

TO
Christine Matlock, EGLE
Joe Rogers, EGLE
Shaun Shields, EGLE

COPIES TO
Dave Favero, RACER Trust
Brendan Mullen, RACER Trust

DATE
March 8, 2024

PROJECT NUMBER
30171056

DEPARTMENT
Resilience Environment

FROM
Patrick Curry
patrick.curry@arcadis.com

SUBJECT
2023-2024 Monitoring Well Abandonment Summary
RACER Trust Industrial Land, Plants 2, 3, and 6, Lansing, Michigan

The following provides a summary of the 2023 monitoring well abandonment activities completed from December 11 to December 13, 2023, and February 14 to February 15, 2024 at RACER Trust Plants 2, 3, and 6 located in Lansing Township and Lansing, Michigan (Site). The scope of work was provided to the Michigan Department of Environment, Great Lakes and Energy (EGLE) as the *2023 Monitoring Well Abandonment Proposal for the RACER Trust Lansing Plants 2, 3, and 6*, dated December 5, 2022, updated on June 26, 2023, and approved on September 13, 2023. The locations of the abandoned monitoring wells are shown on **Figure 1**.

Plants 2, 3, and 6 Monitoring Well Abandonment

On December 11 to 13, 2023, RACER completed abandonment of sixteen (16) perched monitoring wells at Site. Not all wells proposed and approved for abandonment were completed due to access issues such as standing water or ice. Shallow well abandonment included the following procedures:

- Prior to abandonment, all wells were gauged with an interface probe to confirm total well depth and to check for presence of light non-aqueous phase liquid (LNAPL).
- The wells were abandoned in-place using a tremie line to pressure grout from the bottom of the well screen up to a depth of approximately 1 foot below ground surface (bgs). Grout consisted of an approximate 5%-10% bentonite and Type 1 Portland cement to reduce the potential for shrinkage upon setting. At each well, the PVC well casing was then cut 1-foot below grade and the void space was backfilled. The abandoned monitoring wells were a mixture of stick-up and flush mount construction. For wells installed in gravel or degraded asphalt, the manhole casing, or stick-up casing, and cement collar were removed, and the void space was backfilled to grade with Type 1 Portland cement-bentonite mix and covered with soil. For wells installed in concrete, the manhole cover, or stick-up casing was removed and the void space was backfilled to grade with Type 1 Portland cement to create a similar concrete surface.
- If LNAPL was present, all liquid (water and LNAPL) displaced with the cement-bentonite mixture was pumped into 55-gallon drums. The well casing was surrounded with plastic sheeting if the well was not located on concrete to prevent any minor surface spills.
- Once abandonment was complete, the remaining hole was filled with like material (cement, asphalt, or gravel) to bring it up to grade.

Due to unavailability of a driller with capability to abandon the deep overburden wells, abandonment of those were not completed until February 14 and 15, 2024. At that time, RACER completed abandonment of two (2) deep

overburden monitoring wells (MW-19 and TW-14-06). Deep overburden well MW-19 was part of the 2023 well abandonment plan. Well TW-14-06 is part of the biosparge system and had a damaged well seal that was affecting remedy performance. Abandonment of TW-14-06 was proposed via email on January 17, 2024, and approved by EGLE via email on February 9, 2024. Deep overburden well abandonment included the following procedures:

- Prior to abandonment, both wells were gauged to confirm total well depth.
- The well casing was pressure grouted using a tremie pipe from the bottom up with a thick bentonite grout and allowed to set for at least 24 hours.
- After the grout had set up, the upper portion of the well was over-drilled and removed using a rotary sonic drill rig to a depth at least two feet into the underlying clay till (located approximately 20-30 feet bgs).
- After the drill casing and annular materials were removed, the borehole extending into the underlying clay was abandoned from the bottom up using a tremie pipe and an approximate mixture of 5%-10% bentonite and Type 1 Portland cement to seal the borehole and reduce the potential for shrinkage upon setting.
- Once abandonment was complete, the remaining borehole was patched with like material (cement, asphalt, or gravel) to bring it up to grade.

A summary of the proposed versus abandoned wells is included as **Table 1**. Abandonment logs and relevant details are included as **Attachment 1**. Soil boring logs for each of the abandoned wells are included as **Attachment 2**.

Solid investigation derived waste (IDW) included drilling cuttings and well materials. Liquid IDW included water from decontamination of drilling tooling and purge water. All waste was containerized in 55-gallon drums and stored in a secured drum storage area on Plant 2 near the biosparge system pending disposal.

Several of the monitoring wells included in the June 2023 proposal were not abandoned for the reasons noted in the following table:

Table 1: Well Abandonment Summary Table

Well ID	Abandoned?	Comments
Plant 2		
LMW-12-02	Yes	Abandonment complete.
LMW-12-04	Yes	Abandonment complete.
LMW-12-06	Yes	Abandonment complete.
LMW-12-07	No	Could not access well - covered by ice. Will be abandoned during future mobilization.
LMW-14-14D	Yes	Abandonment complete.
LMW-15-17D	Yes	Abandonment complete.
PMW-02	No	Could not access well - covered by ice. Will be abandoned during future mobilization.
PMW-03	Yes	Abandonment complete.

Well ID	Abandoned?	Comments
Plant 3		
LMW-12-11	Yes	Abandonment complete.
MW-05(3)	No	Could not access well - covered by ice. Will be abandoned during future mobilization.
MW-13-31	Yes	Abandonment complete.
MW-14-65	Yes	Abandonment complete.
MW-19	Yes	Abandonment complete.
P3-SB-07	Yes	Abandonment complete.
TW-14-06	Yes	Abandonment complete.
UNK-10	Yes	Abandonment complete (no original boring log available).
Plant 6		
MW-03-04	Yes	Abandonment complete.
MW-03-08	No	Could not access well - covered by ice. Will be abandoned during future mobilization.
MW-12-15	Yes	Abandonment complete.
P6-SB-35	Yes	Abandonment complete.
P6-SB-37	Yes	Abandonment complete.
UNK-03	Yes	Abandonment complete (no original boring log available).

RACER intends to abandon the remaining four (4) perched monitoring wells in 2nd or 3rd quarter 2024 when Site conditions improve. Should you have any questions regarding the results of this evaluation, please contact Brendan Mullen at (201) 247-4890 or Patrick Curry at (810) 225-1926.

Enclosures:

Figure 1 – 2023-2024 Monitoring Well Abandonment Locations

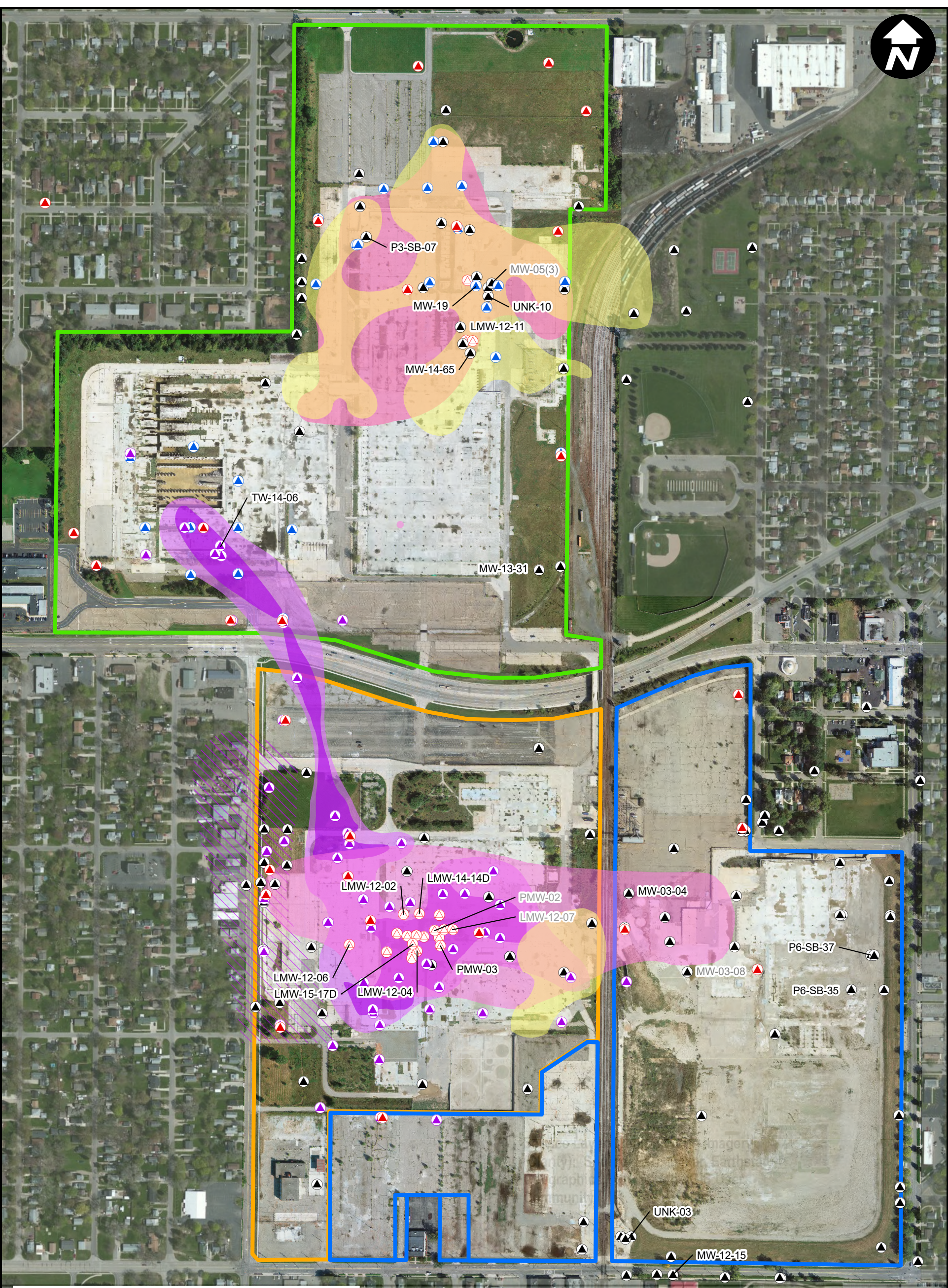
Attachment 1 – Well Decommissioning Logs

Attachment 2 – Soil Boring Logs

FIGURES



CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
\\arcadis-us.com\app\GIS\Processing_BufferData\MXDs\2023 Well Abandonment\2023 Well Abandonment.aprx PLOTTED: 3/1/2024 7:07 AM BY: VDavis



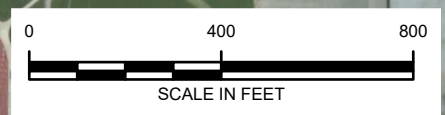
Legend

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- PFOS IN PERCHED GROUNDWATER (>12 ng/L)
- PERCHED 1,4-DIOXANE IMPACTS > DW CRITERIA (7.2 µg/L)
- PFOA IN PERCHED GROUNDWATER (> 8 ng/L)
- LOWER 1,4-DIOXANE IMPACTS > 72 µg/L
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA (>7.2 µg/L)
- FORMER ADAMS PLATING CO. LOWER 1,4-DIOXANE PLUME > DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTE: BLACK WELL LABELS INDICATE A COMPLETED ABANDONMENT. GRAY TEXT INDICATES THE WELL WAS PROPOSED FOR ABANDONMENT BUT NOT COMPLETED DUE TO WELL ACCESSIBILITY.



RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

2023-2024 WELL ABANDONMENT SUMMARY

Attachment 1

Well Decommissioning Logs

RACER Lansing, LMW-12-02, 2023-12-12

Created	2023-12-12 19:14:46 UTC by Alaina Pitera
Updated	2023-12-12 20:06:40 UTC by Alaina Pitera
Location	42.73857777317196, -84.58163540924808
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	LMW-12-02
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	12.96

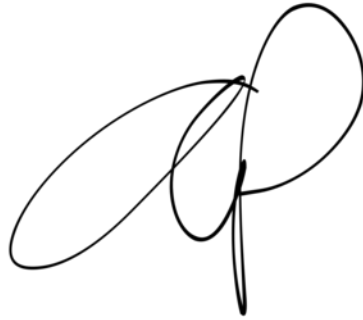
Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	4.94
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several overlapping loops and a vertical stroke at the bottom.

Signed 2023-12-12 20:05:44 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, LMW-12-04, 2023-12-13

Created	2023-12-13 14:26:04 UTC by Alaina Pitera
Updated	2023-12-13 17:10:32 UTC by Alaina Pitera
Location	42.73753980196417, -84.58493999261711

Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
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Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-13
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	LMW-12-04
Date Installed	2023-12-13
Date Abandoned	2023-12-13

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	22.98

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	6.19
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several overlapping loops and a long, sweeping tail that curves upwards and to the right.

Signed 2023-12-13 16:06:25 UTC

Company/Position	Arcadis
Date of Signature	2023-12-13
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, LMW-12-06, 2023-12-13

Created	2023-12-13 16:47:38 UTC by Alaina Pitera
Updated	2023-12-13 17:23:31 UTC by Alaina Pitera
Location	42.73757300402391, -84.58599343982895
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-13
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	LMW-12-06
Date Installed	2023-12-12
Date Abandoned	2023-12-13

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	12.02

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	6.29
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several overlapping loops and a vertical stroke at the end.

Signed 2023-12-13 17:10:11 UTC

Company/Position	Arcadis
Date of Signature	2023-12-13
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, LMW-12-11, 2023-12-11

Created	2023-12-11 15:06:25 UTC by Alaina Pitera
Updated	2023-12-11 21:02:38 UTC by Alaina Pitera
Location	42.74434986796253, -84.58402326704437
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-11
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	LMW-12-11
Date Installed	2023-12-11
Date Abandoned	2023-12-11

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	22.91

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	12.81
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing, Poured

Photo of Area After Abandonment



Additional Photos



Please remember to attach a site map to the well decommission log after printing.

Comments Displaced water pumped into 55gal steel drum.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several loops and a vertical stroke.

Signed 2023-12-11 17:15:44 UTC

Company/Position Arcadis

Date of Signature 2023-12-11

Have you performed work in accordance with the applicable QP/TGI? Yes

RACER Lansing, LMW-14-14D, 2023-12-12

Created	2023-12-12 19:15:16 UTC by Alaina Pitera
Updated	2023-12-12 20:49:09 UTC by Alaina Pitera
Location	42.738571042542276, -84.5816362236014

Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
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Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	LMW-14-14D
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	24.97

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	7.12
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of two large, overlapping loops on the left and right, with a vertical line extending downwards from the center where the loops meet.

Signed 2023-12-12 20:32:39 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, LMW-15-17D, 2023-12-13

Created	2023-12-13 14:20:02 UTC by Alaina Pitera
Updated	2023-12-13 17:10:03 UTC by Alaina Pitera
Location	42.73784277209514, -84.58501639475269
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-13
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	LMW-15-17D
Date Installed	2023-12-12
Date Abandoned	2023-12-13

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	27.37

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	6.4
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several loops and a long tail, positioned in the upper right quadrant of the page.

Signed 2023-12-13 15:41:44 UTC

Company/Position	Arcadis
Date of Signature	2023-12-13
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, MW-03-04, 2023-12-12

Created	2023-12-12 14:33:44 UTC by Alaina Pitera
Updated	2023-12-12 19:14:28 UTC by Alaina Pitera
Location	42.73840907796627, -84.58171638594742
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	MW-03-04
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	43.22

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	19.26
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of a large, stylized 'P' followed by a vertical line and a diagonal stroke.

Signed 2023-12-12 19:09:00 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, MW-12-15, 2023-12-12

Created	2023-12-12 17:27:37 UTC by Alaina Pitera
Updated	2023-12-13 17:07:07 UTC by Alaina Pitera
Location	42.737376320004635, -84.57776547163957
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	MW-12-15
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	24.56

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	19.8
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several loops and a long vertical stroke at the end.

Signed 2023-12-12 18:09:12 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, MW-13-31, 2023-12-12

Created	2023-12-12 14:14:30 UTC by Alaina Pitera
Updated	2023-12-12 16:16:42 UTC by Alaina Pitera
Location	42.74192799281609, -84.58303190947464
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	MW-13-31
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	12.82

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	8.19
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several loops and a vertical line at the end.

Signed 2023-12-12 14:19:27 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, MW-14-65, 2023-12-11

Created	2023-12-11 04:17:27 UTC by Alaina Pitera
Updated	2023-12-11 17:20:21 UTC by Alaina Pitera
Location	42.62446502490508, -83.91413306890149

Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
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Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-11
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	MW-14-65
Date Installed	2023-12-11
Date Abandoned	2023-12-11

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	13.23

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	6.89
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Additional Photos



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

Signed 2023-12-11 17:08:21 UTC

Company/Position	Arcadis
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Date of Signature	2023-12-11
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Have you performed work in accordance with the applicable QP/TGI?	Yes
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RACER Lansing, P3-SB-07, 2023-12-11

Created	2023-12-11 19:27:40 UTC by Alaina Pitera
Updated	2023-12-11 21:02:10 UTC by Alaina Pitera
Location	42.74576731545172, -84.58573436278508

Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case? Yes

Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-11
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	P3-SB-07
Date Installed	2023-12-11
Date Abandoned	2023-12-11

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	19.68

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	7.52
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of a large, stylized 'A' followed by a smaller 'P'.

Signed 2023-12-11 21:02:07 UTC

Company/Position	Arcadis
Date of Signature	2023-12-11
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, P6-SB-35, 2023-12-12

Created	2023-12-12 15:39:29 UTC by Alaina Pitera
Updated	2023-12-12 16:44:12 UTC by Alaina Pitera
Location	42.73706742485081, -84.57799910079264
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	P6-SB-35
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	11.99

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	4.56
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of stylized, overlapping loops and a vertical stroke, resembling the initials 'AP'.

Signed 2023-12-12 16:44:04 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, P6-SB-37, 2023-12-12

Created	2023-12-12 16:29:23 UTC by Alaina Pitera
Updated	2023-12-13 17:10:56 UTC by Alaina Pitera
Location	42.737448587820985, -84.57777339937019
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	P6-SB-37
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	13.95

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	4.53
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several loops and a long vertical stroke at the bottom.

Signed 2023-12-13 17:06:22 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, PMW-03, 2023-12-13

Created	2023-12-13 15:42:36 UTC by Alaina Pitera
Updated	2023-12-13 17:09:19 UTC by Alaina Pitera
Location	42.737577960481886, -84.58460064410289
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-13
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	PMW-03
Date Installed	2023-12-12
Date Abandoned	2023-12-13

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	6.19

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	0
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Comments DTW level was zero due to water level being at TOC.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of a large, stylized 'R' followed by a vertical line and a small flourish.

Signed 2023-12-13 16:40:02 UTC

Company/Position	Arcadis
Date of Signature	2023-12-13
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, UNK-03, 2023-12-12

Created	2023-12-12 14:56:10 UTC by Alaina Pitera
Updated	2023-12-13 17:06:51 UTC by Alaina Pitera
Location	42.73410394467385, -84.58159610788586
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-12
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	UNK-03
Date Installed	2023-12-12
Date Abandoned	2023-12-12

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	11.83

Screen depth measured from TOC or Ground Surface	TOC
Water Table Depth from TOC (in ft)	2.58
Casing Type	PVC
Screen Type	PVC
Inside Diameter	2 inch
Abandoned Screen Length (ft)	5
Casing	Cut
Casing Cut Depth (ft bgs)	1
Grouted	Yes
Grout Type	Cement
Grout Mixture	Slurry
Grout Method	Through Casing

Photo of Area After Abandonment



Please remember to attach a site map to the well decommission log after printing.

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several fluid, overlapping strokes that form a stylized, somewhat abstract shape.

Signed 2023-12-12 16:15:36 UTC

Company/Position	Arcadis
Date of Signature	2023-12-12
Have you performed work in accordance with the applicable QP/TGI?	Yes

RACER Lansing, UNK-10, 2023-12-11

Created	2023-12-11 16:56:04 UTC by Alaina Pitera
Updated	2023-12-13 17:05:51 UTC by Alaina Pitera
Location	42.7451045700833, -84.58384997027356
Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes
Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.	

General Section

Select Project Number	30171056, RACER Trust, RACER Lansing 2023
Client	RACER Trust
Project Number	30171056
Site Name	RACER Lansing
County	Ingham
Date	2023-12-11
Location information via Township/Range/Section or GPS?	GPS

Well Information

Well ID	UNK-10
Date Installed	2023-12-11
Date Abandoned	2023-12-11

Photo of Well Before Abandonment



Abandon Drilling Firm	Fibertec
Depth to Bottom (ft)	11.27

Signature of Consultant/Engineer

A handwritten signature in black ink, consisting of several overlapping loops and a central vertical stroke.

