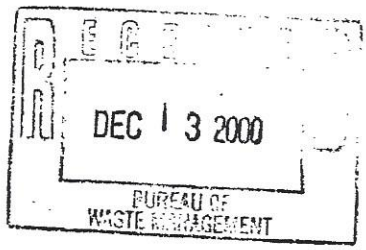
Flambeau Mining Company
N4100 Highway 27
Ladysmith, WI 54848
(715) 532-6690
FAX (715) 532-6885

December 8, 2000

Kennecott
Minerals

Mr. Larry Lynch
Bureau of Waste Management
Wisconsin Department of Natural Resources
P.O. Box 7021
Madison, WI 53707-7921



Dear Mr. Lynch:

Re: Groundwater Monitoring Well Nest Installation at Compliance Boundary

In support of the Long-Term Care and Maintenance Plan submitted as part of the Mine Permit Application for the Flambeau Project, Flambeau Mining Company (Flambeau) will install a groundwater monitoring well nest in the northwest corner of the mine project area near the compliance boundary. The purpose of the well nest is to provide data on groundwater levels and geochemistry near the compliance boundary northwest of the mine site property.

Two wells will comprise the MW-1015 well nest. One well (MW-1015A) will be installed within the glacial till overburden. The second well (MW-1015B) will be installed within the shallow bedrock. The proposed well nest location is shown on the attached Figure 1. Displayed in Figure 2 are the general well construction details for the well nest. MW-1015 well nest construction will proceed with the completion of two 8-in diameter boreholes drilled to elevations of approximately 983-ft and 1037-ft msl. The screened interval of the deep well will monitor hydrogeologic conditions within the shallow bedrock. The screened interval of the shallow well will monitor hydrogeologic conditions within the glacial water table aquifer.

The monitoring wells will be installed near approximate elevations described in this memorandum. Actual installation elevations will be determined in the field by a Foth & Van Dyke hydrogeologist.

In accordance with monitoring well installation practice at the Flambeau Mine, MW-1015A and MW-1015B will be constructed with 5-ft screens. During construction of the wells, the PVC casing will be hung from the drill rig to maintain straightness. Annular space sealant will be placed in accordance with NR 141 Wis. Admin. Code. Well development will be completed after installation. The wells will be purged until stabilized field readings are achieved.

The construction of the well nest is anticipated to occur during mid-late December 2000. This timing should allow wells intercepting groundwater to be developed prior to the January 2001 quarterly monitoring.

Should you have any questions concerning the proposed activities, please contact me at (715) 532-6690 Ext. 2.

