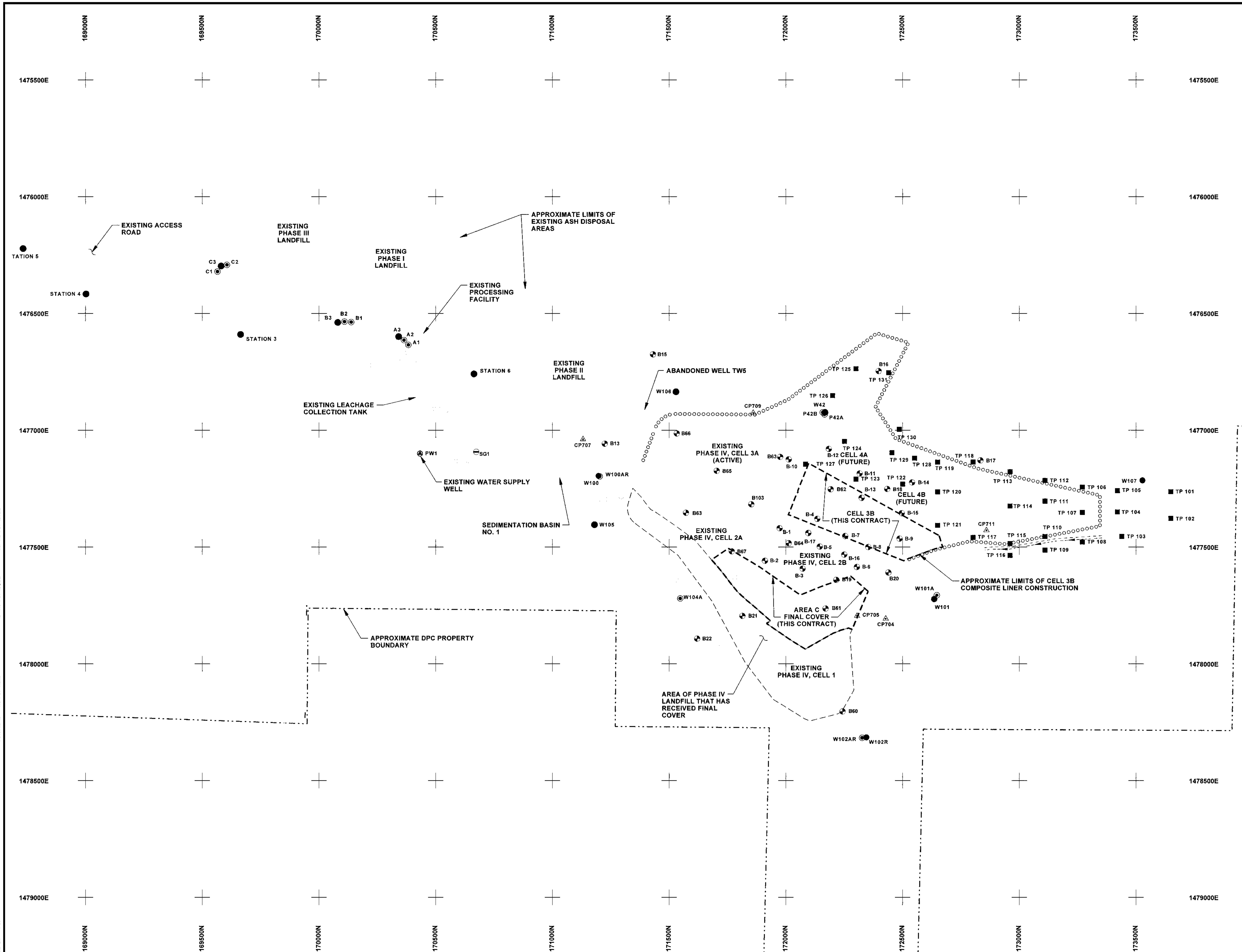
Appendix C: Relevant October 2002 POO Plan Sheets

- Sheet 3 Existing Conditions Map – Phase IV, Cell 3B Liner & Area C (Over Cells 1 & 2) Final Cover Construction
- Sheet 5 Proposed Base Grades
- Sheet 9 Phasing Plan – Cell 1, 2A, and 2B Closed; Cell 3 Active
- Sheet 11 Phasing Plan – Cell 1, 2A, 2B, 3, and 4A Closed; Cell 4B Active
- Sheet 12 Proposed Final Grades
- Sheet 17 Details – Liner and Collection Pipes
- Sheet 19 Details – Final Cover
- Sheet 22 Details – Sedimentation Basins
- Sheet 23 Details - Miscellaneous



NOTES

1. REFER TO PLAN SHEET 2 FOR STANDARD LEGEND, NOTES, AND BENCHMARK LOCATIONS.

0 200 400 600 800

SCALE IN FEET

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS CONTRACT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.

PROJECT: DAIRYLAND POWER COOPERATIVE
PHASE IV, CELL 3B LINER & AREA C (OVER CELLS 1 & 2)
FINAL COVER CONSTRUCTION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE:

EXISTING CONDITIONS MAP

DRAWN BY: Istormer	SCALE: AS SHOWN	PROJ. NO. 216851.0004	
CHECKED BY: DM		FILE NO. 215851.0004.SHT03-EC.PLT	
APPROVED BY: TWM	DATE PRINTED:	SHEET 3 OF 13	
DATE: MARCH 2015			

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EXISTING PROCESS FACILITY
TRANSFER PIPE FROM STORAGE TANK CONNECTS TO EXISTING PIPE OUTSIDE PROCESSING FACILITY SEE DETAIL 6/21
APPROXIMATE LIMITS OF EXISTING ASH BOUNDARY
LEACHATE STORAGE TANK SEE DETAIL 1/18
EXISTING BOX CULVERT
ACCESS ROAD TO EXISTING PHASE II LANDFILL
8' WIDE BERM
10' WIDE FLAT BOTTOM DITCH @ 7%
LEACHATE TRANSFER LINE SEE DETAIL 3/23
CULVERT INLET I.E. 812.0 OUTLET I.E. 808.0
10' WIDE FLAT BOTTOM DITCH @ 6%
CLEANOUT PIPE
CULVERT I.E. 762.0 I.E. 755.5
ACCESS ROAD @ 8%
10' WIDE FLAT BOTTOM DITCH @ 5%
8' WIDE BERM TOP ELEVATION 784
10' WIDE FLAT BOTTOM DITCH @ 2%
ACCESS/HAUL ROAD SEE DETAIL 6/23
V-NOTCH DRAINAGE DITCH @ 8% SEE DETAIL 5/23
CULVERT INLET I.E. 796.0 OUTLET I.E. 782.0
CULVERT INLET I.E. 791.0 OUTLET I.E. 781.0
ACCESS ROAD
SEDIMENTATION BASIN NO. 1 SEE DETAIL 1/22
DIVERSION BERM
20' WIDE FLAT BOTTOM DITCH @ 20%
EMERGENCY OVERFLOW PIPE I.E. 782.0 I.E. 755.5
RISER AND DISCHARGE PIPE SEE DETAIL 3/22
GRASS MAINTENANCE ROAD 10% SLOPE
20' WIDE FLAT BOTTOM DITCH @ 5%
DITCH @ 2%
LANDFILL PERIMETER BERM, SEE DETAIL 6/19
LEACHATE TRANSFER LINE SEE DETAIL 3/23
MANHOLE SEE DETAIL 2/18
PROPOSED LIMITS OF ASH
APPROXIMATE PROPERTY LINE
20' WIDE FLAT BOTTOM DITCH @ 1%
LEACHATE TRANSFER PIPE EXITS PERIMETER BERM SEE DETAILS 2/17 4/17 6/19
FILL AREA
CELL 2 MODULE A
CELL 3
CELL 4 MODULE A
CELL 4 MODULE B
CELL 2 MODULE B
CELL 1
LEACHATE HEAD MONITORING WELL SEE DETAIL 6/17
CELL DELINEATION LINE/BERM SEE DETAIL 7/17
I.E. 781.1
I.E. 786.9
I.E. 805.6
I.E. 810.0
I.E. 852.8
I.E. 782.1
I.E. 839.6
I.E. 862.3
I.E. 847.7
I.E. 836.1
I.E. 808.8
I.E. 838.2
I.E. 818.2
I.E. 839.8
LEACHATE COLLECTION/LINER SYSTEM SEE DETAILS 1/17 3/17
V-NOTCH DRAINAGE DITCH @ 1%
LANDFILL PERIMETER BERM AND DRAINAGE DITCH SEE DETAILS 3/17 6/19
BERM
SEDIMENTATION BASIN NO. 2 SEE DETAIL 2/22
GRASS MAINTENANCE ROAD 10% SLOPE
EMERGENCY SPILLWAY
SOLID WALL CLEANOUT PIPE
6" DIA. PERFORATED LEACHATE COLLECTION PIPE SEE DETAIL 1/17
RISER/CULVERT I.E. 873.0 I.E. 872.0
10' WIDE FLAT BOTTOM DITCH @ 2%
LIMITS OF CONSTRUCTION
RIPRAP SPILLWAY
CLEANOUT PIPE SEE DETAIL 5/17
E 1477000
E 1477500
E 1478000
N 170500
N 171000
N 171500
N 172000
N 172500
N 173000
N 173500
19 18
20 17
0 100 200 300 400
SCALE: 1" = 100'

NOTE:

GRADES SHOWN INSIDE THE TOP OF THE PERIMTER BERM REPRESENT THE TOP OF THE 2-FOOT-THICK LOW PERMEABILITY SUBBASE SOIL LAYER.
GRADES SHOWN ON TOP AND OUTSIDE THE PERIMETER BERM REPRESENT THE TOP OF TOPSOIL

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER . THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY.
(NOT FOR CONSTRUCTION)

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3.				
2.				
1.				

PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **PROPOSED BASE GRADES**

DRAWN BY: reyzekd	SCALE: 1"=100'	PROJ. NO. 3081.40
CHECKED BY: DM		FILE NO. BASEGRDS.PLT
APPROVED BY: BJK	DATE PRINTED:	SHEET 5 OF 23
DATE: OCTOBER 2000		

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CONSTRUCTION ACTIVITIES

PHASE 2B CLOSURE

1. INSTALL EROSION CONTROL DEVICES.
2. INSTALL GRADING LAYER.
3. INSTALL GCL.
4. INSTALL GEOMEMBRANE.
5. INSTALL SELECT GRANULAR FILL, DRAINAGE PIPING, GEOTEXTILE, ROOTING ZONE LAYER, AND TOPSOIL.
6. INSTALL DIVERSION BERMS.
7. SEED, FERTILIZE, AND MULCH.

PHASE 3 SITE PREPARATION

1. INSTALL EROSION CONTROL DEVICES.
2. INSTALL DOUBLE WALL LEACHATE TRANSFER PIPE WITH ANTI-SEEP COLLAR TO STORAGE TANK.
3. CONSTRUCT PERIMETER BERM, DITCH, AND ACCESS ROAD.
4. ESTABLISH SUBBASE GRADES.
5. UNDERCUT THE COLLECTION LINES.
6. CONSTRUCT THE COMPACTED LOW PERMEABILITY LAYER.
7. EXCAVATE THE LEACHATE COLLECTION LINES.
8. INSTALL LEACHATE COLLECTION LINES AND CLEANOUTS.
9. INSTALL GEOTEXTILE.
10. INSTALL LEACHATE HEADWELLS.
11. PLACE 1-FOOT SELECT GRANULAR FILL.
12. SEED, FERTILIZE, AND MULCH ALL CONSTRUCTION AREAS AT FINISH GRADE.

CONSTRUCTION QUANTITIES

PHASE 2A AND 2B CLOSURE	VOLUME / AREA
TOPSOIL PLACED	3,400 CY
GRADING LAYER SOIL	3,400 CY
GENERAL FILL	6,800 CY
SELECT GRANULAR FILL	6,800 CY
GEOTEXTILE	22,600 SY
GCL	20,300 SY
GEOMEMBRANE	20,300 SY
SEED, FERTILIZER, MULCH	4.5 ARCES
4-INCH DIA. HDPE CORRUGATED PIPE W/ SMOOTH INTERIOR	2,350 LF
SELECT AGGREGATE FILL	350 CY

PHASE 3 SITE PREPARATION	VOLUME / AREA
STRIP TOPSOIL	8,800 CY
FILL TO ESTABLISH SUBBASE GRADE	91,200 CY
CUT TO ESTABLISH SUBBASE GRADE	55,100 CY
GEOSYNTHETIC CLAY LINER (GCL)	34,000 SY
GEOMEMBRANE	34,000 SY
SELECT AGGREGATE FILL	350 CY
GEOTEXTILE (CUSHION)	1,700 SY
SELECT GRADED FILL	400 CY
SELECT GRANULAR FILL	11,300 CY
COMPACTED LOW PERMEABILITY LAYER	22,600 CY
CLEANOUT	1 EACH
TOPSOIL PLACED	3,100 CY
SEED FERTILIZER, MULCH	4.0 ACRES

PIPE LENGTHS	QUANTITIES
6-INCH-DIAMETER (SDR 17) HDPE PERF. LEACHATE COLLECTION PIPE	1,100 LF
6-INCH-DIAMETER (SDR 17) HDPE NON-PERF. LEACHATE PIPE	480 LF
6-INCH-DIAMETER (SDR 17) HDPE DOUBLE WALL LEACHATE TRANSFER PIPE	1,070 LF
3-INCH-DIAMETER (SCHEDULE 120) PVC NON-PERF. LEACHATE HEADWELL PIPE	470 LF

MISCELLANEOUS ITEMS	
ACCESS/HAUL ROAD	1,300 LF
MANHOLES	2 EA
CULVERTS	2 EA
SEDIMENTATION BASIN (TEMPORARY)	1 EA

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PROJECT: DAIRYLAND POWER COOPERATIVE
PLAN OF OPERATION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE:
CELL 1, 2A, AND 2B CLOSED
CELL 3 ACTIVE

DRAWN BY: NOLDENR	SCALE:	PROJ. NO. 3081.40
CHECKED BY: DM	1"=100'	FILE NO. PHASE3.PLT
APPROVED BY: BJK	DATE PRINTED:	SHEET 9 OF 23
DATE: OCTOBER 2000		

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CONSTRUCTION ACTIVITIES

CELL 4A CLOSURE

1. INSTALL EROSION CONTROL DEVICES.
2. INSTALL GRADING LAYER
3. INSTALL GEOSYNTHETIC CLAY
4. INSTALL GEOMEMBRANE
5. INSTALL DOWNSLOPE FLUME.
6. INSTALL SELECT GRANULAR FILL, DRAINAGE PIPING, GEOTEXTILE, ROOTING ZONE LAYER, AND TOPSOIL.
7. INSTALL DIVERSION BERMS.
8. SEED, FERTILIZE, AND MULCH.

CELL 4B SITE PREPARATION

1. INSTALL EROSION CONTROL DEVICES.
2. INSTALL DOUBLE WALL LEACHATE TRANSFER PIPE WITH ANTI-SEEP COLLAR TO MAIN TRANSFER LINE.
3. CONSTRUCT PERIMETER BERM, DITCH, AND ACCESS ROAD.
4. ESTABLISH SUBBASE GRADES.
5. UNDERCUT THE COLLECTION LINES.
6. CONSTRUCT THE COMPACTED LOW PERMEABLILTY SOIL LAYER.
7. EXCAVATE THE LEACHATE COLLECTION LINES.
8. INSTALL GCL
9. INSTALL GEOMEMBRANE LINER
10. INSTALL GEOTEXTILE.
11. INSTALL LEACHATE COLLECTION LINES AND CLEANOUTS.
12. INSTALL LEACHATE HEADWELLS.
13. PLACE 1-FOOT SELECT GRANULAR FILL.
14. SEED, FERTILIZE, AND MULCH ALL CONSTRUCTION AREAS AT FINISH
15. GRADE.

CONSTRUCTION QUANTITIES

CELL 4A CLOSURE	VOLUME / AREA
TOPSOIL PLACED	5,000 CY
GRADING LAYER SOIL	5,000 CY
GENERAL FILL	9,900 CY
SELECT GRANULAR FILL	9,900 CY
GEOTEXTILE	31,800 SY
GCL	29,700 SY
GEOMEMBRANE	29,700 SY
SEED, FERTILIZER, MULCH	6.1 ARCES
4-INCH DIA. HDPE CORRUGATED PIPE W/ SMOOTH INTERIOR	2,100 LF
SELECT AGGREGATE FILL	320 CY
CELL 4B SITE PREPARATION	**VOLUME / AREA**
STRIP TOPSOIL	6,800 CY
FILL TO ESTABLISH SUBBASE GRADE	55,200 CY
CUT TO ESTABLISH SUBBASE GRADE	58,800 CY
GCL	31,100 SY
GEOMEMBRANE	31,100 SY
SELECT AGGREGATE FILL	280 CY
GEOTEXTILE (CUSHION)	1,050 SY
COMPACTED LOW PERMEABILITY SOIL	20,700 CY
CLEANOUT	3 EACH
SELECT GRANULAR FILL	10,400 CY
TOPSOIL PLACED	1,600 CY
SEED FERTILIZER, MULCH	2.0 ACRES
PIPE LENGTHS	**QUANTITIES**
6-INCH-DIAMETER (SDR 17) HDPE PERF. LEACHATE COLLECTION PIPE	450 LF
6-INCH-DIAMETER (SDR 17) HDPE NON-PERF. LEACHATE CLEANOUT	370 LF
6-INCH-DIAMETER (SDR 17) HDPE DOUBLE WALL LEACHATE TRANSFER PIPE	0 LF
3-INCH-DIAMETER (SCHEDULE 120) PVC NON-PERF. LEACHATE HEADWELL PIPE	180 LF
MISCELLANEOUS ITEMS	
MAINTENANCE ROAD	1,450 LF
SEDIMENTATION BASIN (PRIMARY)	1 EACH

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PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **CELLS 1, 2A, 2B, 3, AND 4A CLOSED CELL 4B ACTIVE**

DRAWN BY: NOLDENR	SCALE: 1"= 100'	PROJ. NO. 3081.40
CHECKED BY: DM		FILE NO. PHASE4B.PLT
APPROVED BY: BJK	DATE PRINTED:	SHEET 11 OF 23
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E 1477500
E 1478000
E 1478500
EXISTING PROCESSING FACILITY
TRANSFER PIPE FROM STORAGE TANK CONNECTS TO EXISTING PIPE OUTSIDE PROCCESSING FACILITY. SEE DETAIL 5/21
LEACHATE STORAGE TANK SEE DETAIL 1/18
EXISTING BOX CULVERT
APPROXIMATE LIMITS OF EXISTING ASH
ACCESS ROAD TO EXISTING PHASE II LANDFILL
CULVERT I.E. 762.0N I.E. 755.5S
ACCESS ROAD @ 8%
V-NOTCH DITCH @ 6%
10' WIDE FLAT BOTTOM DITCH @ 5%
8' WIDE BERM ELEV. 784.0
10' WIDE FLAT BOTTOM DITCH @ 2%
V-NOTCH DRAINAGE DITCH @ 8%
CULVERTS
10' WIDE FLAT BOTTOM DITCH @ 7%
CULVERT
CULVERT INLET I.E. 812.0 OUTLET I.E. 808.0
10' WIDE FLAT BOTTOM DITCH @ 6%
SEDIMENTATION BASIN NO. 1 SEE DETAIL 1/22
20' WIDE FLAT BOTTOM DITCH @ 20% AND DIVERSION BERM
EMERGENCY OVERFLOW PIPE
MAINTENANCE ROAD 10% SLOPE
RISER AND DISCHARGE PIPE SEE DETAIL 3/22
20' WIDE FLAT BOTTOM DITCH @ 5% SEE DETAIL 8/23
DITCH @ 2%
FINAL COVER DOWNSLOPE FLUME NO. 1 AND NO. 2 SEE DETAILS 1/20 2/20 4/20 1/21 2/21 3/21 4/21
MANHOLE SEE DETAIL 2/18
BM104
LEACHATE TRANSFER LINE SEE DETAIL 3/23
20' WIDE FLAT BOTTOM DITCH @ 1%
FILL AREA
RIPRAP SPILLWAY
FINAL COVER SEE DETAIL 1/19
FINAL COVER DRAINAGE LAYER TRANSFER AND DISCHARGE PIPE SEE DETAIL 4/19
V-NOTCH DRAINAGE DITCH @ 1% SEE DETAIL 8/23
LANDFILL PERIMETER BERM AND DRAINAGE DITCH SEE DETAILS 3/17 5/19
FINAL COVER DOWNSLOPE FLUME NO. 3 SEE DETAILS 3/20 1/21 2/21 4/21
SEDIMENTATION BASIN NO. 2 SEE DETAIL 1/22
MAINTENANCE ROAD 10% SLOPE
RISER/CULVERT I.E. 873.0W I.E. 872.0E
EMERGENCY SPILLWAY
FINAL COVER DIVERSION BERM SEE DETAIL 2/19
BM101
10' WIDE FLAT BOTTOM DITCH @ 2%
19 18
20 17
0 100 200 300 400
SCALE: 1" = 100'

CONSTRUCTION ACTIVITIES

PHASE 4B CLOSURE

1. INSTALL EROSION CONTROL DEVICES.
2. INSTALL GRADING LAYER.
3. INSTALL GCL.
4. INSTALL GEOMEMBRANE.
5. INSTALL DOWNSLOPE FLUME.
6. INSTALL SELECT GRANULAR FILL, DRAINAGE PIPING, GEOTEXTILE, ROOTING ZONE LAYER, AND TOPSOIL.
7. INSTALL DIVERSION BERMS.
8. SEED, FERTILIZE, AND MULCH.

CONSTRUCTION QUANTITIES

PHASE 4B CLOSURE	VOLUME / AREA
TOPSOIL PLACED	
GRADING LAYER SOIL	9,800 CY
GENERAL FILL	9,800 CY
SELECT GRANULAR FILL	19,600 CY
GEOTEXTILE	19,600 CY
GCL	61,700 SY
GEOMEMBRANE	58,600 SY
SEED, FERTILZER, MULCH	58.600 SY
DOWNSLOPE FLUME	12.1 ACRES
4-INCH DIA. HDPE CORRUGATED PIPT	1 EACH
W/ SMOOTH INTERIOR	3,150 LF
SELECT AGGREGATE FILL	470 CY

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PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE:

PROPOSED FINAL GRADES

DRAWN BY: NOLDENR	SCALE: 1"=100'	PROJ. NO. 3081.40
CHECKED BY: DM		FILE NO. FGRADES.PLT
APPROVED BY: BJK	DATE PRINTED:	SHEET 12 OF 23
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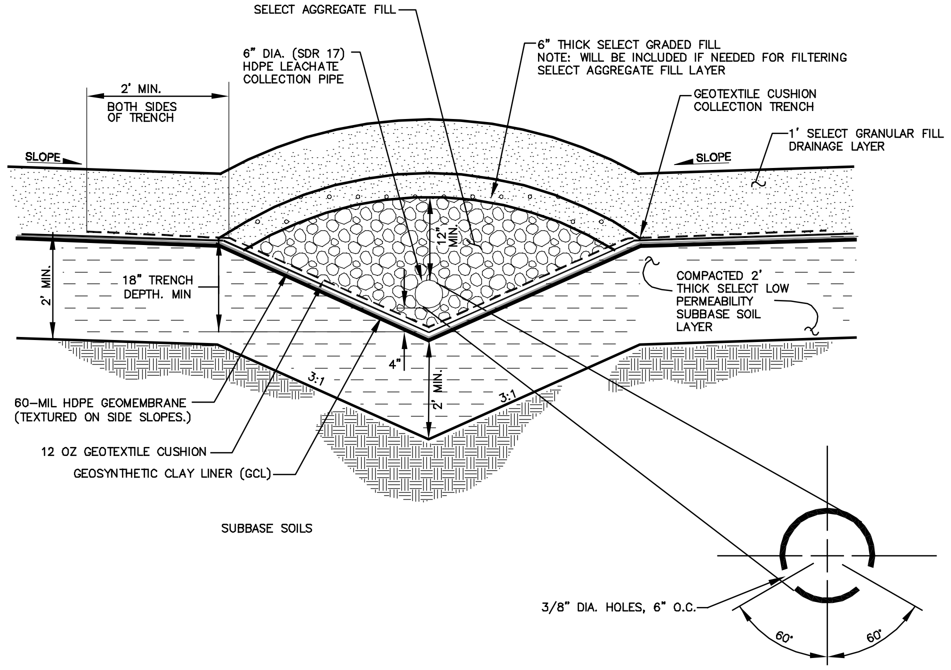
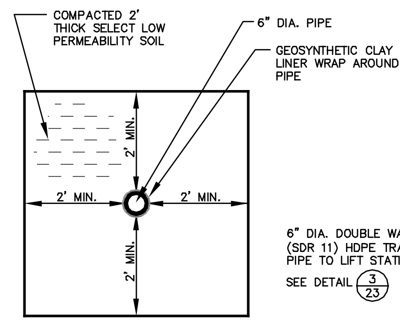
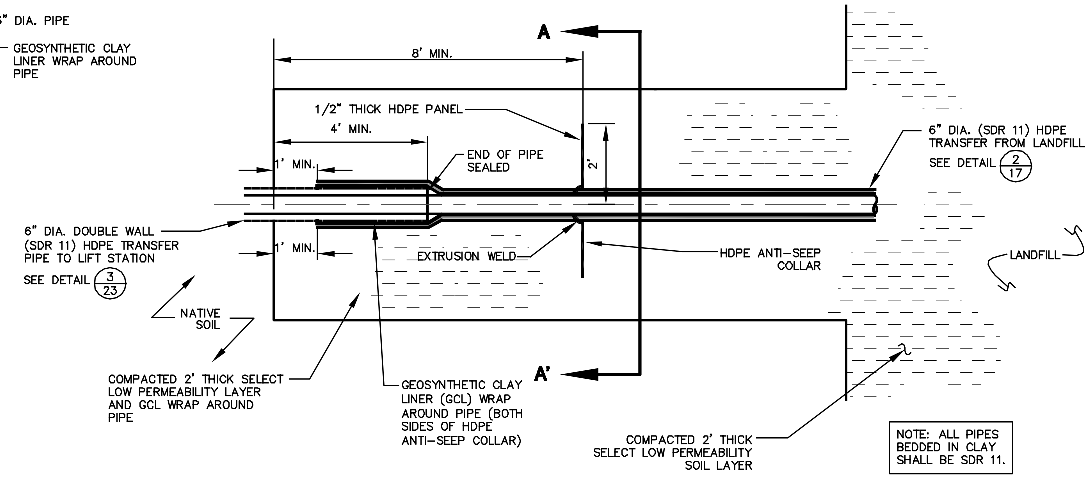


1/17 **LEACHATE COLLECTION/LINER SYSTEM**

(NOT TO SCALE)

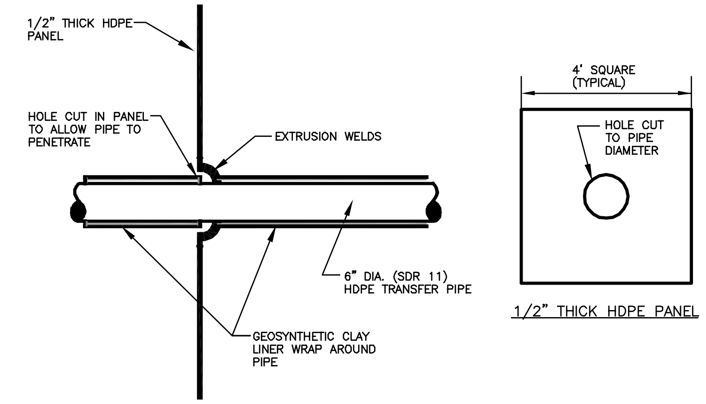


SECTION A-A'

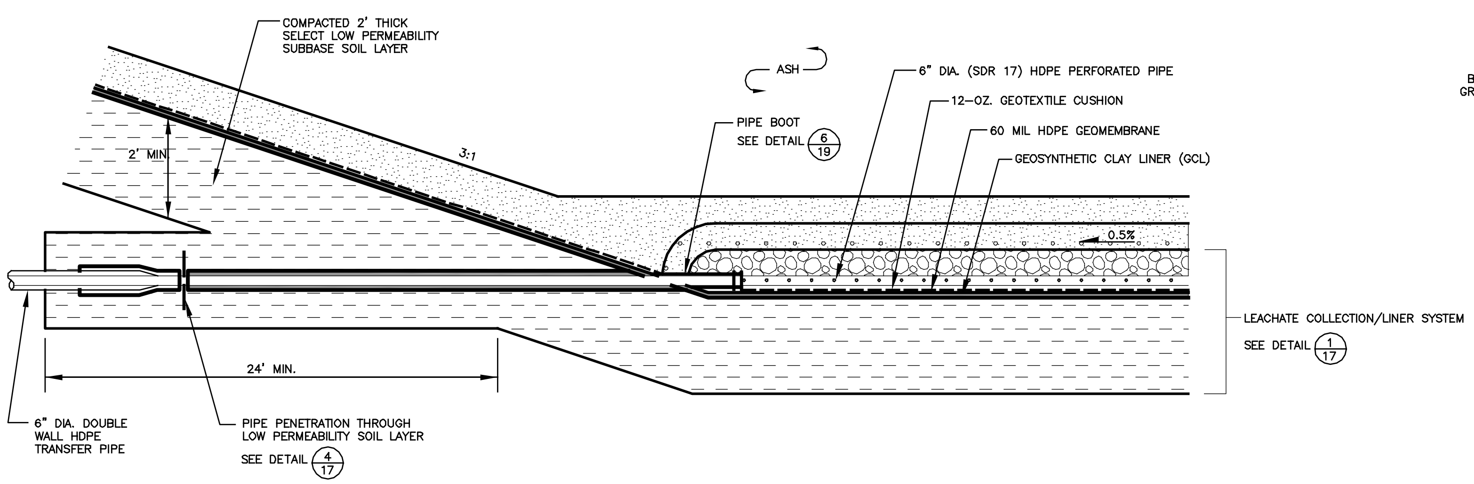


4/17 **LEACHATE TRANSFER PIPE CLAY TRENCH CUT-OFF THROUGH PERIMETER BERM (TYPICAL)**

(NOT TO SCALE)

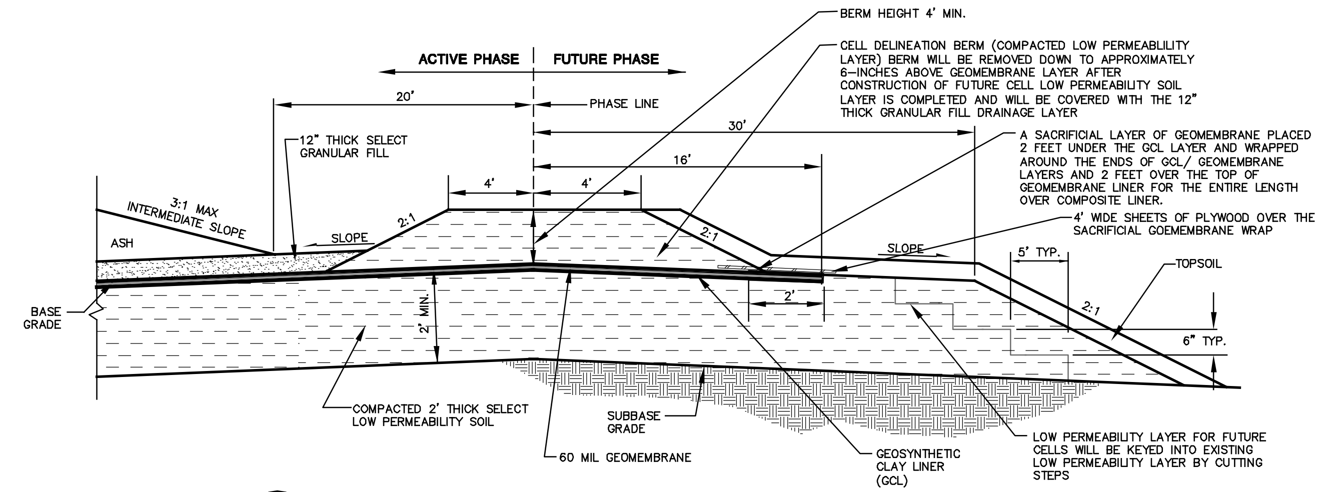


HDPE ANTI-SEEP COLLAR DETAIL (TYPICAL)



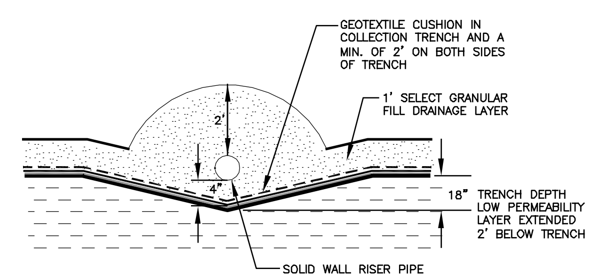
2/17 **PIPE PENETRATION THROUGH LANDFILL PERIMETER BERM (TYPICAL)**

(NOT TO SCALE)
LOOKING EAST



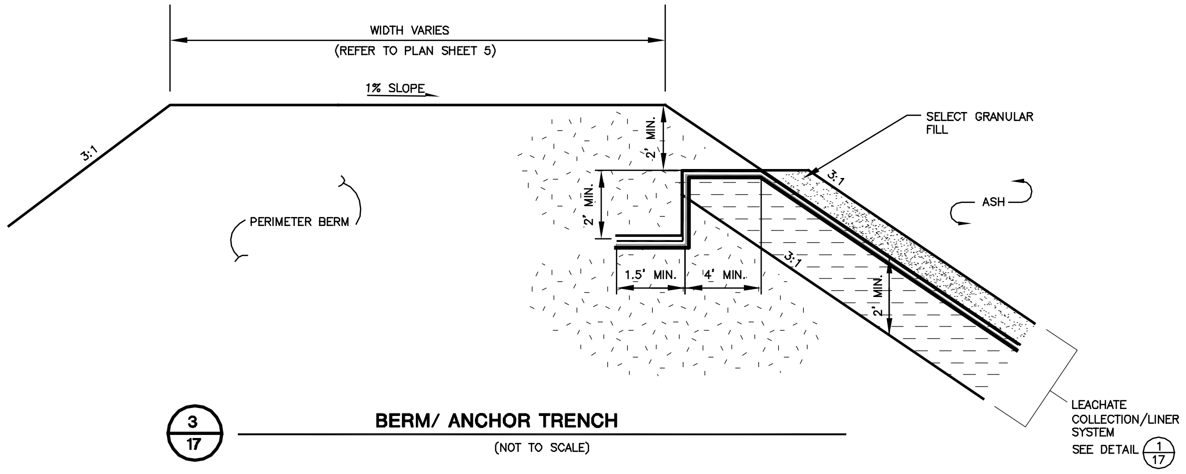
5/17 **CELL DELINEATION BERM**

(NOT TO SCALE)



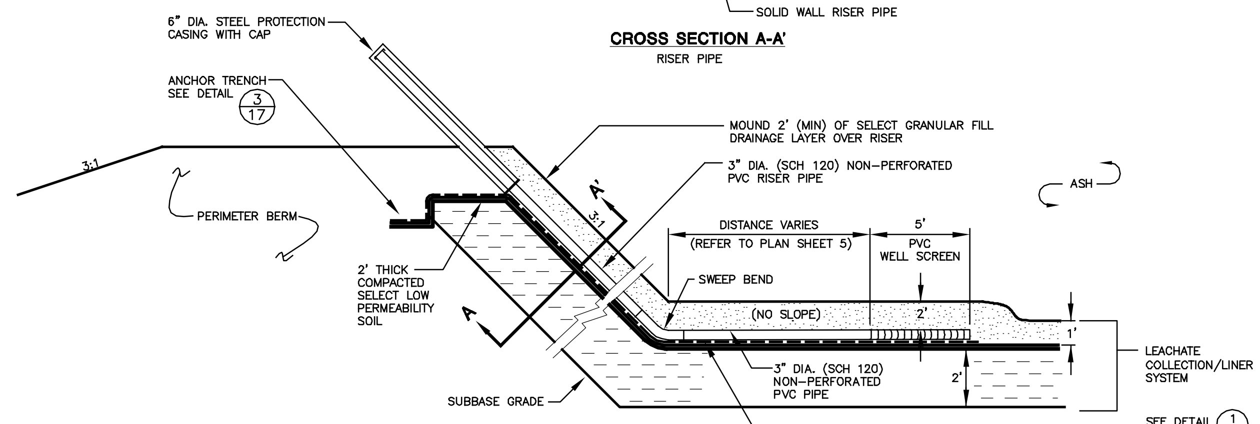
CROSS SECTION A-A'

RISER PIPE



3/17 **BERM/ ANCHOR TRENCH**

(NOT TO SCALE)



NOTE:
LEACHATE HEADWELL WILL LIE HORIZONTALLY ON TOP OF LINER AND WITHIN 12" SELECT GRANULAR FILL DRAINAGE LAYER.