Signed 2023-12-11 17:16:47 UTC

Company/Position	Arcadis
Date of Signature	2023-12-11
Have you performed work in accordance with the applicable QP/TGI?	Yes

MONITOR WELL ABANDONMENT RECORD



Site Name : **RACER Lansing**

Well ID: **MW-19**

Site Name: RACER Lansing

County: Ingham

Well ID: MW-19

Project Number: 30214036

Date Installed:

Date Abandoned: 2/15/2024

Subcontractor: Cascade

Well Depth: 49.65 ft

Screen Depth from TOC (ft): ft

Water Table Depth from TOC: 42.05 ft

Casing Type: Galvanized PVC Stainless Steel ID: 2in 4in

Screen Type: PVC Stainless steel Abandoned Screen Length: 5 ft

2in Annulus Grouted: Yes No from 49.65 ft to 0 ft Grout Type: Cement

4in Annulus Grouted: Yes No from ft to ft Grout Type:

Casing: Pulled Cut Depth BGS: Well Grouted? Yes No

Grout Type: Bentonite Cement Grout Mixture: Chips Slurry

Grouting Method: Through Casing Tremie Poured

Other Grouting Method Other:

Crew:

Comments:

Notes:

ft - feet

in - inches

TOC - Top of Casing

ID - Inside Diameter

BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD



Site Name : RACER Lansing

Well ID: MW-19

Location Sketch: See attached site map

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis

Company / Position

2/14/2024

Date

MONITOR WELL ABANDONMENT RECORD



Site Name : RACER Lansing

Well ID: TW-14-06

Site Name: RACER Lansing

County: Ingham

Well ID: TW-14-06

Project Number: 30214036

Date Installed:

Date Abandoned: 2/15/2024

Subcontractor: Cascade

Well Depth: 84.81 ft

Screen Depth from TOC (ft): NA ft

Water Table Depth from TOC: 68.31 ft

Casing Type: Galvanized PVC Stainless Steel ID: 2in 4in

Screen Type: PVC Stainless steel Abandoned Screen Length: ft

2in Annulus Grouted: Yes No from 0 ft to 84.81 ft Grout Type: Cement

4in Annulus Grouted: Yes No from ft to ft Grout Type:

Casing: Pulled Cut Depth BGS: Well Grouted? Yes No

Grout Type: Bentonite Cement Grout Mixture: Chips Slurry

Grouting Method: Through Casing Tremie Poured

Other Grouting Method Other:

Crew:

Comments:

Notes:

ft - feet

in - inches

TOC - Top of Casing

ID - Inside Diameter

BGS - Below ground surface

MONITOR WELL ABANDONMENT RECORD



Site Name : RACER Lansing

Well ID: TW-14-06

Location Sketch: See attached site map

Well before Abandonment



Well after Abandonment



Signature Of Consultant

Arcadis

Company / Position

2/14/2024

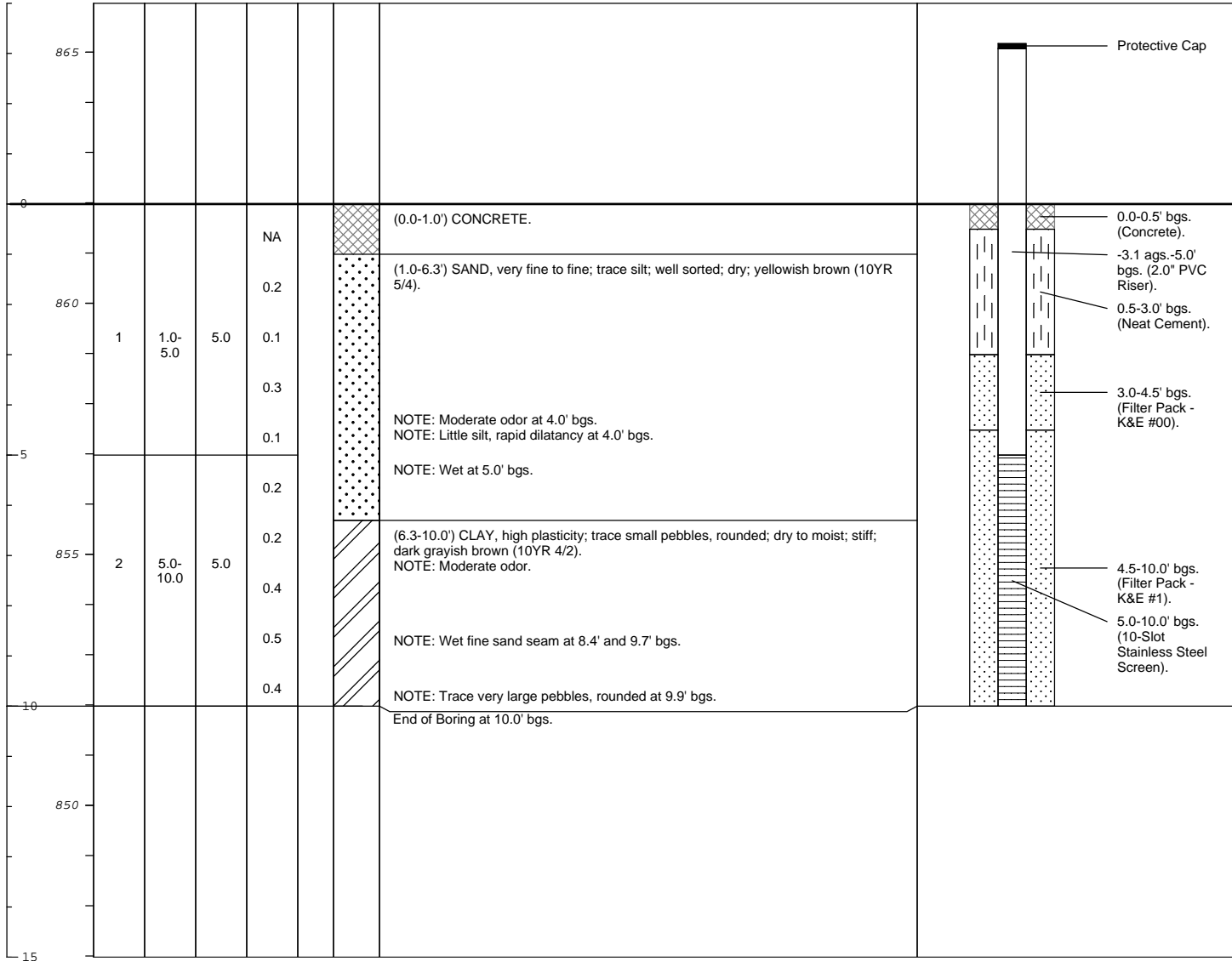
Date

Attachment 2

Soil Boring Logs

Date Start/Finish: 11.14.12 Drilling Company: Boart Longyear Driller's Name: Steve Argue Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 451204.894 Easting: 13064674.72 Casing Elevation: NA Borehole Depth: 10.0' bgs Surface Elevation: 861.974975 Descriptions By: Colleen Barton	Well/Boring ID: LMW-12-02 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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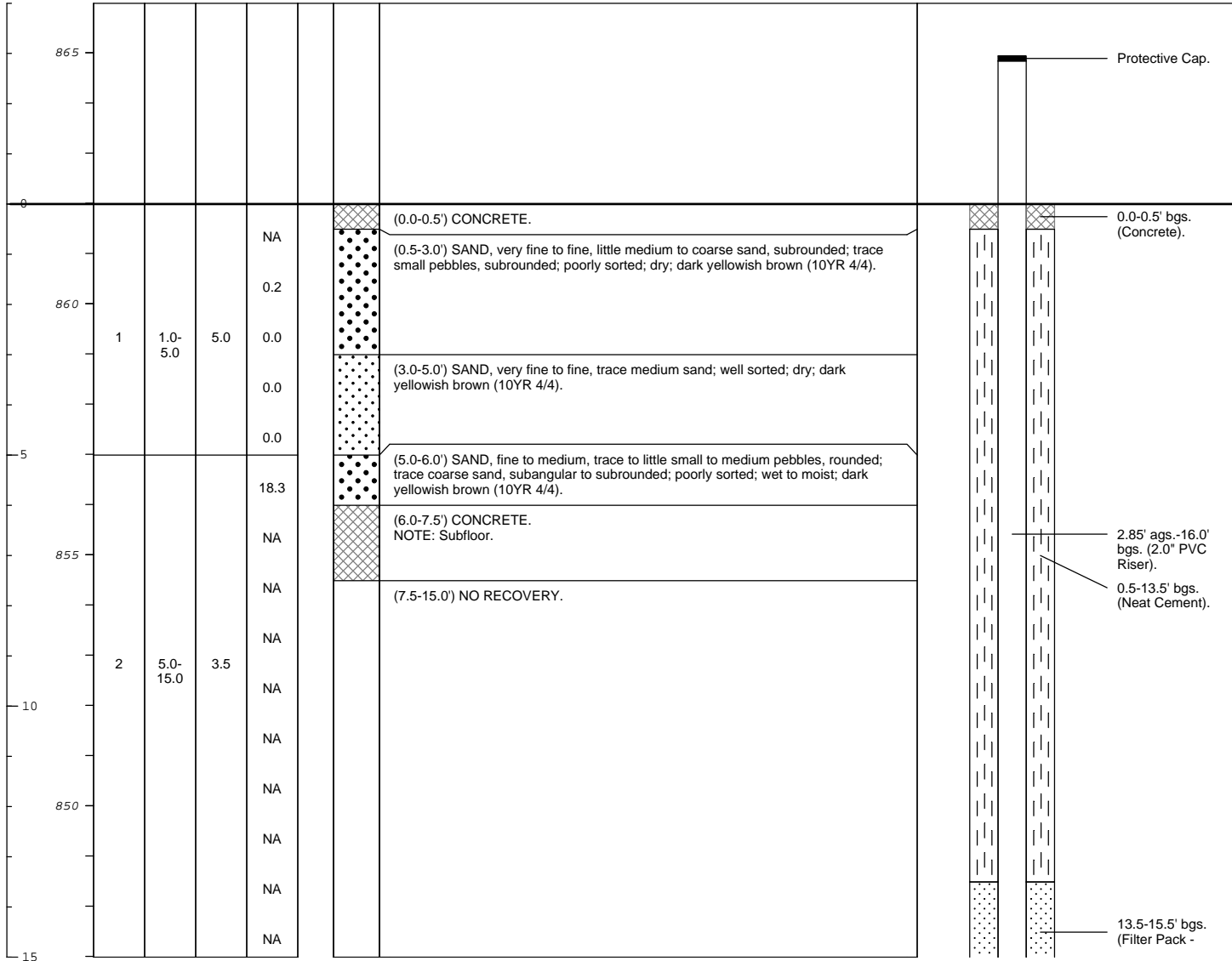
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered at 5.0', 8.4' and 9.7' bgs. Moderate odor observed at 4.0' and from 6.3'-10.0' bgs. No staining observed.
--	--