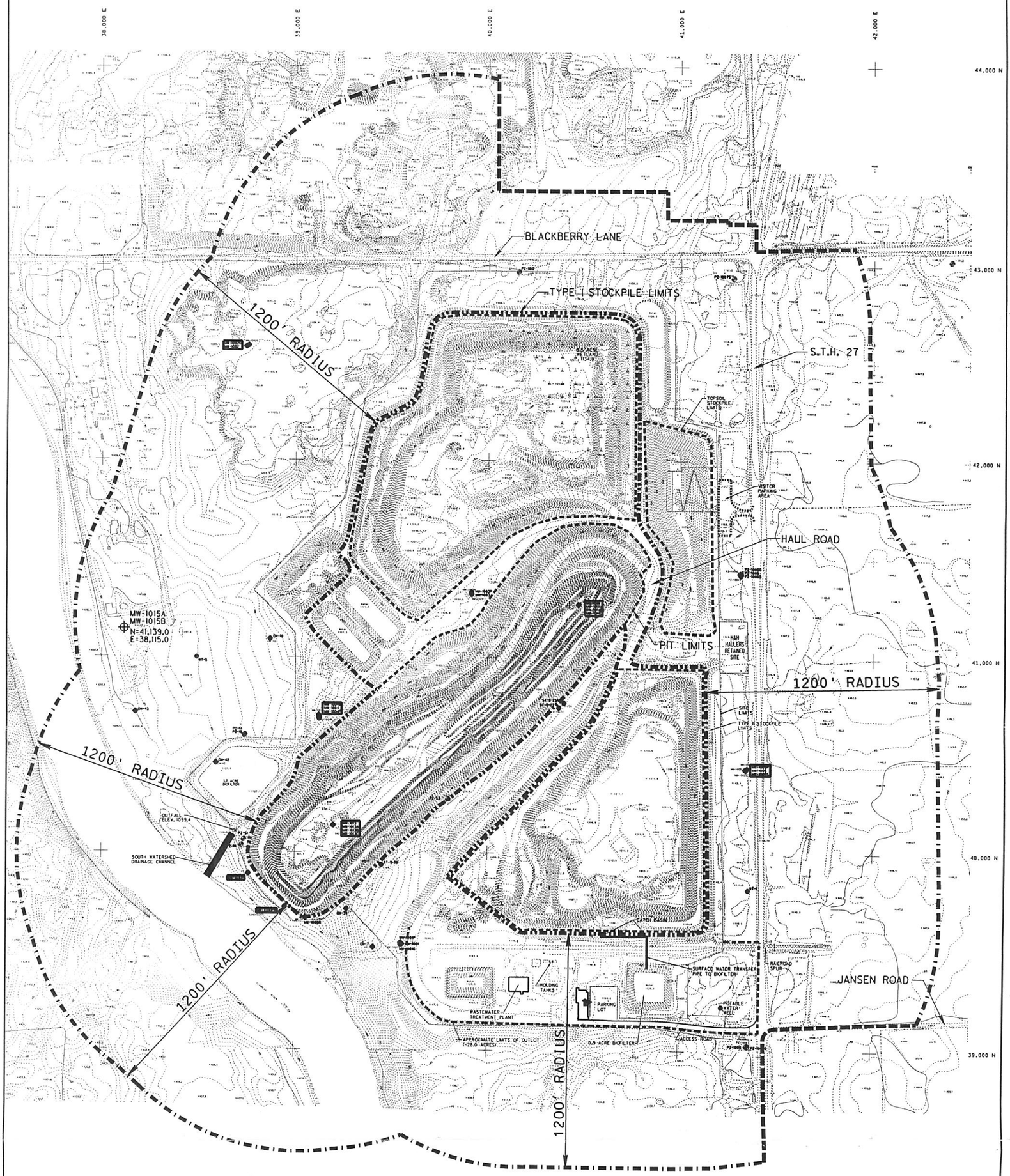
Sincerely,

Jana E. Murphy

Jana E. Murphy
Environmental & Reclamation Manager

Attachments

cc: Mr. Al Christianson, City of Ladysmith
Mr. Steve Donohue, Foth & Van Dyke
Mr. Jim Hutchison, Foth & Van Dyke
Mr. Ken Markart, WDNR
Mr. Thure Osuldsen, Rusk County Chairman
Mr. Tom Reigel, Town of Grant
Ms. CeCe Tesky, Rusk County Zoning



LEGEND

- EXISTING GROUND CONTOUR
- EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND/OR BRUSH
- EXISTING ROAD
- EXISTING BUILDING
- EXISTING FENCE
- MW-1003 MONITORING WELL
- MW-1005 WELL ON THE WATER QUALITY MONITORING PROGRAM
- PROPOSED MW WELL NEST LOCATION
- PZ-53 PIEZOMETER
- WT-5 WETLAND STAFF GAUGE
- POTABLE WATER WELL
- APPROXIMATE LIMITS OF COMPLIANCE BOUNDARY (1200' DISTANCE)
- APPROXIMATE LIMITS OF COMPLIANCE BOUNDARY DETERMINED BY PROPERTY BOUNDARY (EXACT PROPERTY BOUNDARY LIMITS SHOULD BE VERIFIED BY PROPERTY SURVEY)
- FACILITY BOUNDARY FROM WHICH 1200 FT. COMPLIANCE BOUNDARY IS MEASURED

NOTES:

1. SITE LOCATION: THE NE 1/4 OF SECTION 9 T34N, R6W, RUSK COUNTY, WISCONSIN.
2. TOPOGRAPHIC BASE MAP INSIDE DISTURBANCE LIMITS PREPARED FROM AERIAL SURVEY BY HORIZONS, INC., 3600 JET DR., RAPID CITY, SOUTH DAKOTA. DATE OF PHOTOGRAPH JULY 3, 1996.

   TOPOGRAPHIC BASE MAP OUTSIDE DISTURBANCE LIMITS PREPARED FROM AERIAL SURVEY BY SURDEX CORP., CHESTERFIELD, MISSOURI. DATE OF PHOTOGRAPH APRIL 24, 1970. ROADS, TREES AND BUILDINGS WERE UPDATED AS PER AERIAL PHOTOGRAPH TAKEN BY MARKHURD CORP., MINNEAPOLIS, MINNESOTA. DATE OF PHOTOGRAPH SEPTEMBER 14, 1987.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTOUR INTERVAL IS TWO FEET.
4. HORIZONTAL DATUM BASED ON PROJECT SITE GRID SYSTEM. SITE GRID COORDINATES CORRELATION TO STATE PLANE COORDINATES DERIVED AS FOLLOWS:

SITE GRID COORDINATES CONTROL MONUMENT F-1	STATE PLANE COORDINATES
40000 N •	587,357.8087 N
40000 E •	1,713,516.1229 E

THE ANGULAR ROTATION FROM STATE PLANE BEARINGS TO GRID BEARINGS IS 359°-13'-23" RIGHT WITH CONTROL POINT F-1 AS THE BASE POINT.