PIPE CONSTRUCTION ON BERM SIDE SLOPE IS ALSO TYPICAL FOR LEACHATE CLEANOUT PIPES.

6/17 **LEACHATE HEADWELL**

(NOT TO SCALE)

LINE AND SHADING LEGEND

GEOTEXTILE	GEOMEMBRANE
GEOCOMPOSITE	GEOSYNTHETIC CLAY LINER (GCL)
TOPSOIL	NATIVE SOIL
SELECT GRANULAR FILL DRAINAGE LAYER	CONCRETE
PIPE BEDDING MATERIAL	RIPRAP
SELECT AGGREGATE FILL	GRAVEL
COMPACTED SELECT LOW PERMEABILITY SOIL	GENERAL FILL

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PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **DETAILS- LINER AND COLLECTION PIPES**

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APPROVED BY: BJK	DATE PRINTED:	SHEET 17 OF 23
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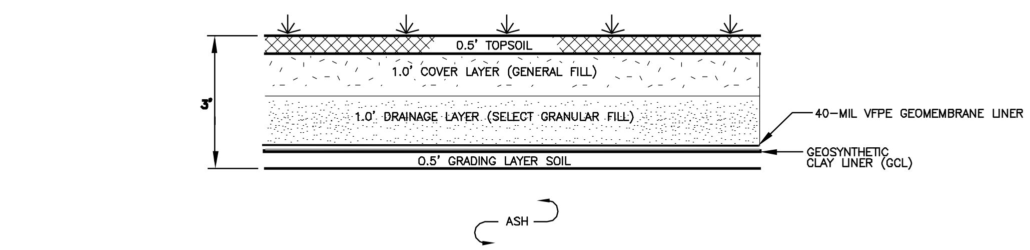
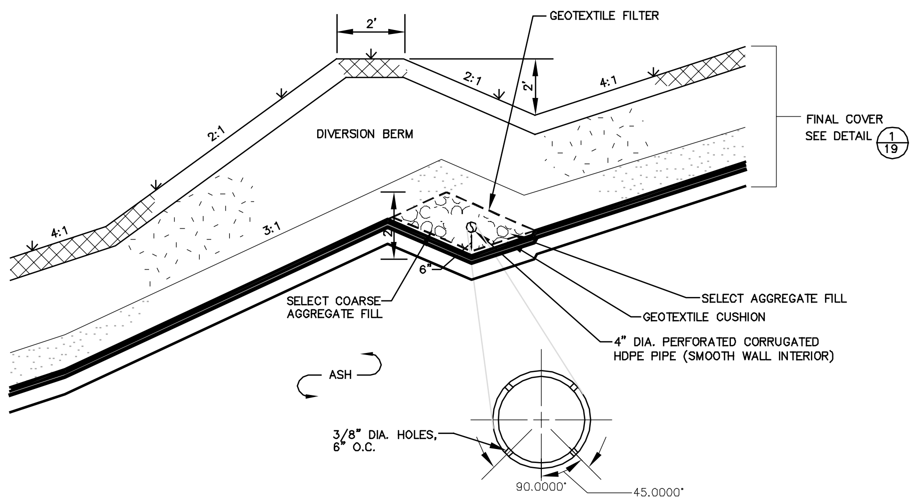


1/19 **FINAL COVER**

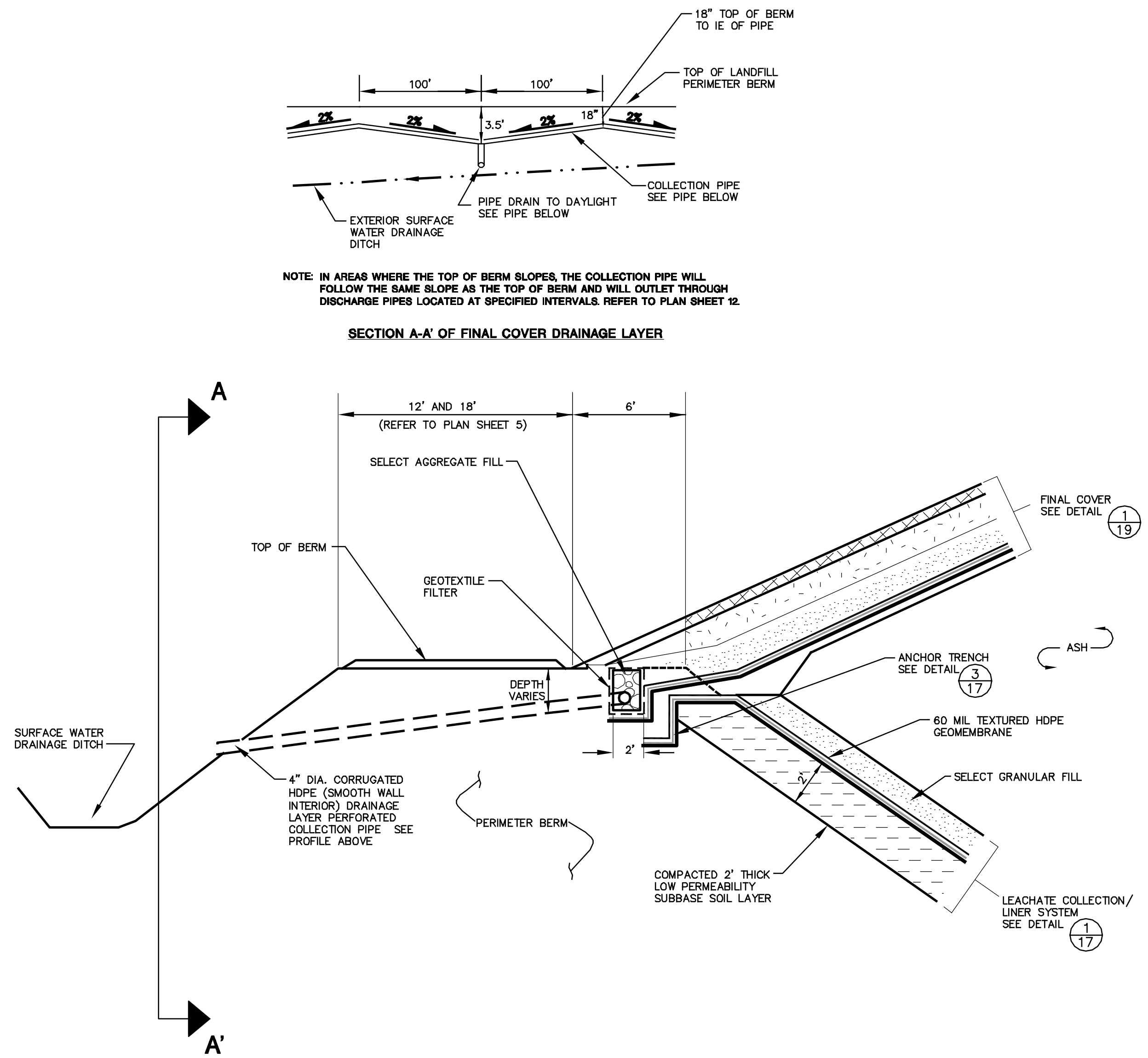
(NOT TO SCALE)



NOTE:
A 4" DIA. PERFORATED CORRUGATED HDPE PIPE WILL BE LOCATED BELOW EVERY DIVERSION BERM ABOVE THE FINAL COVER EXCEPT THE LOWEST BERM LOCATED NEXT TO THE LANDFILL PERIMETER BERM. TO COLLECT WATER IN THE DRAINAGE LAYER ALONG THE PERIMETER BERM PIPES WILL BE CONSTRUCTED IN THE BERM AS SHOWN ON DETAIL 4 OF 19.

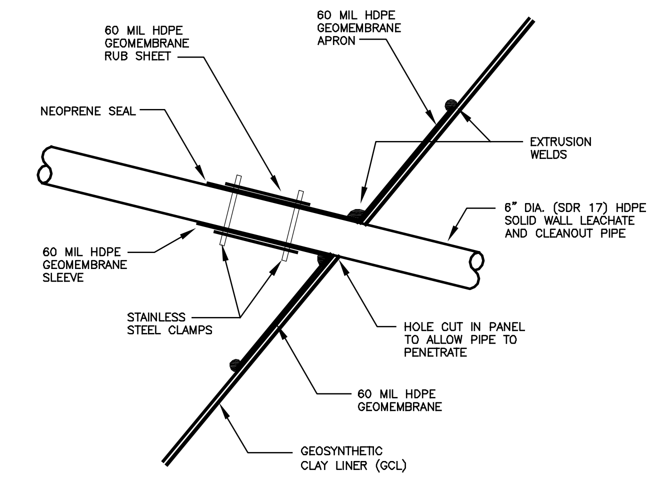
2/19 **SURFACE WATER DIVERSION BERM ON FINAL COVER (TYPICAL)**

(NOT TO SCALE)



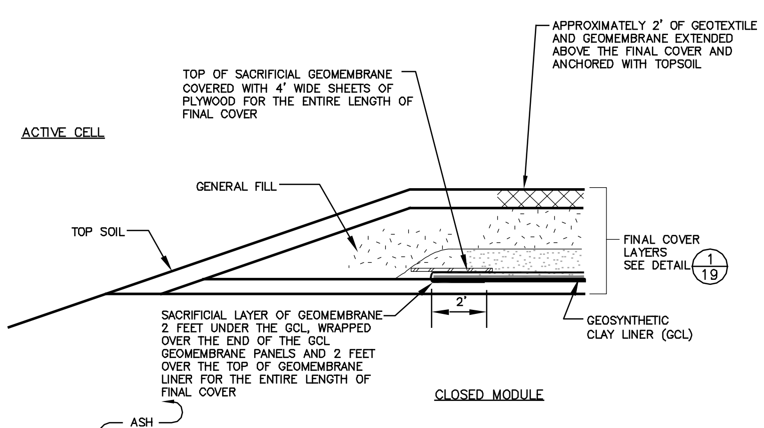
4/19 **PERIMETER BERM FINAL COVER DRAINAGE LAYER DISCHARGE PIPE (TYPICAL)**

(NOT TO SCALE)



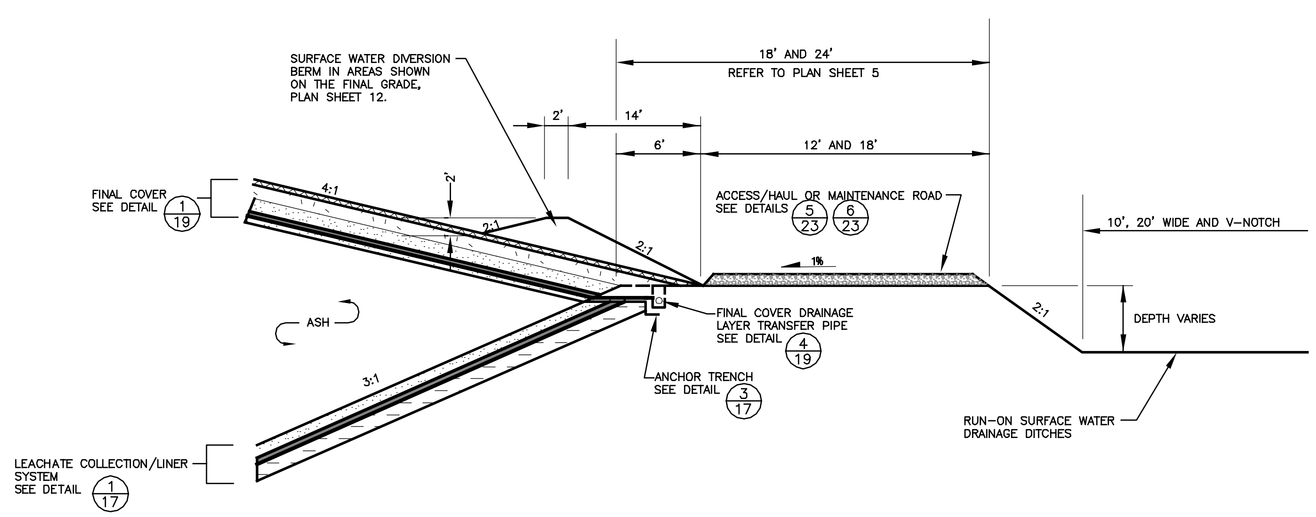
6/19 **PIPE BOOT- PIPES PENETRATING THROUGH FINAL COVER AND LOW PERMEABILITY LAYER (TYPICAL)**

(NOT TO SCALE)



3/19 **CONSTRUCTION OF FINAL COVER FOR SPLICING FUTURE FINAL COVER**

(NOT TO SCALE)



5/19 **LANDFILL PERIMETER BERM AND SURFACE WATER DRAINAGE DITCHES (TYPICAL)**

(NOT TO SCALE)

LINE AND SHADING LEGEND

GEOTEXTILE	GEOMEMBRANE
GEOCOMPOSITE	GEOSYNTHETIC CLAY LINER (GCL)
TOPSOIL	NATIVE SOIL
SELECT GRANULAR FILL DRAINAGE LAYER	CONCRETE
PIPE BEDDING MATERIAL	RIPRAP
SELECT AGGREGATE FILL	GRAVEL
COMPACTED SELECT LOW PERMEABILITY SOIL	GENERAL FILL

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY.
NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

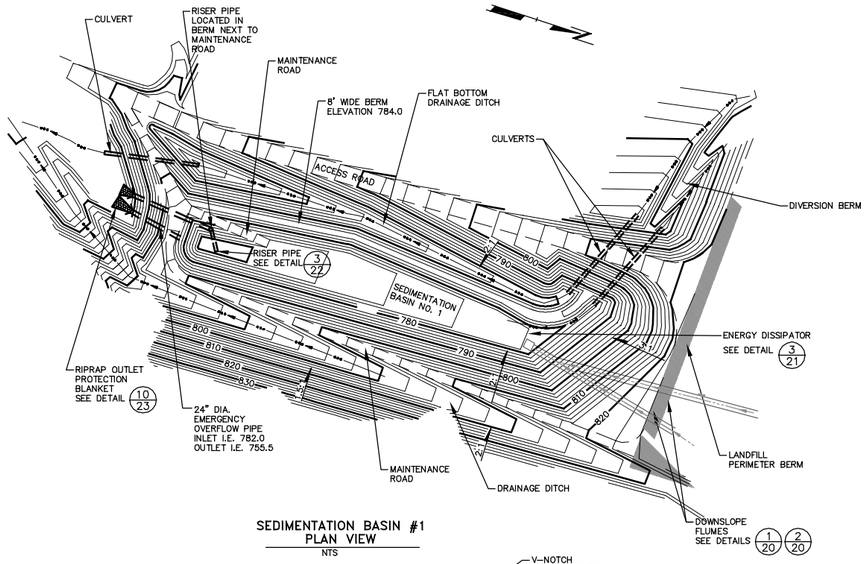
PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **DETAILS- FINAL COVER**

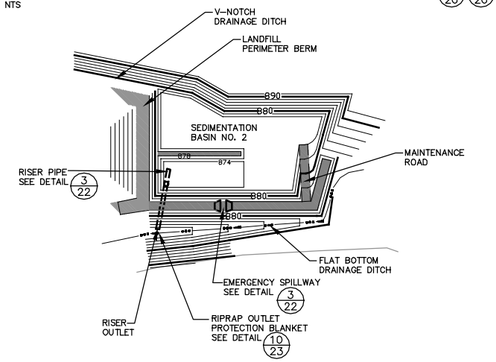
DRAWN BY: DEFOEJ	SCALE:	PROJ. NO. 3081.40
CHECKED BY: DM	NOT TO SCALE	FILE NO.30814004.dwg
APPROVED BY: BJK	DATE PRINTED:	SHEET 19 OF 23
DATE: OCTOBER 2000		

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY.
NOT FOR CONSTRUCTION

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608/831-4444



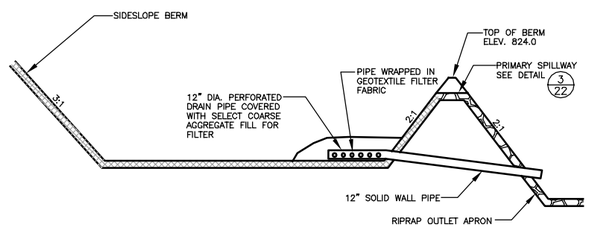
SEDIMENTATION BASIN #1
PLAN VIEW
NTS



SEDIMENTATION BASIN #2
PLAN VIEW
NTS

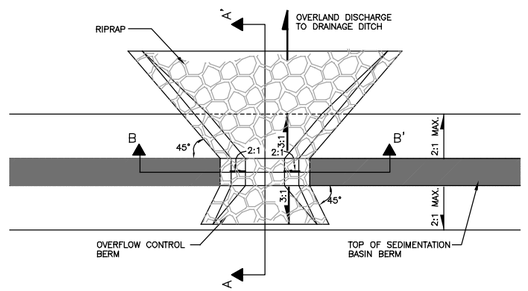
1/22 SEDIMENTATION BASINS NO. 1 AND NO. 2

(NOT TO SCALE)



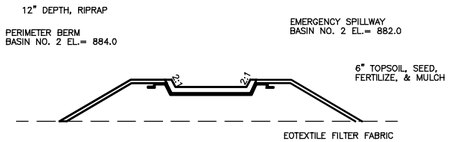
2/22 TEMPORARY SEDIMENTATION BASIN (TYPICAL)

(NOT TO SCALE)

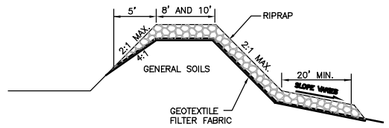


SURFACE WATER PRIMARY OR EMERGENCY SPILLWAY
PLAN VIEW

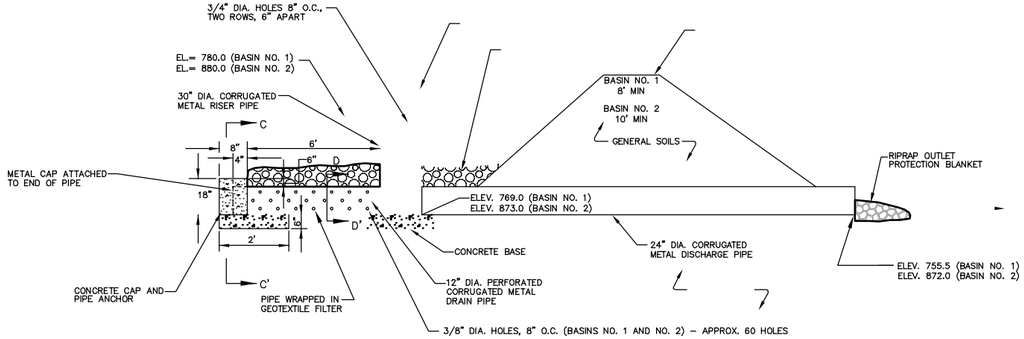
NOTE:
SEDIMENTATION BASIN NO. 1 WILL HAVE A CULVERT PIPE INSTALLED FOR THE EMERGENCY OVERFLOW. SEE DETAIL 1 OF 22.



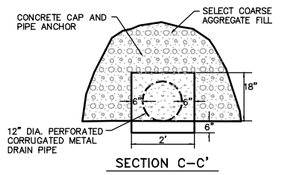
CROSSECTION B–B'



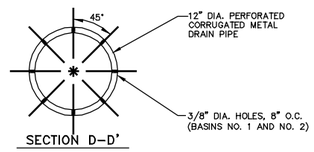
SECTION A–A'



RISER/DISCHARGE PIPE CROSS SECTION (TYPICAL)



SECTION C–C'



SECTION D–D'

3/22 RISER/DISCHARGE PIPE/EMERGENCY SPILLWAY

(NOT TO SCALE)

LINE AND SHADING LEGEND

GEOTEXTILE	GEOMEMBRANE
GEOCOMPOSITE	GEOSYNTHETIC CLAY LINER (GCL)
TOPSOIL	NATIVE SOIL
SELECT GRANULAR FILL DRAINAGE LAYER	CONCRETE
PIPE BEDDING MATERIAL	RIPRAP
SELECT AGGREGATE FILL	GRAVEL
COMPACTED SELECT LOW PERMEABILITY SOIL	GENERAL FILL

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NOT FOR CONSTRUCTION

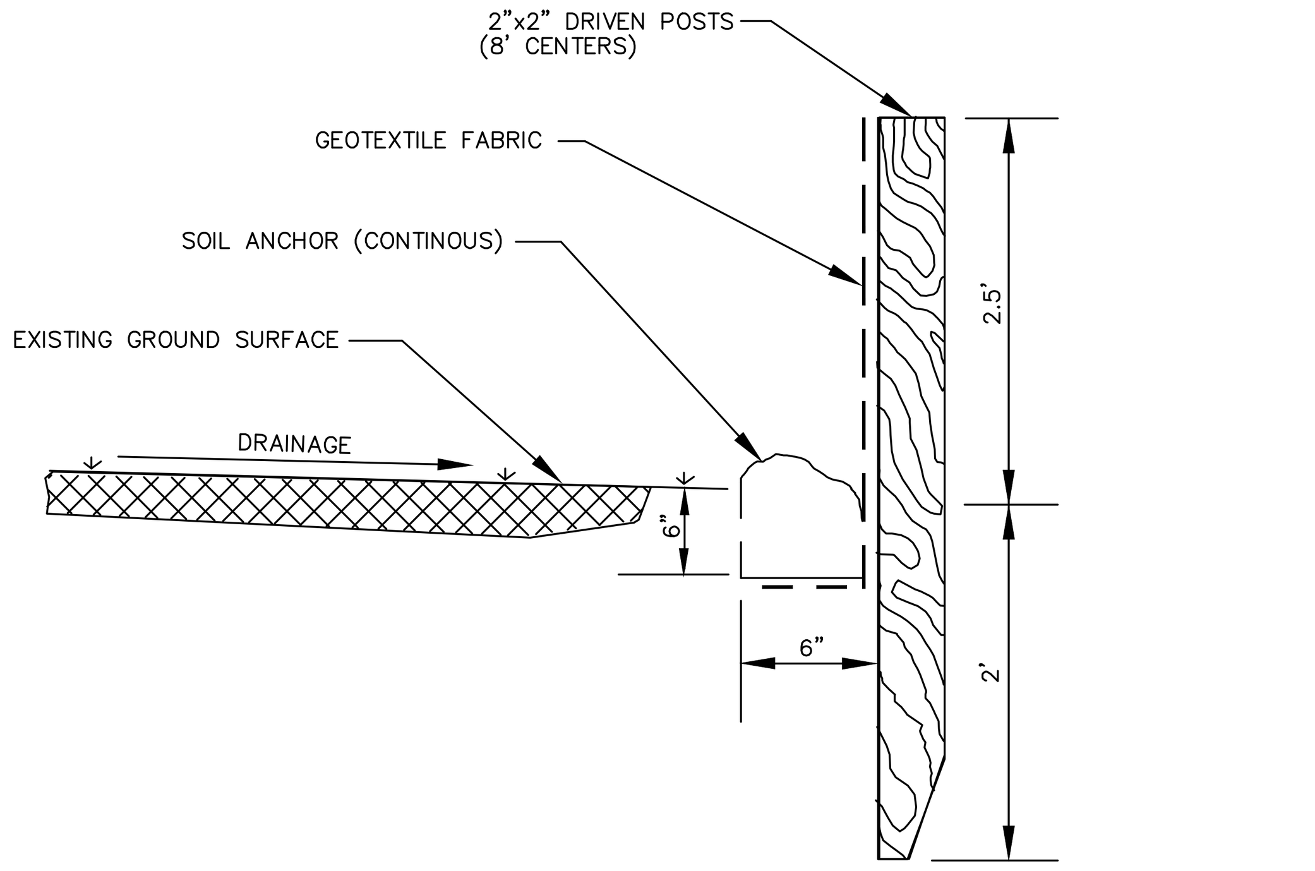
NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **DETAILS- SEDIMENTATION BASINS**

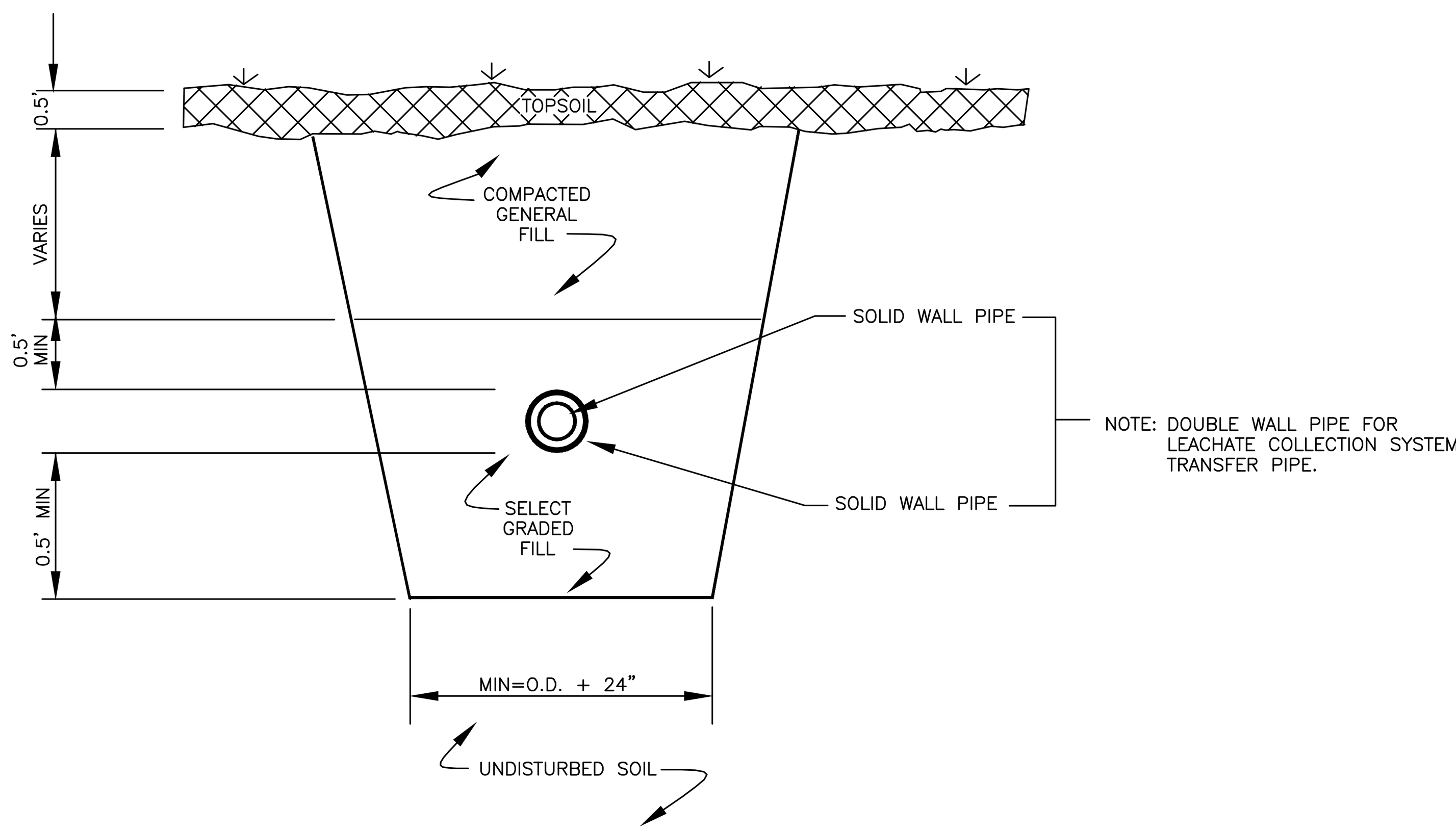
DRAWN BY: DEFOEJ	SCALE: NOT TO SCALE	PROJ. NO. 3081.40
CHECKED BY: DM		FILE NO. 30814007.dwg
APPROVED BY: BJK	DATE PRINTED:	SHEET 22 OF 23
DATE: OCTOBER 2000		

RMT
744 Heartland Trail
Madison, WI 53717–1934
P.O. Box 8923
Madison, WI 53708–8923
Phone: 608/831–4444



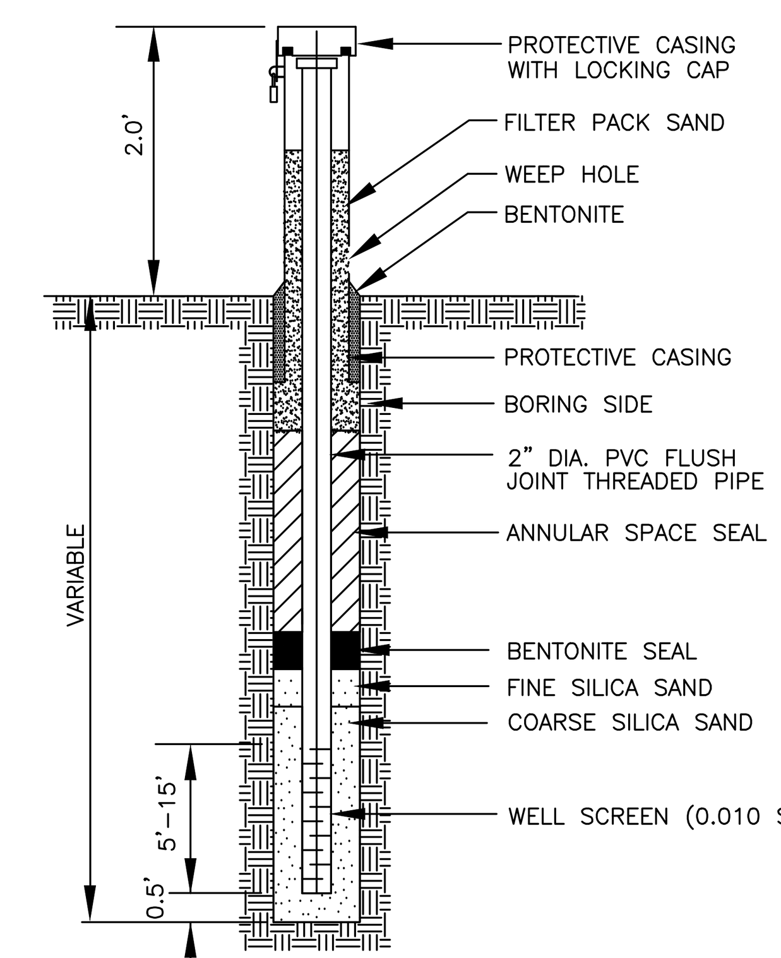
NOTE:
DETAIL SHOWN FOR PURPOSES OF IDENTIFYING INSTALLATION METHOD. LOCATION OF FENCE WILL BE DETERMINED AT DEVELOPMENT OF ENGINEERING PLANS FOR EACH PHASE OF CONSTRUCTION AND IN THE FIELD DURING ACTUAL CONSTRUCTION OF EACH PHASE.

1/23 **SEDIMENT CONTROL FENCE**
(NOT TO SCALE)

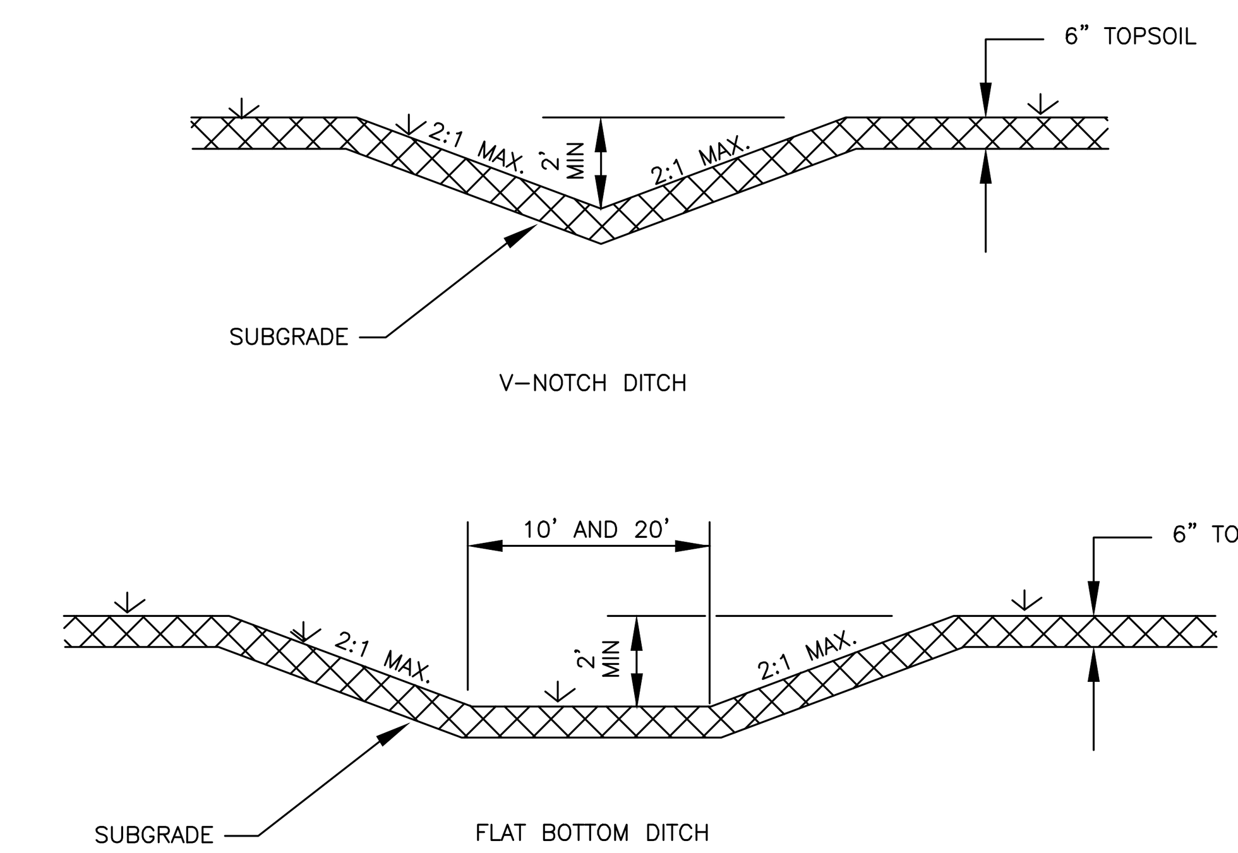


NOTE: DOUBLE WALL PIPE FOR LEACHATE COLLECTION SYSTEM TRANSFER PIPE.