Date Start/Finish: 11.14.12 - 11.15.12 Drilling Company: Boart Longyear Driller's Name: Steve Argue Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 451047.6023 Easting: 13064731.84 Casing Elevation: NA Borehole Depth: 21.0' bgs. Surface Elevation: 861.984008 Descriptions By: Colleen Barton	Well/Boring ID: LMW-12-04 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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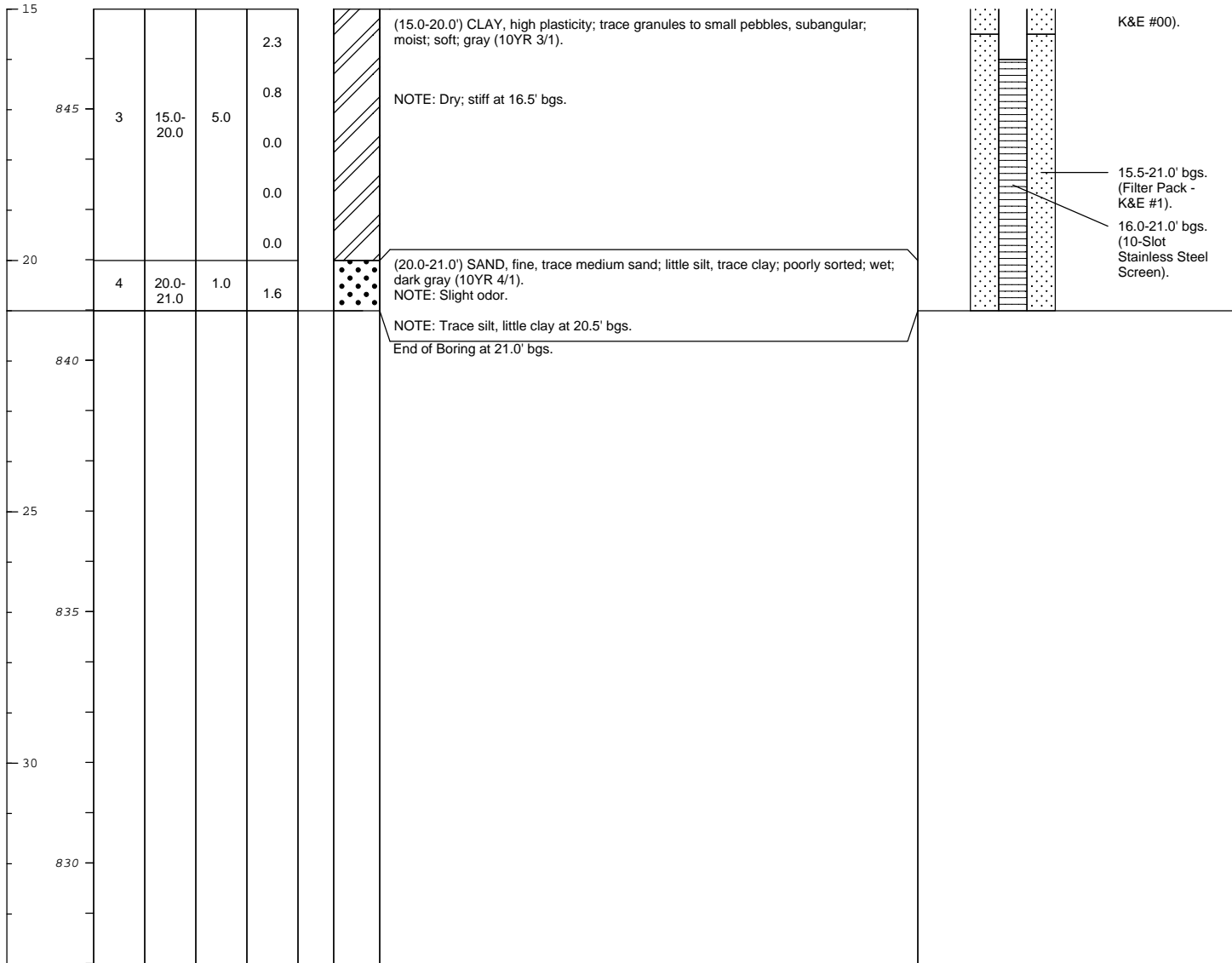
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered from 5.0-6.0' and 20.0-21.0' bgs. Slight odor observed from 20.0-21.0' bgs. No staining observed.
--	--

Date Start/Finish: 11.14.12 - 11.15.12 Drilling Company: Boart Longyear Driller's Name: Steve Argue Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 451047.6023 Easting: 13064731.84 Casing Elevation: NA Borehole Depth: 21.0' bgs. Surface Elevation: 861.984008 Descriptions By: Colleen Barton	Well/Boring ID: LMW-12-04 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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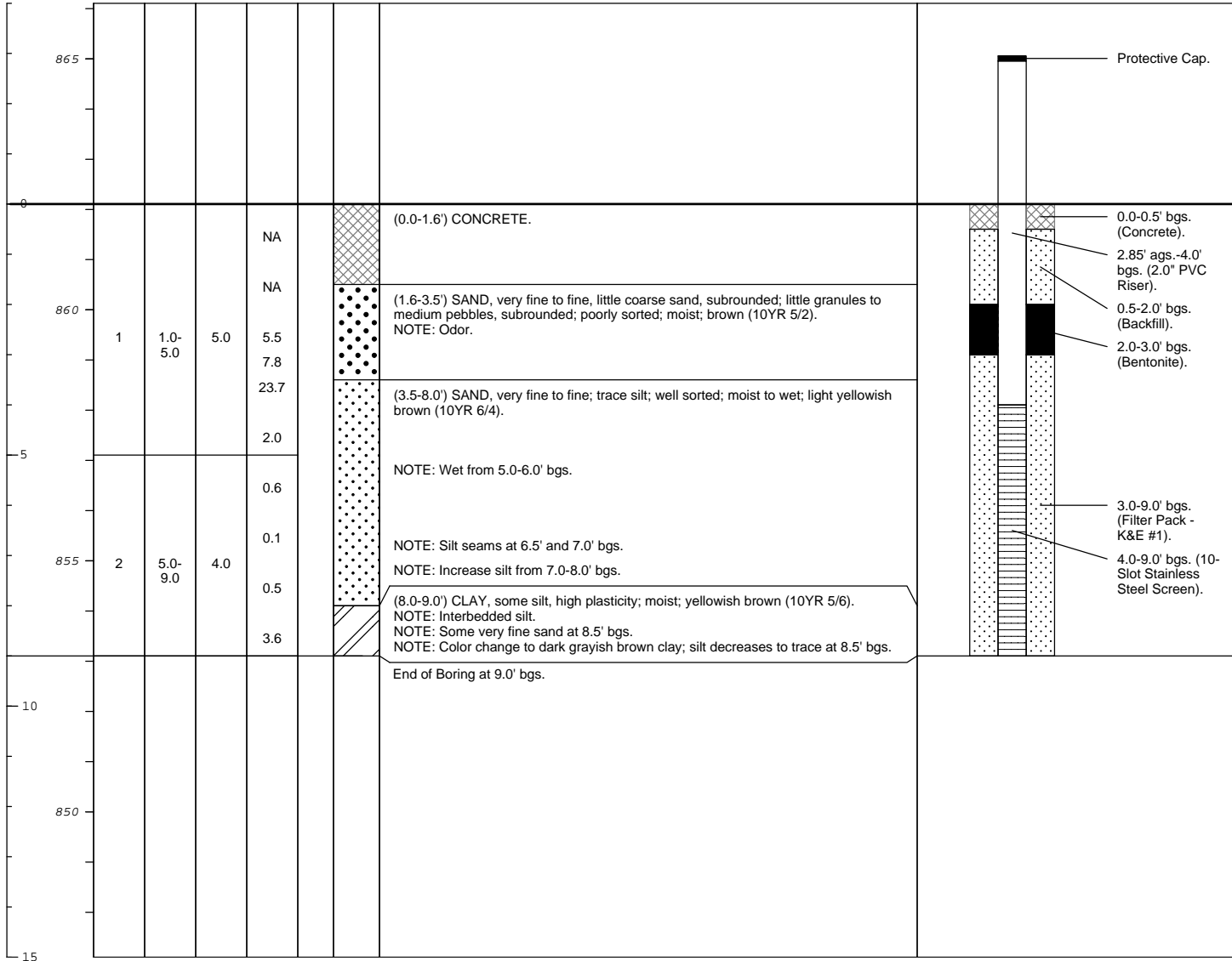
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered from 5.0-6.0' and 20.0-21.0' bgs. Slight odor observed from 20.0-21.0' bgs. No staining observed.
--	--

Date Start/Finish: 11.15.12 - 11.15.12 Drilling Company: Boart Longyear Driller's Name: Steve Argue Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 451069.8903 Easting: 13064459.82 Casing Elevation: NA Borehole Depth: 9.0' bgs. Surface Elevation: 862.106018 Descriptions By: Colleen Barton	Well/Boring ID: LMW-12-06 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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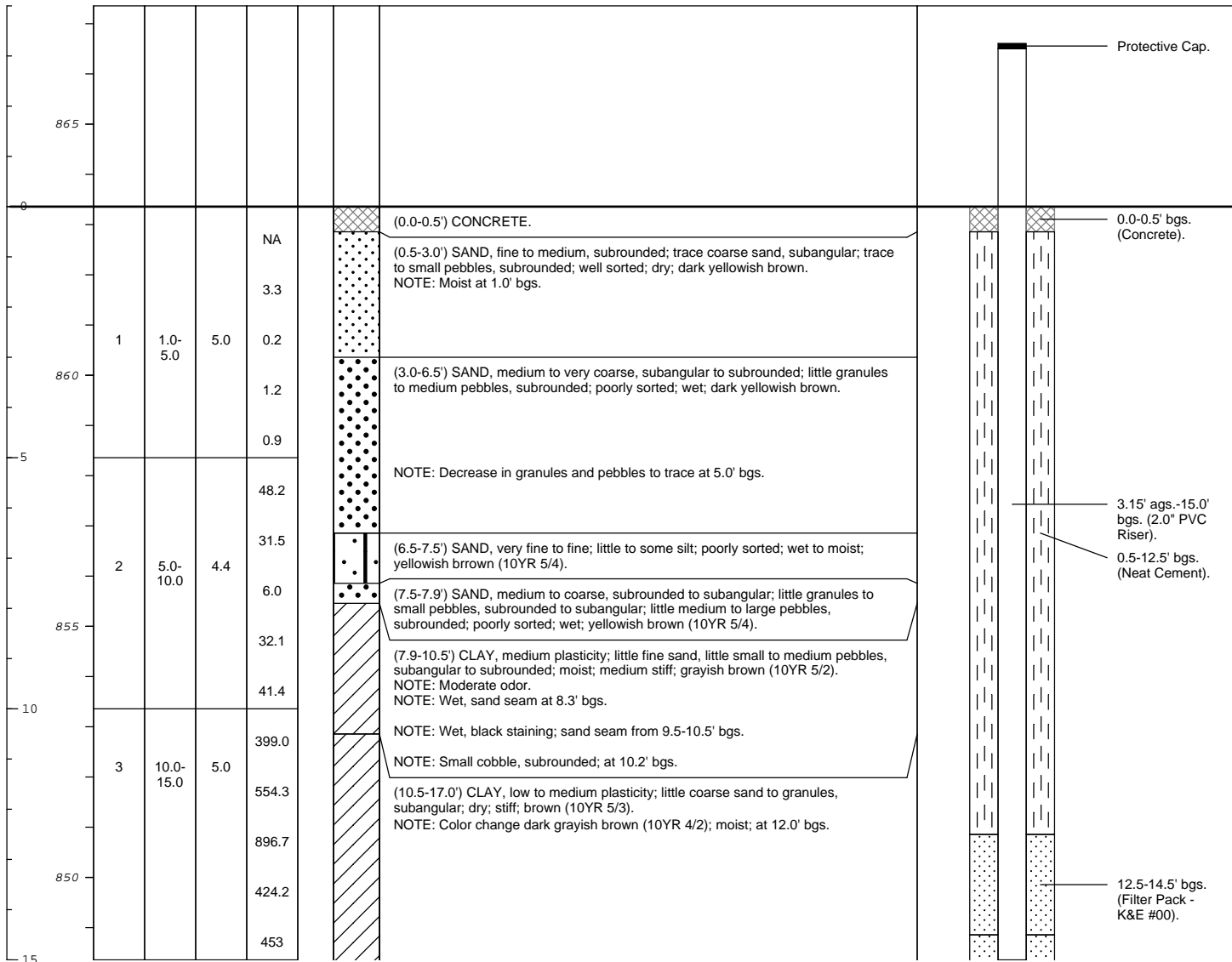
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered from 5.0-6.0' bgs. Odor observed from 1.6-3.5' bgs. No staining observed.
--	--