NORTH

0 250' 500'

Foth & Van Dyke
consultants • engineers • scientists

FLAMBEAU MINING COMPANY
LADYSMITH, WISCONSIN
PROPOSED WELL NEST LOCATION COMPLIANCE BOUNDARY MAP

FIGURE 1 OCTOBER, 2000

NO.	DATE	DESC.

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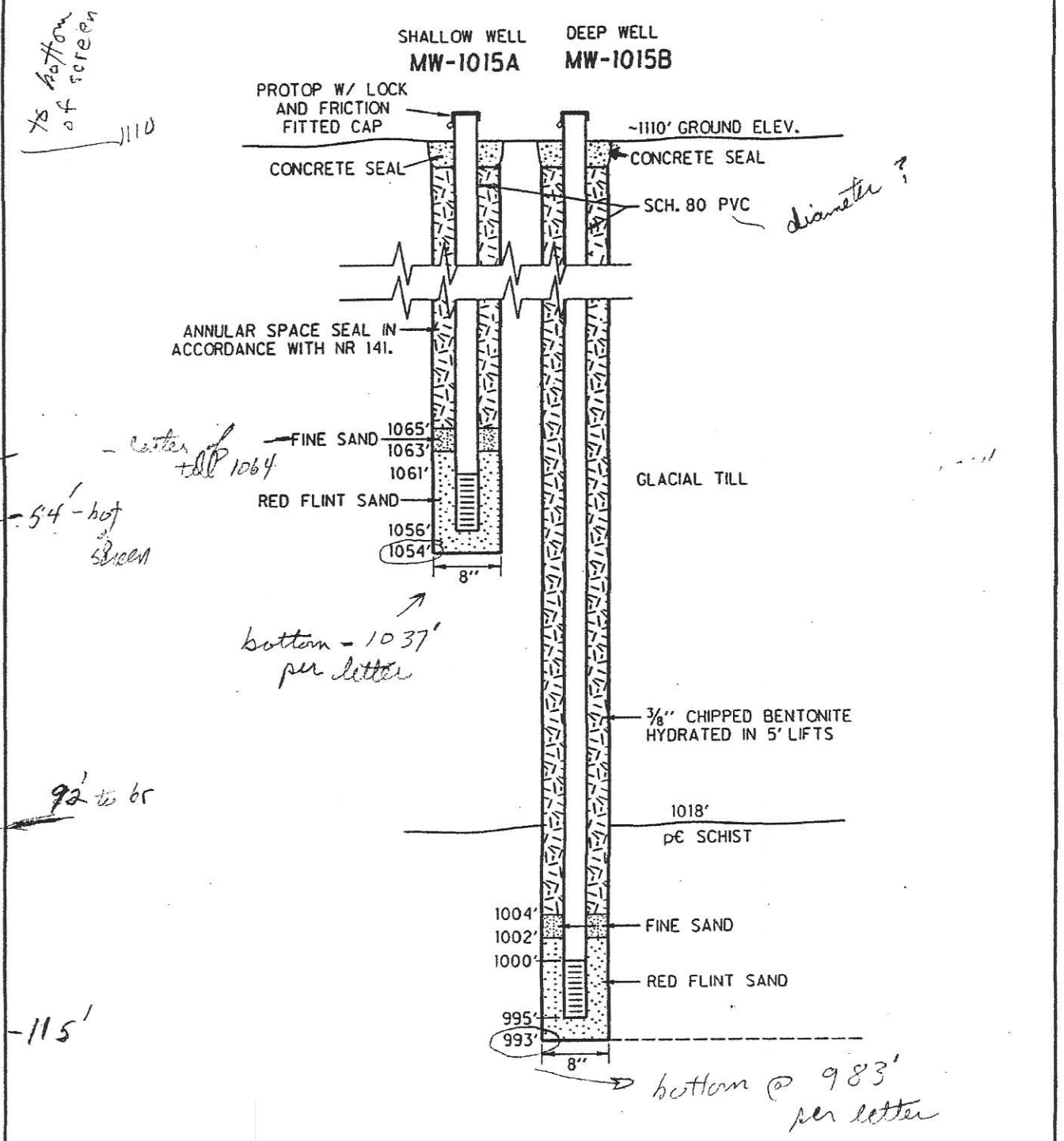
MW-1015 WELL NEST