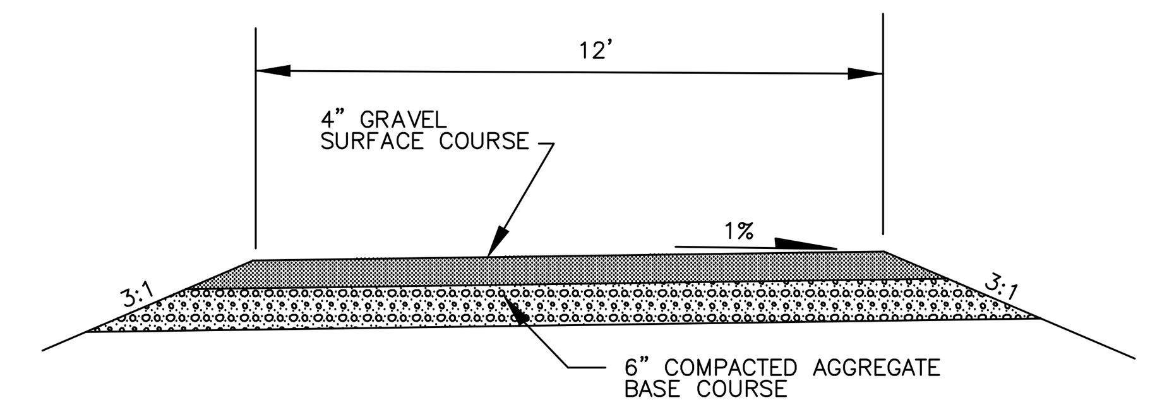
3/23 **DOUBLE WALL TRANSFER PIPE**
(NOT TO SCALE)



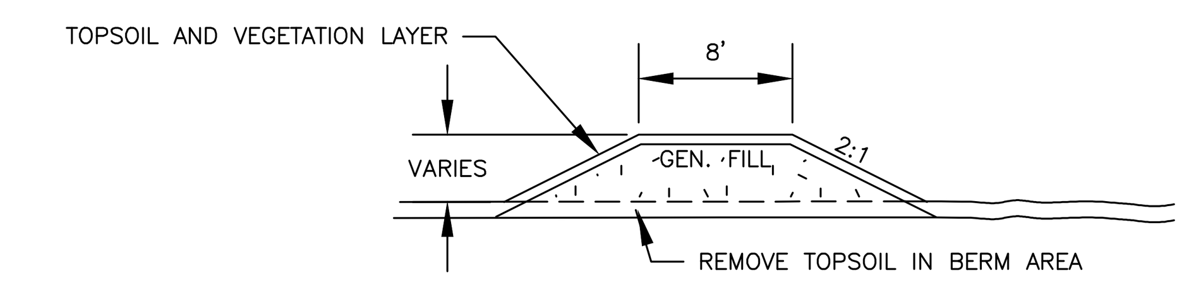
4/23 **WATER TABLE MONITORING WELL**
NOT TO SCALE



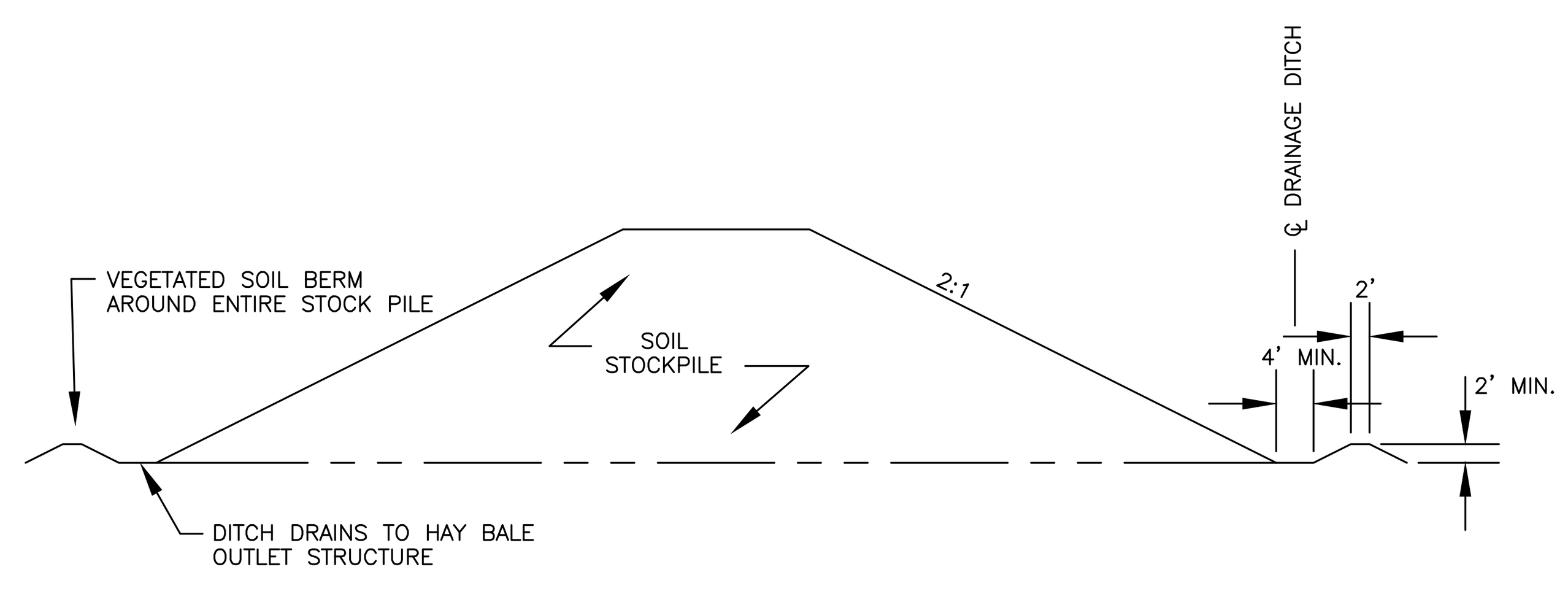
8/23 **DRAINAGE DITCH DETAILS OUTSIDE LANDFILL COVER**
(NOT TO SCALE)



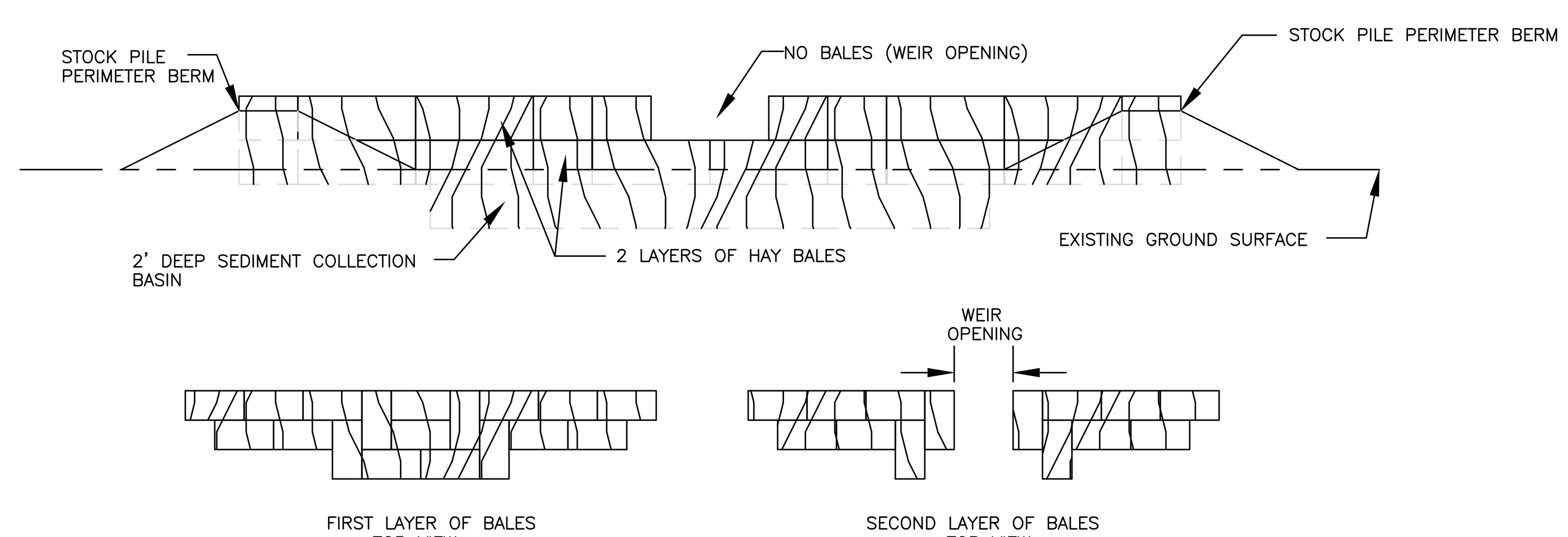
5/23 **MAINTENACE ROAD**
(NOT TO SCALE)



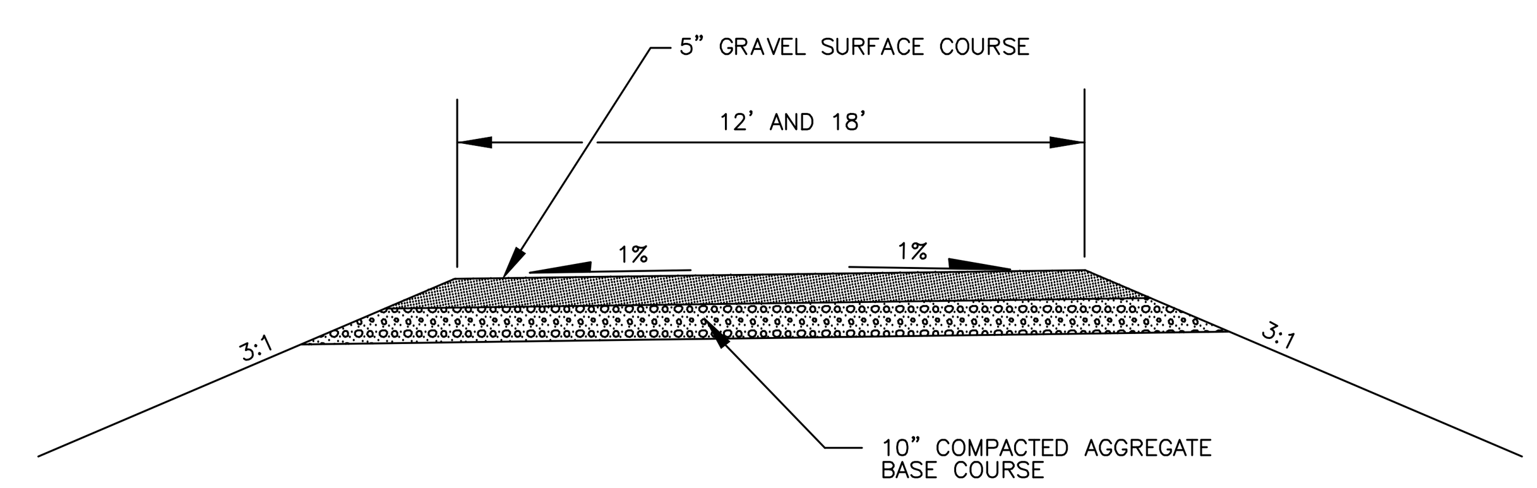
9/23 **TEMPORARY BERM FOR CONTROLLING WATER**
(NOT TO SCALE)



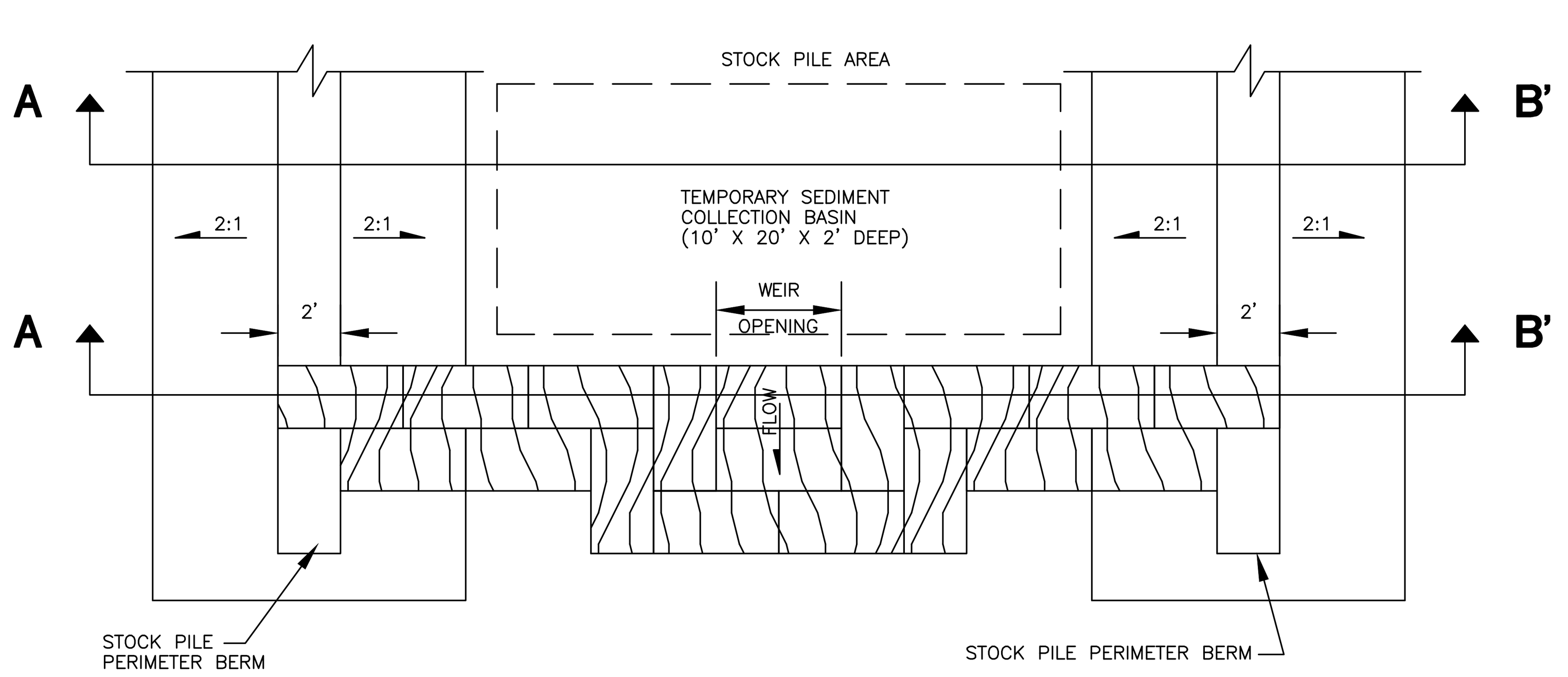
SECTION B-B'



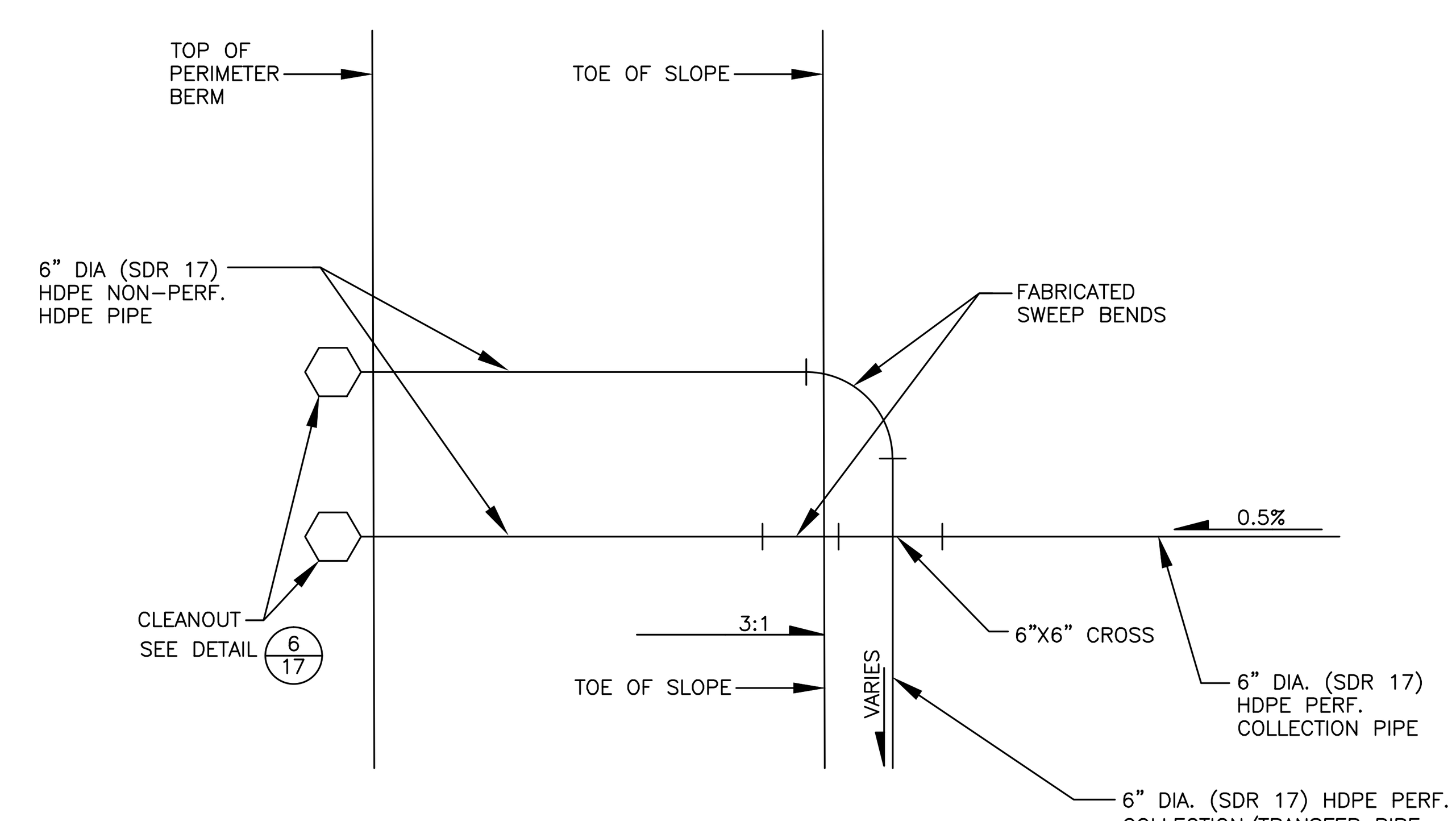
SECTION A-A'



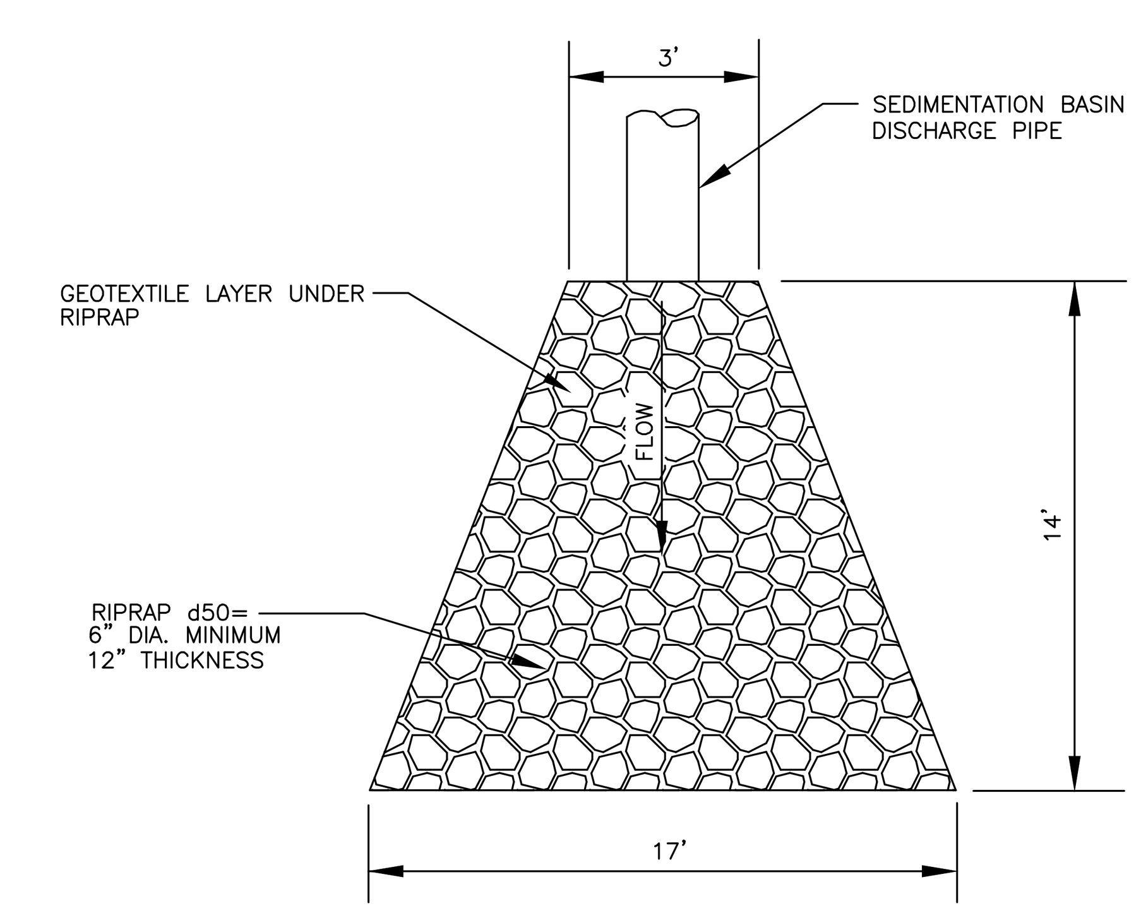
6/23 **ALL WEATHER ACCESS/ HAUL ROAD**
(NOT TO SCALE)



2/23 **SURFACE WATER OUTLET FOR STOCKPILES**
(NOT TO SCALE)



7/23 **PIPE CONNECTIONS (TYPICAL)**
(NOT TO SCALE)



10/23 **DISCHARGE PIPE RIPRAP OUTLET PROTECTION BLANKET**
(NOT TO SCALE)

LINE AND SHADING LEGEND

GEOTEXTILE	GEOMEMBRANE
GEOCOMPOSITE	GEOSYNTHETIC CLAY LINER (GCL)
TOPSOIL	NATIVE SOIL
SELECT GRANULAR FILL DRAINAGE LAYER	CONCRETE
PIPE BEDDING MATERIAL	RIPRAP
SELECT AGGREGATE FILL	GRAVEL
COMPACTED SELECT LOW PERMEABILITY SOIL	GENERAL FILL

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NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **DETAILS- MISCELLANEOUS**

DRAWN BY: DEFOEJ	SCALE:	PROJ. NO. 3081.40
CHECKED BY: DM	NOT TO SCALE	FILE NO. 30814003.dwg
APPROVED BY: BJK	DATE PRINTED:	SHEET 23 OF 23
DATE: OCTOBER 2000		

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608/831-4444

Appendix L: CCR Well Construction Documentation

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 5-97

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power		W-100R

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Boart-longyear / T. Schmalfelt	5/17/01	5/17/01	4¼SPT/Rotary

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
JQ 894		W-100R	Feet MSL	Feet MSL	8.0 Inches

Boring Location or Local Grid Origin (Check if estimated: ☐)
State Plane S/C/N
NE 1/4 of NE 1/4 of Section 19, T21 N, R 12W

Lat. ° ' "
Long. ° ' "

Local Grid Location (If applicable)
☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
3410-1789	Buffalo	6	Alma

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Earth Drill										
			2	4 1/4" HSA										
			3	No samples taken. See boring log for W100AR.										
			4											
			5											
			6											
			7											
			8											
			9											
			10											
			11											
			12											

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

Signature [signature] Firm Boart Longyear
101 Alderson St. Schofield, WI 54476
Tel: (715)359-7090
Fax: (715)355-5715

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completions of this form 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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-100R Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			13											
			14											
			15	Air Rotary										
			16											
			17											
			18											
			19											
			20											
			21											
			22											
			23											
			24											
			25											
			26											
			27											
			28											
			29											
			30											
			31											
			32											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-100R Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42											
			43											
			44											
			45											
			46											
			47											
			48											
			49											
			50											
			51											
			52											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-100R Use only as an attachment to Form 4400-122.

Sample									Soil Properties						
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			53											
			54											
			55											
			56											
			57											
			58											
			59											
			60											
			61											
			62											
			63											
			64											
			65											
			66											
			67											
			68											
			69											
			70											
			71											
			72											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-100R Use only as an attachment to Form 4400-122.

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			73											
			74											
			75											
			76	EOB 76.0' Well Set 75.0'										

State of Wisconsin
Department of Natural Resources

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

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power Cooperative		W-100AR

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Boart-Longyear/T. Schmalfelt	5/17/2001	5/17/2001	HSA w/SPT/Rotary

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
JQ893		W-100AR	712.4 Feet MSL	781.8 Feet MSL	8.0 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane 171,202 N, 1,477,198 E S/C/N
NE 1/4 of NE 1/4 of Section 19, T 21 N, R 12 W
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E
Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Buffalo	6	Alma

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			0–1	**SANDY TOPSOIL,** dark brown, dry, loose, trace rootlets.										
			1–5	**SILTY LOESS MATERIAL,** reddish brown, dry, loose, trace rootlets.										
1 SS	24 14	6 8 11 13 (19)	5	**POORLY GRADED SAND (SP),** some gravel, tan, dry, medium dense.	SP									
2 SS	24 0	>50	10	No recovery, abundant cobbles and boulders.										

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

Signature	Firm	
Michael J. Disdy	RMT, Inc 744 Heartland Trail Madison, WI 53719	Tel: 608-831-4444 Fax: 608-831-3334

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form 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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

WDNR_SBL_98 03081W.GPJ WI_DNR98.GDT 6/15/01

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number W-100AR Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
3 SS	24 0	>50	15	No recovery, same as above.										
			19	Auger refusal around 19 feet. switch to air rotary.										Grab samples from drill cuttings observed.
			22		SP									

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number W-100AR Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42		SP									
			43											
			44											
			45											
			46											
			47											
			48											
			49											
			50											
			51											
			52											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number W-100AR Use only as an attachment to Form 4400-122.

Sample: Number and Type	Sample: Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
			53											
			54											
			55											
			56		SP									
			57											
			58											
			59											
			60	**SANDSTONE BEDROCK,** approximate depth.										
			61											
			62											
			63											
			64											
			65											
			66											
			67											
			68											
			69				▼							
			70											
			71											
			72											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number W-100AR Use only as an attachment to Form 4400-122.

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			73											
			74											
			75	**SANDSTONE BEDROCK**										
			76											
			77											
			78											
			79											
			80											
			81											
			82											
			83											
			84											
			85											
			86											
			87											
			88											
			89											
			90											
			91											
			92											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number W-100AR Use only as an attachment to Form 4400-122.

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				Well set at 92 feet.										
			93	**End of boring at 93 feet.**										

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information
Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power 3081.23	2927	W101

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Environmental & Foundation Drilling, Crew Chief: Frank Badula	10/25/94	10/25/94	HSA 6 1/4"-6"

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			813.1 Feet MSL	923.2 Feet MSL	6-10 1/4 Inches

Boring Location
State Plane 172655.00 N, 1477721.00 E
NE 1/4 of NE 1/4 of Section 19 T 21 N,R 12W
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Buffalo County	06	Belvidere

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
1	12	20	1-3	**POORLY GRADED SAND (SP)** fine, brownish yellow 10YR 6/6 medium to very dense, (with sandstone fragments), Fluvial.	SP					M				SS
2	14	8	4-5	Grades to yellow 10YR 7/6.						M				SS
3	16	11	6-8	Rust colored mottles. Sand is interbedded with pale yellow and brownish yellow lenses.						M				SS
4	10	100/12"	9-14							M				
5	18	24	15-19		SP					M				SS
6		100/14"	20-25	Very fine silty sand at ~21.0'.						M				SS

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

Signature: Daniel O. Lid

Firm: RMT
744 Heartland Trail, Madison Wisconsin
Tel: 608-831-4444, Fax: 608-831-3334

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Boring Number **W101** Use only as an attachment to Form 4400-122. Page 2 of 4

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plastic Limit	Soil Properties: P 200	Comments
7	8	100/6"	26	More cemented, yellow 10YR 7.8 very dense, 20% silt.						M				SS
			27											
			28											
8	4	100/4"	29											SS
			30	**DOLOMITE**, bedrock, highly weathered and fractured, brown 7.5YR 5/2, fractures/voids filled with silt and sand.										
9			31											Grab
			32											
10			33											Grab
			34											
			35											
			36											
			37											
11			38											Grab
			39											
			40											
			41											
			42											
			43											
12	6	100/6"	44											SS
			45											
13			46	Rock becomes more competent at ~46'.										Grab
			47											
			48											
14			49											Grab
			50											
			51	Fracture zone at ~48.0' - 50.0' (loose air circulation).										
			52											
			53											
			54											Grab
			55											
			56											
			57											
			58											
15		100/2"	59											SS
			60											
			61											
			62											
			63											
16			64											Grab
			65											
17			66											Grab

Boring Number **W101** Use only as an attachment to Form 4400-122. Page 3 of 4

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
			67											
			68											
			69											
18			70	**SANDSTONE**, fine grained glauconitic, friable poorly-cemented, olive.										Grab
			71											
			72											
			73											
			74											
			75											
19			76	**DOLOMITE**, weathered fractured interbedded with glauconitic sandstone (or glauconitic silty sand in fractures).										Grab
			77											
			78											
			79											
			80											
20			81											Grab
			82	**SANDSTONE**, fine grained, very friable, poorly cemented, olive weathered.										
			83											
			84											
			85											
21			86											Grab
			87											
			88											
			89											
			90											
22			91	Color change to rust brown at ~91.0', color change to olive at ~93'.						D				Grab
			92											
			93											
			94											
			95											
23			96	Color changes from rust brown to olive.						D				Grab
			97											
			98											
			99											
			100											
24			101											Grab
			102											
			103											
			104							D				
			105											
25			106											Grab
			107											
			108											

Boring Number **W101** Use only as an attachment to Form 4400-122. Page 4 of 4

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plastic Limit	Soil Properties: P 200	Comments
			109	Attempt to core from 108 to 118 feet below ground surface but got no recovery.						W				0
26			110											
			111											
			112											
			113											
			114											
			115											
			116											
			117											KH = 1X10 cm/sec Grab
27			118							W				
			119											
			120											
			121											
			122	**End of Boring at 122 Ft.**										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 5-97

Route To: Watershed/Wastewater ☐ Waste Management ☒
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power		W-102R

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Boart-Longyear / T. Schmalfelt	5/16/01	5/16/01	w/SPT/Rotary

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
JQ892		W-102R	Feet MSL	Feet MSL	8.0 Inches

Boring Location or Local Grid Origin (Check if estimated: ☐) S/C/N
State Plane
NE 1/4 of NE 1/4 of Section 19 T 21 N, R 12 W
Lat. ° ' "
Long. ° ' "
Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
3410-1789	Buffalo	6	Alma

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			1	Earth Drill										
			2	4 1/4" HSA										
			3	No samples taken. See boring log for W102AR										
			4											
			5											
			6											
			7											
			8											
			9											
			10											
			11											
			12											

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

Signature [signature] Firm Boart Longyear
101 Alderson St. Schofield, WI 54476
Tel: (715)359-7090
Fax: (715)355-5715

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completions of this form 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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A Rev. 5-97

Boring Number W-102R Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			13											
			14											
			15											
			16											
			17											
			18											
			19											
			20											
			21											
			22											
			23											
			24											
			25											
			26											
			27											
			28											
			29											
			30	Air Rotary										
			31											
			32											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-102R Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42											
			43											
			44											
			45											
			46											
			47											
			48											
			49											
			50											
			51											
			52											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-102R Use only as an attachment to Form 4400-122.

Sample										Soil Properties						
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			53											
			54											
			55											
			56											
			57											
			58											
			59											
			60											
			61											
			62											
			63											
			64											
			65											
			66											
			67											
			68											
			69											
			70											
			71											
			72											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT

Form 4400-122A Rev. 5-97

Boring Number W-102R Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			73											
			74											
			75											
			76											
			77											
			78											
			79	EOB 79.0' Well Set 78.0'										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 5-97

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power		W-102AR

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		W-102AR	Feet MSL	Feet MSL	8.0 Inches

Boring Location or Local Grid Origin (Check if estimated: ☐)
State Plane S / C / N
1/4 of 1/4 of Section , T N, R
Lat. ° ' "
Long. ° ' "
Local Grid Location (If applicable)
Feet ☐ N ☐ E
Feet ☐ S ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
3410-1789	Buffalo	6	Alma

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1 SS	24 13	2 3 3 3	1	Br SILT 4 1/4" HSA						M				
2 SS	24 14	6 9 9 11	5							M				
3 SS	18 2	15 18 50/.2	10	BEDROCK						D				

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

Signature [signature] Firm Boart Longyear
101 Alderson St. Schofield, WI 54476
Tel: (715)359-70
Fax: (715)355-57

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completions of this form 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 be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A Rev. 5-97

Boring Number W-102AR Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
4 SS	6 3	50/.2	15							D				
			16	Air Rotary										
			17											
			18											
			19											
			20											
			21											
			22											
			23											
			24											
			25											
			26											
			27											
			28											
			29											
			30											
			31											
			32											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A Rev. 5-97

Boring Number W-102AR Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42											
			43											
			44											
			45											
			46											
			47											
			48											
			49											
			50											
			51											
			52											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A Rev. 5-97

Boring Number W-102AR Use only as an attachment to Form 4400-122.

Sample										Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			53											
			54											
			55											
			56											
			57											
			58											
			59											
			60											
			61											
			62											
			63											
			64											
			65											
			66											
			67											
			68											
			69											
			70											
			71											
			72											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A Rev. 5-97

Boring Number W-102AR Use only as an attachment to Form 4400-122. Page 5 of 6

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			73											
			74											
			75											
			76											
			77											
			78											
			79											
			80											
			81											
			82											
			83											
			84											
			85											
			86											
			87											
			88											
			89											
			90											
			91											
			92											

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A Rev. 5-97

Boring Number W-102AR Use only as an attachment to Form 4400-122.

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
			93											
			94											
			95											
			96											
			97											
			98											
			99	EOB 99.0' Well Set 98.0'										

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information
Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power 3081.23	2927	**W105**

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Boart Longyear, Crew Chief: Eric Shoenberg	**11/7/95**	**11/9/95**	**HSA**

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			732.9 Feet MSL	**818.3** Feet MSL	**8 1/4** Inches

Boring Location
State Plane **171180.00 N, 1477404.00 E** Lat ° ' "
NE 1/4 of **NE** 1/4 of Section **19** T **21** N,R **12W** Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
Feet ☐ S Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Buffalo County	**06**	**Belvidere**

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
			1	Not sampled.										
			2											
			3											
			4											
1	15	14	5	**SILT (ML)**, 98% silt, 2.5Y 5/4 light olive brown, (almost fine sand size just in visual spectrum), (Loess, fluvial/lacustrine).	ML					D				SS
			6											
			7											
			8											
			9											
2	17	25	10	As above.										SS
			11											
			12											
			13											
			14											
3	15	103	15	Attempted shelby - only went 4".	GP									SS
			16											
			17	**POORLY GRADED GRAVEL WITH SAND (GP)**, 55-60% fine angular dolomite gravel, 40-45% fine to coarse sand, 10YR 5/6 yellowish brown, very dense.										
			18											
			19											
			20											
4	18	130	21											SS
			22	**POORLY GRADED SAND WITH GRAVEL (SP)**, 10YR 5/6 yellowish brown, very dense.										
			23											
			24	Very hard drilling to ~24.0 feet,										
			25											

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

Signature: Craig O Bartholomew

Firm: **RMT**
744 Heartland Trail, Madison Wisconsin
Tel: 608-831-4444, Fax: 608-831-3334

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Boring Number **W105** Use only as an attachment to Form 4400-122.

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
			26	dolomite boulder, (fluvial).										
			26	No sample, (weathered rock).										
			27											
			28											
			29											
5	12	86	30	**WEATHERED SANDSTONE,** ~50-60% very fine sand, 40-50% fines, 2% gravel, yellowish brown and green.						M				SS
			31											
			32											
			33											
			34											
6	5	100/5"	35	Weathered glauconitic **SANDSTONE,** fine grained, olive brown.										SS
			36											
			37											
			38											
			39											
7			40	As above.										GRAB
			41											
			42											
			43											
			44											
8			45	As above.										GRAB
			46											
			47											
			48											
			49											
9			50	As above.										GRAB
			51											
			52											
			53											
			54											
10			55	As above.										GRAB
			56											
			57											
			58											
			59											
11			60	As above.										GRAB
			61											
			62											
			63											
			64											
12			65	As above.										GRAB
			66											

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **W105** Use only as an attachment to Form 4400-122. Page 3 of 3

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
			67											
			68											
			69											
13			70	As above.										GRAB
			71											
			72											
			73											
			74											
14			75	As above.										GRAB
			76											
			77											
			78											
			79											
15			80	No sample taken.										GRAB
			81											
			82											
			83											
			84											
16			85	As above.										KH= 3X10-3 cm/sec
			86											
			87	No return from 87.0 to 90.0 feet.										GRAB
			88											
			89											
			90											
17			91											GRAB
			92											
			93											
			94											
			95	End of boring at 95.0 feet.										