Date Start/Finish: 11.20.12 Drilling Company: Boart Longyear Driller's Name: Steve Argue Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 453634.6702 Easting: 13064934.79 Casing Elevation: NA Borehole Depth: 24.0' bgs. Surface Elevation: 863.356994 Descriptions By: Colleen Barton	Well/Boring ID: LMW-12-11 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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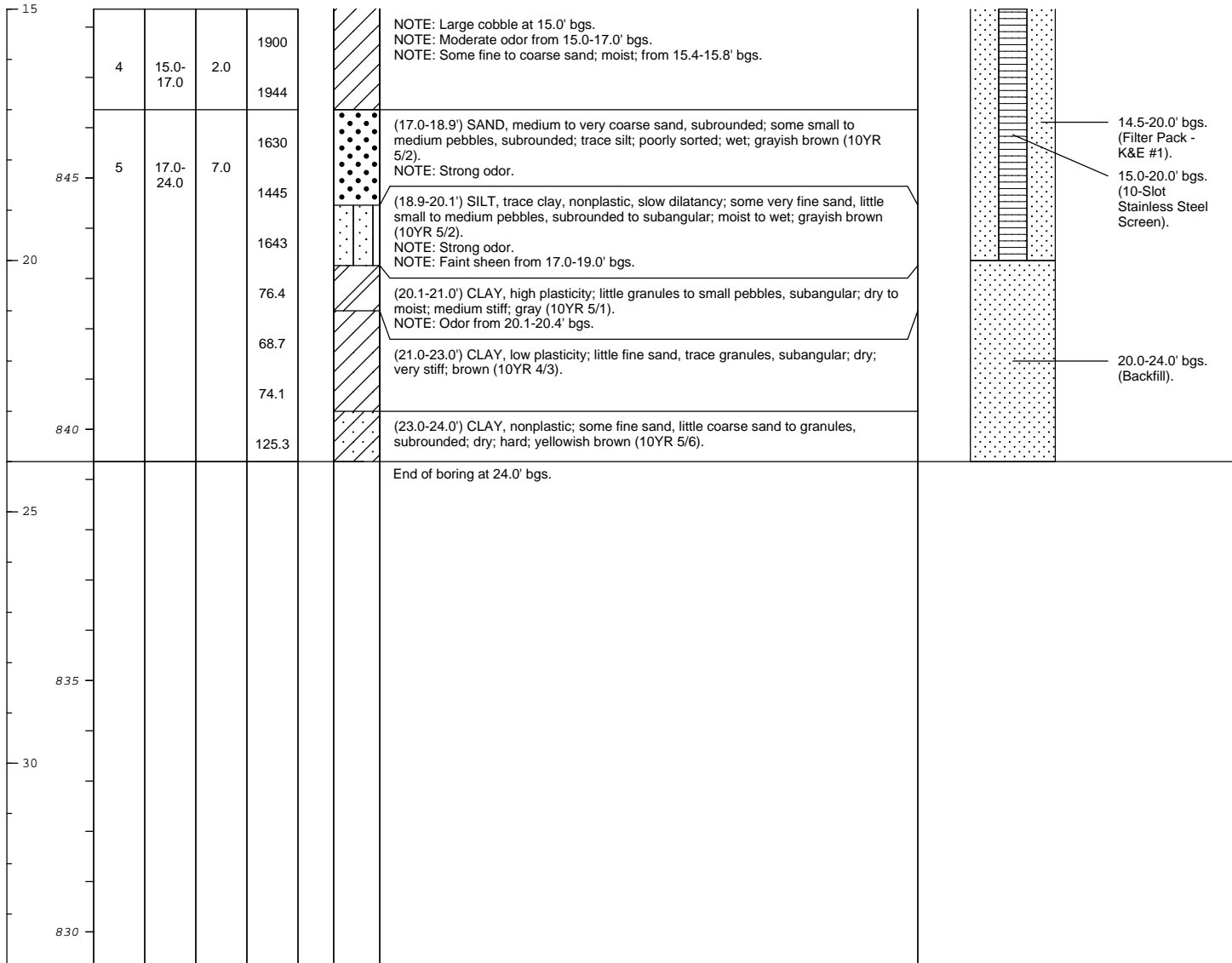
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered from 3.0-7.9', at 8.3', from 9.5-10.5' and 17.0-20.1' bgs. Odor observed from 7.9-10.5' and 15.0-20.4' bgs. Black staining observed from 9.5-10.5' bgs. Faint sheen observed from 17.0-19.0' bgs.
--	---

Date Start/Finish: 11.20.12 Drilling Company: Boart Longyear Driller's Name: Steve Argue Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 453634.6702 Easting: 13064934.79 Casing Elevation: NA Borehole Depth: 24.0' bgs. Surface Elevation: 863.356994 Descriptions By: Colleen Barton	Well/Boring ID: LMW-12-11 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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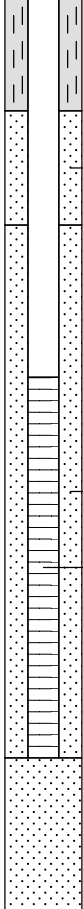

	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered from 3.0-7.9', at 8.3', from 9.5-10.5' and 17.0-20.1' bgs. Odor observed from 7.9-10.5' and 15.0-20.4' bgs. Black staining observed from 9.5-10.5' bgs. Faint sheen observed from 17.0-19.0' bgs.
--	---


Date Start: 11/24/14 Date Finish: 11/24/14 Drilling Company: Cascade Drilling Driller's Name: Mike Drilling Method: Sonic Sampling Method: 10', 5" dual tube Rig Type: Sonic Water Level Start (ft. bgs.): NA Water Level Finish (ft. btoc.): NA	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 25.0 Surface Elevation: Descriptions By: B.O'Leary	Well/Boring ID: LMW-14-14D (SB-A5.2-NL121) Client: RACER Location: RACER Lansing Plant 2 2801 West Saginaw Lansing, MI 48909 Weather Conditions: NA
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DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
0	0	1	0.0-0.5	0.5				(0.0'-0.8') CONCRETE.		
0.8								(0.8'-1.6') SAND, medium to coarse, subangular; little subround pebbles; poorly sorted; moist; yellowish brown (10YR 5/6).		
1.6								(1.6'-2.1') SAND, medium to coarse, subangular; little subround pebbles; poorly sorted; moist; very dark brown (10YR 2/3). NOTE: Brick at 2.0' bgs.		
2.1		2	0.5-7.0					(2.1'-3.1') CLAY, medium plasticity, rapid dilatancy; some medium sand; moist; soft; very dark brown (10YR 2/2). NOTE: Organics at 2.5' bgs.		
3.1								(3.1'-7.0') CLAY, medium plasticity, rapid dilatancy; some medium sand; moist; medium stiff; dark yellow brown (10YR 4/6).		
7.0								(7.0'-10.0') CLAY, medium plasticity, rapid dilatancy; and SAND, medium; poorly sorted; wet; dark yellowish brown (10YR 4/6).		0.0-14.5' bgs. (Grout)
10.0								(10.0'-10.2') SAND, medium to coarse, subround to subangular; wet; yellowish brown (10YR 5/6).		
10.2		3	7.0-17.0					(10.2'-18.0') CLAY, high plasticity, slow dilatancy; dry; medium stiff; dark gray (10YR 4/1).		-3.0-18.0' bgs. (2.0" PVC Casing)

 <p>ARCADIS Infrastructure · Water · Environment · Buildings</p>	Remarks: bgs = below ground surface Groundwater was encountered from 7.0'-10.2' bgs. No staining or odor observed.
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Date Start: 11/24/14 Date Finish: 11/24/14 Drilling Company: Cascade Drilling Driller's Name: Mike Drilling Method: Sonic Sampling Method: 10', 5" dual tube Rig Type: Sonic Water Level Start (ft. bgs.): NA Water Level Finish (ft. btoc.): NA	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 25.0 Surface Elevation: Descriptions By: B.O'Leary	Well/Boring ID: LMW-14-14D (SB-A5.2-NL121) Client: RACER Location: RACER Lansing Plant 2 2801 West Saginaw Lansing, MI 48909 Weather Conditions: NA
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DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
15	-15									
20	-20	4	17.0-25.0					(18.0'-23.0') CLAY, medium plasticity, rapid dilatancy; and SAND, medium; moist; dark grayish brown (10YR 4/2).		 <p>14.5-16.0' bgs. (Filter Pack - K&E #0)</p> <p>16.0-25.0' bgs. (Filter Pack - Global #4)</p> <p>18.0-23.0' bgs. (2.0" Stainless Steel Well Screen)</p>
25	-25							(23.0'-25.0') CLAY, medium plasticity, slow dilatancy; dry; medium soft; dark grayish brown (10YR 4/2).		
								End of boring at 25.0' bgs.		


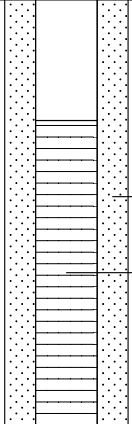

 Infrastructure · Water · Environment · Buildings	Remarks: bgs = below ground surface Groundwater was encountered from 7.0'-10.2' bgs. No staining or odor observed.
--	---

Date Start: 11/24/14 Date Finish: 11/24/14 Drilling Company: Cascade Drilling Driller's Name: Mike Drilling Method: Sonic Sampling Method: 10', 5" dual tube Rig Type: Sonic Water Level Start (ft. bgs.): NA Water Level Finish (ft. btoc.): NA	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 25.0 Surface Elevation: Descriptions By: B.O'Leary	Well/Boring ID: LMW-14-14D (SB-A5.2-NL121) Client: RACER Location: RACER Lansing Plant 2 2801 West Saginaw Lansing, MI 48909 Weather Conditions: NA
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DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
30	-30									
35	-35									

 <i>Infrastructure · Water · Environment · Buildings</i>	Remarks: bgs = below ground surface Groundwater was encountered from 7.0'-10.2' bgs. No staining or odor observed.
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Date Start: 5/14/15 Date Finish: 5/14/15 Drilling Company: Cascade Driller's Name: John and Walter Drilling Method: Sonic Sampling Method: 4" core Rig Type: Sonic Water Level Start (ft. bgs.): 18.0 Water Level Finish (ft. btoc.): NA	Northing: NA Easting: NA Casing Elevation: 3' bgs Borehole Depth (ft. bgs.): 25' bgs Surface Elevation: NA Descriptions By: A. Villhauer	Well/Boring ID: LMW-15-17D Client: RACER Trust Location: RACER Lansing P2 2801 West Saginaw Lansing, MI 48909 Weather Conditions: Sun, 60F
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DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headpace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
20	-20	3		5.0		X		SAND, fine to coarse; poorly sorted; wet; dark gray (10YR 5/1). CLAY, high plasticity; some silt; trace granules to small pebbles, subround; moist; stiff; gray (10YR 5/1).		 <p>(17.5-25.0') Sand Pack KE #1.</p> <p>(20.0-25.0') Well Screen 55 wire wrap 10 slot).</p>
25	-25				0.3	X		SAND, fine to medium; little silt; wet; dark gray (10YR 4/1). CLAY, high plasticity; some silt; trace granules to small pebbles, subround; moist; stiff; gray (10YR 5/1).		
								End of Boring at 25' bgs.		
30	-30									
35	-35									

Remarks: LMW-15-17D_18-18.5 sampled at 16:00 and LMW-15-17D_24-24.5 sampled at 16:08.