FLAMBEAU MINING COMPANY	
FIGURE 2 PROPOSED WELL NEST FOR COMPLIANCE BOUNDARY' MONITORING	
Scale: NOT TO SCALE	Date: NOVEMBER, 2000
Prepared By: Foth & Van Dyke	By: DAT 00F004

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Flambeau Mining Company
N4100 Highway 27
Ladysmith, WI 54848
(715) 532-6690
FAX (715) 532-6885

Kennecott
Minerals

June 20, 2001

Mr. Lawrence J. Lynch
Mine Reclamation Unit
Bureau of Solid and Hazardous Waste Management
101 S. Webster Street, GEF II
PO Box 7921
Madison, WI 53707

Dear Mr. Lynch:

RE: Well Construction Documentation (MW-1015A/MW-1015B)
Flambeau Mining Company

Flambeau Mining Company (Flambeau) is submitting the attached reports documenting the construction of the monitoring wells MW-1015A and MW-1015B. These wells were constructed within Flambeau's 1200-foot compliance boundary approximately 1000 feet northwest of the backfilled pit. Flambeau constructed these wells on its own volition to obtain further documentation of continued compliance with Flambeau's groundwater permit standards and provide results of baseline water quality closer to the compliance boundary.

The wells will be monitored monthly for twelve months to compile baseline data. The parameters monitored during this twelve-month period will be the same as the extended parameter list monitored annually for the remainder of Flambeau's monitoring wells. Following the compilation and evaluation of the twelve months of baseline data, Flambeau will submit a proposal for the long-term monitoring of these wells.

If there are any questions regarding this submittal, please contact me at 715-532-6690 or murphyj@kennecott.com.

Sincerely,

Jana E. Murphy

Jana E. Murphy
Environmental & Reclamation Manager

Attachments

Cc: Al Christianson, City of Ladysmith
Jim Hutchison, Foth & Van Dyke
Ken Markart, WDNR
Thure Osuldsen, Rusk Co.
Tom Riegel, Town of Grant
CeCe Tesky, Rusk Co. Zoning

Attachment 1

Groundwater Monitoring Well Information Form
MW-1015A & MW-1015B
Flambeau Mining Company

State of Wisconsin
Department of Natural Resources

GROUNDWATER MONITORING WELL INFORMATION FORM

Chapter 281 and 289, Wis. Stats.
Form 4400-89
Rev. 7-98

Facility Name: Flambeau Mining Co.
Facility ID Number: 855034730
License, Permit or Monitoring No.: 03180
Date: 6-20-01
Completed By (Name and Firm): Jana E. Murphy, Flambeau Mining Co.

WI Unique Well No	Well Name	DNR Well ID Number	Well Location	Dir. N/S	Dir. E/W	Date Established	Well Casing Diam.	Well Casing Type	Elevations Top of Well Casing	Elevations Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Depths Screen Top	Depths Initial Groundwater	Depths Well Depth	Screen Length	Well Type	Well Status	Enf. Stds.	Grad-ient	Distance to Waste
JN 904	MW-1015A	869	41020.55 N 38136.03 E			1/11/01	1.92	P	1103.10	1098.9	√		62.20	15.61	67.20	5	12/PZ	A		S	1000
JN 905	MW-1015B	870	41019.44 N 38130.36 E			1/10/01	1.92	P	1103.19	1098.9	√		147.29	15.92	152.29	5	12/PZ	A		S	1000

Horizontal datum based on project site grid system. Site grid coordinates correlation to state plane coordinates derived as follows:

Site Grid Coordinates	State Plane Coordinates (Central Coordinates Zone)
Control Monument F-1	
40,000 N =	587,357.8087 N
40,000 E =	1,713,516.1229 E

The angular rotation from state plan bearings to site grid bearings is 359°-13'-23" right with control point F-1 as the base point.

Source: Figure 1-2, Mine Permit Application (Revised December 1989)

Location Coordinates Are:
☐ State Plane Coordinate ☐ Northern ☐ Central ☐ Southern
☒ Local Grid System

Grid Origin Location: (Check if estimated: ☐)
See Above
Lat. ___ ' ___ ' ___ " Long. ___ ' ___ ' ___ " or
St. Plane ___ ft. N, ___ ft. E. S/C/N Zone

Remarks: MW-1015A and MW-1015B are within and adjacent to Flambeau's 1200 ft. compliance boundary.