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information
Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power 3081.23	2927	**W106**

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Boart Longyear, Crew Chief: Paul Dickinson	11/2/95	11/7/95	8"MUD ROTARY

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			773.6 Feet MSL	848.3 Feet MSL	8.0 Inches

Boring Location
State Plane 171530.00 N, 1476837.00 E
NE 1/4 of NE 1/4 of Section 19 T 21 N,R 12W
Lat ° ' "
Long ° ' "
Local Grid Location (If applicable)
Feet ☐ N ☐ S Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Buffalo County	06	**Belvidere**

Sample Number	Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
			1–4	**SILTY SAND WITH GRAVEL (SM)**, fine to coarse, 15-30% silt, 10YR 6/6 yellowish brown, medium dense, (Fill).						M				
1	20	12	5		SM									SS
2	18	19	10	As above.										SS
3	14	38	15	As above.										SS
4	14	20	20	As above.										SS
			25											

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

Signature: [signature]

Firm: RMT
744 Heartland Trail, Madison Wisconsin
Tel: 608-831-4444, Fax: 608-831-3334

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **W106** Use only as an attachment to Form 4400-122. Page 2 of 3

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
5	18	100/.5'	26	As above, but native soil.										SS
			27											
			28	**SILTY SAND (SM)**, fine to medium, 10% clay, 5Y 4/4 olive, very dense, (glauconitic), (weathered sandstone).	SM					M				
6	20	46	29											SS
			30											
			31											
			32											
			33											
			34											
7	10	12	35											SS
			36											
			37											
			38											
			39											
8	12	100/14"	40											SS
			41	As above, but interbedded with silt and fines.										
			42											
			43											
			44											
9	8	100/10"	45											SS
			46	As above, but very dense.										
			47											
			48											
			49											
10	6	100/8"	50											SS
			51	As above.										
			52											
			53											
			54											
11	6	100/6"	55											SS
			56	As above.										
			57											
			58											
			59											
12	3	100/3"	60											SS
			61	As above.										
			62											
			63											
			64	**SANDSTONE**, tan to greenish tan, weathered, some fracturing, only 2 pieces longer than 4".										
			65											
			66											

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **W106** Use only as an attachment to Form 4400-122. Page 3 of 3

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plastic Limit	Soil Properties: P 200	Comments
13		NA	67	Recovery=32%, RQD=5%.										RC
			68											
			69											
			70											
			71											
			72											
			73											
14		NA	74							W				RC
			75											
			76											
			77	Recovery=25%, RQD=4%.										
			78											
			79											
			80											
			81											
			82											
			83											
			84	End of boring at 84.0 feet.										

State of Wisconsin
Department of Natural Resources

Route To:
☒ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

Soil Boring Log Information
Form 4400-122 7-91

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Dairyland Power 3081.30	2927	W107

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
Boart Longyear, Crew Chief: T. Schmalfeldt	4/29/97	5/1/97	6 1/4 HSA

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	906.2 Feet MSL	6.0 Inches

Boring Location
State Plane 173527.44 N, 1477214.99 E
NE 1/4 of NE 1/4 of Section 19 T 21 N,R 12W
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
Feet ☐ N ☐ S Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Buffalo County	06	Belvidere

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
			1	SILT (ML), 5% fine to coarse sand, 5% fine gravel, 10-15% clay, slightly plastic, stiff, 7.5YR 4/4 brown.						M				
			2											
			3							M				
			4	POORLY GRADED SAND WITH GRAVEL (SP) to SILTY SAND WITH GRAVEL (SM), fine to coarse, 10-20% silt, 15-20% fine to coarse gravel, 5% cobbles, 10YR 6/6 brownish yellow, medium dense.											
			5											
1	8	26	6		SP									SS
			7											
			8											
			9											
			10											
2	24	56	11	As above.										SS
			12											
			13											
			14											
			15											
3	15	36	16	As above, but with boulder at ~12.0-13.5 feet.										SS
			17											
			18											
			19	POORLY GRADED SAND WITH SILT (SP/SM), 10% silt, 10% fine to medium gravel (angular fragments), 10YR 6/6 brownish yellow, medium dense.						M				
			20											
4	18	26	21		SP/SM									SS
			22											
			23											
			24											
			25											

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

Signature	Firm
David A. Lund	RMT 744 Heartland Trail, Madison Wisconsin Tel: 608-831-4444, Fax: 608-831-3334

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **W107** Use only as an attachment to Form 4400-122. Page 2 of 3

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	Comments
5	14	44	26–29	As above, except ~20% silt.										SS
6	15	100/5	30–31	**WEATHERED DOLOMITE BEDROCK**, becomes competent at ~31.0 feet.										SS
RC1	24	NA	32–37											RQD=0 FF=0 Rec=40%
7			37–39											GRAB
8			40–44	Alternating layers (1-2 feet thick) of light brown dolomite and olive brown to olive green silty sandstone.										GRAB
9			45–48											GRAB
10			48–53	Olive brown to olive green SILTY SANDSTONE, glauconitic, fine to medium grained.										GRAB
			53–54	Driller notes large fractures at ~53.0 feet, loose air circulation.										
			54–60	**DOLOMITE**, light brown to gray, highly weathered with alternating layers of olive brown to olive green silty sandstone.										
			60–61	Air circulation returns at ~60.0 feet.										
			61–66	Olive brown to olive green Glauconitic SANDSTONE, fine-grained with many silty lenses.										

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information Supplement
Form 4400-122A 7-91

Boring Number **W107** Use only as an attachment to Form 4400-122. Page 3 of 3

Sample Number	Sample Length (In) Recovered	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plastic Limit	Soil Properties: P 200	Comments
			67											
			68											
			69											
			70	Olive green glauconitic SANDSTONE, fine grained with many silty lenses.										
			71											
			72											
			73											
			74											
			75	Water at 74.5 feet while drilling.										
RC2	18	NA	76											RQD=0 FF=0 Rec=38%
			77											
			78											
			79											
			80											
			81											
			82											
			83											
			84											
			85											
			86	End of boring at 86.0 feet.										

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name Dairyland Power Cooperative	Local Grid Location of Well ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name W-100R
Facility License, Permit or Monitoring Number 2927	Grid Origin Location Lat. ___° ___' ___" Long. ___° ___' ___" or St. Plane 171197.15 ft. N, 1477195.77 ft. E.	Wis. Unique Well Number DNR Well Number JQ894
Distance Well is From Waste/Source Boundary Within	Section Location of Waste/Source NE ¼ of NE ¼ of Sec. 19, T21N, R12 ☐E. ☒W.	Date Well Installed 05/ 17/ 01 MM DD YY
Type of Well: Water Table Observation Well ☒11 Piezometer ☐12	Location of Well Relative to Waste/Source U ☐Upgradient S ☐Sidegradient D ☒Downgradient N ☐Not Known	Well Installed By: (Person's Name and Firm) T. Schmalfelt Boart Longyear
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation 784.40 ft. MSL

B. Well casing, top elevation 784.38 ft. MSL

C. Land surface elevation 781.4 ft. MSL

D. Surface seal, bottom 777.4 ft. MSL or 4.0 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):
On-site tap

E. Bentonite seal, top 728.8 ft. MSL or 53.0 ft.

F. Fine sand, top 726.8 ft. MSL or 55.0 ft.

G. Filter pack, top 725.8 ft. MSL or 56.0 ft.

H. Screen joint, top 721.8 ft. MSL or 60.0 ft.

I. Well bottom 706.8 ft. MSL or 75.0 ft.

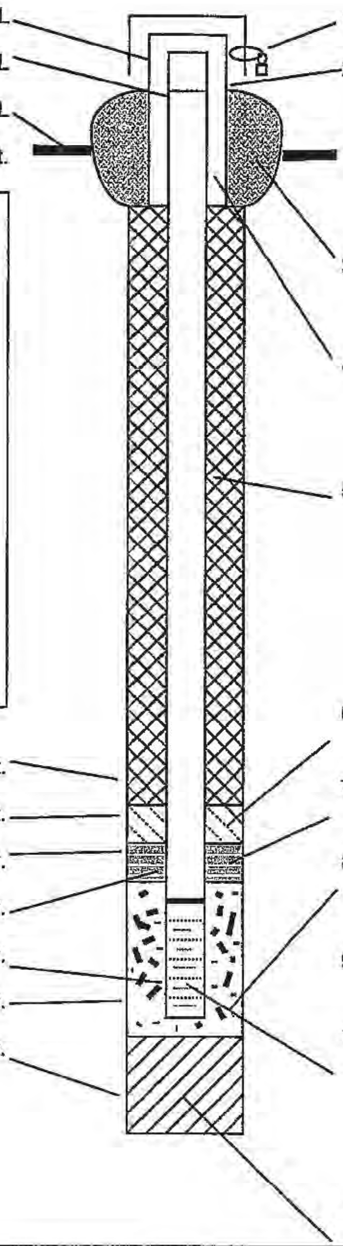
J. Filter pack, bottom 706.8 ft. MSL or 75.0 ft.

K. Borehole, bottom 705.8 ft. MSL or 76.0 ft.

L. Borehole, diameter 8.0 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.06 in.



1. Cap and lock? ☒Yes ☐No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒04
______ Other ☐
d. Additional protection? ☐Yes ☐No
If yes, describe: 6-inch protective posts

3. Surface seal: Bentonite ☒30
Concrete ☐01
______ Other ☐

4. Material between well casing and protective pipe:
Bentonite ☐30
Annular space seal ☐
#30 American Materials Other ☒

5. Annular space seal: a. Granular Bentonite ☐33
b. ___ Lbs/gal mud weight....Bentonite-sand slurry ☐35
c. X Lbs/gal mud weight........... Bentonite slurry ☒31
d. ___ % Bentonite...........Bentonite-cement grout ☐50
e. ___ Ft^3 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. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐32
c. ______ Other ☐

7. Fine sand material: Manufacturer, product name, mesh size
a. #7 Badger
b. Volume added 1 ft^3

8. Filter pack material: Manufacturer, product, mesh size
a. #30 American Materials
b. Volume added 19 ft^3

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 Boart Longyear
c. Slot size: 0.010 in.
d. Slotted length: 15.0 ft.

11. Backfill material (below filter pack): None ☐14
#30 sand Other ☒

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

Signature	Firm
[signature]	RMT, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. 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 $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., 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

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

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name Dairyland Power Cooperative	Local Grid Location of Well ☐N. ____ ft. ☐S. ☐E. ____ ft. ☐W.	Well Name W-100AR
Facility License, Permit or Monitoring Number 2927	Grid Origin Location Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or St. Plane 171202.48 ft. N, 1477198.28 ft. E.	Wis. Unique Well Number / DNR Well Number JQ893
Distance Well is From Waste/Source Boundary Within	Section Location of Waste/Source NE ¼ of NE ¼ of Sec. 19, T21N, R12 ☒W. ☐E.	Date Well Installed 05/ 17/ 01 MM DD YY
Type of Well: Water Table Observation Well ☐11 Piezometer ☒12	Location of Well Relative to Waste/Source U ☐Upgradient S ☐Sidegradient D ☒Downgradient N ☐Not Known	Well Installed By: (Person's Name and Firm) T. Schmalfelt Boart Longyear
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation 784.80 ft. MSL
B. Well casing, top elevation 784.79 ft. MSL
C. Land surface elevation 781.8 ft. MSL
D. Surface seal, bottom 778.8 ft. MSL or 3.0 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 ☒

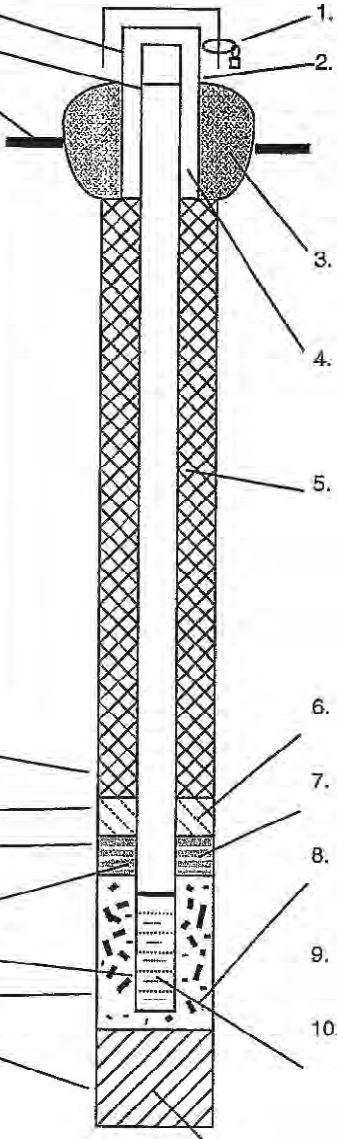
14. Drilling method used: Rotary ☒50
Hollow Stem Auger ☐41
Other ☐

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):
On-site tap

E. Bentonite seal, top 777.8 ft. MSL or 4.0 ft.
F. Fine sand, top 702.8 ft. MSL or 79.0 ft.
G. Filter pack, top 700.8 ft. MSL or 81.0 ft.
H. Screen joint, top 699.8 ft. MSL or 82.0 ft.
I. Well bottom 689.8 ft. MSL or 92.0 ft.
J. Filter pack, bottom 689.8 ft. MSL or 92.0 ft.
K. Borehole, bottom 688.8 ft. MSL or 93.0 ft.
L. Borehole, diameter 8.0 in.
M. O.D. well casing 2.37 in.
N. I.D. well casing 2.06 in.



1. Cap and lock? ☒Yes ☐No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒04 Other ☐
d. Additional protection? ☐Yes ☐No
If yes, describe: Bumper post
3. Surface seal: Bentonite ☒30 Concrete ☐01 Other ☐
4. Material between well casing and protective pipe: Bentonite ☐30 Annular space seal ☐ #30 American Materials Other ☒
5. Annular space seal: a. Granular Bentonite ☐33
b. Lbs/gal mud weight....Bentonite-sand slurry ☐35
c. X Lbs/gal mud weight..... Bentonite slurry ☒31
d. % Bentonite.....Bentonite-cement grout ☐50
e. Ft^3 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. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐32
c. Other ☐
7. Fine sand material: Manufacturer, product name, mesh size
a. #7 Badger Mining Company
b. Volume added 1 ft^3
8. Filter pack material: Manufacturer, product, mesh size
a. #30 American Materials
b. Volume added 12 ft^3
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 Boart Longyear
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐14
#30 sand Other ☒

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

Signature: Craig O'Brien
Firm: RMT, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. 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 $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., 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

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name Dairyland Power Alma Landfill	Local Grid Location of Well ☐N. ☐E. _____ft. ☐S. _____ ft. ☐W.	Well Name W-101
Facility License, Permit or Monitoring Number 2927	Grid Origin Location Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or St. Plane 172654.50 ft. N, 1477721.28 ft. E.	Wis. Unique Well Number DNR Well Numb
Distance Well is From Waste/Source Boundary ~130 ft.	Section Location of Waste/Source ☒E. NE¼ of NE¼ of Sec.19, T21N, R12 ☐W.	Date Well Installed 11/ 02/ 94 MM DD YY
Type of Well: Water Table Observation Well ☒11 Piezometer ☐12	Location of Well Relative to Waste/Source U ☒Upgradient S ☐Sidegradient D ☐Downgradient N ☐Not Known	Well Installed By: (Person's Name and Firm) Frank Badula Environmental & Foundation Drilling, Inc.
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation 925.7ft. MSL

B. Well casing, top elevation 925.83ft. MSL

C. Land surface elevation 923.2ft. MSL

D. Surface seal, bottom ft. MSL or 2.5ft.

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

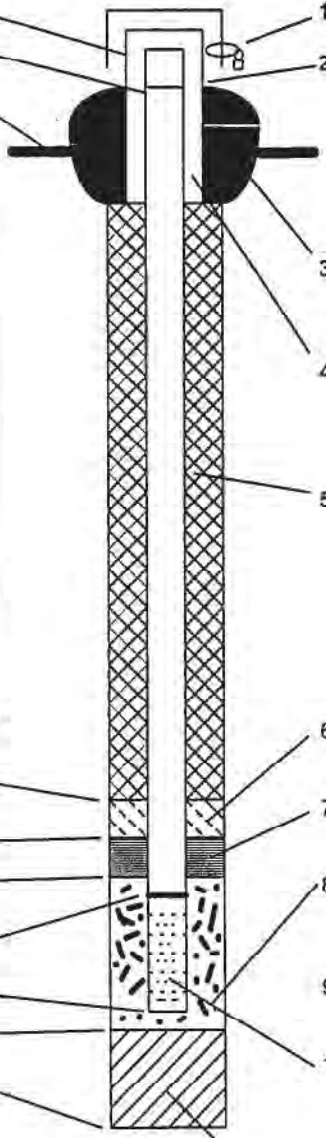
13. Sieve analysis attached? Yes ☐ No ☒

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):
DPC water supply well



E. Bentonite seal, top ft. MSL or 90.0ft.

F. Fine sand, top ft. MSL or 100.0ft.

G. Filter pack, top ft. MSL or 102.0ft.

H. Screen joint, top ft. MSL or107.0ft.

I. Well bottom ft. MSL or 122.0ft.

J. Filter pack, bottom ft. MSL or 122.0ft.

K. Borehole, bottom ft. MSL or 123.0ft.

L. Borehole, diameter 8.3in.

M. O.D. well casing 2.2in.

N. I.D. well casing 2.03in.

1. Cap and lock? ☒Yes ☐No

2. Protective cover pipe:
a. Inside diameter: 4.0in.
b. Length: 7.0ft.
c. Material: Steel ☒04
Other ☐
d. Additional protection? ☒Yes ☐No
If yes, describe: Bumper Posts

3. Surface seal: Bentonite ☒30
Concrete ☐01
Other ☐

4. Material between well casing and protective pipe:
Bentonite ☐30
Annular space seal ☐
Other ☐

5. Annular space seal: a. Granular Bentonite ☐3
b. Lbs/gal mud weight....Bentonite-sand slurry ☐35
c. Lbs/gal mud weight..... Bentonite slurry ☒31
d. % Bentonite..... Bentonite-cement grout ☐50
e. 950 gal (ft^3) 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. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite pellets ☒32
c. Other ☐

7. Fine sand material: Manufacturer, product name, mesh size
a. Badger #40
b. Volume added 50 lb (ft^3)

8. Filter pack material: Manufacturer, product, mesh size
a. Badger Mining #30
b. Volume added 450 lb (ft^3)

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 Northern Air
c. Slot size: 0.010in.
d. Slotted length: 14.3 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
Daniel R. Reid	RMT, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. 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 $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., 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

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

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 4-90

Facility/Project Name Dairyland Power Cooperative	Local Grid Location of Well ☐N. ☐E. ____ ft. ☐S. ____ ft. ☐W.	Well Name W-102R
Facility License, Permit or Monitoring Number 2927	Grid Origin Location Lat. __ ° __ ' __ " Long. __ ° __ ' __ " or St. Plane 172319.04 ft. N, 1478318.01 ft. E.	Wis. Unique Well Number DNR Well Number JQ892
Distance Well is From Waste/Source Boundary 120' SW.	Section Location of Waste/Source ☐E. NE ¼ of NE ¼ of Sec. 19, T21N, R12 ☒W.	Date Well Installed 05/ 16/ 01 MM DD YY
Type of Well: Water Table Observation Well ☒11 Piezometer ☐12	Location of Well Relative to Waste/Source U ☒Upgradient S ☐Sidegradient D ☐Downgradient N ☐Not Known	Well Installed By: (Person's Name and Firm) T. Schmalfelt Boart Longyear
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation — 876.17 ft. MSL
B. Well casing, top elevation — 876.10 ft. MSL
C. Land surface elevation — 873.1ft. MSL
D. Surface seal, bottom — 869.1 ft. MSL or 4.0 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 ☒

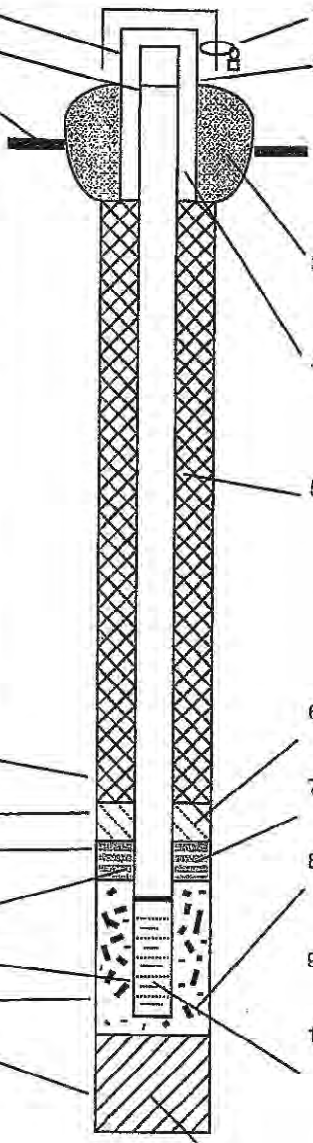
14. Drilling method used: Rotary ☒50
Hollow Stem Auger ☐41
Other ☐

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):
On-site tap

E. Bentonite seal, top — 807.1 ft. MSL or 66.0 ft.
F. Fine sand, top — 805.1 ft. MSL or 68.0 ft.
G. Filter pack, top — 804.1 ft. MSL or 69.0 ft.
H. Screen joint, top — 800.1 ft. MSL or 73.0 ft.
I. Well bottom — 795.1 ft. MSL or 78.0 ft.
J. Filter pack, bottom — 795.1 ft. MSL or 78.0 ft.
K. Borehole, bottom — 794.1 ft. MSL or 79.0 ft.
L. Borehole, diameter — 8.0 in.
M. O.D. well casing — 2.37 in.
N. I.D. well casing — 2.06 in.



1. Cap and lock? ☒Yes ☐No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 7.0 ft.
c. Material: Steel ☒04 Other ☐
d. Additional protection? ☒Yes ☐No
If yes, describe: 6-inch protective posts
3. Surface seal: Bentonite ☒30 Concrete ☐01 Other ☐
4. Material between well casing and protective pipe: Bentonite ☐30 Annular space seal ☐ # 30 American Materials Other ☒
5. Annular space seal: a. Granular Bentonite ☐33
b. Lbs/gal mud weight....Bentonite-sand slurry ☐35
c. x Lbs/gal mud weight..... Bentonite slurry ☒31
d. % Bentonite.....Bentonite-cement grout ☐50
e. Ft^3 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. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐32
c. Other ☐
7. Fine sand material: Manufacturer, product name, mesh size
a. #7 Badger
b. Volume added 1 ft^3
8. Filter pack material: Manufacturer, product, mesh size
a. #30 American Materials
b. Volume added 13 ft^3
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 Boat Longyear
c. Slot size: 010 in.
d. Slotted length: 5.0 ft.
11. Backfill material (below filter pack): None ☒14
#30 sand Other ☐

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

Signature: Craig O'Brien

Firm: RMT, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. 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 $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., 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

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name Dairyland Power Alma Landfill	Local Grid Location of Well ☐N. ☐E. _____ft. ☐S. _____ ft. ☐W.	Well Name W-105
Facility License, Permit or Monitoring Number 2927	Grid Origin Location Lat. ___° ___' ___" Long. ___° ___' ___" or St. Plane 171180.0 ft. N, 1477404.0 ft. E.	Wis. Unique Well Number DNR Well Numb
Distance Well is From Waste/Source Boundary ~140 ft.	Section Location of Waste/Source ☒E. NE¼ of NE¼ of Sec.19, T21N, R12 ☐W.	Date Well Installed 11/ 03/ 95 MM DD YY
Type of Well: Water Table Observation Well ☒11 Piezometer ☐12	Location of Well Relative to Waste/Source U ☐Upgradient S ☒Sidegradient D ☐Downgradient N ☐Not Known	Well Installed By: (Person's Name and Firm) Eric Schoenberg Boart Longyear
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation 821.4ft. MSL

B. Well casing, top elevation 821.21ft. MSL

C. Land surface elevation 818.3ft. MSL

D. Surface seal, bottom ft. MSL or 5.0ft.

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):
DPC water supply well

E. Bentonite seal, top ft. MSL or 65.0ft.

F. Fine sand, top ft. MSL or 75.0ft.

G. Filter pack, top ft. MSL or 77.0ft.

H. Screen joint, top ft. MSL or79.0ft.

I. Well bottom ft. MSL or 94.0ft.

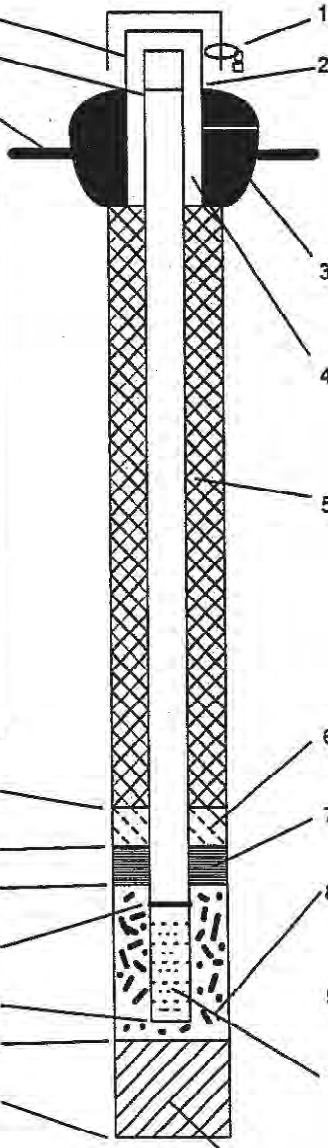
J. Filter pack, bottom ft. MSL or 96.0ft.

K. Borehole, bottom ft. MSL or 96.0ft.

L. Borehole, diameter 8.0in.

M. O.D. well casing 2.37in.

N. I.D. well casing 2.06in.



1. Cap and lock? ☒Yes ☐No

2. Protective cover pipe:
a. Inside diameter: 4.0in.
b. Length: 7.0ft.
c. Material: Steel ☒04
_____ Other ☐
d. Additional protection? ☒Yes ☐No
If yes, describe: Bumper Posts

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 ☐3
b. Lbs/gal mud weight....Bentonite-sand slurry ☒35
c. Lbs/gal mud weight..... Bentonite slurry ☐31
d. % Bentonite..... Bentonite-cement grout ☐50
e. 16.0 (ft^3) 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. ☐1/4 in. ☐3/8 in. ☐1/2 in. Bentonite pellets ☐32
c. Other ☐

7. Fine sand material: Manufacturer, product name, mesh size
a. Badger #40
b. Volume added 50 lbs (ft^3)

8. Filter pack material: Manufacturer, product, mesh size
a. #30 American Material
b. Volume added 550 lb (ft^3)

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 Boart Longyear
c. Slot size: 0.010in.
d. Slotted length: 15.0 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
RMT, Inc.

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State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name	Local Grid Location of Well	Well Name
Dairyland Power Alma Landfill	☐N. ☐E. _____ft. ☐S. _____ ft. ☐W.	W-106
Facility License, Permit or Monitoring Number	**Grid Origin Location**	**Wis. Unique Well Number / DNR Well Number**
2927	Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or St. Plane 171530.0 ft. N, 1476837.0 ft. E.	
Distance Well is From Waste/Source Boundary	**Section Location of Waste/Source**	**Date Well Installed**
~140 ft.	☒E. NE¼ of NE¼ of Sec.19, T21N, R12 ☐W.	11/07/95 MM DD YY
Type of Well: Water Table Observation Well ☒11 / Piezometer ☐12	**Location of Well Relative to Waste/Source** U ☐Upgradient S ☒Sidegradient D ☐Downgradient N ☐Not Known	**Well Installed By: (Person's Name and Firm)** Eric Schoenberg, Boart Longyear
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation 851.1ft. MSL
B. Well casing, top elevation 850.84ft. MSL
C. Land surface elevation 848.3ft. MSL
D. Surface seal, bottom ft. MSL or 6.0ft.

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

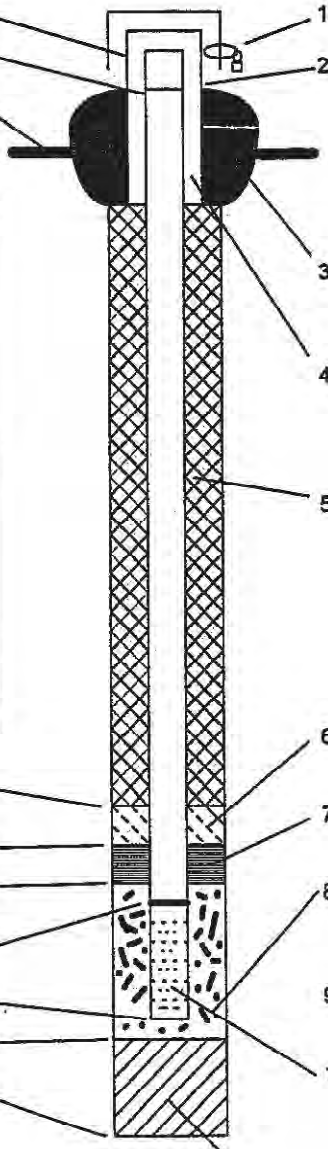
13. Sieve analysis attached? Yes ☐ No ☒

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: Drilling mud

17. Source of water (attach analysis): DPC water supply well



E. Bentonite seal, top ft. MSL or 63.0ft.
F. Fine sand, top ft. MSL or 68.0ft.
G. Filter pack, top ft. MSL or 70.0ft.
H. Screen joint, top ft. MSL or72.0ft.
I. Well bottom ft. MSL or 82.0ft.
J. Filter pack, bottom ft. MSL or 84.0ft.
K. Borehole, bottom ft. MSL or 84.0ft.
L. Borehole, diameter 8.0in.
M. O.D. well casing 2.37in.
N. I.D. well casing 2.06in.

1. Cap and lock? ☒Yes ☐No
2. Protective cover pipe:
a. Inside diameter: 4.0in.
b. Length: 7.0ft.
c. Material: Steel ☒04 / Other ☐
d. Additional protection? ☒Yes ☐No
If yes, describe: Bumper posts
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. Lbs/gal mud weight..... Bentonite slurry ☐31
d. % Bentonite..... Bentonite-cement grout ☐50
e. 13.5 (ft^3) 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. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite pellets ☒32
c. Other ☐
7. Fine sand material: Manufacturer, product name, mesh size
a. #7 Badger
b. Volume added 50 lb (ft^3)
8. Filter pack material: Manufacturer, product, mesh size
a. #35-45 American Material
b. Volume added 250 lb (ft^3)
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 Boart Longyear
c. Slot size: 0.010in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐14 / Sand / Other ☒

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

Signature: Craig O'Battle
Firm: RMT, Inc.

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. 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 $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., 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

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 4-90

Facility/Project Name Dairyland Power Cooperative	Local Grid Location of Well ☐N. ☐E. ____ ft. ☐S. ____ ft. ☐W.	Well Name W107
Facility License, Permit or Monitoring Number 2927	Grid Origin Location Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or St. Plane 173527.44 ft. N, 1477214.99 ft. E.	Wis. Unique Well Number DNR Well Num:
Distance Well is From Waste/Source Boundary 200ft.	Section Location of Waste/Source ☐E. NE¼ of NE¼ of Sec.19, T21N, R12 ☒W.	Date Well Installed 05/ 01/ 97 MM DD YY
Type of Well: Water Table Observation Well ☒11 Piezometer ☐12	Location of Well Relative to Waste/Source U ☒Upgradient S ☐Sidegradient D ☐Downgradient N ☐Not Known	Well Installed By: (Person's Name and Firm) Todd Schmalfeldt Boart Longyear
Is Well A Point of Enforcement Std. Application? ☒Yes ☐No		

A. Protective pipe, top elevation 908.23ft. MSL
B. Well casing, top elevation 908.29ft. MSL
C. Land surface elevation 906.2ft. MSL
D. Surface seal, bottom ft. MSL or 3.0ft.

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 ☒

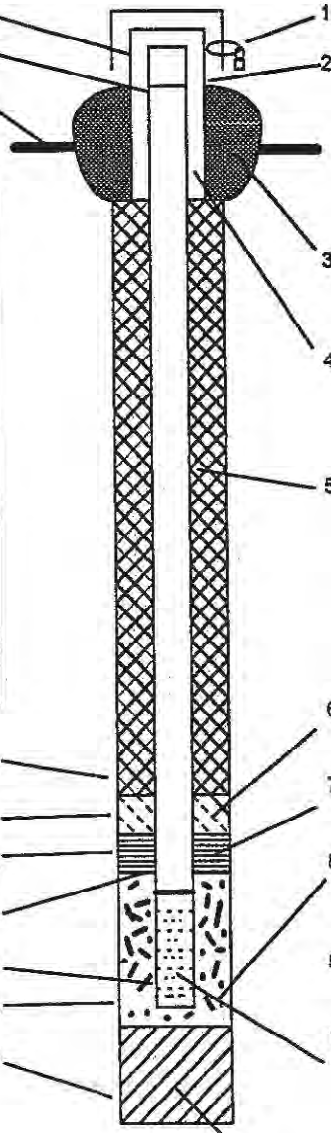
14. Drilling method used: Rotary ☒50
Hollow Stem Auger ☐41
Other ☐

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):

E. Bentonite seal, top ft. MSL or 3.0ft.
F. Fine sand, top ft. MSL or 64.0ft.
G. Filter pack, top ft. MSL or 67.0ft.
H. Screen joint, top ft. MSL or69.0ft.
I. Well bottom ft. MSL or 84.0ft.
J. Filter pack, bottom ft. MSL or 86.0ft.
K. Borehole, bottom ft. MSL or 86.0ft.
L. Borehole, diameter 6.0in.
M. O.D. well casing 2.37in.
N. I.D. well casing 2.06in.



1. Cap and lock? ☒Yes ☐No
2. Protective cover pipe:
a. Inside diameter: 4.0in.
b. Length: 7.0ft.
c. Material: Steel ☒04 Other ☐
d. Additional protection? ☒Yes ☐No
If yes, describe: 3" Bumper Post
3. Surface seal: Bentonite ☒30 Concrete ☐01 Other ☒
4. Material between well casing and protective pipe: Bentonite ☐30 Annular space seal ☐ #30 American Material Sand Other ☒
5. Annular space seal: a. Granular Bentonite ☒
b. Lbs/gal mud weight.... Bentonite-sand slurry ☐
c. Lbs/gal mud weight..... Bentonite slurry ☐31
d. % Bentonite..... Bentonite-cement grout ☐50
e. 600 lbs. 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. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite pellets ☐32
c. Other ☐
7. Fine sand material: Manufacturer, product name, mesh size
a. #70 Badger Mining
b. Volume added ~125 lbs.
8. Filter pack material: Manufacturer, product, mesh size
a. #30 American Material
b. Volume added 600 lbs.
9. Well casing: Flush threaded PVC schedule 40 ☒23 Flush threaded PVC schedule 80 ☐24 Other☐
10. Screen Material: Sch 40 PVC
a. Screen type: Factory cut ☒11 Continuous slot ☐01 Other ☐ b.
Manufacturer Boart Longyear
c. Slot size: 0.010in.
d. Slotted length: 15.0 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: Daniel Q. Reed

Firm: RMT, Inc.
744 Heartland Trail
Madison, WI 53717

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. 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 $5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., 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. 6-97

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

Facility/Project Name	County	Well Name
Dairyland Power	Buffalo	W-100R

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
	6		

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 Pumped & Surged	☒	

3. Time spent developing well: 45 min.

4. Depth of well (from top of well casing): 79.6 ft.

5. Inside diameter of well: 2.06 in.

6. Volume of water in filter pack and well casing: 19.9 gal.

7. Volume of water removed from well: 50.0 gal.

8. Volume of water added (if any): 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.	56.90 ft.	59.92 ft.
Date	b.	05/17/2001	05/17/2001
Time	c.	11:00 am	11:45 am
12. Sediment in well bottom		0.010 inches	0.0 inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15	Clear ☒ 20 Turbid ☐ 25
(Describe)		Cloudy Green Tint	Clear Green Stain

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

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

16. Well developed by: Person's Name and Firm
T. Schmalfeldt
Boart Longyear

17. Additional comments on development:
Silty Well - Pumped and Surged Slow

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: _____

Street: _____

City/State/Zip: _____

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

Signature: _____

Print Name: Ron Thalacker

Firm: Boart Longyear

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

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 6-97

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

Facility/Project Name	County	Well Name
Dairyland Power	Buffalo	W-100AR

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
	6		

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 Pumped & Surged Grundfos	☒	

3. Time spent developing well: 45 min.

4. Depth of well (from top of well casing): 99.7 ft.

5. Inside diameter of well: 2.06 in.

6. Volume of water in filter pack and well casing: 27.2 gal.

7. Volume of water removed from well: gal.

8. Volume of water added (if any): 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.	68.82 ft.	69.16 ft.
Date b.	05/21/2001	05/21/2001
Time c.	10:00 am	10:45 pm
12. Sediment in well bottom	0.010 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15	Clear ☒ 20 Turbid ☐ 25
(Describe)	Cloudy Yellow	Clear Yellow Stain
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

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

16. Well developed by: Person's Name and Firm
T. Schmalfeldt
Boart Longyear

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: _____

Street: _____

City/State/Zip: _____

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

Signature: _____

Print Name: Ron Thalacker

Firm: Boart Longyear

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

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

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

Facility/Project Name	County Name	Well Name
Dairyland Power Alma Landfill	Buffalo	W-101

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
2927	06		

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 Bailed_____ ☐

3. Time spent developing well 180min.

4. Depth of well (from top of well casing) 124.5ft.

5. Inside diameter of well 2.00in.

6. Volume of water in filter pack and well casing 5.0gal.

7. Volume of water removed from well 125.0gal.

8. Volume of water added (if any) 20.0gal.

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. 112.54ft	112.60ft
Date	b. 11/20/94	11/21/94
Time	c. 10:40 ☒a.m. ☐p.m.	12:05 ☐a.m. ☒p.m.
12. Sediment in well bottom	0.0inches	0.0inches
13. Water clarity	Clear ☐10 Turbid ☒15 (Describe) Olive green Very turbid	Clear ☐20 Turbid ☒25 (Describe) Light olive green Slightly trubid
14. Total suspended solids	NAmg/l	14000.0mg/l
15. COD	_____mg/l	_____mg/l

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

16. Additional comments on development: **Field Development Data**

	Pre-Dev.	~2 vols	~6 vols	Post-Dev.
pH	7.3	7.3	7.3	7.3
Temp.	7°C	8°C	8°C	8°C
Cond.	402	415	415	415

Well developed by: Person's Name and Firm

Name: Daniel Reid

Firm: RMT, Inc.