Date Start: 5/14/15 Date Finish: 5/14/15 Drilling Company: Cascade Driller's Name: John and Walter Drilling Method: Sonic Sampling Method: 4" core Rig Type: Sonic Water Level Start (ft. bgs.): 18.0 Water Level Finish (ft. btoc.): NA	Northing: NA Easting: NA Casing Elevation: 3' bgs Borehole Depth (ft. bgs.): 25' bgs Surface Elevation: NA Descriptions By: A. Villhauer	Well/Boring ID: LMW-15-17D Client: RACER Trust Location: RACER Lansing P2 2801 West Saginaw Lansing, MI 48909 Weather Conditions: Sun, 60F
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DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
18.0 - 18.5										

	Remarks: LMW-15-17D_18-18.5 sampled at 16:00 and LMW-15-17D_24-24.5 sampled at 16:08.
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Date Start/Finish: 7/30/03 Drilling Company: Prosonic Corp. Driller's Name: D. Bond Drilling Method: Hollow Stem Auger Auger Size: 4.25" ID Rig Type: CME 85 Sampling Method: 5' Macrocore	Northing: 3937.71 Easting: 4159.37 Casing Elevation: 865.81 Borehole Depth: 45' below grade Surface Elevation: 866.11 Geologist: J. Kralik	Well/Boring ID: MW-03-04 Client: General Motors Corporation Location: GM Lansing Plant #6
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 15 inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0										ASPHALT.	Flushmount Well Protector
865		1	0-5	5	2 7 3 4	10		NA		GRAVEL. Brown to yellowish brown SILTY CLAY (CL), some fine to medium Sand, little coarse Sand, fine Gravel, stiff, moist, light gray mottling, no odor.	Concrete Pad.
5	860	2	5-10	5	5 5 6 8	11		NA	CL	Little medium Gravel, 5-12.5' bgs.	Bentonite Grout (2-29' bgs).
10	855	3	10-15	5	3 5 7 8	12		NA		Brownish gray SILTY CLAY (CL), little fine Sand, fine Gravel, damp, no odor.	2" Schedule 40 PVC Riser (0-33' bgs).
										Yellowish brown SILTY CLAY (CL), thin (<1") yellow-brown sand layers.	
										Grayish brown SILT (ML).	
15		4	15-20	5	6 8	16		NA	ML		

Remarks: bgs = below ground surface; NA = Not Applicable/Available.



Client:
General Motors Corporation

Well/Boring ID: MW-03-04

Site Location:
GM Lansing
Plant #6

Borehole Depth: 45' below grade

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
850					8	16		ML		Grayish brown SILT (ML).	
		4	15-20	5	5		NA			Grayish brown SILTY CLAY (CL), some very fine to fine Sand, little fine Gravel, moist, slightly to non-plastic, no odor.	Bentonite Grout (2-29' bgs).
20					2			CL			2" Schedule 40 PVC Riser (0-33' bgs).
845					3						
		5	20-25	5	7	10	NA				
					8						
25								ML		Grayish brown CLAYEY SILT (ML), little very fine to fine Sand, trace medium to coarse Sand, fine Gravel, moist, no odor.	
840					4						
					11						
					10	21		CL		Reddish brown CLAY (CL), trace very fine to fine Sand and Silt, damp, vertical fracturing with greenish-gray fine Sand infillings.	
					9						
30		6	25-30	5			NA			Grayish brown CLAYEY SILT (ML), little very fine to fine Sand, trace medium to coarse Sand, fine Gravel, trace Rock fragments, medium dense, moist, no odor.	
835					4						
					7						
					11	18					
					16			ML		Dolostone Cobble at 30.5' bgs.	Bentonite Chip (29-31' bgs)
		7	30-35	5			NA				#5 Sand Pack (31-45' bgs).
35											
					3						
		8	35-40	5	5	13	NA				2" 10-slot Schedule 40 PVC Well Screen (33-43' bgs).

Remarks: bgs = below ground surface; NA = Not Applicable/Available.



Client:
General Motors Corporation

Site Location:
GM Lansing
Plant #6

Well/Boring ID: MW-03-04

Borehole Depth: 45' below grade

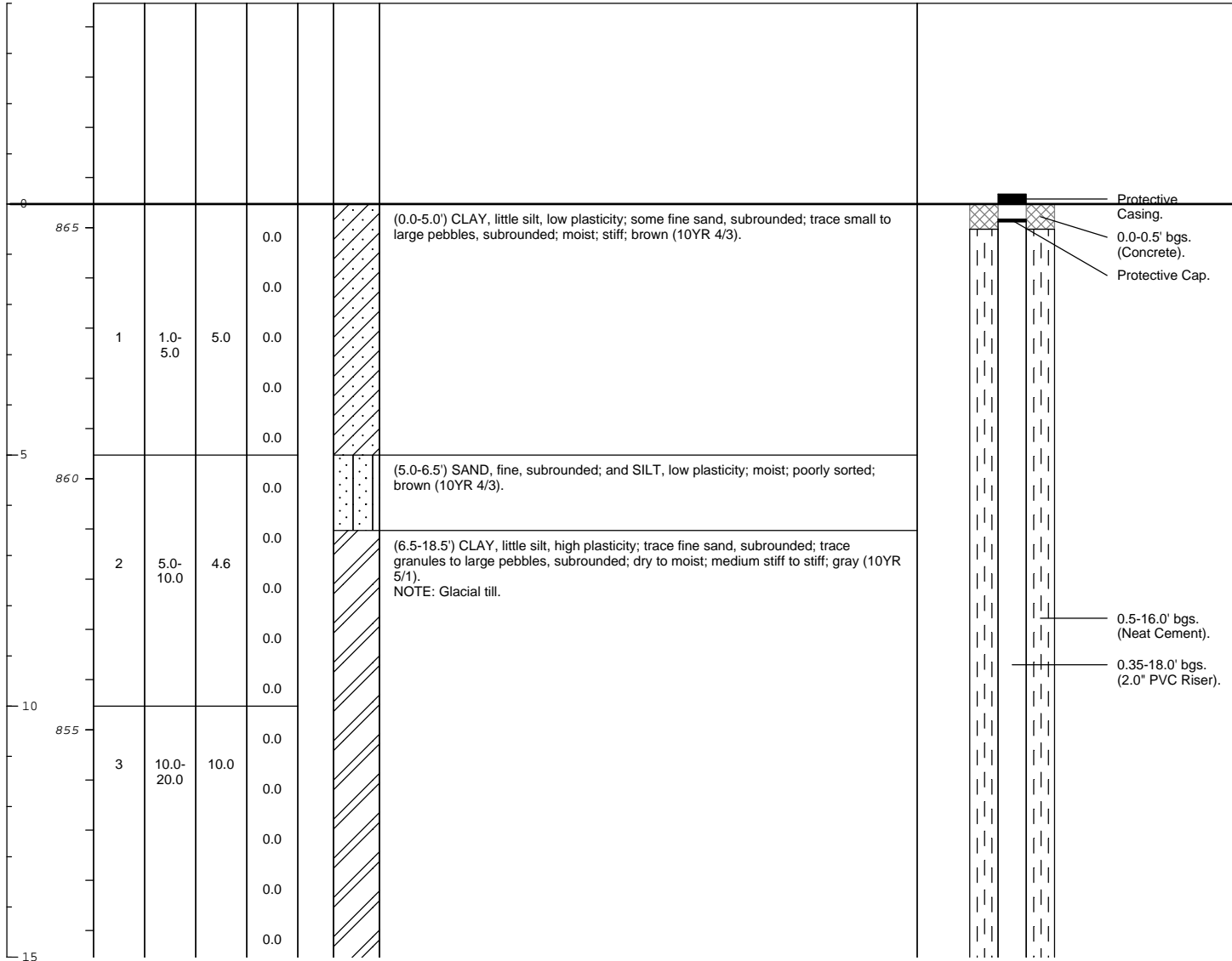
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
830		8	35-40	5	8	13	NA	SP		Grayish brown very fine to medium SAND (SP), grading into Silt at depth, wet.	<p>#5 Sand Pack (31-45' bgs).</p> <p>2" 10-slot Schedule 40 PVC Well Screen (33-43' bgs).</p>
	9				ML			Grayish brown SILT (ML), little very fine to fine Sand, wet to moist.			
40		9	40-45	5	4	12	NA	SP		Grayish brown SAND (SP), wet.	
	5				ML			Grayish brown SILT (ML), little very fine to fine Sand, wet to moist.			
825	7										
	6				CL			Brownish gray SILTY CLAY (CL), little very fine to medium Sand, trace fine Gravel, damp, slightly to non plastic.			
45		End of boring at 45' bgs.									
820											
50											
815											
55											




Remarks: bgs = below ground surface; NA = Not Applicable/Available.