Completion of this form is mandatory under s. NR 507.14 and NR 110.25 Wis. Adm. Code. Failure to file this form may result in forfeiture of not less than $10 nor more than $5,000 for each day of violation. Personally identifiable information provided is intended to be used by the Department for the purposes related to the waste management program.

Attachment 2

MW-1015A
Monitoring Well Construction/Soil Boring Log
Flambeau Mining Company

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-9

Facility/Project Name Flambeau Mining Co.	Local Grid Location of Well ☒ N. 41020.55 ft. ☐ S. ☒ E. 38136.03 ft. ☐ W.	Well Name MW-1015A
Facility (License), Permit or Monitoring No. 03180	Local Grid 40,000N 40,000E	Wis. Unique Well Number J N 9 0 4 _
Facility ID 8 5 5 0 3 4 7 3 0	St. Plane 587357 ft. N. 1713516 ft. E. S/C/N	DNR Well ID No. 8 6 9
Type of Well Piezometer Well Code /	Section Location of Waste/Source ¼ of SE ¼ of Sec. 9, T. 34 N, R. 6 ☐ E. ☒ W.	Date Well Installed 0 1/1 1/0 1 m m d d y y
Distance From Waste/ Source 1000 ft. Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source u ☐ Upgradient s ☒ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number Well Installed By: (Person's Name and Firm) Mark Bachhaus/Bob Issacson Layne - Northwest

A. Protective pipe, top elevation 1103.05 ft. MSL

B. Well casing, top elevation 1103.10 ft. MSL

C. Land surface elevation 1098.9 ft. MSL

D. Surface seal, bottom 0000.0 ft. MSL or 00.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☒ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
Other ☐ __

15. Drilling fluid used: Water ☒ 02 Air ☒ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis):
City of Ladysmith Shop Well - Potable

E. Bentonite seal, top 1050.1 ft. MSL or 48.8 ft.

F. Fine sand, top 1045.0 ft. MSL or 53.9 ft.

G. Filter pack, top 1042.9 ft. MSL or 56.0 ft.

H. Screen joint, top 1040.9 ft. MSL or 58.0 ft.

I. Well bottom 1035.9 ft. MSL or 63.0 ft.

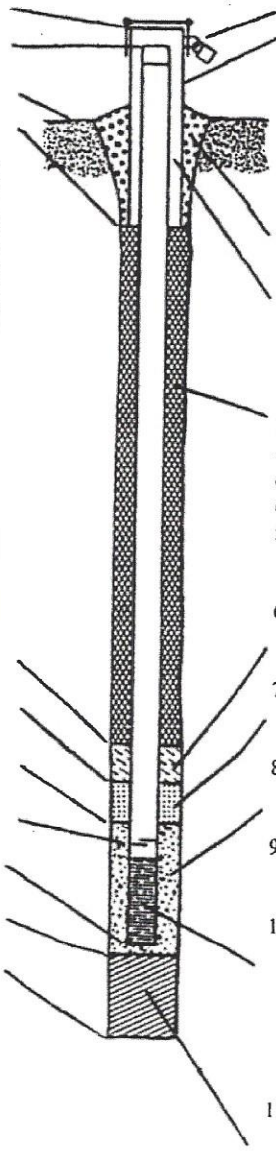
J. Filter pack, bottom 1033.9 ft. MSL or 65.0 ft.

K. Borehole, bottom 1033.9 ft. MSL or 65.0 ft.

L. Borehole, diameter 6.1 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 1.92 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 100 ft.
c. Material: Steel ☒ 04
_____ Other ☐ __
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30
Concrete ☐ 01
_____ Other ☐ __
4. Material between well casing and protective pipe:
Bentonite ☐ 30
Annular space seal ☐ __
Sand Other ☒ __
5. Annular space seal: a. Granular Bentonite ☐ 33
b. _____ Lbs/gal mud weight . Bentonite-sand slurry ☐ 35
c. 10.1 Lbs/gal mud weight . . . . . Bentonite slurry ☒ 31
d. _____ % Bentonite . . . . Bentonite-cement grout ☐ 50
e. 4.5 Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ ¼ in. ☒ ⅜ in. ☐ ½ in. Bentonite pellets ☐ 32
c. Hole Plug 3/8" Chipped Bentonite Other ☒ __
7. Fine sand material: Manufacturer, product name & mesh size
a. Unimin 45/65 __
b. Volume added 0.25 ft³
8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint filter #30 __
b. Volume added 1.67 ft³
9. Well casing: Flush threaded PVC schedule 40 ☐ 23
Flush threaded PVC schedule 80 ☒ 24
_____ Other ☐ __
10. Screen material: PVC __
a. Screen Type: Factory cut ☒ 11
Continuous slot ☐ 01
_____ Other ☐ __
b. Manufacturer Johnson Screens
c. Slot size: 0.010 in.
d. Slotted length: 05.0 ft.
11. Backfill material (below filter pack): None ☒ 14
_____ Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
Jonis A Kemp for Erik Silvola	Foth & Van Dyke