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

Signature: Daniel R. Reid

Print Initials: D D R

Firm: RMT, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 6-97

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

Facility/Project Name	County	Well Name
Dairyland Power	Buffalo	W-102R

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
	6		

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

. Well development method:

surged with bailer and bailed	☐	4 1
surged with bailer and pumped	☐	6 1
surged with block and bailed	☐	4 2
surged with block and pumped	☐	6 2
surged with block, bailed, and pumped	☐	7 0
compressed air	☐	2 0
bailed only	☐	1 0
pumped only	☐	5 1
pumped slowly	☐	5 0
other Surged w/Sub Pump during Pumping	☒	

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	60.65 ft.	60.65 ft.
Date b.	05/17/2001	05/17/2001
Time c.	11:00 am	01:00 pm
12. Sediment in well bottom	0.010 inches	0.0 inches
13. Water clarity	Clear ☐ 1 0 Turbid ☒ 1 5 (Describe) Opaque Lt Br	Clear ☒ 2 0 Turbid ☐ 2 5 (Describe) Semi-Clear Yellow

. Time spent developing well 120 min.

. Depth of well (from top of well casing) 81.6 ft.

. Inside diameter of well 2.06 in.

. Volume of water in filter pack and well casing 18.6 gal.

. Volume of water removed from well gal.

. Volume of water added (if any) gal.

. Source of water added

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

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

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

16. Well developed by: Person's Name and Firm

Client

RMT

17. Additional comments on development:

Client Developed

Facility Address or Owner/Responsible Party Address

Name:

Firm:

Street:

City/State/Zip:

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

Signature:

Print Name: Ron Thalacker

Firm: Boart Longyear

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

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

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

Facility/Project Name	County Name	Well Name
Dairyland Power Cooperative	Buffalo	W105

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
2927	06		

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 Bailed_____ ☐

3. Time spent developing well: 160min.

4. Depth of well (from top of well casing): 96.5ft.

5. Inside diameter of well: 2.00in.

6. Volume of water in filter pack and well casing: 5.gal.

7. Volume of water removed from well: 25.gal.

8. Volume of water added (if any): _____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. 88.45ft TD=96.52 + 0.22	88.33ft
Date	b. 11/28/95	11/28/95
Time	c. 3:24 ☐a.m. ☒p.m.	6:00 ☐a.m. ☒p.m.
12. Sediment in well bottom	0.0inches	0.0inches
13. Water clarity	Clear ☐10 Turbid ☒15 (Describe) Greenish-gray	Clear ☐20 Turbid ☒25 (Describe) Tan
14. Total suspended solids	NAmg/l	1100.0mg/l
15. COD	NAmg/l	6.3mg/l

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

16. Additional comments on development:

Gals.	pH	Temp.	Cond.	Turb.	Color
6	3.4	7.9	260	H	Green-gray
15	5.8	8.7	322	H	Green-gray
19		Dry			
25	7.1	9.2	325	M-H	Tan

Well developed by: Person's Name and Firm

Name: Craig Bartholomew

Firm: RMT, Inc.

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

Signature: Daniel D. Reid

Print Initials: C O B

Firm: RMT, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

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

Facility/Project Name	County Name	Well Name
Dairyland Power Cooperative	Buffalo	W106

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
2927	06		

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 Grundfos Pump	☒

3. Time spent developing well: 90min.

4. Depth of well (from top of well casing): 84ft.

5. Inside diameter of well: 2.00in.

6. Volume of water in filter pack and well casing: 3.0gal.

7. Volume of water removed from well: 190.gal.

8. Volume of water added (if any): _____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. 79.50ft	79.60ft
Date	b. 11/10/95	11/10/95
Time	c. 12:30 ☐a.m. ☒p.m.	2:00 ☐a.m. ☒p.m.
12. Sediment in well bottom	0.0inches	0.0inches
13. Water clarity	Clear ☒10 Turbid ☐15 (Describe)	Clear ☐20 Turbid ☒25 (Describe) Green
14. Total suspended solids	NAmg/l	1300.0mg/l
15. COD	NAmg/l	7.1mg/l

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

16. Additional comments on development:

Gals.	pH	Cond.	Temp.	Turb.
2	6.1	360	8.8°C	H
25	6.4	350	9.3°C	H
75	6.1	349	9.0°C	M
130	6.4	342	9.0°C	L
160	6.3	352	9.1°C	L
190	6.4	345	9.2°C	L

Well developed by: Person's Name and Firm

Name: Eric Schoenberg

Firm: Boart Longyear

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

Signature: Daniel R. Eric

Print Initials: C O B

Firm: RMT, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT
Form 4400-113B Rev. 4-90

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

Facility/Project Name	County Name	Well Name
Dairyland Power Cooperative	Buffalo	W107

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
2927	06		

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 Bailed_____ ☐

3. Time spent developing well 180min.

4. Depth of well (from top of well casing) 86.8ft.

5. Inside diameter of well 2.06in.

6. Volume of water in filter pack and well casing 5.7gal.

7. Volume of water removed from well 40.0gal.

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

9. Source of water added _____

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

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 77.37ft	77.40ft
Date	b. 050197	05/01/97
Time	c. 11:20 ☒a.m. ☐p.m.	03:40 ☐a.m. ☒p.m.
12. Sediment in well bottom	0.0inches	0.1inches
13. Water clarity	Clear ☐10 Turbid ☒15 (Describe) Olive green Very turbid No odor	Clear ☐20 Turbid ☒25 (Describe) Olive green Medium turbid No odor
14. Total suspended solids	____mg/l	590.0mg/l
15. COD	____mg/l	<5.3mg/l

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

16. Additional comments on development: **Field Development Data**

	Initial	Volume 2	Volume 4	Volume 6
pH	6.8	6.8	6.9	6.9
Temp	11°	12°	12°	12°
Cond.	540	519	519	519

Well developed by: Person's Name and Firm

Name: Daniel Reid

Firm: RMT, Inc.

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

Signature: David R. Reid

Print Initials: D D R

Firm: RMT, Inc.

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Appendix M: Baseline CCR Groundwater Monitoring Data

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-100R 9/25/2015 150925-X02	W-100R 12/11/2015 151211-X02	W-100R 3/17/2016 160317-X02	W-100R 6/15/2016 160615-X02	W-100R 9/15/2016 160915-X02	W-100R 12/15/2016 161215-X02	W-100R 3/23/2017 170323-X02	W-100R 6/28/2017 170628-X02
Appendix III									
Boron, total	µg/L	52.6	< 20	< 20	18.9	25.8	23.5	28.1	18.3
Calcium, total	µg/L	77100	66400	73820	74830	71700	77100	84000	79200
Chloride, total	mg/L	5.4	4.9	5.5	6	5	4.9	5.5	5.4
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
pH, field	SU	7.09	6.94	7.01	7.13	7.1	6.95	6.89	6.95
Sulfate	mg/L	32.7	14.1	14.8	14.3	16.4	18.3	20.63	16.6
Total Dissolved Solids (TDS)	mg/L	361	333	360	383	389	366	378	452
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	< 0.762	< 0.762
Arsenic, total	µg/L	< 1	< 1	< 1	< 0.746	< 0.746	< 0.746	< 0.746	< 0.746
Barium, total	µg/L	62.1	42.8	47.96	54.3	55	55.9	59.3	57.6
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	1.5	1.37	1.245	1.4	1.34	1.49	1.24	1.45
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	< 0.89	< 0.89
Lithium, total	µg/L	1.8	1.6	1.4	1.6	1.6	1.6	1.8	1.6
Mercury, total	µg/L	< 0.1	< 0.1	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	2.53	1.54	0.777	0.853	1.611	0.708	-0.0758	0.48699
Radium - 226	pCi/L	1.3	0.667	0.427	0.321	0.551	0.379	-0.111	0.495
Radium - 228	pCi/L	1.23	0.874	0.35	0.532	1.06	0.329	0.0352	-0.00801
Selenium, total	µg/L	< 2	< 2	< 2	< 1.19	< 1.19	< 1.19	< 1.19	< 1.19
Thallium, total	µg/L	< 2	< 2	< 2	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	726.74	726.43	726.38	726.42	726.67	726.45	726.63	727.09

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-100AR 9/25/2015 150925-X01	W-100AR 12/11/2015 151211-X01	W-100AR 3/17/2016 160317-X01	W-100AR 6/15/2016 160615-X01	W-100AR 9/15/2016 160915-X01	W-100AR 12/15/2016 161215-X01	W-100AR 3/23/2017 170323-X01	W-100AR 6/28/2017 170628-X01
Appendix III									
Boron, total	µg/L	< 20	25.6	< 20	16.2	24.5	23.7	25.7	13.5
Calcium, total	µg/L	71700	73100	78770	76000	72700	79600	82600	78900
Chloride, total	mg/L	5.3	5.1	5.3	5.8	4.8	5	5	5.1
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
pH, field	SU	7.25	7.11	7.22	7.29	7.04	7.11	7.11	6.9
Sulfate	mg/L	15	14.4	16.6	16.5	17.5	17.5	18.45	16.5
Total Dissolved Solids (TDS)	mg/L	268	358	378	403	415	373	385	454
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	< 0.762	< 0.762
Arsenic, total	µg/L	< 1	< 1	< 1	< 0.746	< 0.746	< 0.746	< 0.746	< 0.746
Barium, total	µg/L	53.7	52.2	51.51	54.35	52	52.3	54.5	53.5
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	1.53	1.96	1.649	1.39	1.4	1.49	1.29	1.06
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	< 0.89	< 0.89
Lithium, total	µg/L	2.1	2.1	1.7	1.8	1.9	1.9	1.9	1.9
Mercury, total	µg/L	< 0.1	< 0.1	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	2.17	2.03	0.1214	0.479	0.58	0.187	0.425	0.404
Radium - 226	pCi/L	1.08	1.03	0.0791	-0.391	0.169	0.073	< 0	< 0
Radium - 228	pCi/L	1.09	0.996	0.0423	0.87	0.411	0.114	0.425	0.404
Selenium, total	µg/L	< 2	< 2	< 2	< 1.19	< 1.19	< 1.19	< 1.19	< 1.19
Thallium, total	µg/L	< 2	< 2	< 2	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	717.81	716.7	716.35	716.23	716.08	715.32	715.5	716.57

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-101 9/23/2015 150925-X08	W-101 12/10/2015 151211-X08	W-101 3/17/2016 160317-X04	W-101 6/16/2016 160615-X04	W-101 9/15/2016 160915-X04	W-101 12/14/2016 161215-X04	W-101 3/22/2017 170323-X04	W-101 6/28/2017 170628-X04
Appendix III									
Boron, total	µg/L	< 20	< 20	< 20	< 10	< 10	< 10	< 10	< 10
Calcium, total	µg/L	62400	69900	69940	67760	64200	67800	72450	67200
Chloride, total	mg/L	6.9	6.9	7.1	7.4	6.4	6.4	6.7	6.6
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	0.21	< 0.2	< 0.1	< 0.1	< 0.1
pH, field	SU	7.47	7.45	7.31	7.46	7.46	6.98	7.46	7.29
Sulfate	mg/L	13.7	15	15.6	15.7	17.7	15.4	16.33	17.6
Total Dissolved Solids (TDS)	mg/L	349	311	348	389	325	347	339	408
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	< 0.762	< 0.762
Arsenic, total	µg/L	< 1	< 1	< 1	< 0.746	< 0.746	< 0.746	< 0.746	< 0.746
Barium, total	µg/L	45.3	43.2	39.47	42.05	39.4	39.7	40.4	39.9
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	3.76	3.33	1.337	1.49	1.35	1.49	1.23	1.06
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	0.21	< 0.2	< 0.1	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	< 0.89	< 0.89
Lithium, total	µg/L	2.1	1.7	1.3	1.5	1.6	1.5	1.5	1.6
Mercury, total	µg/L	< 0.1	< 0.1	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	0.733	1.3	0.8263	0.287	0.366	0.485	0.375	0.7054
Radium - 226	pCi/L	0.437	0.496	0.0753	< 0	0.079	0.3	-0.176	0.0654
Radium - 228	pCi/L	0.296	0.802	0.751	0.287	0.287	0.185	0.551	0.64
Selenium, total	µg/L	< 2	< 2	< 2	< 1.19	< 1.19	< 1.19	< 1.19	< 1.19
Thallium, total	µg/L	< 2	< 2	< 2	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	814.15	813.85	813.35	813.81	814.73	813.81	814.59	816.46

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-102R 9/23/2015 150925-X04	W-102R 12/10/2015 151211-X04	W-102R 3/18/2016 160317-X03	W-102R 6/16/2016 160615-X03	W-102R 9/14/2016 160915-X03	W-102R 12/14/2016 161215-X03	W-102R 3/23/2017 170323-X03	W-102R 6/28/2017 170628-X03
Appendix III									
Boron, total	µg/L	< 20	< 20	< 20	< 10	< 10	< 10	< 10	< 10
Calcium, total	µg/L	57400	59900	61170	61710	58100	62400	65200	62200
Chloride, total	mg/L	4.7	4.7	4.7	5	3.9	3.5	3.6	3.4
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
pH, field	SU	7.49	7.36	7.42	7.44	7.42	7.05	7.32	7.12
Sulfate	mg/L	14.5	15.3	13.6	13.8	15.5	14.4	14.78	13.7
Total Dissolved Solids (TDS)	mg/L	263	269	311	325	298	287	301	356
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	< 0.762	< 0.762
Arsenic, total	µg/L	< 1	< 1	< 1	< 0.746	< 0.746	< 0.746	< 0.746	< 0.746
Barium, total	µg/L	33.5	32.3	31.29	34.12	31.6	32	33.1	32.8
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	1.61	1.26	1.113	1.22	1	1.14	1.02	0.844
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	< 0.89	< 0.89
Lithium, total	µg/L	1.2	1.3	0.95	1.1	1.3	1.2	1.2	1.2
Mercury, total	µg/L	< 0.1	< 0.1	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	1.856	1.1	-0.076	0.14	1.303	0.024	0.722	2.382
Radium - 226	pCi/L	0.806	0.486	0.118	-0.05	0.313	0.215	0.105	1.65
Radium - 228	pCi/L	1.05	0.61	-0.194	0.19	0.99	-0.191	0.617	0.732
Selenium, total	µg/L	< 2	< 2	< 2	< 1.19	< 1.19	< 1.19	< 1.19	< 1.19
Thallium, total	µg/L	< 2	< 2	< 2	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	814.74	814.52	813.94	814.47	815.38	814.82	815.43	817.18

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-105 9/23/2015 150925-X12	W-105 12/9/2015 151211-X12	W-105 3/16/2016 160317-X05	W-105 6/16/2016 160615-X05	W-105 9/14/2016 160915-X05	W-105 12/15/2016 161215-X05	W-105 3/23/2017 170323-X05	W-105 6/28/2017 170628-X05
Appendix III									
Boron, total	µg/L	< 20	< 20	< 20	< 10	11	17.7	10.8	< 10
Calcium, total	µg/L	60600	65200	64780	64990	61400	66000	70100	65900
Chloride, total	mg/L	5.2	5	5.2	5.5	4.5	4	4.2	4
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
pH, field	SU	7.4	7.23	7.28	7.37	7.23	7.08	7.29	7.17
Sulfate	mg/L	11.5	13.5	13.5	12	13.9	11.9	13.44	13.8
Total Dissolved Solids (TDS)	mg/L	316	308	329	360	335	288	323	390
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	< 0.762	< 0.762
Arsenic, total	µg/L	< 1	< 1	< 1	< 0.746	< 0.746	< 0.746	< 0.746	< 0.746
Barium, total	µg/L	36.4	35.1	34.86	37.38	34.8	35.8	36.6	36.6
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	1.3	1.52	1.108	1.16	1.14	1.32	1.21	0.976
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	< 0.89	< 0.89
Lithium, total	µg/L	1.5	1.6	1.2	1.4	1.5	1.4	1.5	1.4
Mercury, total	µg/L	< 0.1	< 0.1	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	1.218	0.969	1.143	1.142	0.897	0.705	0.399	0.881
Radium - 226	pCi/L	0.629	0.789	0.485	0.212	0.172	0.316	-0.094	0.518
Radium - 228	pCi/L	0.589	0.18	0.658	0.93	0.725	0.389	0.493	0.363
Selenium, total	µg/L	< 2	< 2	< 2	< 1.19	< 1.19	< 1.19	< 1.19	< 1.19
Thallium, total	µg/L	< 2	< 2	< 2	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	732.25	732.88	732.68	732.87	733.03	732.91	733.01	733.46

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-106 12/28/2015 151228-X01	W-106 3/18/2016 160317-X06	W-106 6/16/2016 160615-X06	W-106 9/14/2016 160915-X06	W-106 12/14/2016 161215-X06	W-106 1/27/2017 170127-X06	W-106 3/23/2017 170323-X06	W-106 6/28/2017 170628-X06
Appendix III									
Boron, total	µg/L	< 20	< 20	< 10	< 10	< 10	17	19.6	< 10
Calcium, total	µg/L	67700	68850	66790	63800	67800	70900	71800	67300
Chloride, total	mg/L	7.4	7.3	7.9	6.7	6.9	7.1	7.3	7.4
Fluoride, total	mg/L	< 0.20	< 0.2	0.21	< 0.2	< 0.1	0.17	< 0.1	< 0.1
pH, field	SU	7.21	7.43	7.51	7.33	7.43	7.43	7.4	7.21
Sulfate	mg/L	17.3	18	17.6	16.8	16.9	18.5	17.37	16.3
Total Dissolved Solids (TDS)	mg/L	319	340	393	327	326	343	338	398
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	0.16	< 0.762	< 0.762
Arsenic, total	µg/L	0.25	< 1	< 0.746	< 0.746	< 0.746	0.2	< 0.746	< 0.746
Barium, total	µg/L	35.5	34.09	37.46	34.6	35.3	36	35.1	36.1
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	1.42	1.21	1.39	1.26	1.41	1.68	1.3	1.12
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.20	< 0.2	0.21	< 0.2	< 0.1	0.17	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	0.21	< 0.89	< 0.89
Lithium, total	µg/L	1.4	1.3	1.4	1.5	1.5	1.4	1.5	1.6
Mercury, total	µg/L	< 0.10	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	0.501	0.564	0.86	0.731	0.512	0.799	0.1584	0.847
Radium - 226	pCi/L	0.1	-0.318	0.321	-0.16	0.0768	0.323	0.155	0.407
Radium - 228	pCi/L	0.501	0.882	0.539	0.891	0.435	0.476	0.0034	0.44
Selenium, total	µg/L	0.44	< 2	< 1.19	< 1.19	< 1.19	0.7	< 1.19	< 1.19
Thallium, total	µg/L	<0.018	< 2	< 0.78	< 0.78	< 0.78	0.27	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	772.82	772.82	772.96	773.06	772.94	773	773.05	773.44

Table A-1
Summary of Baseline Groundwater Monitoring
Dairyland Power Cooperative - Off-site Disposal Facility, Phase IV Landfill
Buffalo County, Wisconsin

PARAMETER	UNITS	W-107 9/23/2015 150925-X13	W-107 12/11/2015 151211-X13	W-107 3/17/2016 160317-X07	W-107 6/15/2016 160615-X07	W-107 9/14/2016 160915-X07	W-107 12/14/2016 161215-X07	W-107 3/22/2017 170323-X07	W-107 6/27/2017 170628-X07
Appendix III									
Boron, total	µg/L	< 20	< 20	< 20	< 10	< 10	< 10	12.3	< 10
Calcium, total	µg/L	61700	75300	72640	72780	69400	72900	76300	73800
Chloride, total	mg/L	7.7	10.3	10.5	10.7	9.4	10.5	11.1	11.6
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
pH, field	SU	7.7	7.35	7.32	7.49	7.18	6.9	7.16	7.43
Sulfate	mg/L	16.9	20.6	19.5	18.7	19	17.9	18.93	17.3
Total Dissolved Solids (TDS)	mg/L	335	341	351	422	313	355	370	459
Appendix IV									
Antimony, total	µg/L	< 7.95	< 7.95	< 7.95	< 0.762	< 0.762	< 0.762	< 0.762	< 0.762
Arsenic, total	µg/L	< 1	< 1	< 1	< 0.746	< 0.746	< 0.746	< 0.746	< 0.746
Barium, total	µg/L	35.1	44.9	41.11	36.57	42.4	41.4	42.9	46.1
Beryllium, total	µg/L	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.28	< 0.28	< 0.28
Cadmium, total	µg/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.39	< 0.39	< 0.39
Chromium, total	µg/L	1.51	2.2	1.505	1.55	1.39	1.51	1.43	1.24
Cobalt, total	µg/L	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 1.9	< 1.9	< 1.9
Fluoride, total	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1
Lead, total	µg/L	< 4.74	< 4.74	< 4.74	< 0.89	< 0.89	< 0.89	< 0.89	< 0.89
Lithium, total	µg/L	1.7	1.8	1.5	1.7	1.7	1.7	1.7	1.6
Mercury, total	µg/L	< 0.1	< 0.1	< 0.1	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
Molybdenum, total	µg/L	< 2.69	< 2.69	< 2.69	< 2.69	< 2.69	< 1.3	< 1.3	< 1.3
Radium, total	pCi/L	0.935	0.636	0.909	0.21	0.998	0.106	0.615	1.038
Radium - 226	pCi/L	-0.029	0.069	-0.087	< 0	-0.082	-0.078	0.056	0.519
Radium - 228	pCi/L	0.964	0.567	0.996	0.21	1.08	0.184	0.559	0.519
Selenium, total	µg/L	< 2	< 2	< 2	< 1.19	< 1.19	< 1.19	< 1.19	< 1.19
Thallium, total	µg/L	< 2	< 2	< 2	< 0.78	< 0.78	< 0.78	< 0.78	< 0.78
Water Elevation									
Water elevation	Feet MSL	831	830.82	830.76	830.88	831.01	830.95	831.03	831.49

Appendix N: Environmental Sampling Plan

Environmental Sampling and Analysis Plan

Alma Offsite Disposal Facility
Phase IV Landfill
Alma, Wisconsin

January 2023

Prepared For:

Dairyland Power Cooperative
3200 East Avenue South
La Crosse, Wisconsin 54601

Prepared By:

TRC
999 Fourier Drive, Suite 101
Madison, Wisconsin 53717

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TABLES

FIGURES

ATTACHMENTS

Introduction

This Environmental Sampling and Analysis Plan (ESAP) describes the methods for monitoring site conditions and for sampling the monitoring devices at the Dairyland Power Cooperative (DPC) Phase IV disposal area. This ESAP has been prepared in accordance with the requirements of ss. NR 514.06(7)(a), NR 507.16, and NR 140.16. Samples will be collected and analyzed in accordance with this ESAP and with NR 507.17. A certified laboratory (NR 149) will perform chemical analyses following the approved methods listed in this ESAP. Figure 1 presents an 11 inch by 17-inch map showing monitoring locations. Attachment 1 includes a Well Information Form.

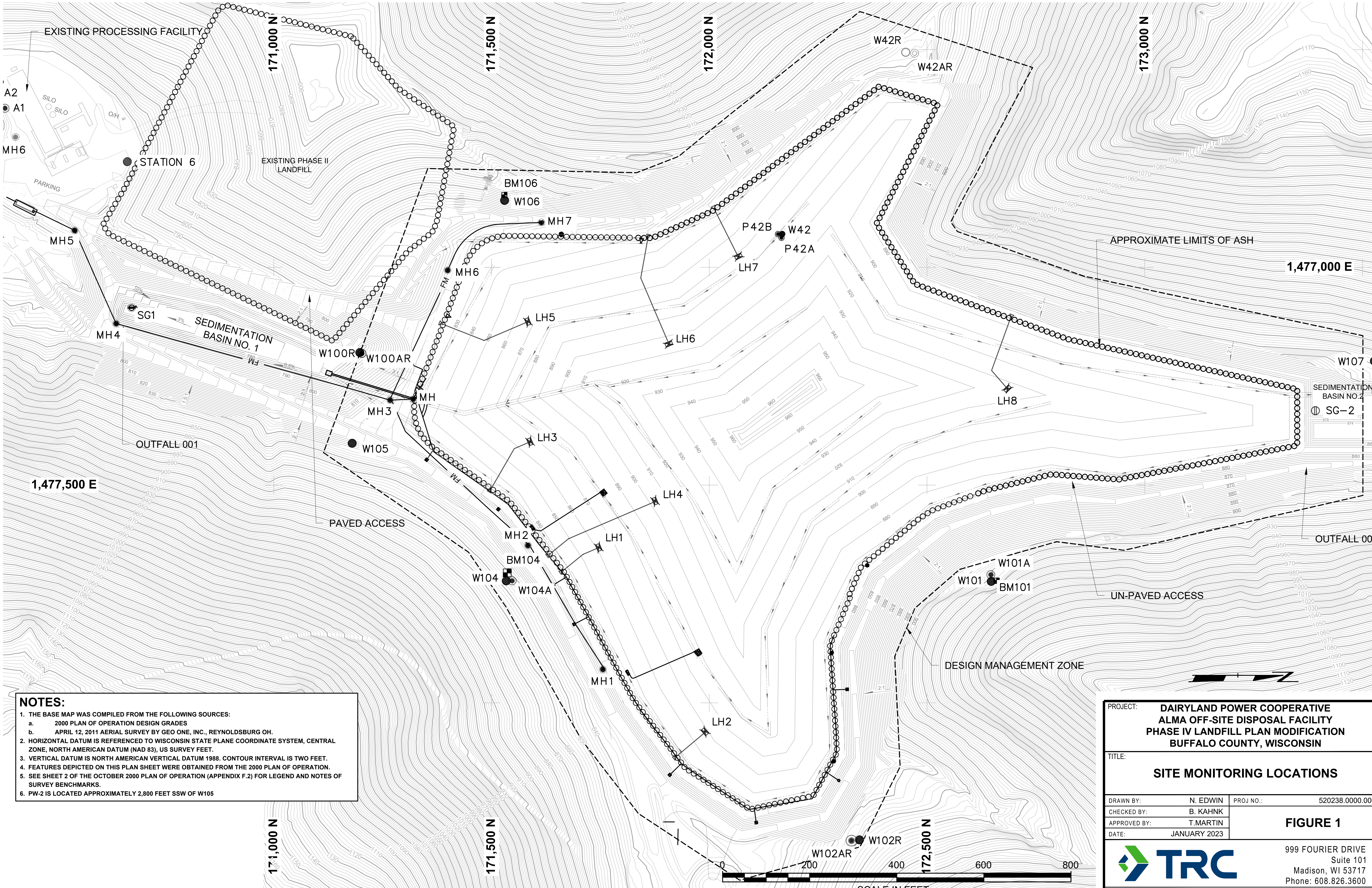
Three basic types of data will be collected during implementation of the ESAP as follows:

- Chemical data derived from samples collected from the various media
- Fluid levels
- Fluid extraction volumes

The environmental media to be monitored are as follows:

- Groundwater
- Surface water/Sedimentation basin outfalls
- Leachate
- Air

DPC sampling personnel will keep and use this ESAP as an independent document (separate from the Plan of Operation or its subsequent modifications). The sampling plan will be followed unless the Wisconsin Department of Natural Resources (WDNR) is notified of, and concurs with, modifications. Written documentation of the approved changes will be submitted to the WDNR.



NOTES:

1. THE BASE MAP WAS COMPILED FROM THE FOLLOWING SOURCES:
   a. 2000 PLAN OF OPERATION DESIGN GRADES
   b. APRIL 12, 2011 AERIAL SURVEY BY GEO ONE, INC., REYNOLDSBURG OH.
2. HORIZONTAL DATUM IS REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM (NAD 83), US SURVEY FEET.
3. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS TWO FEET.
4. FEATURES DEPICTED ON THIS PLAN SHEET WERE OBTAINED FROM THE 2000 PLAN OF OPERATION.
5. SEE SHEET 2 OF THE OCTOBER 2000 PLAN OF OPERATION (APPENDIX F.2) FOR LEGEND AND NOTES OF SURVEY BENCHMARKS.
6. PW-2 IS LOCATED APPROXIMATELY 2,800 FEET SSW OF W105

PROJECT:
DAIRYLAND POWER COOPERATIVE
ALMA OFF-SITE DISPOSAL FACILITY
PHASE IV LANDFILL PLAN MODIFICATION
BUFFALO COUNTY, WISCONSIN

TITLE:
SITE MONITORING LOCATIONS

DRAWN BY:	N. EDWIN	PROJ NO.:	520238.0000.0000
CHECKED BY:	B. KAHNK	**FIGURE 1**	
APPROVED BY:	T.MARTIN		
DATE:	JANUARY 2023		

TRC
999 FOURIER DRIVE
Suite 101
Madison, WI 53717
Phone: 608.826.3600

FILE NO.: 520238.0000.09.dwg

DRAWING NAME: \\Madison-vfp\CADD\PJT\00\Dairyland Power\Alma\520238 - 2022 Annual Airspace\0000\ 520238.0000.09.dwg --- PLOT DATE: January 27, 2023 - 4:46PM --- LAYOUT: PLAN SHEET 2

Version: 2017-10-21

1.0 Landfill Monitoring Systems

The design of the DPC Phase IV disposal facility incorporates several different monitoring systems in accordance with ch. NR 507. The landfill monitoring systems are discussed in the following subsections. Specific procedures for purging, sampling, and quality assurance/quality control (QA/QC) are provided in other sections of this ESAP. The monitoring program is summarized in Table 1.

1.1 Detection Groundwater Monitoring

Detection groundwater monitoring will be conducted at the DPC Phase IV ash disposal facility in accordance with s. NR 507.19. Figure 1 shows the monitoring wells included in the detection groundwater monitoring program. The wells designated with no "A" or "B" suffix are water table wells. The monitoring wells with the "A" or "B" suffix are piezometers. Monitoring wells with an "R" suffix are replacement wells.

Groundwater beneath the site flows to the south. Therefore, monitoring wells completed to the northwest, north, and northeast of the Phase IV facility (W-42, P-42A, P-42B, W-107, W-101, W-101A, W-102R, and W-102AR) will function as upgradient monitoring points. Wells W-104, W-104A, W-105, W-100R, W-100AR, and W-106 are downgradient monitoring points. Seven of these wells (W-100AR, W-100R, W-101, W-102R, W-105, W-106, and W-107) are designated for the coal combustion residual (CCR) monitoring program under NR 507.15(3). The detection monitoring program includes wells completed in both the unconsolidated sand and silty sand and within the sandstone bedrock. A detailed description of geologic units can be found in the Feasibility Report (RMT, 1997).

Non-CCR wells will be sampled on a semiannual basis (in March and September) for the parameters listed in NR 507, Appendix I, Table 2 for solid waste landfills accepting fly or bottom ash. The CCR wells will be sampled on a semiannual basis (in March and September) for the parameters listed in ch. NR 507, Appendix I, Table 1A for CCR wells at CCR Landfills. Wells and parameters for detection monitoring are summarized in Table 1. Results will be reported in accordance with ch. NR 507 including submittal of sampling results and water elevation data within 60 days of the end of the sampling period per s. NR 507.26, and preparation of an annual groundwater monitoring and corrective action report for CCR wells in accordance with s. NR 507.15(3)(m).

1.2 Leachate Monitoring

Leachate collected at the leachate tank will be monitored on a semiannual (March/September) basis for the parameters listed in Table 1, which is consistent with ch. NR 507, Appendix I, Table 4 for landfills accepting fly or bottom ash. The leachate tank will be sampled annually for semivolatile organic compounds (ch. NR 507, Appendix IV).

DPC will maintain records of leachate pumped. Leachate analytical results, volumes, and elevations will be reported to the WDNR on a semiannual basis. Results will be reported in accordance with ch. NR 507.

Table 1: Environmental Monitoring Program
Dairyland Power Cooperative
Phase IV Ash Disposal Area

Sample Points	Frequency	Parameters
Groundwater		
Non-CCR Wells: W-42, P-42A, P-42B, W-101A, W-102AR, W-104, W-104A, PW-2	Semiannually (March, September)	NR 507, Appendix I, Table 2: Groundwater elevation, field temperature, field conductivity (at 25°C), field pH, alkalinity, dissolved boron, hardness, sulfate; plus dissolved selenium
CCR Wells: W-100R, W-100AR, W-101, W-102R, W-105, W-106, and W-107, one MS/MSD	Semiannually (March, September)	NR 507, Appendix I, Table 1A: Groundwater elevation, field temperature, field conductivity (at 25°C), field pH, alkalinity, total boron, calcium, chloride, fluoride, hardness, total dissolved solids (TDS), sulfate; plus dissolved selenium
Leachate		
Leachate tank	Semiannually (March, September)	BOD_5, field conductivity at 25°C, field pH, alkalinity, boron, cadmium, chloride, hardness, iron, lead, manganese, mercury, selenium, sulfate, total suspended solids, antimony, beryllium, cobalt, fluoride, lithium, molybdenum, Ra226 and Ra228 combined, thallium
	Annually	Semivolatile organic compounds (NR 507, Appendix IV)
Leachate collection tank	Monthly	Monthly volume records shall be maintained (reported semiannually)
Leachate head wells: LH1, LH2, LH3, LH4, LH5, LH6, LH7, LH8	Monthly	Leachate level elevation during operation (reported semiannually)
Surface Water		
Sedimentation basins and retention pond	Semiannually (March, September)	Sediment buildup
Staff gauges: SG1, SG2	Semiannually (March, September)	Surface water elevation
Outfall 001, Outfall 002	Semiannually (March, September)	Visual turbidity, field temperature, field conductivity at 25°C, alkalinity, boron, field pH, hardness, selenium, sulfate

Prepared by: COB, 7/00
Checked by: CCS, 9/19/00
Updated by: S. Sellwood, 12/21/2022

1.3 Surface Water Monitoring

Two sedimentation basins are proposed to be constructed at the Phase IV facility, with Sedimentation Basin 1 currently constructed as of January 2023. Surface water in the sedimentation basins will be sampled in accordance with the requirements set forth in s. NR 507.23 and s. 507.26(3) and analyzed for the parameters listed in Table 1 when water is present at the outfall. Surface water monitoring procedures are discussed in Subsection 3.2. Results will be reported in accordance with ch. NR 507.