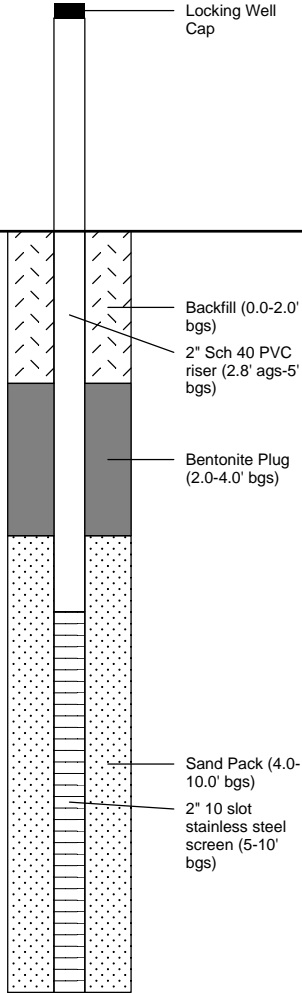
Date Start/Finish: 11.19.12 Drilling Company: Boart Longyear Driller's Name: Jason Greer Drilling Method: Hand Auger/Sonic Sampling Method: Hand Auger/5.0' Core Barrel Rig Type: Sonic	Northing: 449678.7568 Easting: 13065810.33 Casing Elevation: NA Borehole Depth: 30.0' bgs. Surface Elevation: 865.46997 Descriptions By: Austin Westhuis	Well/Boring ID: MW-12-15 Client: RACER Location: RACER Lansing 2800 West Saginaw Hwy. Lansing, MI 48909
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	Remarks: bgs = below ground surface Hand auger to 5.0' bgs. Groundwater encountered from 18.5-22.5' bgs. No odor or staining observed.
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Date Start: 7-25-2013 Date Finish: 7-25-2013 Drilling Company: STOCK Driller's Name: Austin Goldsmith Drilling Method: HSA Sampling Method: Rig Type: CME 750 Water Level Start (ft. bgs.): Water Level Finish (ft. btoc.):	Northing: Easting: Casing Elevation: Borehole Depth (ft. bgs.): 20.0' bgs Surface Elevation: Descriptions By: R. Christensen	Well/Boring ID: MW-13-31 Client: RACER Location: RACER Lansing Plant 3 2801 West Saginaw Lansing, MI 48909 Weather Conditions:
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DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
0	0									 <p>Locking Well Cap</p> <p>Backfill (0.0-2.0' bgs)</p> <p>2" Sch 40 PVC riser (2.8' ags-5' bgs)</p> <p>Bentonite Plug (2.0-4.0' bgs)</p> <p>Sand Pack (4.0-10.0' bgs)</p> <p>2" 10 slot stainless steel screen (5-10' bgs)</p>
0.0								(0.0-2.0') SAND and CLAY; fine, trace granules, subrounded; moist, brown (10YR 4/3).		
0.0								(2.0-4.6') CLAY; low plasticity, some fine sand, trace granules to small pebbles; moist, medium stiff, brown (10YR 4/3).		
5	-5							(4.6-10.0') SAND; fine to coarse, some granules to small pebbles, angular, some concrete and organic debris, poorly sorted; wet, very dark brown (10YR 2/2).		
10	-10							(10.0-18.0') CLAY; high plasticity; moist, soft, gray (10YR 5/1).		

 <p>ARCADIS Infrastructure · Water · Environment · Buildings</p>	Remarks: bgs = below ground surface Groundwater encountered at 4.6' bgs. No odor or staining observed. Lithology transferred from PM log for SB-A16-HU-171 installed on 11-09-2013
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Date Start: 8/28/2014
Date Finish: 8/28/2014
Drilling Company: Cascade
Driller's Name: Scott
Drilling Method: Continuous
Sampling Method: 10', 5" core barrel
Rig Type: Sonic
Water Level Start (ft. bgs.): NA
Water Level Finish (ft. btoc.): NA

Northing:
Eastings:
Casing Elevation: NA
Borehole Depth (ft. bgs.): 10.0
Surface Elevation:
Descriptions By: J.Ness

Well/Boring ID: MW-14-65
Client: RACER
Location: RACER Lansing Plant 3
Weather Conditions: Sunny 70 F

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
0	0							(0.0'-1.0') CONCRETE.		
1	-1	1	0.0-7.0	7.0	0.0			(1.0'-7.0') CLAY, high plasticity, no dilatancy; little fine to medium sand, trace coarse sand to granules, round to subangular; trace medium pebbles, subround; dry; stiff; yellow brown (10YR 5/4).		0.0-2.0' bgs. (Bentonite)
2	-2	2	7.0-10.0	3.0	0.0			(7.0'-8.3') CLAY, high plasticity, no dilatancy; some fine to medium sand, trace granules to medium pebbles; trace small cobble; wet; stiff; yellow brown (10YR 3/6).		2.0-3.0' bgs. (Choker Sand - K&E #00N)
3	-3				0.0			(8.3'-10.0') CLAY, high plasticity, no dilatancy; little fine to medium sand; trace coarse sand to granules, round to subangular; trace medium pebbles, subround; dry; stiff; yellow brown (10YR 5/4).		3.0' ags.-5.0' bgs. (2.0" PVC Well Casing)
4	-4				0.0					3.0-10.0' bgs. (Filter Pack - K&E #1)
5	-5				0.0					5.0-10.0' bgs. (2.0" 10-Slot Stainless Steel Screen)
10	-10				0.0			End of boring at 10.0' bgs.		

Remarks: bgs = below ground surface
 Groundwater encountered from 7.0'-8.3' bgs.
 No odor or staining observed.
 Step out - north 10.0' of original location





Well Log .

Project No.: 01-4172-0
Project Name: RACER Lansing Plants
Facility ID#:
Logged By: Alexander Villhauer


Well No.: P2-GP-11/PMW-3
Date Drilled: 10/12/12
Drill Rig: Geoprobe
Sampling Method: Dual Tube DT22

SUBSURFACE PROFILE			SAMPLE			Groundwater Well Completion Details
Depth (ft.)	Boring Profile	Description and Comments	Sample # Depth	Blow Counts	PID (ppm)	
0		Ground Surface				<p>2" PVC Casing 2" 20-Slot PVC Screen Ground Surface Ground Surface Approximate Water Level (2.75')</p>
0 - 1.8	Concrete	(0.0 - 1.8) CONCRETE		-	NM	
1.8 - 4.6	Sand	SWG- (1.8 - 4.6) SAND fine; some granules to small pebbles, poorly sorted; angular; moist; black (10YR 2/1) Note: saturated at 4.0', strong odor		-	NM	
4.6 - 5.0	Clay	CLS- (4.6 - 5.0) CLAY low plasticity; some fine sand, trace granules, angular; moist, soft; black (10YR 2/1)	GP-10 3.0' - 4.0'	-	0.0	
5.0 - 15.0	Clay	CH- (5.0 - 15.0) CLAY high plasticity; trace fine sand, trace granules, dry; stiff; brown (10YR 4/3) Note: has odor Note: color change to dark gray (10YR 4/1) at 11.0'		-	0.0	
15.0 - 16.0				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	
				-	0.0	

- Completion Notes:** End Of Boring at 15' bgs hole filled with bentonite grout
- The indicated stratification lines are approximate in situ. The transitions between materials may be gradual.
 - Boring backfilled with natural soils unless otherwise noted


Date Start/Finish: 8/15/11 Drilling Company: MATECO Drilling Driller's Name: Jack Drilling Method: Sonic Drilling Sampling Method: Sonic Rig Type: Sonic	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 30' bgs Surface Elevation: NA Descriptions By: Austin Westhuis	Well/Boring ID: P3-SB-07 Client: RACER Trust Location: Lansing Plant 3 Lansing, MI
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							(0-0.5) CONCRETE	
		1	(0-3)	2	0.2			(0.5-3) SAND, fine, subround, well sorted; moist to dry; brown (10YR 4/3).	
					0.2				
					0.1				
					0.0			(3-5) CLAY, some silt, medium to low plasticity; trace small to medium pebbles, subround; dry; stiff to medium stiff; dark brown (10YR 2/2).	
5	-5				0.0				2" Sch 40 PVC riser (-2-11' bgs) Bentonite (0-10' bgs)
		2	(3-8)	3	0.5			(5-16) SILT, trace clay, trace sand, very fine, subround; moist to wet; brown (10YR 4/3).	
					0.2				
					1.0				
					1.7				
					1.2				
10	-10	3	(8-13)	4	0.7				
					1.3				
					0.1				
					0.2				
					0.3				
15	-15	4	(13-18)	5	0.0				Sand pack (10-30' bgs) 2" Sch 40 PVC, 10 slot well screen (11-16' bgs)

 Infrastructure · Water · Environment · Buildings	Remarks: BGS = Below ground surface Groundwater not encountered. No odor or staining observed. Temporary well screened from 11-16' bgs.
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Date Start/Finish: 8/15/11 Drilling Company: MATECO Drilling Driller's Name: Jack Drilling Method: Sonic Drilling Sampling Method: Sonic Rig Type: Sonic	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 30' bgs Surface Elevation: NA Descriptions By: Austin Westhuis	Well/Boring ID: P3-SB-07 Client: RACER Trust Location: Lansing Plant 3 Lansing, MI
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
					0.0			(16-23) CLAY, and silt, medium plasticity; trace small to medium pebbles, subround; moist; stiff; grayish brown (10YR 5/2).	
					0.7				
-20	-20	5	(18-23)	3.5	0.0			(23-25.5) SAND, very fine, subround, well sorted; moist to dry; very pale brown (10YR 7/4).	
					1.3				
					1.1				
					0.3				
-25	-25	6	(23-28)	5	0.9			(25.5-30) CLAY, and silt, medium plasticity; trace small to medium pebbles, subround; moist; medium stiff; gray (10YR 5/1).	
					1.8				
		7	(28-30)	2	0.1			End of boring at 30' bgs.	
					0.1				

 <i>Infrastructure · Water · Environment · Buildings</i>	Remarks: BGS = Below ground surface Groundwater not encountered. No odor or staining observed. Temporary well screened from 11-16' bgs.
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Date Start/Finish: 8/2/11 Drilling Company: MATECO Drilling Driller's Name: Jack Drilling Method: Sonic Drilling Sampling Method: Sonic Rig Type: Sonic	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 10' bgs Surface Elevation: NA Descriptions By: Austin Westhuis	Well/Boring ID: P6-SB-35 Client: RACER Trust Location: Lansing Plant 6 Lansing, MI
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							(0-0.5) CONCRETE	
								(0.5-10) CLAY, medium to high plasticity; trace small to very large pebbles, subround; moist; medium stiff to stiff; yellowish brown (10YR 5/4) NOTE: color change to dark gray (10YR 3/1) at 9' bgs.	Backfill (0-0.5' bgs) 2" Sch 40 PVC riser (-2-3' bgs) Bentonite (0.5-2' bgs)
5	-5	1	(0-10)	7	0.0	X			Sand Pack (2-10' bgs) 2" Sch 40 PVC, 10 slot well screen (3-8' bgs)
10	-10				0.0	X		End of boring at 10' bgs	
15	-15								

 <i>Infrastructure · Water · Environment · Buildings</i>	Remarks: BGS = Below ground surface Groundwater not encountered No odor or staining observed Temporary well screen 3-8' bgs.
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Date Start/Finish: 8/3/11 Drilling Company: MATECO Drilling Driller's Name: Jack Drilling Method: Sonic Drilling Sampling Method: Sonic Rig Type: Sonic	Northing: NA Easting: NA Casing Elevation: NA Borehole Depth: 10' bgs Surface Elevation: NA Descriptions By: Austin Westhuis	Well/Boring ID: P6-SB-37 Client: RACER Trust Location: Lansing Plant 6 Lansing, MI
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0								
0.0					0.0	X		(0-5) CLAY, trace silt, low to medium plasticity; trace small to medium pebbles, subround; dry; stiff to very stiff; dark yellowish brown (10YR 4/4).	Backfill (0-0.5' bgs)
0.1									2" Sch 40 PVC riser (-2-5' bgs)
0.2									Bentonite (0.5-3' bgs)
5.0	-5	1	(0-10)	8.8	0.0	X		(5-5.5) CLAY, trace silt, nonplastic to low plasticity; moist; very soft; gray (10YR 5/1) and light gray (10YR 7/1).	
5.5					0.0			(5.5-10) CLAY, little to some silt, high plasticity; trace small to very large pebbles, subround; moist to wet; medium stiff; yellowish brown (10YR 5/4) NOTE: few areas of gray (10YR 5/1).	Sand Pack (3-10' bgs)
6.0					0.0				2" Sch 40 PVC, 10 slot well screen (5-10' bgs)
10.0	-10				0.0	X		End of boring at 10' bgs	
15.0	-15								