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-9

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env.Response & Repair ☐ Underground Tanks Other ☐ _____

Facility/Project Name	County Name	Well Name
Flambeau Mining Co.	Rusk	MW-1015A

Facility License, Permit or Monitoring Number	County Code	Wis.Unique Well Number	DNR Well Number
03180	55	JN904	869

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☒ 50
Other _____	☐ [illegible]

3. Time spent developing well 0045 min.

4. Depth of well (from top of well casing) 067.2 ft.

5. Inside diameter of well 1.92 in.

6. Volume of water in filter pack and well casing 012.2 gal.

7. Volume of water removed from well 1700.0 gal.

8. Volume of water added (if any) 0000.0 gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 15.61 ft.	11.01 ft.
Date	b. 03/15/01 mm dd yy	03/15/01 mm dd yy
Time	c. 11:15 ☒ a.m. ☐ p.m.	12:00 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	000.0 inches	000.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	0000.0 mg/l	0000.0 mg/l
15. COD	0000.0 mg/l	0000.0 mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Jack Last Name: Christman
Firm: Independent Contractor representing Flambeau Mining Co.

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party

First Name: Jana Last Name: Murphy

Facility/Firm: Flambeau Mining Co.

Street: N4 100 Highway 27

City/State/Zip: Ladysmith, WI 54848

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Janis A Berg for Erik Silvola

Print Name: Erik Silvola

Firm: Foth & Van Dyke

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☐ Other ☐ _____

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Flambeau Mining Co.	03180	MW-1015A

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Bachhaus Firm: Layne-Northwest	0_1_/_1_1_/_2001_ m m d d y y y y	_0_1__/_1_1_/_2_00_1__ m m d d y y y y	6" air rotary

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
JN904	869	MW-1015A	1092.09 Feet MSL	1098.91 Feet MSL	6 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane _____ N, _____ E S/C/N
____ 1/4 of ____ 1/4 of Section ____, T ____ N, R ____ E/W
Lat ____ ° ____ ' ____ "
Long ____ ° ____ ' ____ "

Local Grid Location (if applicable)
41020.55 ☒ N 38136.03 ☒ E
_____ Feet ☐ S _____ Feet ☐ W

Facility ID	County	County Code	Civil Town/City/or Village
855034730	Rusk	55	Grant

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graph Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				Blind Drill see boring log MW-1015B										
			10	wet @ 9 - 10'										
			20											
			30											
			40											
			50											
			60	sample at 60 - 62' silty sand with gravel End of Boring	SM									

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
James J. Kosy for Erik Silvola	Foth & Van Dyke

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this report is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graph Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments

Attachment 3

MW-1015B
Monitoring Well Construction/Soil Boring Log
Flambeau Mining Company

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-

Facility/Project Name Flambeau Mining Co.	Local Grid Location of Well ☒ N. 41019.44 ft. ☐ S. ☒ E. 38130.36 ft. ☐ W.	Well Name MW-1015B
Facility (License) Permit or Monitoring No. 03180	Local Grid 40,000N 40,000E	Wis. Unique Well Number: J N 9 0 5 / DNR Well ID No.: 8 7 0
Facility ID 855034730	St. Plane 587357 ft. N. 1713516 ft. E. S/C/N	Date Well Installed 0 1/1 0/0 1 (m m d d y y)
Type of Well piezometer Well Code /	Section Location of Waste/Source ¼ of SE ¼ of Sec. 9, T. 34 N, R. 6 ☐ E. ☒ W.	Well Installed By: (Person's Name and Firm) Mark Bachhaus/Bob Issacson Layne - Northwest
Distance From Waste/ Source 1000 ft. Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source u ☐ Upgradient s ☒ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation 1103.12 ft. MSL