1.4 Settlement Monitoring

Because fly ash and bottom ash, which are disposed after adding moisture, do not experience significant settlement following placement, no settlement monitoring is planned for the Phase IV disposal area. Annual airspace surveys are conducted.

2.0 Baseline Groundwater Sampling

Baseline groundwater quality was established for monitoring wells at the Phase IV facility and presented in the Plan of Operation (RMT, 2000). Preventive action limits (PALs) and alternative concentration limits (ACLs) were subsequently proposed for replacement monitoring wells in May 2006 (RMT, 2006). PALs for indicator parameters and ACLs were included in the Conditional Plan of Operation Approval (WDNR, 2001) and a WDNR approval letter dated September 22, 2006 (WDNR, 2006).

Additional baseline groundwater monitoring for the seven CCR monitoring wells was conducted between September 2015 and June 2017. Baseline monitoring in 2015 through 2017 included parameters listed in ch. NR 507 Appendix I, Tables 1A and 3, except for alkalinity, hardness, nitrate+nitrite-N, copper, manganese, silver, zinc, field conductivity, and field temperature. Previous site sampling included alkalinity, hardness, nitrate+nitrite-N, and field conductivity. DPC is in the process of completing the required baseline groundwater monitoring for copper, manganese, silver, zinc, and field temperature in the CCR wells. When eight rounds of these parameters have been collected, the data will be evaluated and used to calculate PALs and ACLs where needed. These ACLs and PALs, as needed, will be provided in an addendum to the February 2023 Plan Modification. Metals concentrations in CCR wells are measured as total recoverable metals (i.e., samples for metals are not field-filtered).

Baseline groundwater quality will be established at new or replacement wells in accordance with ss. NR 507.18(4) and (5), unless the requirement for baseline groundwater quality is waived by the WDNR.

3.0 Sample Collection

This section presents specific written procedures for collecting groundwater, surface water, and leachate samples. It includes details on taking field measurements, purging monitoring wells, and obtaining samples in accordance with ss. NR 507.16(1)(c)(d) and (e). Samples will be collected during the months of March and September. The wells will generally be sampled from upgradient to downgradient. If wells are determined to be impacted by regulated or other activities, impacted wells shall be sampled after unimpacted wells have been sampled.

3.1 Field Procedures for Groundwater Sampling

Figure 1 shows groundwater sample locations, sampling frequencies, and parameters.

3.1.1 Groundwater Monitoring Well Maintenance

In order to assess problems and possible damage to the monitoring wells, field technicians will visually inspect wells at the time of sampling. Wells will be inspected for the following items:

- Protective casing condition
- Protective casing cap condition
- Casing lock condition
- Well cap condition
- Concrete seal condition
- Visual damage to well

DPC field technicians will provide a written inspection report if repair action is needed.

3.1.2 Static Water Level Measurement

Static water levels will be measured in each well prior to purging each time groundwater is sampled. All groundwater level measurements will be made using a reference point established on the well casing. The reference point will be the highest point of the PVC well casing. A battery-operated water level indicator will be the primary device for water level measurements. The indicator is a self-contained transistorized instrument equipped with a cable and sensor that activates a buzzer and a light when it contacts the water. The depth to water is read from permanent 0.01-foot increment markings on the cable.

In case of instrument failure, depth to groundwater will be measured by a plopper tape that is a bell- or cup-shaped weight attached to a nylon-coated stainless-steel measuring tape. When lowered into the well, a “plopping” or “popping” sound is made when the weight strikes the surface of the water. An accurate reading can be determined by lifting and lowering the weight in short strokes, and reading the tape when the weight just strikes the water. Depth to water will be recorded to the nearest 0.01 foot.

In order to prevent cross-contamination between wells, the water level measuring device will be decontaminated between each well by rinsing first with a soapy water solution and then with distilled water.

In accordance with s. NR 507.15(3)(h), groundwater elevations in wells that monitor the same CCR landfill will be measured within a timeframe short enough to avoid temporal variations in groundwater flow that could preclude accurate determination of groundwater flow rate and direction.

3.1.3 Purging of Wells

The monitoring wells will be purged by removing stagnant water so that the samples collected are fresh formation water. Purging will be accomplished using a QED® MicroPurge pump and controller or similar submersible pump and a YSI® Pro DSS or equivalent multiparameter meter equipped with a flow-through cell. Wells will be purged at a rate of less than a half-liter per minute. Purging will continue until stable conditions are reached, as shown by three consecutive readings taken 2 minutes apart, for the following parameters:

- Dissolved oxygen (± 0.2 mg/L)
- pH (± 0.1 pH unit)
- Conductivity (± 10 percent)
- Temperature (± 0.1°C)

Purging and sampling data will be recorded on a groundwater sampling form (Attachment 2). In accordance with s. NR 507.26, DPC will inform the department of any CCR well that purges dry, is damaged or obstructed, or in any way is rendered such that a sample is unable to be collected from the well during a scheduled sampling event. In such case, DPC will propose actions to correct the problem prior to the next sampling event.

3.1.4 Sampling and Data Collection at Each Well

Samples will be collected immediately after purging. If the well is purged dry, then the sample will be collected when the well has sufficiently recovered (approximately 4 hours). The procedure for sampling the monitoring wells is as follows:

- Prepare bottles by labeling with the well number, the date, the name of the sampler, and the time of day at which the sample is collected.
- Collect samples using the QED® MicroPurge pump and controller or equivalent.
- Collect samples for field measurements.
- Fill unfiltered bottles first.
- After filling unfiltered bottles, collect samples to be filtered, if any, using the filtering device.

A log of meter calibrations and checks will be maintained during each sampling event.

3.1.5 Field-filtering

Samples from the CCR wells collected to meet the requirements of the CCR program will not be field-filtered. If field-filtering is required for samples from non-CCR wells or non-CCR parameters at CCR wells, it will be performed using a vacuum pump (electric or hand-operated), a magnetic filter holder, a 1,000-mL nalgene or polypropylene filter flask, and cellulose nitrate 0.45 micron filter paper.

3.1.6 Equipment Cleaning Procedure Between Sampling Events

All equipment used for sampling that is not dedicated or discarded after use (meters, flow cell, and water level measuring devices, etc.) is decontaminated after the sampling event using the following methods:

- Prepare a soapy water bath using laboratory-grade detergent (Alconox).
- Unwind water level measuring devices, soak in soapy water, and wipe clean with a cloth.
- Rinse all equipment with deionized water (ASTM Type II).
- Dry equipment.
- Seal dry equipment in polypropylene plastic to prevent contamination.

3.1.7 Equipment Cleaning Procedure Between Monitoring Wells

The procedure to be followed for cleaning water level indicators and nylon-clad steel tapes in the field between wells is as follows:

- Rinse equipment with soapy water.
- Rinse equipment with deionized water (ASTM Type II).

3.1.8 Sample Preservation Methods

The preservation methods for the parameters to be analyzed are listed in Table 2 below. Each of the bottles will contain a premeasured volume of preservative, as needed.

Samples will be analyzed at a laboratory certified in Wisconsin in accordance with ch. NR 149.

3.1.9 Chain-of-Custody Guidelines

A Chain-of-Custody Record provides a written record of sample bottle possession and transference. The guidelines for the Chain-of-Custody Record to be used by sampling and laboratory personnel to ensure proper tracking are outlined below. An example of a typical Chain-of-Custody Record is included as Attachment 3.

Table 2: Sample Preservation and Analysis Methods

Parameter	Bottle Material	Preservative	Holding Time	Laboratory Methods
Groundwater, Surface Water, and Leachate				
Alkalinity	Polyethylene	None	14 days	SM 2320B
Chemical oxygen demand (COD)	Polyethylene	Sulfuric acid	28 days	EPA 410.4
Chloride, fluoride, and sulfate	Polyethylene	None	28 days	EPA 300.0
Boron and calcium	Polyethylene	Nitric acid	6 months	6020B/6010D
Hardness	Polyethylene	Nitric acid	6 months	6020B/6010D/ SM 2340B
Selenium	Polyethylene	Nitric acid	6 months	6020B
Total dissolved solids (TDS)	Polyethylene	None	7 days	SM 2540C
Leachate Only				
BOD5	Polyethylene	None	48 hours	SM 5210B
Total suspended solids (TSS)	Polyethylene	None	7 days	SM 2540D
Cadmium, antimony, and thallium	Polyethylene	Nitric acid	6 months	6020B
Iron, lead, manganese, beryllium, cobalt, lithium, and molybdenum	Polyethylene	Nitric acid	6 months	6020B/6010D
Mercury	Polyethylene	Nitric acid	28 days	7470/1631E
Radium226 + Radium228	Polyethylene	None/Nitric acid	5 days/ 6 months	903.1, 904.0
Semivolatile organic compounds	Glass	None	7 days	EPA 8270E

3.1.10 Sample Shipment Methods

3.1.10.1 Time Period

At the completion of the sampling event, DPC personnel will ship samples to the laboratory via commercial shipping service or courier. Sample shipping will be coordinated to ensure that holding times (Table 2) of the analyses are met.

3.1.10.2 Handling

1. Samples will be iced to 4°C and contained in coolers for transport to the laboratory as soon as possible.
2. Transport will be by commercial shipping service or courier service.
3. Samples will be transported in coolers.
4. Sample packaging will include the following:
   - Fill the cooler with ice.
   - Tape the drain on the cooler shut, and wrap the cooler completely with tape in two locations.
   - Place address labels on the cooler.

3.1.10.3 Sample Bottle Labels

Each sample bottle will be labeled so that the analytical laboratory has the following information:

- Collector's name or initials
- Sample date and time
- Sample source/identification
- Sample preservatives
- Whether or not the sample was field-filtered

All labels are color-coded to indicate the type of preservative in the bottle (e.g., red - nitric acid, yellow - sulfuric acid, blue - no preservative).

3.1.10.4 Transport Container Labels

Labels for the transport containers will be addressed to the selected laboratory.

3.2 Surface Water Sampling Field Procedures

3.2.1 Static Water Level Measurement

Static water levels will be measured at each sampling point by reading the staff gauge to the nearest 0.05 foot. Surface water sampling points are shown on Figure 1.

3.2.2 Sampling and Data Collection

The samples will be collected with a clean, stainless-steel ladle near the outlet of the sedimentation basins with the opening facing upstream (flowing condition). All bottles will be filled prior to taking a sample for performing field measurements. Field measurements will be performed with the YSI® Pro DSS or equivalent measuring equipment. Surface water samples will not be filtered.

3.2.3 Sample Preservation

The preservation methods for the parameters to be analyzed are identical to those for groundwater samples (see Table 2).

3.2.4 Chain-of-Custody Guidelines

The chain-of-custody procedures are identical to those for groundwater samples (see Subsection 3.1.9).

3.2.5 Sample Shipment Method

The sample shipment method for surface water samples is identical to that described for groundwater samples (see Subsection 3.1.10).

3.3 Leachate Monitoring

Leachate levels will be measured monthly at the leachate head wells, and leachate samples will be collected semiannually at the leachate tank. Leachate head will be measured in the leachate head wells using a dedicated calibrated transducer. The transducer will be located within the screened interval of the head well and referenced to mean sea level. Leachate samples will be obtained from the leachate tank using a dedicated bailer. The leachate tank will not be purged prior to obtaining samples. The samples will be treated and analyzed as described for groundwater samples. Leachate samples will not be filtered. Collected and recirculated leachate volumes will be recorded monthly using flow meters. The volume of leachate that is recirculated will be recorded separately.

3.4 Air Monitoring

In accordance with communication with the WDNR, no air monitoring is required for this site (see Subsection 3.15 of the October 2000 POO).

4.0 Quality Assurance/Quality Control Procedures (QA/QC)

Field QA/QC samples are used to evaluate two primary areas of quality control. Sample contamination that may occur in the field and/or during shipping is monitored in the trip blank(s) and the equipment or rinsate blank(s). Field duplicate samples and matrix spike/matrix spike duplicate samples are used to evaluate precision and bias of the sampling and analytical procedures. A general description of each of these follows.

4.1 Trip Blanks

Trip blank samples are prepared in the laboratory by filling the appropriate clean sample container(s) with reagent-grade water and adding any applicable chemical preservative. The containers are labeled “Trip Blank.” Trip blanks are shipped from the laboratory in the cooler to the field and back to the laboratory along with the other samples for that parameter for a given sampling event. The trip blanks are analyzed to identify contamination that may occur from the containers, coolers, cleaning procedures, or chemical preservatives used. Trip blanks are used and analyzed at a frequency of at least one for each sampling event that includes analysis of samples for VOCs. Because VOCs are not part of the analytical program, trip blanks will not be analyzed.

4.2 Equipment (Rinsate) Blank

Equipment or rinsate blanks are prepared in the field immediately following decontamination of nondedicated field equipment used for purging or sampling. Following decontamination, reagent-grade water is passed through the equipment using the same procedures followed in collecting a groundwater sample. The equipment blank confirms proper field decontamination procedures. Therefore, one equipment blank will be collected in association with each surface water sampling event, and one equipment blank will be collected in association with each groundwater sampling event if non-dedicated and/or non-disposal field sampling equipment is used. Sampling typically utilizes dedicated and disposable equipment; therefore equipment blanks will not typically be collected.

4.3 Field Duplicate

Field duplicate samples are an extra set of samples collected at a routine monitoring point and labeled as “Duplicate.” These are two separate samples collected from the same source, stored in separate containers, and analyzed independently. The samples shall be collected in proper alternating order for the sample point and field duplicate for each parameter (e.g., first collect metals sample, then duplicate metals sample, and so on). Field duplicates document the precision of the sampling and analytical process. Field duplicates may be collected, and analyzed semiannually if data discrepancies or QA/QC issues are occurring.

4.4 Matrix Spike / Matrix Spike Duplicate

Matrix spike and matrix spike duplicate samples are collected in the same manner as field duplicates, but a sufficient volume is collected to perform both matrix spike and matrix spike duplicate analyses (triple sample volume total). To conduct a matrix spike analysis, a known amount of a target analyte is added to the sample at the laboratory prior to laboratory sample

preparation and analysis. The matrix spike is used to evaluate the bias of a method in a given sample matrix.

Matrix spike duplicate samples are intra-laboratory split samples spiked with identical concentrations of target analytes. The spiking occurs at the laboratory prior to laboratory sample preparation and analysis. Matrix spike duplicate samples are used to evaluate the precision and bias of a method in a given sample matrix. One matrix spike/matrix spike duplicate for groundwater (all parameters) will be collected during each semiannual monitoring round.

5.0 Record Keeping

5.1 Field Logs

Field notes must be completely and accurately prepared to become a part of the final report for a monitoring event. Field information will be recorded on groundwater sampling forms (Attachment 2) or equivalent. Field logs will be available to the WDNR upon request.

5.2 Chain-of-Custody Procedures

Proper chain-of-custody procedures are necessary to document the integrity of the samples and the condition of the samples upon receipt at the laboratory. The sample collector will fill in all applicable sections of the Chain-of-Custody Record and forward the original, along with the respective sample(s), to the laboratory. Upon receipt at the laboratory, the DPC sampling coordinator will complete the Chain-of-Custody Record, make a copy for his/her records, and make the original form a part of the final analytical report.

5.3 Labeling

Sample containers will be labeled to prevent misidentification. The following will be recorded on an adhesive label on each sample container. Data will be recorded using a waterproof pen:

- Collector's name or initials
- Sample date and time
- Sample source/identification
- Sample preservatives
- Whether or not the sample was field-filtered

6.0 Sampling, Analysis, and Laboratory Requirements

Samples will be obtained and analyzed in accordance with the approved sampling plan and with the requirements of NR 507.17. Sampling methods are further described in Section 3. All chemical analyses will be conducted by a laboratory certified under s. 144.95, Stats., and NR 149 for that test category, in accordance with NR 507.17(5). Samples will be analyzed for the parameters listed in Table 1.

7.0 Reporting

The results of environmental monitoring will be submitted to the WDNR within 60 days of the end of the sampling period, in accordance with NR 507. Sampling data will be submitted in an electronic format, and will include the information required by NR 507.26(3)(b). The WDNR will be notified of values that have attained or exceeded the groundwater standards, in accordance with NR 507.30. The owner or operator of the CCR landfill shall determine the rate and direction of groundwater flow each time groundwater is sampled and include the results in the report to the WDNR within 60 days of the end of the sampling period.

In addition, an annual groundwater monitoring and corrective action report in accordance with NR 507.15(3)(m) will be prepared and submitted by January 31 of the year following the calendar year in which the groundwater monitoring system is approved by the department, and annually thereafter. The annual groundwater monitoring and corrective action report will be placed in the written operating record and posted on a publicly accessible internet site in accordance with NR 506.17 (2) and (3). In accordance with NR 507.15(3)(m) the annual groundwater monitoring and corrective action report will document the status of the groundwater monitoring and any corrective action implemented at the CCR landfill, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. The report will include, at a minimum, the information specified in NR 507.15(3)(m)1. through 5.

8.0 Groundwater Standards

8.1 Calculation of Groundwater Standards

The site-specific Preventive Action Limits (PALs) and Alternative Concentration Limits (ACLs) have been calculated or will be calculated following completion of remaining baseline sampling. PALs and ACLs were computed in accordance with NR 507.27. PALs and ACLs for any replacement wells will be established following the first eight rounds of detection monitoring after installation.

8.2 Evaluation of Groundwater Standard Exceedances

Exceedances of PALs and ACLs will be determined in accordance with NR 507.28. If a false reading is suspected, the WDNR will be notified of the intent to either begin assessment monitoring or determine that a false exceedance has occurred. The statement of intent will be submitted with the notification required in NR 507.30(1). The written demonstration of false exceedance will be included with the next monitoring round.

8.3 Exemptions to Groundwater Standards

Any groundwater exemption requests will be made in accordance with NR 507.29, NR 140.28, and NR 500.08(4). Exemption requests will be made in writing to the WDNR. Requests will include a list of the specific wells and parameters for which an exemption is being requested, proposed ACLs, calculations in accordance with NR 507.27, and a discussion of how the criteria listed in NR 140.28(2), (3), or (4) are met.

8.4 Notification and Response to Attainment or Exceedance of Standards

In accordance with NR 507.30, the WDNR will be notified in writing if any groundwater monitoring well value exceeds or attains a groundwater standard. Per NR 507.15(3)(L)(4), the horizontal distance for the design management zone for a CCR landfill is zero feet from the waste boundary and may not be expanded by the department. The waste boundary includes the horizontal space taken up by any liner, dike, or barrier designed to contain CCR waste. Therefore, the point of standards application to determine if a value exceeds or attains a standard is any point where groundwater is monitored.

The notification will specify the parameters for which standards have been attained or exceeded and the well(s) at which the standard was attained or exceeded. The written notification will provide a preliminary analysis of the cause and significance of each concentration in accordance with NR 140.24(1)(a) or NR 140.26(1)(a). The sampling results and two copies of the notification will be submitted to the WDNR within 60 days from the end of the sampling period.

Responses to groundwater exceedances will be in accordance with NR 508, including establishment of an assessment monitoring program in accordance with NR 508.06 unless the exceedance is determined by the WDNR to be from a source other than the CCR landfill, the result of a sampling error, or natural variation.

9.0 References

RMT, Inc. 1997. Feasibility Report – Dairyland Power Cooperative Phase IV Disposal Area Alma Off-Site Ash Disposal Facility. September 1997.

RMT, Inc. 2000. Plan of Operation – Dairyland Power Cooperative, Phase IV Disposal Area, Alma Off-Site Ash Disposal Facility. October 2000.

RMT, Inc. 2006. Proposed PALs and ACL Values for wells W100AR, W100R, W102AR and W102R, Dairyland Power Cooperative, Phase IV Disposal Area, Alma Off-Site Ash Disposal Facility. May 2006.

WDNR. 2001. Conditional Plan of Operation Approval for Dairyland Power Cooperative Phase IV Disposal Area, Alma Off-Site Ash Disposal Facility, Town of Belvidere, Buffalo County, License #4126. May 2001.

WDNR. 2006. WDNR Approval of proposed PAL/ACL calculations for the Dairyland Power Cooperative Phase IV Ash Disposal Facility, Town of Belvidere, Buffalo County Wisconsin, License No. 4126. September 2006.

Attachment 1: Well Information Form

State of Wisconsin
Department of Natural Resources

GROUNDWATER WELL INFORMATION FORM
Chapter 281 and 289, Wis. Stats.
Form 4400-89

Rev. 7-98

Facility Name				Facility ID Number			License, Permit or Monitoring No.				Date		Completed By (Name and Firm)								
Dairyland Power Cooperative				606009360			4126				21-Aug-00		Craig Bartholomew, 8/00; QC'd by Rob Hafemeister, 8/00; updated by Mike Dickey 6/13/01								
WI Unique Well	Well Name	DNR Well ID Numbe	Well Location	Dir. N E	Dir. S W	Date Establishe	Well Casing Diam.	Well Casing Type	Elevation Top of Well Casing	Elevation Ground Surface	Reference MSL (V)	Reference Site Datum (V)	Depths Screen Top (bgs)	Depths Initial Groundwater (btoc)	Depths Well Depth (bgs)	Screen Length	Well Type	Well Status	Enf. Stds.	Grad-ient	Distance to Waste
	Station 1	001	171440	X		8/24/81	4	PVC	837.22	835.7	X		34	31.6	44	10	OW	Aband	Y	U	Within(1)
			1508460	X																	
	Station 2	002	170730	X		9/18/81	4	PVC	827.12	825.6	X		37	34.1	47	10	OW	Aband	Y	U	Within(1)
			1508940	X																	
	W42	017	172168.72	X		10/19/94	2	PVC	837.93	836.0	X		46.5	51.5	56.5	10	OW		Y	S	Within(1)
			1476924.64	X																	
	P42A	018	172166.81	X		9/10/79	2	PVC	838.90	835.3	X		64.9	51.4	69.9	5	PZ		Y	S	Within(1)
			1476933.9	X																	
	P42B	019	172159.42	X		9/11/79	2	PVC	838.30	835.1	X		81.8	51.4	84.8	3	PZ		Y	S	Within(1)
			1476925.25	X																	
	W43	020	171828.38	X		8/29/79	2	PVC	817.70	814.7	X		54	42.8	64	10	OW	Aband	Y	D	Within(1)
			1477672.25	X																	
	W100	021	171345.3	X		10/25/94	2	PVC	794.52	792.2	X		60.5	65.3	70.5	10	OW	Aband	Y	D	20' S
			1477166.2	X																	
	W101	023	172654.5	X		11/2/94	2	PVC	925.83	923.2	X		107	112.5	122	15	OW		Y	U	200' NE
			1477721	X																	
	W101A	024	172652	X		10/27/95	2	PVC	925.53	923.1	X		146	112.5	151.0	5	PZ		Y	U	190' NE
			1477729	X																	
	W102	025	172046.6	X		10/18/94	2	PVC	838.02	836.1	X		25	30.2	35	10	OW	Aband	Y	S	Within(1)
			1478190.2	X																	
	W102A	026	172041.8	X		10/18/96	2	PVC	837.45	835.7	X		50	30.4	55	5	PZ	Aband	Y	S	Within(1)
			1478191.2	X																	

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

Grid Origin Location: (Check if estimated: ___)

Lat. ____ ° _____' _____" Long. ____ ° _____' _____ __" or

St. Plane _____ ft. N. _____ ft. E. S/C/N Zone

Remarks:

bgs = below ground surface; btoc = below top of casing.

(1) To be abandoned during landfill construction - spring 2000.

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.

State of Wisconsin
Department of Natural Resources

GROUNDWATER WELL INFORMATION FORM
Chapter 281 and 289, Wis. Stats.
Form 4400-89

Rev. 7-98

Facility Name	Facility ID Number	License, Permit or Monitoring No.	Date	Completed By (Name and Firm)
Dairyland Power Cooperative	606009360	4126	21-Aug-00	Dan Reid - RMT, Inc.; updated by Craig Bartholomew, 8/00; QC'd by Rob Hafemeister, 8/00

WI Unique Well No.	Well Name	DNR Well ID Number	Well Location	Dir. NE	Dir. SW	Date Established	Well Casing Diam.	Well Casing Type	Elevation Top of Well Casing	Elevation Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Depths Screen Top (bgs)	Depths Initial Groundwater (btoc)	Depths Well Depth (bgs)	Screen Length	Well Type	Well Status	Enf. Stds.	Grad-ient	Distance to Waste
	W100A	022	171357	X		10/27/95	2	PVC	795.31	792.9	X		95	82.9	100	5	PZ	Aband	Y	D	18' S
			1477172	X																	
	W104	027	171542	X		11/14/95	2	PVC	845.79	843.3	X		75	87.2	90	15	OW		Y	S/U	120' SE
			1477713	X																	
	W104A	028	171546	X		11/13/95	2	PVC	845.14	843.1	X		109	100.25	114	5	PZ		Y	S/U	110' SE
			1477718	X																	
	W105	029	171180	X		11/3/95	2	PVC	821.21	818.3	X		79	88.45	94	15	OW		Y	S/U	127' SE
			1477404	X																	
	W106	030	171530	X		11/7/95	2	PVC	850.84	848.3	X		72	79.5	82	10	OW		Y	S/U	80' W
			1476837	X																	
	W107	031	173527.44	X		5/1/97	2	PVC	908.29	906.2	X		69	77.4	84	15	OW		Y	U	190' N
			1477214.99	X																	
	PW01	032	170430	X		8/24/81	10	STL						67	410	NA	Water Supply	Aband	Y	D	260' SE
			1477100	X																	
JQ894	W100R	40	171197.15	X		5/17/01	2	PVC	784.38	781.4	X				75	15	OW		Y	D	135' NE
			1477195.77	X																	
JQ893	W100AR	42	171202.48	X		5/17/01	2	PVC	784.79	781.4	X				92	10	PZ		Y	D	135' NE
			1477198.28	X																	
SQ892	W102R	44	172319.04	X		5/17/01	2	PVC	876.1	873.1	X				78	5	OW		Y	U	90' W
			1478318.01	X																	
SQ891	W102AR	46	172320.77	X		5/17/01	2	PVC	876.1	873.1	X				98	10	PZ		Y	U	90' W
			1478313.97	X																	

Location Coordinates Are:
- [√] State Plane Coordinate
- [ ] Local Grid System
  - [√] Northern
  - [ ] Central
  - [ ] Southern

Grid Origin Location: (Check if estimated: ___)

Lat. ____ ° _____ ' _____" Long. ____ ° _____ ' ____ __" or

St. Plane _____ ft. N. _____ ft. E. S/C/N Zone

Remarks:

bgs = below ground surface; btoc = below top of casing.

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: Example Groundwater Sampling Form

LOW-FLOW GROUNDWATER SAMPLING RECORD

Well Name
W106
Page 1 of

PROJECT : DAIRYLAND POWER COOPERATIVE	DNR WELL ID No: 30	DATE:
LOCATION: Alma Offsite 04126	WUWN:	WEATHER:
FIELD MONITOR DEVICE: YSI ProDSS	PUMP DEVICE: Dedicated Pump	TEMPERATURE:
WELL I.D. (in.): 2-inch	SCREEN LENGTH: 10	FIELD REPS:
WATER LEVEL:	MEASURING POINT: Top of PVC Casing	PUMP INTAKE DEPTH: 62
WELL DEPTH (Log): 64.7		Duplicate: W106

TIME (24 HR)	DEPTH (ft)	TEMP (°c)	*DO (mg/L)	COND. (µS/cm)	pH	ORP (mV)	**TURB (NTU)	DRAW DOWN (ft)	FLOW RATE	REMARKS
Stabilized within >		N/A	(+/- 10%)	(+/- 3%)	(+/- 0.1)	(+/- 10)	(+/- 10%)	(+/- 0.3)	<700mL/min	(Color, odor, comments)
			(if > .5 mg/l)				(if > 5 NTU)			

NOTES:

2/43 200 Historical Ranges: pH: 7.15 - 7.65 Cond: 560 - 570

* If three DO readings are < 0.5 mg/l, consider value stabilzed ** If three turbidity values are less than 5 NTU, consider values as stablized

(well volume = 3.14 (PI) * radius^2 * height of water column) → 2 in well = 0.163 gal/ft 4 in = 0.653 gal/ft 6 in = 1.469 gal/ft 1 ft^3 = 7.48 gal 1 gal = 3.785 L 1L = 0.264 gal 0.5L/min = 0.132 gal/min

Attachment 3: Example Chain of Custody Record

CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Dairyland Power Cooperative

Billing Information: APInvoices@DairylandPower.com

Address: 3251 East Ave. South, LaCrosse, WI 54601

Report To: Tad.Schwartzhoff@DairylandPower.com

Email To:

Copy To:

Site Collection Info/Address: Alma Off Site

Customer Project Name: **ALMA OFF-SITE GROUNDWATER**

State: WI / County/City: Time Zone Collected: [ ]PT [ ]MT [X]CT [ ]ET

Phone: 608-787-1441
Email:

Site/Facility ID #: Alma Off-Site

Compliance Monitoring? [X] Yes [ ] No

Collected By (print): Tad Schwartzhoff/Brian Kalvelage

Purchase Order # :
Quote #:

DW PWS ID #:
DW Location Code:

Collected By (signature):

Turnaround Date Required: Standard

Immediately Packed on Ice: [X] Yes [ ] No

Sample Disposal:
[X] Dispose as appropriate
[ ] Return
[ ] Archive: _____
[ ] Hold: _____

Rush: (Expedite Charges Apply)
[ ] Same Day [ ] Next Day
[ ] 2 Day [ ] 3 Day
[ ] 4 Day [ ] 5 Day

Field Filtered (if applicable):
[ ] Yes **[X] No**

Analysis: All

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Type: Plastic (P) or Glass (G)

Container Preservative Type **

U	2	1	1	1	1	1			

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager:

Analyses

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
	GW	Grab						
	GW	Grab						
	GW	Grab						
	GW	Grab						
	GW	Grab						
	GW	Grab						
	GW	Grab						
	GW	Grab						

Lab Profile/Line:

```
Lab Sample Receipt Checklist:
Custody Seals Present/Intact Y N NA
Custody Signatures Present   Y N NA
Collector Signature Present  Y N NA
Bottles Intact               Y N NA
Correct Bottles              Y N NA
Sufficient Volume            Y N NA
Samples Received on Ice      Y N NA
VOA - Headspace Acceptable   Y N NA
USDA Regulated Soils         Y N NA
Samples in Holding Time      Y N NA
Residual Chlorine Present    Y N NA
Cl Strips: _____
Sample pH Acceptable         Y N NA
pH Strips: _____
Sulfide Present              Y N NA
Lead Acetate Strips: _____

LAB USE ONLY:
Lab Sample # / Comments:
```

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours) : Y N N/A

Lab Tracking #:

Samples received via:
FEDEX UPS Client Courier Pace Courier

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: __oC
Cooler 1 Therm Corr. Factor:___oC
Cooler 1 Corrected Temp: _____oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY

Table #:

Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Appendix O: Fugitive Dust Control Plan

DUST CONTROL PLAN

Alma Offsite Landfill – Phase IV
S2180 State Hwy 35
Alma, Wisconsin

Prepared by: Dairyland Power Cooperative

Reviewed and Certified by: TRC Environmental Corporation

December 30, 2022

REVISION HISTORY

Revision Number	Revision Date	Section Revised	Summary of Revisions
00	10/14/15	--	Initial Fugitive Dust Control Plan
01	11/29/16	2	Updated landfill cell status table and text.
01	11/29/16	3.3	Added "track out pads" to text in one of the bullets.
01	11/29/16	6.2	Updated contact phone number and email address.
01	11/30/16	3.1	Updated Dust Control Procedures to reflect engineering evaluation
01	11/30/16	App. D	Added Appendix D – Engineering Control Evaluation
01	12/19/16	7	Updated Engineering Certification Statement
02	12/13/17	App. C & D	Updated Appendix C and D
03	12/17/18	App. C & D	Updated Appendix C and D
04	12/17/19	App. C & D	Updated Appendix C and D
05	12/16/20	All	Updated the link in Section 6 to https://www.dairylandpower.com/ Updated the dates and revision # on all applicable pages Updated Appendix C and D
06	12/29/21	Section 1, 2, 3, App. C & D	Updated report to account for decommissioning of G-3, upgrades to JPM, and change in use of the ash processing facility to backup status.
07	12/30/22	Section 2, 3, 4, 6, App. C	Updated procedures and inspection description to include the use of leachate wetting inside the limits of the lined active landfill. Incorporated Wisconsin Administrative Code Requirements.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
EPRI	Electric Power Research Institute
FGD	Flue Gas Desulfurization

SECTION 1

BACKGROUND

The purpose of this Plan is to identify and describe the Coal Combustion Residuals (CCR) fugitive dust control procedures used to reduce the potential for CCR becoming airborne at the Alma Off-Site Landfill. The following sections provide background information on (1) coal combustion residuals and (2) regulatory requirements.

1.1 Coal Combustion Residuals

CCR materials are produced at coal-fired power plants when coal is burned to produce electricity. CCR materials are managed by coal-fired power plant sites, including on-site storage, processing (such as dewatering), and final disposal, typically in CCR landfills. Currently, CCR materials produced by Dairyland Power Cooperative's John P. Madgett Station is managed at the Alma Off-Site Landfill. CCR material from Genoa #3 was also managed at the Alma Off-site Landfill prior to decommissioning the unit in 2021. Types of CCRs typically generated include fly ash, bottom ash, and flue gas desulfurization (FGD) materials. General characteristics of these CCR materials are described below.

- **Fly Ash** – Fly ash is captured from exhaust (flue) gases by emissions control equipment including baghouses and electrostatic precipitators. Fly ash is characterized by clay-sized and silt-sized fine grain materials, consisting of silica, calcium, alumina, iron and trace heavy metals. Due to the small particle size and consistency, fly ash can often be mobilized by windy conditions when it is dry. However, the fly ash received at the Alma Off-Site Landfill is typically not dusty during management activities. This material is conditioned by adding water to the fly ash prior to arriving at the landfill or at the conditioning facility located at the landfill. Once this water has been added, it generally forms a crust on the surface of the fly ash, reducing the potential for dust issues.
- **FGD Materials** – FGD materials are produced by FGD emissions control systems, which are designed and operated to remove sulfur dioxide (SO2) from exhaust (flue) gases. FGD materials are produced as a dry fine grained material, similar to fly ash. The material is collected in a baghouse and stored in silos. The material is then conditioned with water and transported by covered trucks to the landfill for disposal. When wetted and rolled out, the material forms a light crust reducing the potential for dust issues. Under certain conditions, FGD materials can form a crust on surfaces, reducing potential for dust issues from FGD storage areas.

- **Bottom Ash** – Bottom ash is characterized by sand-sized and gravel-sized materials, which settle by gravity to the bottom of a coal-fired furnace. Bottom ash from the boiler is directed to bins, where it is dewatered before being removed and transported to the landfill or storage area. Because of the larger particle size than fly ash, bottom ash is generally less susceptible to dust issues.

1.2 Regulatory Requirements

This Dust Control Plan has been developed for the Alma Off-Site Landfill in accordance with applicable federal, state, and local regulations discussed below.

1.2.1 CCR Rule Requirements

The CCR Rule (40 Code of Federal Regulations [CFR] Part 257, Subpart D) requires preparation of a Dust Control Plan for facilities including CCR landfills, CCR surface impoundments, and any lateral expansion of a CCR unit. Definitions from the CCR Rule are provided below.

> **CCR fugitive dust** means solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than a stack or chimney.
>
> **CCR landfill** means an area of land or an excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For purposes of this subpart, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.
>
> **CCR unit** means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified. The CCR Rule requires owners or operators of these CCR facilities to adopt and document "measures that will effectively reduce the potential for CCR becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management, and material handling activities" (40 CFR 257.80). Existing CCR surface impoundments and existing CCR landfills must prepare a Dust Control Plan "no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this subpart after October 19, 2015" (40 CFR 257.80 (b)(5)).

Facility means the Alma Off-Site Landfill and consists of contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, disposing, or otherwise conducting solid waste management of CCR. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

1.2.2 Applicable State and Local Requirements

The Alma Offsite Phase IV Landfill has a State approved operating license and Plan of Operation (POO). The POO includes a Fugitive Dust Control Plan as required by State solid waste rules (e.g., NR 504, 506, and 514). In addition to the State fugitive dust requirements outlined in the POO, Buffalo County does not have specific fugitive dust ordinances.