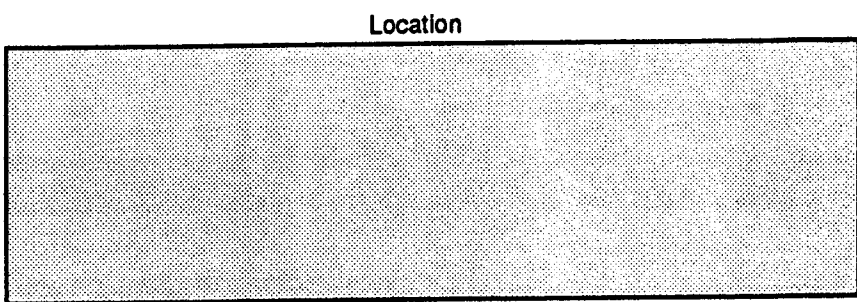
 Infrastructure · Water · Environment · Buildings	Remarks: BGS = Below ground surface Groundwater not encountered No odor or staining observed Oil in Soil shake test negative 5-5.5' bgs. Temporary well screened 5-10' bgs.
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"Drift Well"

Well/Boring Log Sheet

County Ingham	Township Lansing	Fraction SE1/4	Section 7	T 4N	R 2W
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Contractor Stearns Drilling
Address: 6974 Hammond
Dutton, MI 49316
Equipment: CME 75
Crew Chief: Duane
WW Supervisor: Don Johnson
Drilling Method(s) 4 1/4" ID HSA Depth 0.0-68.0'



Grouting/Seal Depth/To See reverse Material/Method

Remarks 30 ppm in cuttings at 4.0'

Water Level 60' Ft. Below GD

Thick-ness	(feet) Depth to Base	LITHOLOGIC DESCRIPTION	Blow Counts	OVM/PID (ppm)				Response	Background
				Sample Depth	6"	12"	18"		
0.9	0.9	CONCRETE							
1.6	2.5	SAND, brown, fine to coarse and gravel fine to coarse, wet							
2	4.5	SAND, brown, fine to coarse and gravel, fine to coarse, dry							
2.5	7.0	CLAY, brown, sandy	8'-10'	2	3	3	4	0	0
8	15	CLAY, gray, sandy and soft with some fine gravel	18'-20'	17	22	30	19	0	0
5	20	CLAY, browns and grays, very dry and silty with some fine to medium gravel and crushed stone, firm							
6	26	CLAY, gray, sandy and some fine gravel, dry-soft	28'-30'	4	11	9	8	0	0
3	29	SILT, gray, damp to wet							
0.2	29.2	SAND, gray, fine to coarse, dry							
7.8	37	SILT, gray, dry and some fine to very fine sands	38'-40'	11	15	19	23	0	0
9	46	SAND, gray, very fine to fine and trace of silts, dry							
12.5	58.5	CLAYEY, gray sands, and trace of gray silts with occasional fine gravel, very dry (crumbles)	48'-50'	10	13	22	25	0	0
15	68	SAND, gray, very fine to fine and trace of gray silt, damp to wet	58'-60'	9	14	13	14	0	0

Date Start: 8.22.14
Date Finish: 8.22.14
Drilling Company: Cascade
Driller's Name: Scott/Ralph/Jose
Drilling Method: Rotosonic
Sampling Method: Core Barrel
Rig Type: Rotosonic
Water Level Start (ft. bgs.): 19', 72'
Water Level Finish (ft. btoc.): 24', 87'

Northing:
Easting:
Casing Elevation: NA
Borehole Depth (ft. bgs.): 87.0
Surface Elevation:
Descriptions By: Adam Richmond

Well/Boring ID: TW-14-06
Client: RACER
Location: RACER Lansing Plant 3
Weather Conditions: Cloudy 84 F

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
20	-20	3	17.0 27.0	10.0	0.0		(19.0-21') SAND, fine to medium, some silt, little small pebbles, subangular; wet, poorly sorted; yellowish brown (10YR 5/8).			2" PVC well casing (0.0-82.0' bgs) Bentonite Grout (0.0-78.0' bgs)
	0.1					(21.0-22.0') SILT, non plastic, and SAND, fine; wet, light olive brown (2.5Y 5/4).				
	0.2					(22.0-23.0') SAND, medium, little silt, well sorted; wet; light olive brown (2.5Y 5/4).				
	0.1					(23.0-23.5') SILT, non plastic, rapid dilatancy, some sand; wet, very stiff; grayish brown (2.5Y 5/2).				
	0.0					(23.5-24.0') SAND, coarse, subround to subangular, little medium pebbles, subangular, trace silt, poorly sorted; wet; olive brown (2.5Y 4/6).				
25	-25	4	27.0-37.0	10.0	0.0		(24.0-33.0') CLAY, medium plasticity, slow dilatancy, little sand, little medium pebbles, subround to subangular; dry, stiff; dark gray (2.5Y 4/1). NOTE: TILL.			
	0.0									
	0.0									
	0.0									
	0.0									
	0.0									
	0.0									
	0.0									
	0.0									
	0.0									
30	-30				0.0		(33.0-35.0') SAND, medium, little silt, little medium pebbles, subround to subangular, poorly sorted; dry; light yellowish brown (2.5Y 6/4).			
					0.7					
35	-35				0.3		(35.0-37.0') SAND, fine, little silt, little medium pebbles, angular, trace large pebbles, angular, poorly sorted; dry; white (2.5Y 8/1).			
					0.2					
					0.0		(37.0-40.0') SAND, medium, little medium pebbles, subround to subangular, trace silt, poorly sorted; dry; light yellowish brown (2.5Y 6/3).			
					1.0					
					0.7					
40	-40				0.2		(40.0-46.0') PEBBLES, medium, subround to subangular, some medium sand, little small pebbles, subround to subangular, poorly sorted; dry; light gray (2.5Y 7/2).			
					0.4					

Remarks: bgs = below ground surface
 Groundwater encountered from 19.0-24.0' and 72.0-87.0' bgs.
 No odor or staining observed.



Date Start: 8.22.14
Date Finish: 8.22.14
Drilling Company: Cascade
Driller's Name: Scott/Ralph/Jose
Drilling Method: Rotasonic
Sampling Method: Core Barrel
Rig Type: Rotasonic
Water Level Start (ft. bgs.): 19', 72'
Water Level Finish (ft. btoc.): 24', 87'

Northing:
Easting:
Casing Elevation: NA
Borehole Depth (ft. bgs.): 87.0
Surface Elevation:
Descriptions By: Adam Richmond

Well/Boring ID: TW-14-06
Client: RACER
Location: RACER Lansing Plant 3
Weather Conditions: Cloudy 84 F

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
45	-45	5	37.0-47.0	10.0	0.2			(46.0-48.0') SAND, fine, little silt, little small pebbles, subangular, poorly sorted; dry; white (2.5Y 8/1).		<p>2" PVC well casing (0.0-82.0' bgs) Bentonite Grout (0.0-78.0' bgs)</p>
								(48.0-49.0') SAND, fine to medium, little granules, subangular to subround, poorly sorted; dry; pale brown (2.5Y 8/2).		
								(49.0-50.0') SAND, fine, little silt, poorly sorted; moist, light yellowish brown (2.5Y 6/4).		
								(50.0-52.0') SAND, coarse, subround to subangular, and SILT, non plastic; dry, light yellowish brown (2.5Y 6/4).		
50	-50	6	47.0-57.0	NA	0.2			(52.0-55.0') SAND, medium, little silt, poorly sorted; dry, pale brown (2.5Y 7/3).		<p>2" PVC well casing (0.0-82.0' bgs) Bentonite Grout (0.0-78.0' bgs)</p>
								(55.0-57.0') SAND, very fine to fine, trace silt, well sorted; dry; light brownish gray (2.5Y 6/2).		
								(57.0-67.0') SAND, medium, trace silt, well sorted; dry; pale brown (2.5Y 7/3). NOTE: 2' of recovery over a 10' run at 57-67' so lithological description may not be accurate.		
60	-60	7	57.0-67.0	2.0	0.2					<p>2" PVC well casing (0.0-82.0' bgs) Bentonite Grout (0.0-78.0' bgs)</p>

Remarks: bgs = below ground surface
 Groundwater encountered from 19.0-24.0' and 72.0-87.0' bgs.
 No odor or staining observed.



Date Start: 8.22.14
Date Finish: 8.22.14
Drilling Company: Cascade
Driller's Name: Scott/Ralph/Jose
Drilling Method: Rotosonic
Sampling Method: Core Barrel
Rig Type: Rotosonic
Water Level Start (ft. bgs.): 19', 72'
Water Level Finish (ft. btoc.): 24', 87'

Northing:
Easting:
Casing Elevation: NA

Borehole Depth (ft. bgs.): 87.0
Surface Elevation:

Descriptions By: Adam Richmond

Well/Boring ID: TW-14-06

Client: RACER

Location: RACER Lansing Plant 3

Weather Conditions: Cloudy 84 F

DEPTH (feet bgs.)	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)	Well/Boring Construction
67.0	-70	8	67.0-77.0	5.0	0.2		(67.0-70.0') SAND, very fine, some silt, poorly sorted; dry; white (2.5Y 8/1). NOTE: 50" of recovery at 67-77', so lithological description may not be accurate.			
70.0	-70				0.3		(70.0-72.0') SAND, medium, some silt, trace small pebbles, subangular, poorly sorted; dry; light yellowish brown (2.5Y 6/3).			
72.0	-75				0.2		(72.0-77.0') SAND, fine to medium, some silt, poorly sorted; wet; dark gray (2.5Y 4/1).			
75.0	-75				0.1					Bentonite Grout (0.0-78.0' bgs)
77.0	-80				0.0		(77.0-82.0') SILT, low plasticity, slow dilatancy, and SAND, fine, trace very large pebbles, subround; wet; dark yellowish brown (10YR 4/4).			2" PVC well casing (0.0-82.0' bgs)
80.0	-80				0.1					Bentonite (78.0-79.0' bgs)
82.0	-80	9	77.0-87.0	10.0	0.2		(82.0-87.0') SANDSTONE (weathered bedrock).			#00 K&E "choker" sand (79.0-80.0' bgs)
85.0	-85				0.1					#1 K&E filter sand (80.0-87.0' bgs)
	-85				0.1					2" stainless steel 0.1 slot well screen (82.0-87.0' bgs)
					0.2					
					0.1					
								End of boring at 87' bgs.		

Remarks: bgs = below ground surface
 Groundwater encountered from 19.0-24.0' and 72.0-87.0' bgs.
 No odor or staining observed.