B. Well casing, top elevation 1103.19 ft. MSL

C. Land surface elevation 1098.9 ft. MSL

D. Surface seal, bottom 0000.0 ft. MSL or 00.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☒

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50; Hollow Stem Auger ☐ 41; Other ☐

15. Drilling fluid used: Water ☒ 02; Air ☒ 01; Drilling Mud ☐ 03; None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe

17. Source of water (attach analysis):
City of Ladysmith Shop Well - Potable

E. Bentonite seal, top 0970.9 ft. MSL or 128.0 ft.

F. Fine sand, top 0963.4 ft. MSL or 135.5 ft.

G. Filter pack, top 0957.9 ft. MSL or 141.0 ft.

H. Screen joint, top 0955.9 ft. MSL or 143.0 ft.

I. Well bottom 0950.9 ft. MSL or 148.0 ft.

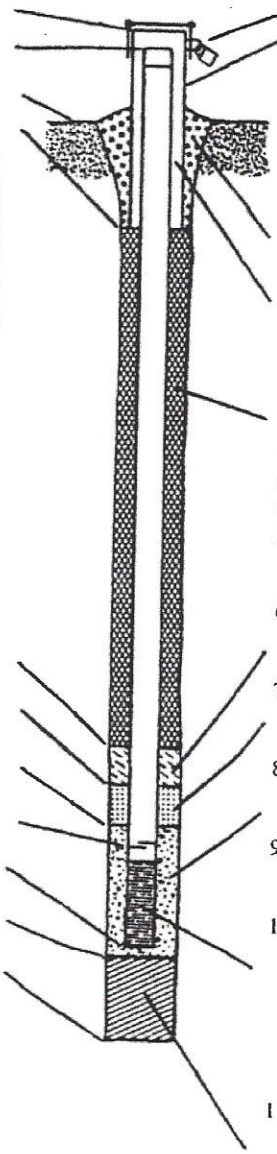
J. Filter pack, bottom 0947.7 ft. MSL or 151.2 ft.

K. Borehole, bottom 0946.9 ft. MSL or 152.0 ft.

L. Borehole, diameter 06.2 in.

M. O.D. well casing 02.38 in.

N. I.D. well casing 01.92 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 04.0 in.
b. Length: 10.0 ft.
c. Material: Steel ☒ 04; Other ☐
d. Additional protection? ☐ Yes ☐ No
If yes, describe:
3. Surface seal: Bentonite ☐ 30; Concrete ☐ 01; Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 30; Annular space seal ☐; Sand; Other ☒
5. Annular space seal: a. Granular Bentonite ☐ 33
b. ____ Lbs/gal mud weight . Bentonite-sand slurry ☐ 35
c. 11.2 Lbs/gal mud weight . . . . . Bentonite slurry ☒ 31
d. ____ % Bentonite . . . . Bentonite-cement grout ☐ 50
e. 11.4 Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☒ 02; Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ ¼ in. ☒ ⅜ in. ☐ ½ in. Bentonite pellets ☐ 32
c. Hole Plug 3/8" Chipped Bentonite Other ☒
7. Fine sand material: Manufacturer, product name & mesh size
a. Unimin 45/65
b. Volume added 0.38 ft³
8. Filter pack material: Manufacturer, product name and mesh size
a. Red Flint filter #30
b. Volume added 1.22 ft³
9. Well casing: Flush threaded PVC schedule 40 ☐ 23; Flush threaded PVC schedule 80 ☒ 24; Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐
b. Manufacturer Johnson Screens
c. Slot size: 0.010 in.
d. Slotted length: 5.0 ft.
11. Backfill material (below filter pack): None ☒ 14
Native cave (rock chips & sand) Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jane A Keay for Eric Silvola
Firm: Foth & Van Dyke

Please complete both sides of this form and return to the appropriate DNR off listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stat., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis Stats., failure to file this form may result in a forfeiture of not less than $10, nor more than $5000 for each day of violation. In accordance with ch. 147, Wis. Stat., failure to file this form may result in a forfeiture of not more than $10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-9

Route to: Solid Waste ☐ Haz. Waste ☐ Wastewater ☐
Env.Response & Repair ☐ Underground Tanks Other ☐ _____

Facility/Project Name	County Name	Well Name
Flambeau Mining Co.	Rusk	MW-1015B
Facility License, Permit or Monitoring Number	**County Code**	**Wis.Unique Well Number**	**DNR Well Number**
0 3 1 8 0	5 5	J N 9 0 5	8 7 0