SECTION 2

FACILITY INFORMATION

Name of Facility: Alma Off-Site Landfill

Name of Operator: Dairyland Power Cooperative

Operator Mailing Address: 3200 East Avenue South
La Crosse, WI 54601

Name of Owner: Dairyland Power Cooperative

Owner Mailing Address: 3200 East Avenue South
La Crosse, WI 54601

Location: NE ¼ of the NE ¼ of Section 19 and portions of Section 18 and 20, Township 21N, Range 12W, Town of Belvidere, Buffalo, County, Wisconsin

CCR Description: CCR material consists of the following:

CCR Material Type	G-3	JPM
Fly ash	X	X
Bottom ash	X	X
Dry Scrubber waste (FGD)	X	
Dry Sorbent Injection waste (FGD)		X
Activated carbon waste	X	X

Facility Description: The Alma Off-Site (AOS) Landfill Facility consists of two licensed landfills. Phase I, II, and III Landfill is closed and capped. Phase IV Landfill is active and is classified as a CCR Landfill. CCR material is delivered by trucks to the Alma Offsite Phase IV Landfill from two off-site generation facilities, Genoa # 3 (G-3) and John P. Madgett Station (JPM). Genoa #3 was decommissioned in 2021 and no additional CCR is received from that facility.

The Phase IV Landfill consists of several cells.

Cell	Cell Size (acres)	Year Constructed	Year Closed and Capped
1	6	2001	2009
2A	3.8	2006	2011
2B	3.4	2007	Active
3A	3.9	2012	Active
3B	3.1	2015	Active
4A	5.4	Future	
4B	6.5	Future	

The first cell was constructed in 2001. Constructed cells consist of cells 1, 2A, 2B, 3A, and 3B. Portions of cells 1, 2A and 2B were closed and capped in 2009, 2011 and 2016, respectively. The final two cells, 4A and 4B will be constructed at some future date when appropriate to do so.

The landfill has two sedimentation basins associated with it. Sedimentation Basin No. 1 was constructed with Cell 1 in 2001. Sedimentation Basin No. 2 will be constructed with Cell 4B. The basins are for controlling storm water that drains off of the capped cells.

The landfill has a leachate collection system and leachate storage tank. On-site leachate water is used to condition ash at the adjacent Ash Processing Operation. Leachate water may also be used for dust control within the landfill's active cells, when appropriate site conditions are met.

An Ash Processing Operation (APO) is adjacent to the landfill. The APO consists of CCR storage silos and a system to condition (wet) CCR before being loaded into trucks and placed in the landfill. With the decommissioning of G-3 and system improvements implemented at JPM, the APO is currently acting as a backup storage system that will be used in the event of equipment malfunctions at the JPM facility. The APO has storm water controls and a storm water pond. Pond water, in addition to on-site leachate extracted from the leachate collection system, is used to condition CCR at the facility and for dust control within the landfill's active cells.

SECTION 3

DUST CONTROL PROCEDURES

The following sections discuss dust control procedures for (1) CCR short-term storage and management areas, (2) CCR landfill units, and (3) facility roads.

The dust control applications detailed below are typical for the industry and appropriate considering the conditions of the site. The applications are compatible with the current operations or can be initiated quickly to minimize and prevent fugitive dust at the site.

Unless otherwise specified, "water" may include groundwater, on-site leachate, pond water, and/or river water.

3.1 CCR Short-Term Storage and Management Areas at the AOS Landfill Facility

Dust control procedures are implemented in CCR short-term storage and management areas, as discussed below.

- Short-term storage consists of CCR silos for backup storage of fly ash from JPM. The material is off-loaded from the trucks pneumatically into the storage silos. Dust is controlled during the off-loading process by a filter system on the silos.
- Prior to loading into dump-trucks from the silos, the CCR material is conditioned (wetted) to reduce dusting and enable the ash to be moved and packed in the landfill. The amount of water added to the ash is dependent on ash quality on any given day. Sometimes more water needs to be added on one day than on another day. The goal is to add enough water to minimize dusting but not so much that the mixers become plugged. During loading activities, drop chutes are utilized to reduce the potential for mobilization of CCR dust. The load-out area is located directly under the conditioning silo, which also has some wind protection built into it. This activity will occur infrequently with the process improvements made at JPM.
- CCR waste is delivered directly to the landfill from the JPM facility. The waste is conditioned at the JPM facility and loaded into trucks. The trucks deploy covers during transport to the landfill to reduce fugitive dust.
- Bottom ash is delivered directly to the landfill from JPM. The bottom ash is dewatered in dewatering bins before being loaded into trucks. The trucks deploy covers during transport to the landfill to reduce the potential for fugitive dust.

3.2 AOS Landfill Facility CCR Landfill Units

In accordance with 40 CFR 257.80(a), CCR is conditioned (wetted) before being placed into the active landfill cell(s). As noted in Section 3.1, water is added to the CCR materials to reduce wind dispersal and improve compaction during CCR placement in landfill cells. This process is completed at the APO located adjacent to the landfill.

Additional dust control procedures are implemented for active CCR landfill units, as detailed below.

- The AOS Landfill Facility is located within a narrow valley. The landfill is protected from winds on the east, north, and west sides by steep forested valley slopes that extend well above the landfill. The valley is exposed to the south but lower valley trees provide some limited wind protection.
- Open or active landfill cell areas are reduced to less than 7 acres and the working face will be maintained as small as feasible. Active and closed areas are clearly delineated, and traffic controls implemented to properly direct unloading operations and traffic routing in and out of the landfill.
- When ash is placed in the landfill, it is spread out, wetted, and rolled to create a harder surface to help reduce the ability of the wind to pick up the material. Conditioning (wetting) of the CCR material will be completed as to not result in free liquids. This is done as soon as possible after placement to minimize potential for dust generation.
- Water spray is applied, as needed, to exposed CCR, including on the working face. On-site personnel will monitor the spraying within the active areas to eliminate exposure of leachate outside the lined perimeter.
- During high wind conditions when the facility cannot control visible dust, unloading operations at higher elevations of the working face may be reduced or halted.

When active CCR operations are completed in a given area(s), the area(s) is/are contoured and compacted, as needed, in preparation for final cap and cover installation. The final cap and cover will be installed per the approved Plan of Operation/Plan of Operation Modifications and seeded.

Following the installation of the final cap and cover, the cover system is maintained, including vegetation, to reduce the potential for wind and water erosion of the cover.

3.3 AOS Landfill Facility Roads

Dust control procedures for roads in active use for CCR management activities at the landfill, or that are being traveled by construction equipment employed in CCR management activities, are discussed below.

- Enforce reduced vehicle speed limits unpaved surfaces to 15 miles per hour (mph) to reduce dust mobilization. During high wind conditions when the facility cannot control visible dust, operations and related traffic could be reduced or halted.
- During transportation, cover CCR using well-fitted tarps to reduce the potential for CCR becoming airborne during truck transport. If tarps are not practical or dusting is observed, additional water may be added to CCR prior to transportation.
- During non-freezing weather, spray unpaved roads at the landfill daily, as needed, using water trucks. River water or groundwater will be used on the roads outside the landfill. Most of the landfill facility roads are paved, except for sections near the landfill itself. This reduces the water needed for unpaved sections.
- During freezing weather, road salt that is used on the paved roadways on-site, creates a damp condition that is carried over to the unpaved roadways, which helps to eliminate dust emissions from being generated.
- Paved roads at the AOS Landfill Facility will be cleaned by a sweeper/vacuum truck and, during periods of high traffic and/or dry weather, may also be wetted.
- Trucks and vehicles that have the potential to track ash, mud, or dust outside of the CCR management area(s) are cleaned prior to leaving the landfill (use of track out pads added in 2016)
- Trucks and vehicles may also be cleaned as needed using water trucks and portable decontamination areas.

SECTION 4

INSPECTIONS

Visual inspections are conducted by Site personnel on a daily basis to observe signs of inadequate dust control, such as significant and visible fugitive dust emissions. Appendix A provides forms for the daily observations. Documentation of daily inspections noting non-conforming items are at the Facility. Inspection records will be maintained at the Facility for five years.

SECTION 5

TRAINING

Training sessions are conducted annually to update employees on changes in the regulations, laws, or in-house procedures related to CCR management, including dust control procedures. Training records will be maintained at the Facility for five years. Sign-in sheets and topics of discussion at each briefing are maintained for documentation (Appendix B).

SECTION 6

RECORDKEEPING AND REPORTING

The following sections provide details regarding (1) Plan preparation, (2) community involvement, (3) annual reporting, and (4) Dust Control Plan assessment and update process.

6.1 Plan Preparation

In accordance with 40 CFR 257.80(a), 257.105(g), and 257.107(g), a complete, updated copy of this Dust Control Plan is maintained in the Phase IV Landfill facility operating record and on the DPC publicly accessible internet site. (CCR Rule Compliance Data and Information at https://www.dairylandpower.com/)

Revision to this Dust Control Plan shall be completed in accordance with s. NR 514.04(6), whenever there is a change that may substantially affect the Landfill Plan of Operation. This includes submitting the revised Dust Control Plan to the WDNR Waste and Materials Management Section as a Plan Modification for review and approval prior to implementation. In accordance with 40 CFR 257.106(g), WDNR Waste and Materials Management Section is notified when this Dust Control Plan, or any subsequent amended version, is placed in the Phase IV Landfill operating record and on the DPC internet site.

6.2 Community Involvement

As discussed above, DPC maintains a publicly accessible internet site to provide information to stakeholders. The DPC internet site also provides contact information and requests that stakeholders contact DPC with any questions or concerns regarding dust controls for the AOS Landfill Facility. Additionally, DPC may be contacted directly regarding fugitive dust events by contacting the DPC Manager of Water & Waste Programs as follows:

Phone: (608) 787-1311 (during normal business hours, 8:00 AM - 4:00 PM)
Email: ccrinfo@dairylandpower.com
Mail: Dairyland Power Cooperative, 3200 East Avenue South, La Crosse, WI 54601

For reporting a CCR fugitive dust event, include the following information in your correspondence:

- Name
- Address

- Phone number
- Email address (optional)
- Date of dust event
- Time of dust event
- Location of dust event
- Description of the dust event
- Do they want us to contact them?
- Date and time they can be reached for follow-up by DPC personnel, if wanted.

CCR fugitive dust events will be logged via the Record of External Contact Form and included with the annual report described in Section 6.3 of this plan.

In accordance with 40 CFR 257.80(b), DPC will maintain records of stakeholder correspondence, including any questions or concerns regarding dust controls at the AOS Landfill Facility.

6.3 Annual Reporting

In accordance with 40 CFR 257.80(c) and s. NR 506.20(3)(a), DPC prepares annual dust control reporting to document the following information:

- Description of dust control procedures implemented at the Phase IV Landfill facility.
- Summary of any questions of concerns raised by stakeholders
- Description of any corrective actions taken

The first Annual Dust Control Report will be completed on or before December 19, 2016, that is 14 months after the Plan completion date, when the initial CCR fugitive dust control plan is placed in the Phase IV Landfill operating record. Subsequent Annual Dust Control Reports will be completed by December 19 of each calendar year thereafter. Each Annual Dust Control Report is completed and placed in the Phase IV Landfill facility operating record and on the DPC internet site, as required by 40 CFR 257.80(c), 257.105(g), and 257.107(g). In accordance with 40 CFR 257.106(g), WDNR Solid Waste is notified when each Annual Dust Control Report has been placed in the Phase IV Landfill facility operating record and on the DPC internet site.

In accordance with s. NR 506.20(3), each Annual Dust Control Report will be included in the Annual Report required by the WDNR for CCR Landfills. Each annual report will be submitted to the WDNR and placed in the facility's operating record by January 31 of each year.

6.4 Plan Assessment and Update Process

In accordance with 40 CFR 257.80(b), DPC periodically assesses the effectiveness of this Dust Control Plan. The Dust Control Plan will be inspected as detailed in Section 4.0. The Dust Control Plan will be reviewed annually when the Dust Control Plan Report is completed for adherence to the requirements of 40 CFR 257. If more effective prevention and control technology has been field-proven at the time of the review and will significantly improve dust controls, the Dust Control Plan will be amended to reflect the changes. The amended Dust Control Plan will be implemented as soon as practicable of its completion. The designated person accountable for dust control at the Phase IV Landfill facility is responsible for documenting completion of each review, signing a statement as to whether the Dust Control Plan is amended, and recording the results in Appendix C. As required by 40 CFR 257.80(b), technical changes made to this Dust Control Plan must be certified by a Professional Engineer.

In accordance with 40 CFR 257.80(b) and s. NR 514.07(10)(a)(4), DPC will also amend this Dust Control Plan whenever there is a change in conditions that would substantially affect the written Dust Control Plan or Plan of Operation in effect, such as the construction and operation of a new CCR unit. The amended Dust Control Plan will be submitted to the WDNR for review and approval prior to being implemented. Implementation will occur before or concurrently with the initial receipt of CCR into any new CCR unit(s) or prior to the technology implementation. As required by 40 CFR 257.80(b), technical changes made to this Dust Control Plan must be certified by a Professional Engineer.

In accordance with 40 CFR 257.106(g), WDNR Solid Waste will be notified when this Dust Control Plan has been amended and placed in the Phase IV Landfill facility operating record and on the DPC internet site.

SECTION 7

ENGINEERING CERTIFICATION

Pursuant to 40 CFR 257.80 and by means of this certification I attest that:

(i) I am familiar with the requirements of the CCR rule (40 CFR 257);

(ii) I am familiar with the requirements of the ch. NR 500-520, Wisconsin Administrative Code;

(iii) the Dust Control Plan has been prepared in accordance with the requirements of the CCR rule and Wisconsin Administrative Code; and

(iv) the Dust Control Plan meets the requirements of 40 CFR 257.80 with the following action items:

a. The ash processing operation will be utilized as a backup system used infrequently (quarterly or less) during equipment interruptions at the JPM facility. Dust generated during this infrequent use will be managed by best management practices implemented at the facility. If there is a need for more frequent use, Dairyland Power Cooperative will continue the annual evaluation of dust reduction options and implement recommendations on a minimum annual basis.

BreAnne Kahnk, P.E. – TRC Environmental Corporation

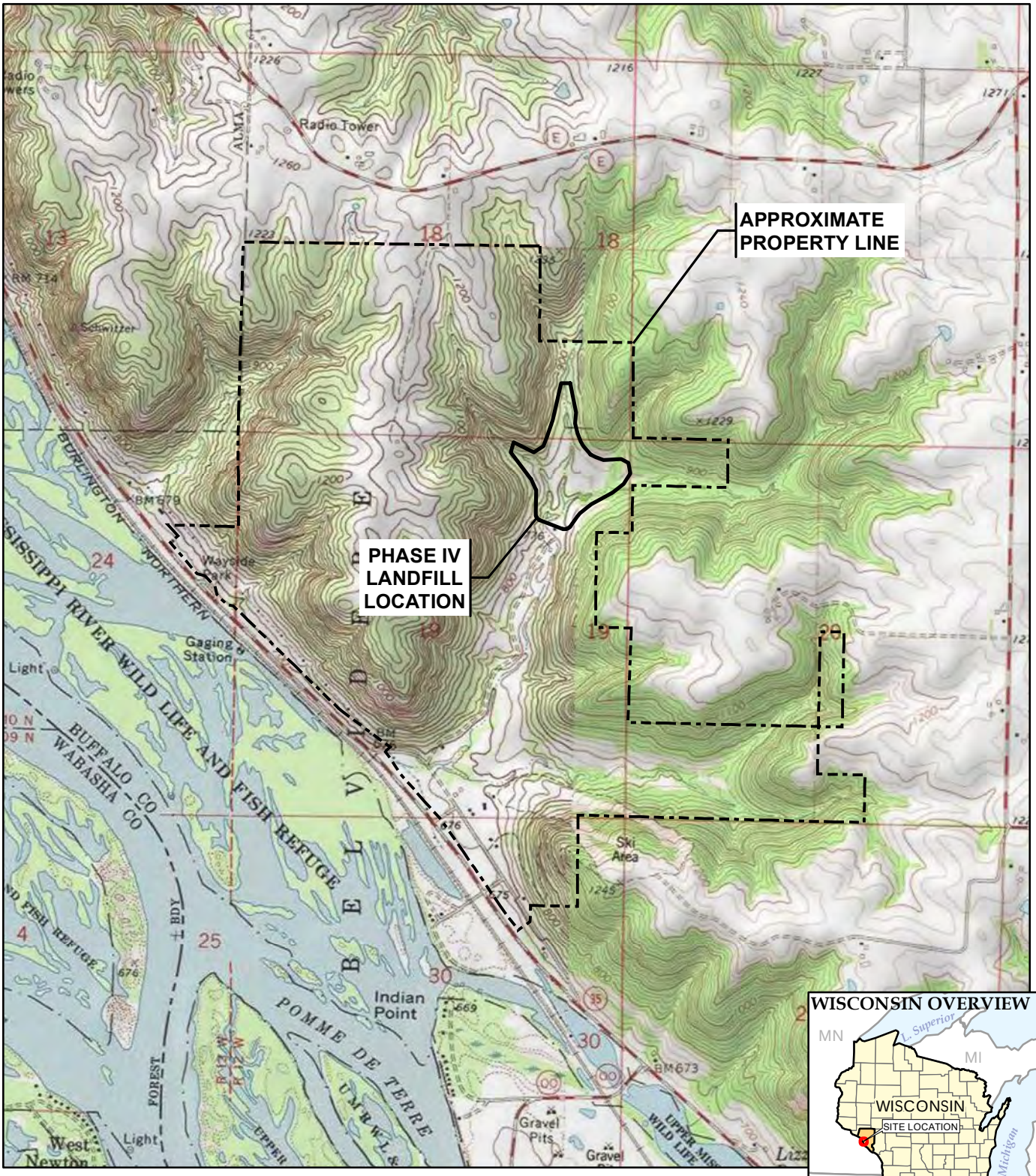
Signature of Registered Professional Engineer

Registration No. E-46825 State: WI

FIGURES

Saved By: BRHODE on 10/13/2015, 16:30:22 PM

TRC - GIS



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,500 5,000
FEET

TRC

708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

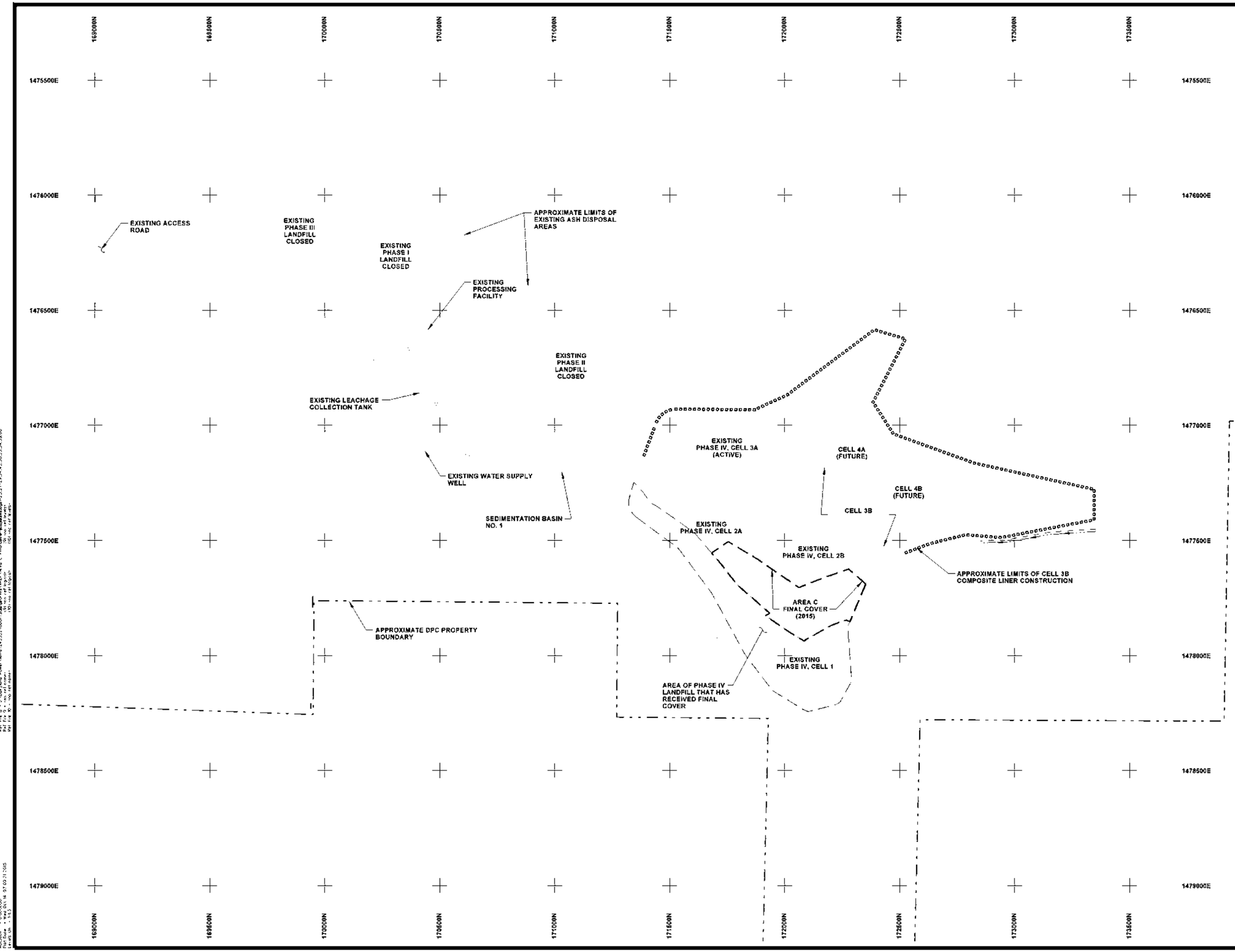
DAIRYLAND POWER COOPERATIVE
ALMA OFF-SITE DISPOSAL FACILITY
DUST CONTROL PLAN
TOWN OF BELVIDERE, BUFFALO COUNTY, WISCONSIN

SITE LOCATION MAP

DRAWN BY:	RHODE B
APPROVED BY:	HOTSTREAM J
PROJECT NO:	243332.0001
FILE NO.	243332-001slm.mxd
DATE:	OCTOBER 2015

E:\DairylandPower\Alma\WI\2015_243332\243332-001slm.mxd

FIGURE 1



NOTES

1. REFER TO PLAN SHEET 2 FOR STANDARD LEGEND, NOTES, AND BENCHMARK LOCATIONS.

NO.	BY	DATE	REVISION	APP'D

PROJECT: DAIRYLAND POWER COOPERATIVE
ALMA OFF-SITE DISPOSAL FACILITY
PHASE IV LANDFILL
BUFFALO COUNTY, WISCONSIN

SHEET TITLE: SITE LAYOUT
DUST CONTROL PLAN

DRAWN BY:	tapperr	SCALE: AS SHOWN	PROJ. NO: 243332.0001
CHECKED BY:	JN		FILE NO: 243332-0001.01.PLT
APPROVED BY:	BH	DATE PRINTED:	FIGURE 2
DATE:	OCTOBER 2015		

TRC
708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

APPENDIX A

Daily Inspection Checklist

AOS Fugitive Dust Plan Inspection Log

The areas to be inspected for fugitive dust are: **These inspections need to be performed anytime these areas are active.**

A1 Active Landfill Area(s)
A2 Dozer Operations in active Landfill
A3 Active landfill roadway
A4 AOS Ash Load out area
A5 Auxillary Landfill Roadways

When each affected area is active, fill out the appropriate information below. **Inspections need to be performed prior to and during operations.** Apply dust suppressant anytime dusting is observed. Note the time(s), type(s) and amount of dust suppression applied. If dust suppressant is not applied note why (i.e. raining, no dusting apparent, etc.)

Date	Time of Day	Weather (rainy, sunny, windy, overcast, etc.)	Active Area	Visible Dust? (yes/no)	Dust Suppression Used? (none, type and amount)	Comments	Signed

APPENDIX B

Training Attendance Record

Employee Number	Attendee Name (Print)	Attendee Signature	Cost Center

Topics Discussed Or Reviewed
(Check All Applicable)

- ☐ Manufacturer Operator Manuals
- ☐ Operator Manual Safety Section
- ☐ Applicable DPC Safety Rules
- ☐ Safety Features/Equipment
- ☐ Safety And Operation Decals
- ☐ Safety Shields And Covers
- ☐ Emergency Systems
- ☐ Stability Requirements
- ☐ Load Charts/Capacities
- ☐ Maintenance Schedules/Procedures
- ☐ Lube Points, Types And Charts
- ☐ Inspections And Operation Tests
- ☐ Operator Qualifications
- ☐ Applicable ANSI\OSHA Standards
- ☐ Operator Controls/Gauges
- ☐ Winch Line Inspection And Capacity
- ☐ Operation/Set Up Demonstration
- ☐ Operation/Set Up Operator Hands-On
- ☐ Personnel Basket And Safety Belts
- ☐ Applicable Standard Hand Signals
- ☐ Road Travel Preparations
- ☐ Trailer Loading And Tieing Down
- ☐ Securing Cargo
- ☐ Travel Height
- ☐ Options/Accessories
- ☐ Chassis/Carrier Inspections
- ☐ Applicable DOT Regulations
- ☐ Chassis/Carrier Engine Checks
- ☐ Applicable Operator And Driver Licenses
- ☐ Chassis/Carrier Options And Accessories
- ☐ Applicable Record Keeping
- ☐ Applicable Written Examinations
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Note: X - Denotes Assigned Operator

APPENDIX C

Dust Control Plan Review Documentation

APPENDIX C

DUST CONTROL PLAN REVIEW DOCUMENTATION

In accordance with 40 CFR 257.80(b), this Dust Control Plan has been reviewed to assess if more effective control procedures are available to significantly reduce the likelihood of CCR from becoming airborne at the facility.

By means of this certification, I attest that I have completed a review and evaluation of this Plan for the Facility located in Alma, Wisconsin, and as a result

_____ will

_____ will not

amend the Plan. Technical amendments to the Plan have been certified by a Professional Engineer.

_____ _____
Signature Date

Don Loock
Name (Printed)

Mgr. Alma Fuels & Solid Waste
Title

Leif Tolokken

_____ 12/27/2022
Signature Date

Leif Tolokken
Name (Printed)

Mgr. Water & Waste Programs
Title

Appendix P: Closure Plan

Closure Plan

Alma Offsite Disposal Facility, Phase IV Landfill Alma, Wisconsin

January 2023

Prepared For:

Dairyland Power Cooperative
3200 East Avenue South
La Crosse, Wisconsin 54601

Prepared By:

TRC
999 Fourier Drive, Suite 101
Madison, Wisconsin 53717

BreAnne Kahnk, P.E.
Senior Engineer

Todd W. Martin
Principal Project Manager

TABLE OF CONTENTS

TABLES

APPENDICES

Revision History

Revision Number	Revision Date	Section Revised	Summary of Revisions
1	01/12/2023	1-3	Text updates.

1.0 Introduction

This Closure Plan (Plan) was prepared by TRC Environmental Corporation (TRC) on behalf of Dairyland Power Cooperative (DPC) for the Alma Off-Site Disposal Facility, Phase IV Landfill (Landfill) where coal combustion residuals (CCR) are disposed. The approximately 32.1 acres Landfill is located in Sections 18 and 19, T21N, R12W, Town of Belvidere, Buffalo County, Wisconsin. DPC owns and operates the Landfill in compliance with the Plan of Operation (RMT 2000) as permitted by the Wisconsin Department of Natural Resources (WDNR).

This Plan meets the closure requirements of the U.S. Environmental Protection Agency's (USEPA) CCR Rule, Title 40 Code of Federal Regulations (40 CFR) Parts 257 and 261 Subpart D - "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments" as well as ch. NR 500-520, Wisconsin Administrative Code. The Landfill is considered an existing CCR landfill according to the CCR rule (40 CFR 257.53).

DPC plans to close the Landfill by leaving the CCR in-place upon completion of CCR placement. The Landfill is operated by moisture conditioning CCR, placing, and compacting the waste in the active area. Final cover will be installed in phases as portions of the Landfill reach the design top of waste grades. The Landfill has a design waste capacity of 3,011,000 cubic yards. Based on the phasing in the Plan of Operation (RMT, 2000), the largest proposed active area to be closed for the Landfill is approximately 12.4 acres. Based on the available capacity and current filling at the Landfill, it is anticipated that closure will be initiated in 2057. This closure date is subject to change based on potential changes in volume of CCR accepted at the Landfill.

2.0 Closure Plan

2.1 Initiation of Closure Activities

The owner or operator of the CCR unit shall initiate closure no later than 30 days after the date on which the CCR unit either receives the known final receipt of waste or removes the known final volume of CCR for beneficial use in accordance with 40 CFR 257.102(e) and s. NR 506.083(2). Closure shall also be commenced if the unit has not received waste or is no longer removing CCR for beneficial use within two years of last receipt of waste or last removal for beneficial use. The owner or operator may secure an additional 2 years so long as they are able to demonstrate that there is reasonable likelihood that the unit will accept waste or remove CCR in the foreseeable future. Subsequent 2-year periods may be continued to be requested so long as they are able to continue to demonstrate the reasonable likelihood of CCR waste disposal or removal for beneficial use. Demonstrations must be placed in the operating recorded prior to the end of any two-year period following 40 CFR 257.102(e)(2)(ii and iii). Per s. NR 506.083(2)(b), these delays shall be requested in writing to the WDNR as a modification to the Closure Plan and include the requirements detailed in s. NR 506.083(2)(b)(1-3).

No later than the date of initiating closure, the owner or operator must prepare a notification of intent to close the Landfill including the certification of a qualified professional engineer for the final cover system design as required by 40 CFR 257.102(d)(3)(iii).

Closure activities have been initiated if the owner or operator has ceased placing waste and completes one of the following activities:

- Taken steps necessary to implement the written closure plan,
- Submitted a completed application for required state or agency permit or modification, or
- Taken steps necessary to comply with state or other agency standards that are pre-requisite to initiating or completing closure.

2.2 Closure Performance Standard

The owner or operator of the Landfill will close the CCR unit in a manner that controls post-closure infiltration of liquids into the waste, releases of waste, and leachate or contaminated run-off to groundwater or surface water and preclude the probability of impoundment of water, sediment, or slurry. Measures will be included that provide slope stability which will prevent movement of the final cover system during closure and post-closure. Need for further maintenance of the CCR unit will be minimized. The CCR unit closure should be completed in the shortest amount of time consistent with recognized and generally accepted engineering practices and be done in accordance with 40 CFR 257.102 and s. NR 506.083.

2.3 Final Cover System

Closure of the Landfill will occur by leaving the CCR in-place, which requires the construction of a final cover system compliant with 40 CFR 257.102(d) and s. NR 504.12(4). The final cover system shall meet the following requirements:

- Designed to be compliant with s. NR 504.07, or

- The hydraulic conductivity of the final cover must be less than or equal to 1 x 10^{-5} centimeters per second (cm/s), or less than or equal to the hydraulic conductivity of the bottom liner system or natural subsoils present, whichever is less.
- An infiltration layer of at least 18 inches of earthen material that meets the requirements of s. NR 504.12(4)(b)(2).
- An erosion layer of at least six inches of earthen material that is capable of sustaining native plant growth that meets the requirements of s. NR 504.12(4)(b)(3).
- The final cover system must be designed to minimize impacts due to settling and subsidence.

The Landfill will be closed using a composite final cover system. Two final cover system options have been previously approved for the Landfill. These consist of the WDNR design presented in the Plan of Operation Conditional Approval (from bottom to top):

- a 24-inch compacted soil barrier (barrier layer),
- GCL (barrier layer),
- a 40-mil textured linear low density polyethylene (LLDPE) geomembrane (barrier layer),
- a 12-inch–thick select granular fill drainage layer (infiltration layer),
- an 18-inch–thick general fill rooting layer (infiltration layer), and
- a 6-inch–thick topsoil layer (erosion layer).

The 2004 Plan of Operation Modification presented a modified final cover system, which has been used in the previous three final cover construction events. This modified final cover system consists of the following components (from bottom to top):

- 2-foot (24 inches) moisture-conditioned and compacted “select” fly ash (i.e. mixture containing a minimum of 40 percent of the more reactive J.P. Madgett fly ash) (barrier layer),
- 40-mil geomembrane (barrier layer),
- 1-foot-thick (12 inches) sand drainage layer (infiltration layer),
- 1.5-foot-thick (18 inches) general soil cover layer (infiltration layer), and
- 6-inch-thick topsoil layer (erosion layer).

The modified final cover system provides a total of 3 feet of soil above the geosynthetics. The general function of each component of the final cover system is provided in parentheses above. The barrier layer consists of 2 feet of compacted select CCR and a 40-mil geomembrane which exceeds the hydraulic conductivity criteria of 1x10^{-5} cm/s. The landfill was constructed with a composite liner system; therefore, a composite final cover system provides an equivalent hydraulic conductivity. The granular fill drainage layer removes water that infiltrates through the erosion and infiltration layers. The infiltration layer and erosion layer meet the requirements of

the CCR rule and s. NR 504.07(6) and (7). This final cover system meets the requirements of 40 CFR 257.102(d)(3)(i) and s. NR 504.12(4).

Following placement of final cover and the surface water control features, the area will be fertilized, seeded, and mulched in order to establish vegetation.

The final cover system has design slopes of 25 percent, refer to Sheet 12 from the Plan of Operation in Appendix A. Because the waste is placed and compacted with control of the moisture conditions and the stability of CCR, significant settlement is not anticipated. Global stability of the Landfill and interface stability of the final cover system were evaluated in the Plan of Operation (RMT 2000) with resulting factors of safety that meet the CCR rule. Based on these considerations, the Landfill closure has been designed in a manner to minimize or eliminate infiltration into the waste, preclude the probability of future impoundment of water, provide stable slopes, and minimize future maintenance.

2.3.1 Final Cover Construction

The final cover system will be constructed in phases as the top-of-waste grades are achieved to minimize the active area of the Landfill and leachate generation. After final CCR placement in the Landfill, the remaining portion of the final cover system will be constructed. Surface water control features on this segment of the final cover will be constructed and connected with the existing surface water control features.

The final cover will be constructed by fine grading the waste subbase, placing the soil barrier layer and GCL or placing and compacting the 2 foot thick select CCR material, deploying and installing the 40-mil thick textured geomembrane, placing the granular drainage layer, placing the general fill rooting layer, and placing the topsoil layer. A schedule estimate of closure activities is presented in Table 1. It is anticipated that closure construction can be completed within the 6-month required timeframe.

2.3.1.1 Fine Grading the Waste Subbase

The waste subbase will be fine graded and leveled using heavy equipment to provide a surface for the placement of the grading layer and GCL.

2.3.1.2 Soil Barrier Layer and GCL

The soil barrier layer material, if used, will meet the requirements specified in Condition 11b of the Plan of Operation Conditional Approval. The soil barrier layer will have a minimum thickness of 24 inches measured vertically from the top of the ash waste.

The GCL will be deployed above the soil barrier layer such that there is a minimum of 6 inches of overlap on longitudinal seams and a minimum of 24 inches overlap on end seams or as recommended by the manufacturer, whichever is greater. The panels will be placed with the overlap on both longitudinal and end seams shingled down-slope. If the GCL requires granular bentonite to be placed along the seam, the overlapping panel edge will be pulled back and granular sodium bentonite will be poured continuously along all seams, at an application rate of ¼ pound per linear foot.

The GCL will be tested during manufacturing, and prior to installation. The results of manufacturer's testing will be submitted to the engineer for review and approval prior to the acceptance of GCL. Samples from selected rolls delivered to the site will also be collected for conformance testing prior to acceptance and installation.

2.3.1.3 Select CCR Layer

The select CCR layer will be moisture conditioned and compacted according to the construction specifications. The compaction of the select CCR material will be observed by the engineer's representative that is documenting construction. The select CCR layer will have a minimum thickness of two feet measured vertically from the cover surface.

2.3.1.4 40-mil LLDPE Geomembrane

If GCL is used, the LLDPE geomembrane will be deployed at a rate equivalent to that of the GCL deployment rate such that the GCL panels will be covered daily to prevent against physical damage and/or hydration of the GCL. The geomembrane will be fabricated from a polyethylene resin, which will have a density range of 0.939 g/cc or less for LLDPE. The nominal geomembrane thickness will be 40 mils for LLDPE, with no thickness measurements falling below the minimum industry-accepted manufacturing tolerance.

