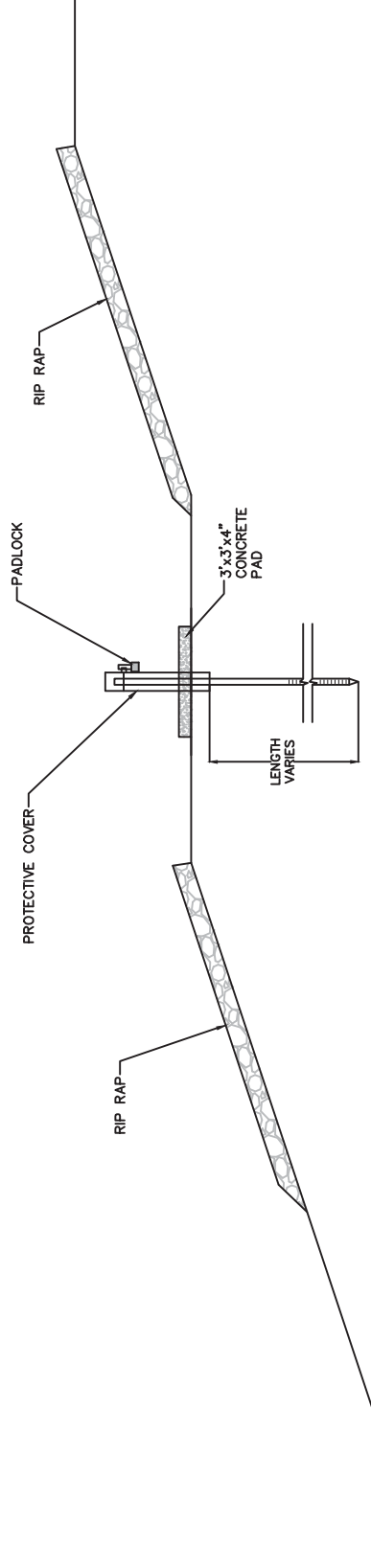


Robert Fowler
Project Geologist
SCS ENGINEERS



Dan McCullough, PG
Project Director
SCS ENGINEERS

Attachment 1 Well Repair Detail
Attachment 2 Photo Log
Attachment 3 Survey



A **WELL REPAIR DETAIL**

1 NOT TO SCALE

Nabors Well Repair Photo Log

SCS ENGINEERS



NAB-2 looking Southeast



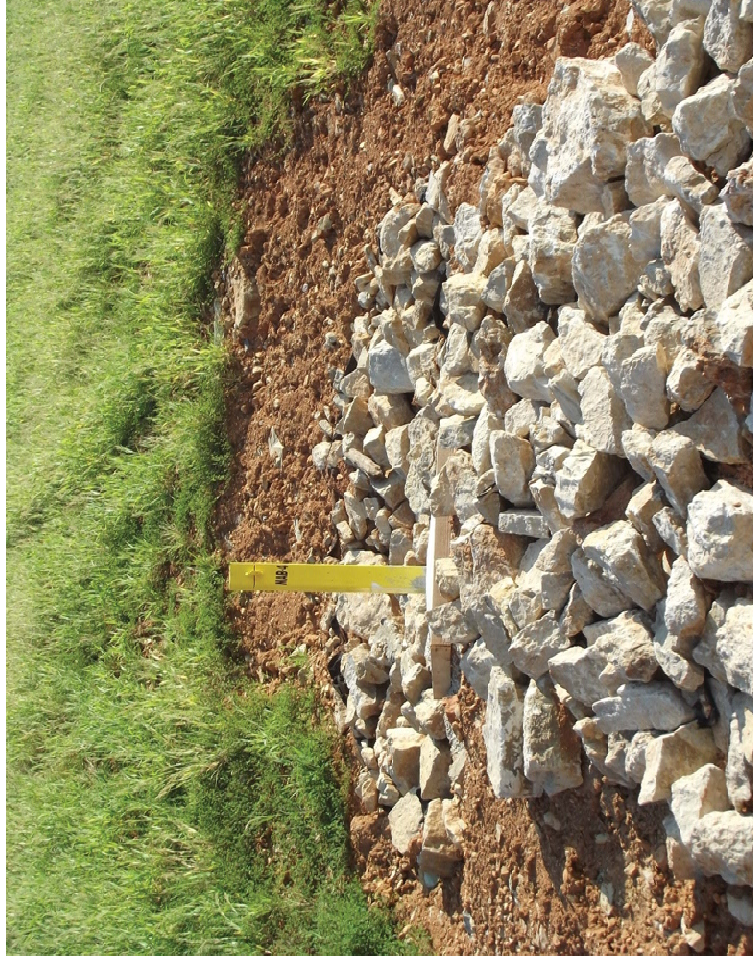
NAB-2 looking east

Nabors Well Repair Photo Log

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NAB-4 looking north



NAB-4 looking north

Nabors Well Repair Photo Log

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NAB-8 looking southeast



NAB-8 looking east

Nabors Well Repair Photo Log

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CAO-2 looking east



CAO-2 looking northeast

Nabors Well Repair Photo Log

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MW-3 looking northwest



MW-3 looking northeast

CONSOLIDATED LAND SERVICES

INCORPORATED

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Table 1. NABORS Landfills Monitoring Well Extensions

MW ID Number	Northing	Easting	Top of PVC Pipe Elevation	Top of Concrete Pad Elevation(ft)	Top of Adjacent Ground Elevation(ft)
MW-3	774057.04	1179608.33	1000.8	997.9	997.4
MW-NAB-2	774555.92	1181482.06	1004.9	1001.6	1001.3
MW-NAB-8	773831.13	1180544.58	1050.4	1047.5	1047.0
MW-NAB-4	773705.83	1181233.89	1015.4	1012.9	1012.3
CAO-2	774031.05	1179743.71	991.6	989.2	988.8

Notes:

1. Well locations (northings and eastings) were obtained from a previous survey done by Consolidated Land Services Inc. in January 2015.
2. Top of concrete pad and top of adjacent ground elevations were taken on the locking side of the monitoring well.
3. Field measurements were surveyed by Consolidated Land Services Inc. on June 14, 2018. Control data used to obtain these measurements are shown in Table 2 below.
4. Field measurements were obtained by GPS survey utilizing dual base stations and are represented as having a horizontal and vertical positional accuracy of 0.1 feet.

Table 2. NABORS Landfills Control Information

Point	Northing	Easting	Elevation
4	775573.55	1181872.79	1054.93
11	773566.76	1180768.45	1039.02