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☒ 50
Other _____	☐ 99

3. Time spent developing well 0 1 8 0 min.

4. Depth of well (from top of well casing) 1 5 2.3 ft.

5. Inside diameter of well 1.9 2 in.

6. Volume of water in filter pack and well casing 2 4.9 gal.

7. Volume of water removed from well 2 2 8.0 gal.

8. Volume of water added (if any) 0 0 0.0 gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☐ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 1 5.9 2 ft.	1 2.1 0 ft.
Date	b. 0 3/1 5/0 1 m m d d y y	0 4/1 9/0 1 m m d d y y
Time	☐ a.m. c. 1 2:0 8 ☒ p.m.	☒ a.m. 0 8:2 0 ☐ p.m.
12. Sediment in well bottom	0 0.0 inches	0 0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	0 0 0 0.0 mg/l	0 0 0 0.0 mg/l
15. COD	0 0 0 0.0 mg/l	0 0 0 0.0 mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Jack Last Name: Christman
Firm: Independent Contractor representing Flambeau Mining Co.

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: Jana Last Name: Murphy
Facility/Firm: Flambeau Mining Co.
Street: N4 100 Highway 27
City/State/Zip: Ladysmith, WI 54848

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: Jana A Kelsey for Erik Silvola
Print Name: Erik Silvola
Firm: Foth & Van Dyke

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☐ Other ☐ _____

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Flambeau Mining Co.	01380	MW-1015B

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Backhaus Firm: Layne - Northwest	01/09/2001 (m m d d y y y y)	01/11/2001 (m m d d y y y y)	6" air rotary

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
JN905	870	MW-1015B	1091.09 Feet MSL	1098.91 Feet MSL	6 inches

Local Grid Origin ☐ (estimated: ☐) or- Boring Location ☐
State Plane _____ N, _____ E S/C/N
_____ 1/4 of _____ 1/4 of Section _____, T _____ N, R _____ E/W
Lat _____ ° _____ ' _____ "
Long _____ ° _____ ' _____ "

Local Grid Location (if applicable)
41019.44 ☒ N 38130.36 ☒ E
_____ Feet ☐ S _____ Feet ☐ W

Facility ID	County	County Code	Civil (Town)/City/or Village
855034730	Rusk	55	Grant

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graph Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				0.5 dark brown (7.5 YR4/3) silty fine medium sand minor gravel	SM-SP									
				5 -10' dark brown (7.5YR 4/3 - 4/4) silty gravelly fine sand - fine sand gravel wet at 9' with cobbles	SM-GM									
			10											
				15 - 20' as above gravel sl. coarser	SM-GM									
			20	20 - 25' gravel cleaner and coarser	GM-GP									
				23 - 25' brown (7.5 YR 5/4) silty fine - medium sand with gravel (minor c. sand) (till)	SM									
				25 - 30' as above sl. finer (till)	SM									
			30	30 - 35' Brown (7.5 YR 5/4- 5/5) fine to course sand with silt & minor gravel	SM-SP									
				35 - 40' as above	SM-SP									
			40	40 - 45 as above fine to medium sand with gravel (till)	SM-SP									
				45 - 50' Brown (10Y/R 5/4 - 4/4) medium to coarse sand some gravel and cobbles (till)	SM-GM									
			50	50 - 55' as above										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
Dennis A Kelsey for Erik Silvola	Foth & Van Dyke

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this report is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Sample		Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graph Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
				55 - 60 as above										
			60	60 -65' brown (10Y 4/3) fine red sand with minor gravel	SP									
				65- 70' as above										
			70	70 - 75' dark brown (7.5 YR 4/4) silty sand with gravel	SM									
				75 - 80' dark brown (10 YR 4/3) grusly silty sand with gravel (till)	SM									
			80	80- 85' gray brown (10 YR 4/2) angular gravel with crounded	SP-									
				grus	GP									
				85 - 88' dark gray (10 YR 4) angular gravel	SP									
				88' reddish brown (5 YR 5/4) silty gravely sand mucky	SM									
			90											
				96" reddish brown (5 Y 5/4) silty clay with angular gravel	CL-CH									
			100	100' as above										
				105' red brown (5Y 5/5) clay (saprolite)	CL-CH									
			110	111' gray angular schist fragments										
				115' gray angular schist										
			120											
				122 - 125' red brown muddy saprolite	CL-CH									
				125' light gray (10 YR 6/1 - 6/2) silty gravelly saprolite										
			130	128-130' gray green fine angular schist										
				135-140' as above										
			140	140 - 145' very light gray schist										
			150											
				End of Boring 152'										