The geomembrane will be installed with the panels orientated perpendicular to the contours (i.e., running up and down the slope). The geomembrane will be deployed in a manner that does not adversely impact the barrier material below the geomembrane.

Geomembrane panels will be seamed in the field. Production seaming (linear seams) will be performed using the dual hot wedge (fusion type) seam method. Non-production seams (detail work and repairs) will be performed using the extrusion fillet weld process. Corners, butt seams, and long repairs will be fusion-welded where possible. The geomembrane component of the adjacent cell will be welded together for a continuous membrane surface.

The geomembrane will be tested during manufacturing, and prior to and during installation. The results of the manufacturer's testing will be submitted for review and approval prior to the acceptance of geomembrane rolls delivered to the site. Samples from selected rolls delivered to the site will also be collected for conformance testing by a third-party laboratory prior to acceptance and installation. Finally, during placement, both nondestructive and destructive testing of the geomembrane seams will be performed. Nondestructive testing will be performed by the installation contractor and observed by a third party. Destructive testing will consist of both field and third-party laboratory testing of the samples collected

2.3.1.5 Granular Drainage Layer

After placement and testing of the geomembrane, or portions thereof, a 12-inch–thick select granular fill drainage layer will be placed as soon as practicable to protect the geomembrane and to provide a confining pressure for the underlying GCL, if used. At a minimum, the select granular fill will be placed within 30 days of completing the membrane installation and quality assurance testing.

To minimize the potential for large wrinkles in the geomembrane, the drainage layer will be placed during cooler temperatures when possible. Wrinkles in the geomembrane that are higher than they are wide, will be smoothed or cut out and repaired prior to placing the drainage layer.

The initial lift of select granular fill will be 2 to 3 feet thick, depending on the type of equipment being used, to provide an access ramp. A minimum of 2 feet of material will be placed prior to operating tracked vehicles and flotation tire–equipped vehicles, while a minimum of 3 feet of material will be placed prior to operating trucks and other wheeled hauling equipment. The initial lifts of select granular fill will eventually be graded to the designed 1-foot–thick layer with a low ground pressure (< 5 psi) tracked vehicle. The procedure for deployment of the granular drainage blanket will be established at the preconstruction meeting.

2.3.1.6 General Fill Rooting Layer

An 18-inch–thick uncompacted general fill rooting layer will be placed above the drainage layer in a single lift. The general fill rooting layer will provide a rooting zone for vegetation and will protect the cap from damage due to freeze-thaw and desiccation.

2.3.1.7 Topsoil and Vegetation

The top layer of the final cover system will be a 6-inch–thick layer of topsoil. Topsoil stripped from the landfill and perimeter areas during site preparation will be stockpiled and reused in the final cover. After topsoil is placed, the area will be seeded, mulched, and fertilized. Prior to seeding, the topsoil layer will be prepared for seeding by disking and pulverizing soil within 2 inches of the surface.

DPC has established prairie vegetation on previously constructed phases of final cover with good performance. The prairie vegetation is suitable to soil quality/thickness, and slopes and moisture conditions, with minimal need for continuous maintenance. This prairie vegetation is planned for use in future final cover construction events. Erosion control measures will be installed as needed across the site to limit erosion prior to establishing vegetation.

2.3.2 Storm Water Control Features

Storm water control features will be constructed and/or completed for each phase of final cover construction. Storm water control features consist of diversion berms, a downslope flumes, and energy dissipaters. These storm water control features on the final cover deliver water to perimeter ditches, sedimentation basins, and sediment traps that were constructed during liner construction of the various cells. The storm water control features will be constructed in accordance with the specifications and details presented in the Plan of Operation (RMT 2000), refer to Appendix A for relevant plan sheets from the Plan of Operation. These features are designed to manage runoff from 100-year 24-hour storm events and minimizing scour and erosion of the final cover. Additional details on the storm water control features are provided in the Run-On and Run-Off Control Systems Plan.

2.4 Completion of Closure Activities

Within 30 days of completion of closure activities the owner or operator shall prepare a notification of closure of a CCR unit with a certification from a qualified professional engineer that the closure has been performed in accordance with this Plan.

Per 40 CFR 257.102(i) the owner or operator must record a notation on the deed to the property, or some other instrument that is normally examined during title search, that the land has been used for a CCR unit and that it is restricted under the post-closure care requirements as provided in 40 CFR 257.104(d)(1)(iii). Per s. NR 506.083(4)(a), the deed notation (affidavit) is to be recorded within 60 days after closure is complete. A copy of the affidavit is required to be submitted to the WDNR and placed in the facility's operating record within 30 days of recordation.

2.5 Amendment of a Written Closure Plan

The owner or operator will amend the written closure plan in accordance with s. NR 514.04(6) whenever:

- There is a change in the operation of the Landfill that would substantially affect the plan in effect, or
- Before or after closure activities have commenced, unanticipated events necessitate a revision.

The closure plan must be amended and submitted in writing to the WDNR at least 60 days prior to a planned change in operation of the Landfill, or no later than 60 days after an unanticipated event occurs that requires the need to revise an existing closure plan. If a written closure plan is revised after closure activities have commenced for the Landfill, the current closure plan must be amended and submitted to the WDNR no later than 30 days following the triggering event.

3.0 Notification

3.1 Operating Record

The following items will be maintained in the operating record for a minimum of five years:

- 40 CFR 257.105(i)(4): the most recent written closure plan or amendment of the Plan must be maintained for the life of the operating record
- 40 CFR 257.105(i)(7): the notification of intent to close a CCR unit
- 40 CFR 257.105(i)(8): the notification of completion of closure of a CCR unit
- 40 CFR 257.105(i)(9): the notification of recording a notation on the deed

3.2 Notification Requirements

The following required notifications will be provided before the close of business on the day the notification is required to be completed:

- 40 CFR 257.106(i)(4)/s. NR 506.17(4)(c): a notification of the available written closure plan or amendment of the Plan
- 40 CFR 257.106(i)(7)/s. NR 506.083(1)(a): the notification of intent to close a CCR unit
- 40 CFR 257.106(i)(8) /s. NR 506.083(1)(b): the notification of completion of closure of a CCR unit
- 40 CFR 257.106(i)(9) /s. NR 506.083(4)(a): the notification of recording a notation on the deed

3.3 Publicly Accessible Internet Site

The following required items will be posted on the publicly accessible internet site within 30 days of placing the information in the operating record:

- 40 CFR 257.105(i)(4): the most recent written closure plan or amendment of the Plan must be maintained for the life of the operating record
- 40 CFR 257.107(i)(7): the notification of intent to close a CCR unit
- 40 CFR 257.107(i)(8): the notification of completion of closure of a CCR unit
- 40 CFR 257.106(i)(9): the notification of recording a notation on the deed

Information should be posted within 30 days of placing the pertinent information required by 40 CFR 257.105/NR 506.17(3)(c) in the operating record. Records will be made available to the public for at least five years following the date on which the information was posted to the internet site.

Additional postings to the operating record, notifications, and postings to the publicly accessible internet site may be needed if extensions under 40 CFR 257.102e(2)(ii) or 40 CFR 257.102(f)(2) are pursued.

4.0 References

RMT, Inc. 2000. Plan of Operation: Phase IV Disposal Area, Alma Off-site Ash Disposal Facility, Town of Belvidere, Buffalo County, Wisconsin. October 2000.

RMT, Inc. 2004. Plan of Operation Modification: Phase IV Disposal Area, Alma Off-site Disposal Facility, Town of Belvidere, Buffalo County, Wisconsin.

TRC Environmental Corporation. 2021. Run-On and Run-Off Control Systems Plan. October 2021.

5.0 Engineer's Certifications

Pursuant to 40 CFR 257.102 and by means of this certification I attest that:

(i) I am familiar with the requirements of the CCR rule (40 CFR 257);

(ii) I am familiar with the requirements of the ch. NR 500-520, Wisconsin Administrative Code;

(iii) this Closure Plan has been prepared in accordance with good engineering practice;

(iv) the design of the final cover system meets the requirements of 40 CFR 257.102(d)(3) and s. NR 504.12(4); and

(v) this Closure Plan meets the requirements of 40 CFR 257.102 and s. NR 514.07(10)(c).

For the purpose of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion." The certification is understood and intended to be an expression of my professional opinion as a Wisconsin licensed professional engineer, based upon knowledge, information, and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee or a warranty of the analysis herein.

Signature of Registered Professional Engineer

Registration No. E-46825 State: Wisconsin

Table 1: Schedule Estimate for Completing Closure
Closure Plan – Alma Offsite Disposal Facility, Phase IV Landfill

Closure Area: 12.4 Acres - Remaining Portion of Final Cover on Plan of Operation Phasing Plans			
Task/Milestone	**Start Date[1]**	**Duration**	**Estimated End Date**
Ash Filling Ceases	2/1/2057	--	2/1/2057
Notification to Initiate Closure	3/2/2057	--	3/2/2057
Fine Grading Waste	3/5/2057	22 days	3/26/2057
Select CCR Placement and Compaction[2]	3/27/2057	31 days	4/26/2057
Geomembrane Deployment and Installation	4/27/2057	21 days	5/17/2057
Granular Drainage Layer Placement	5/18/2057	18 days	6/4/2057
General Fill Rooting Zone Placement	6/5/2057	21 days	6/25/2057
Topsoil Placement and Seeding	6/26/2057	11 days	7/6/2057
Notification of Completion of Closure	7/9/2057	31 days	8/8/2057
Deed Notation and Notification	7/9/2057	61 days	9/7/2057
	Total Duration:	**124 days[3]**	

Footnotes:

(1) Start date based on assumed beginning of 2057 construction season. Closure construction may be shifted to different years based on rate of filling.

(2) Previous final cover construction has utilized the modified final cover design. Timeframes associated for this modified final cover design will be used.

(3) Total duration provided in time to substantial completion of final cover placement. At this point, the CCR has been covered and the vegetation seed and temporary erosion control has been applied. Emergence and establishment of vegetation may require additional time.

Created By: J. Hotstream
Checked By: S. Sellner

Revised by: B. Kahnk
Checked By: Z. Bauman

Appendix A: Engineering Drawings

- Plan of Operation – Title Sheet (Sheet 1)
- Plan of Operation – Final Grades (Sheet 12)
- Plan of Operation – Details – Final Cover (Sheet 19)
- Cell 3B Liner Construction and Area C (Over Cells 1 and 2) Final Cover Construction – Details (Sheets 12 and 13)

DAIRYLAND POWER COOPERATIVE

DAIRYLAND Power
COOPERATIVE – LACROSSE, WISCONSIN

PLAN OF OPERATION
PHASE IV DISPOSAL AREA
ALMA OFF-SITE ASH DISPOSAL FACILITY

WISCONSIN
CRAIG O. BARTHOLOMEW
G-451
MADISON
WI
PROFESSIONAL GEOLOGIST
10/13/00

WISCONSIN
BERNARD J. KRANTZ
E-30174
Madison, WI
PROFESSIONAL ENGINEER
10/13/00

PREPARED FOR: DAIRYLAND POWER COOPERATIVE
LACROSSE, WISCONSIN

PREPARED BY: RMT, INC.
MADISON, WISCONSIN

DATE: OCTOBER 2000

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7	PHASING PLAN- CELL I CLOSED CELL 2A ACTIVE
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9	PHASING PLAN- CELL 1, 2A, AND 2B CLOSED CELL 3 ACTIVE
10	PHASING PLAN- CELL 1, 2A, 2B AND 3 CLOSED CELL 4A ACTIVE
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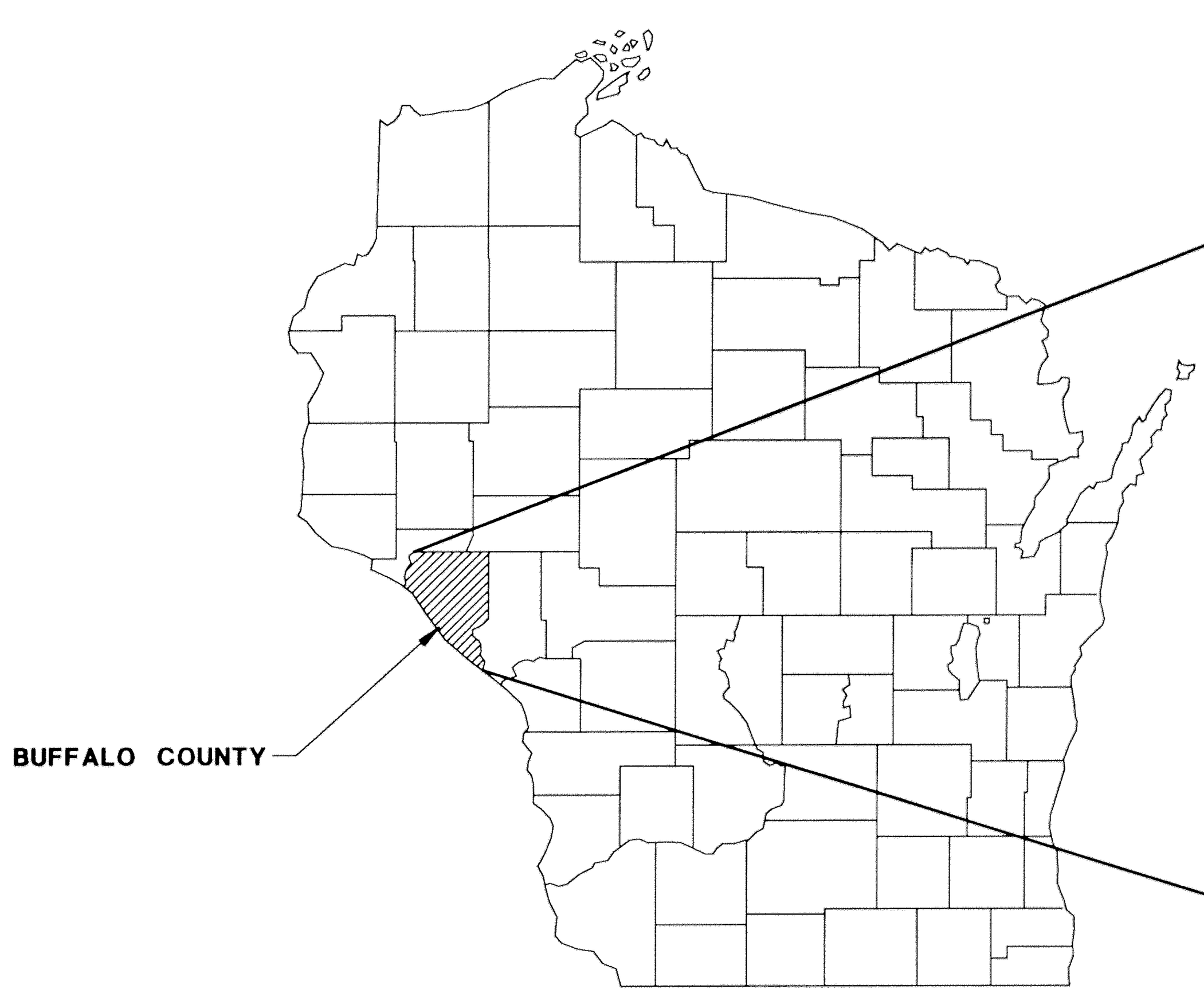
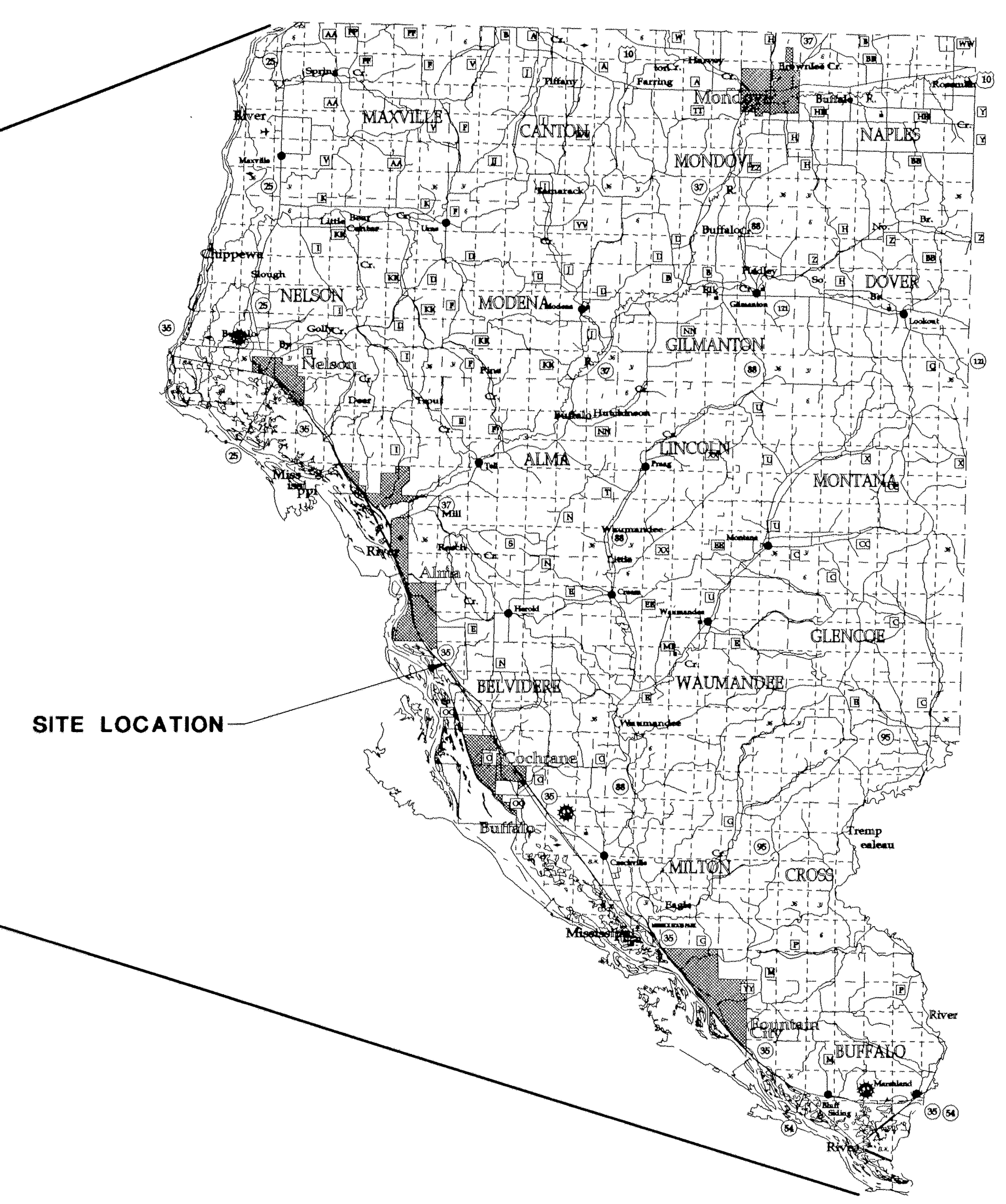
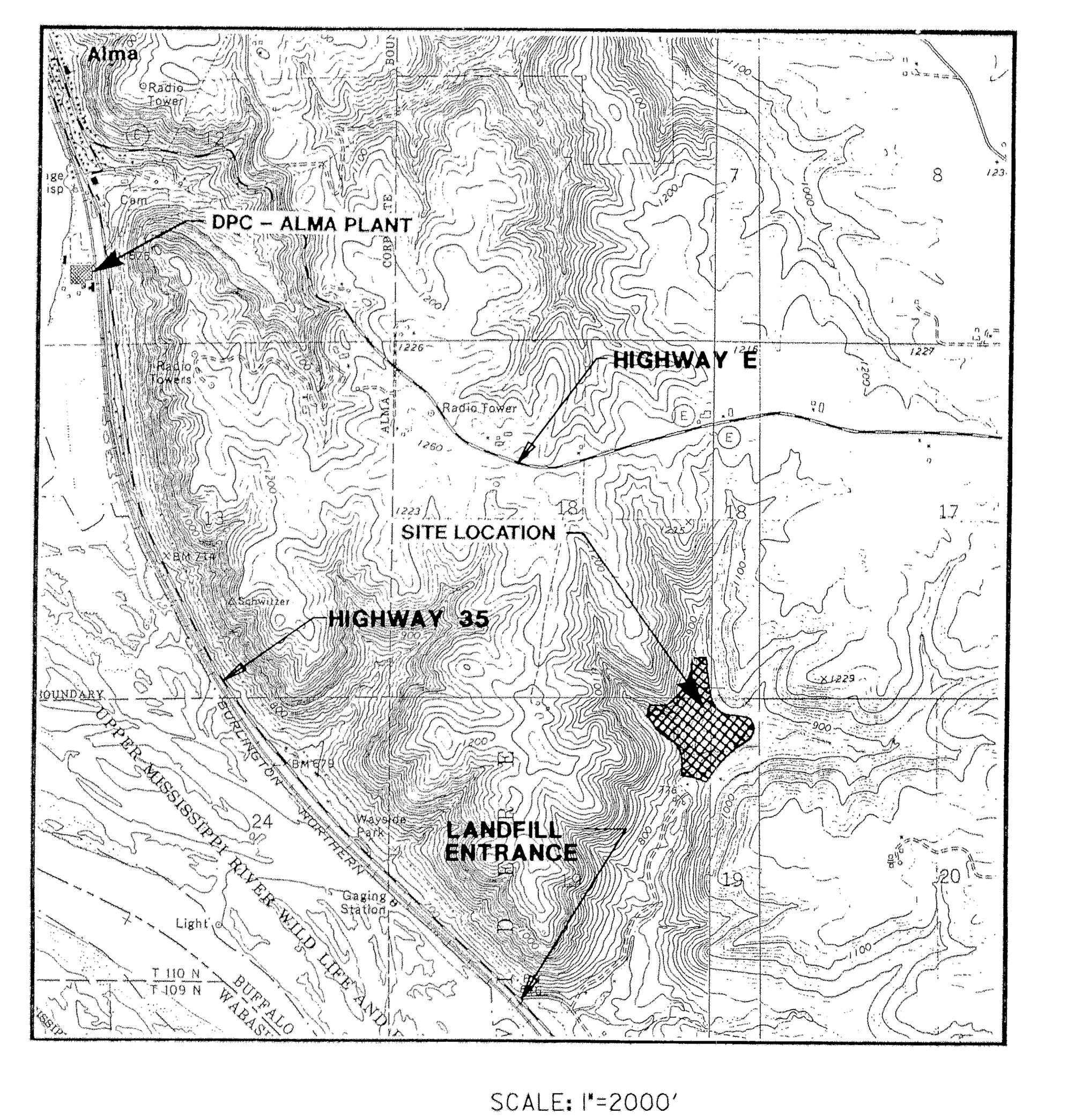


WISCONSIN



BUFFALO COUNTY



SCALE: 1"=2000'

MAP SOURCE: U.S.G.S. CREAM AND ALMA 7.5' QUADRANGLES, DATE 1974.

SITE LOCATION

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER. (NOT FOR CONSTRUCTION)

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608-831-4444

N 170500
N 171000
N 171500
N 172000
N 172500
N 173000
N 173500
E 1477500
E 1478000
E 1478500
EXISTING PROCESSING FACILITY
TRANSFER PIPE FROM STORAGE TANK CONNECTS TO EXISTING PIPE OUTSIDE PROCCESSING FACILITY. SEE DETAIL 5/21
APPROXIMATE LIMITS OF EXISTING ASH
LEACHATE STORAGE TANK SEE DETAIL 1/18
EXISTING BOX CULVERT
ACCESS ROAD TO EXISTING PHASE II LANDFILL
CULVERT I.E. 762.0N I.E. 755.5S
V-NOTCH DITCH @ 6%
ACCESS ROAD @ 8%
10' WIDE FLAT BOTTOM DITCH @ 5%
8' WIDE BERM ELEV. 784.0
10' WIDE FLAT BOTTOM DITCH @ 2%
10' WIDE FLAT BOTTOM DITCH @ 7%
CULVERT
V-NOTCH DRAINAGE DITCH @ 8%
CULVERTS
CULVERT INLET I.E. 812.0 OUTLET I.E. 808.0
10' WIDE FLAT BOTTOM DITCH @ 6%
SEDIMENTATION BASIN NO. 1 SEE DETAIL 1/22
20' WIDE FLAT BOTTOM DITCH @ 20% AND DIVERSION BERM
EMERGENCY OVERFLOW PIPE
MAINTENANCE ROAD 10% SLOPE
RISER AND DISCHARGE PIPE SEE DETAIL 3/22
20' WIDE FLAT BOTTOM DITCH @ 5% SEE DETAIL 8/23
DITCH @ 2%
FINAL COVER DOWNSLOPE FLUME NO. 1 AND NO. 2 SEE DETAILS 1/20 2/20 4/20 1/21 2/21 3/21 4/21
MANHOLE SEE DETAIL 2/18
BM104
LEACHATE TRANSFER LINE SEE DETAIL 3/23
20' WIDE FLAT BOTTOM DITCH @ 1%
FILL AREA
RIPRAP SPILLWAY
FINAL COVER SEE DETAIL 1/19
FINAL COVER DRAINAGE LAYER TRANSFER AND DISCHARGE PIPE SEE DETAIL 4/19
V-NOTCH DRAINAGE DITCH @ 1% SEE DETAIL 8/23
LANDFILL PERIMETER BERM AND DRAINAGE DITCH SEE DETAILS 3/17 5/19
FINAL COVER DOWNSLOPE FLUME NO. 3 SEE DETAILS 3/20 1/21 2/21 4/21
SEDIMENTATION BASIN NO. 2 SEE DETAIL 1/22
MAINTENANCE ROAD 10% SLOPE
RISER/CULVERT I.E. 873.0W I.E. 872.0E
EMERGENCY SPILLWAY
FINAL COVER DIVERSION BERM SEE DETAIL 2/19
BM101
10' WIDE FLAT BOTTOM DITCH @ 2%
19 18
20 17
0 100 200 300 400
SCALE: 1" = 100'

CONSTRUCTION ACTIVITIES

PHASE 4B CLOSURE

1. INSTALL EROSION CONTROL DEVICES.
2. INSTALL GRADING LAYER.
3. INSTALL GCL.
4. INSTALL GEOMEMBRANE.
5. INSTALL DOWNSLOPE FLUME.
6. INSTALL SELECT GRANULAR FILL, DRAINAGE PIPING, GEOTEXTILE, ROOTING ZONE LAYER, AND TOPSOIL.
7. INSTALL DIVERSION BERMS.
8. SEED, FERTILIZE, AND MULCH.

CONSTRUCTION QUANTITIES

PHASE 4B CLOSURE	VOLUME / AREA
TOPSOIL PLACED	
GRADING LAYER SOIL	9,800 CY
GENERAL FILL	9,800 CY
SELECT GRANULAR FILL	19,600 CY
GEOTEXTILE	19,600 CY
GCL	61,700 SY
GEOMEMBRANE	58,600 SY
SEED, FERTILZER, MULCH	58.600 SY
DOWNSLOPE FLUME	12.1 ACRES
4-INCH DIA. HDPE CORRUGATED PIPT	1 EACH
W/ SMOOTH INTERIOR	3,150 LF
SELECT AGGREGATE FILL	470 CY

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NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

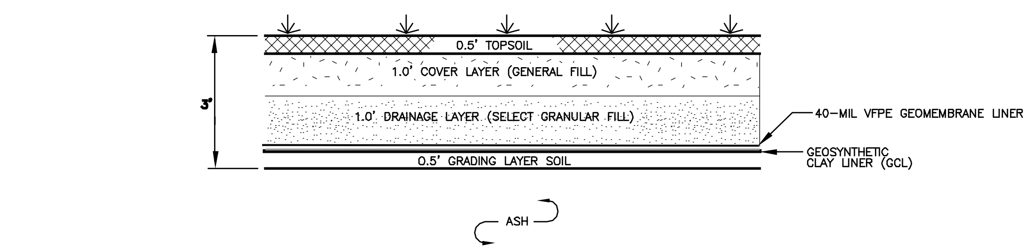
SHEET TITLE:

PROPOSED FINAL GRADES

DRAWN BY: NOLDENR	SCALE: 1"=100'	PROJ. NO. 3081.40
CHECKED BY: DM		FILE NO. FGRADES.PLT
APPROVED BY: BJK	DATE PRINTED:	SHEET 12 OF 23
DATE: OCTOBER 2000		

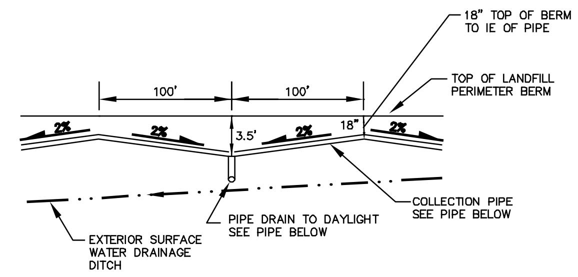
RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608-831-4444

RMT COMPUTER AIDED DESIGN & DRAFTING



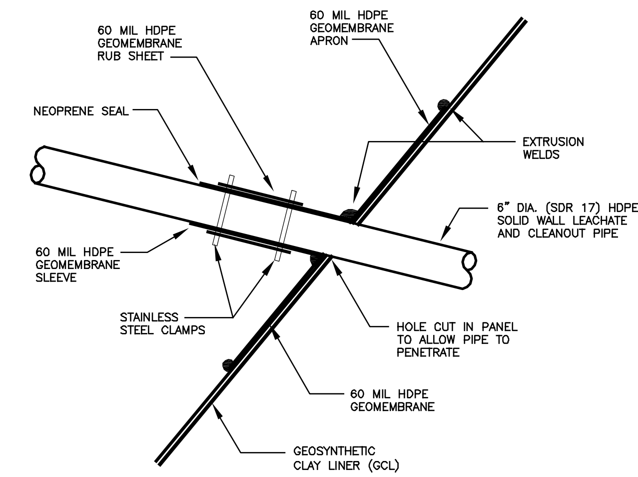
1/19 **FINAL COVER**

(NOT TO SCALE)



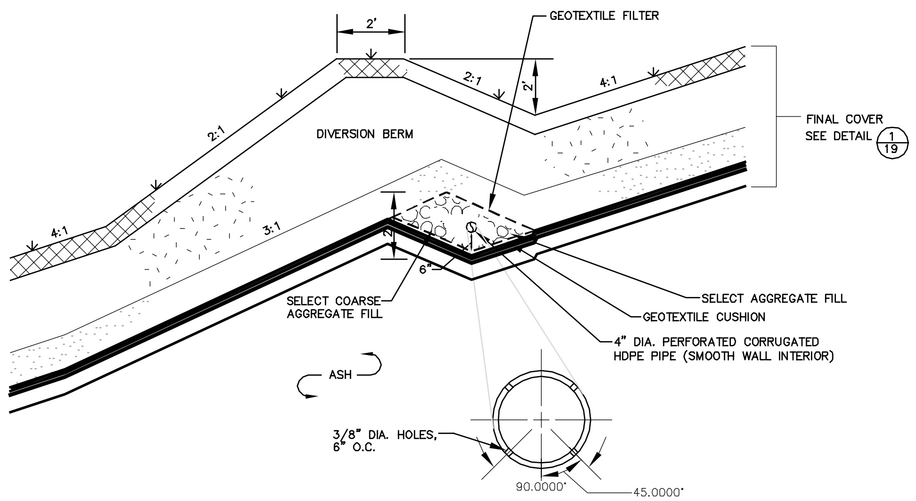
NOTE: IN AREAS WHERE THE TOP OF BERM SLOPES, THE COLLECTION PIPE WILL FOLLOW THE SAME SLOPE AS THE TOP OF BERM AND WILL OUTLET THROUGH DISCHARGE PIPES LOCATED AT SPECIFIED INTERVALS. REFER TO PLAN SHEET 12.

SECTION A-A' OF FINAL COVER DRAINAGE LAYER



6/19 **PIPE BOOT- PIPES PENETRATING THROUGH FINAL COVER AND LOW PERMEABILITY LAYER (TYPICAL)**

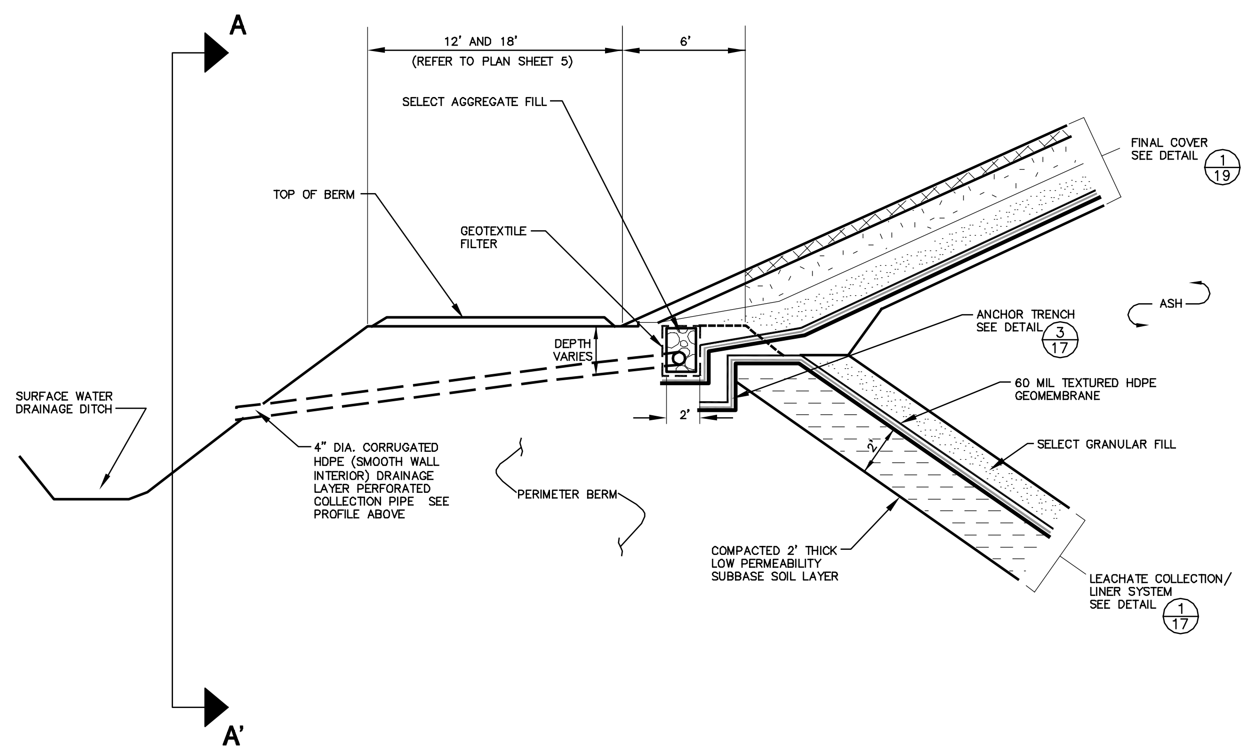
(NOT TO SCALE)



NOTE:
A 4" DIA. PERFORATED CORRUGATED HDPE PIPE WILL BE LOCATED BELOW EVERY DIVERSION BERM ABOVE THE FINAL COVER EXCEPT THE LOWEST BERM LOCATED NEXT TO THE LANDFILL PERIMETER BERM. TO COLLECT WATER IN THE DRAINAGE LAYER ALONG THE PERIMETER BERM PIPES WILL BE CONSTRUCTED IN THE BERM AS SHOWN ON DETAIL 4 OF 19.

2/19 **SURFACE WATER DIVERSION BERM ON FINAL COVER (TYPICAL)**

(NOT TO SCALE)



4/19 **PERIMETER BERM FINAL COVER DRAINAGE LAYER DISCHARGE PIPE (TYPICAL)**

(NOT TO SCALE)

LINE AND SHADING LEGEND

GEOTEXTILE	GEOMEMBRANE
GEOCOMPOSITE	GEOSYNTHETIC CLAY LINER (GCL)
TOPSOIL	NATIVE SOIL
SELECT GRANULAR FILL DRAINAGE LAYER	CONCRETE
PIPE BEDDING MATERIAL	RIPRAP
SELECT AGGREGATE FILL	GRAVEL
COMPACTED SELECT LOW PERMEABILITY SOIL	GENERAL FILL

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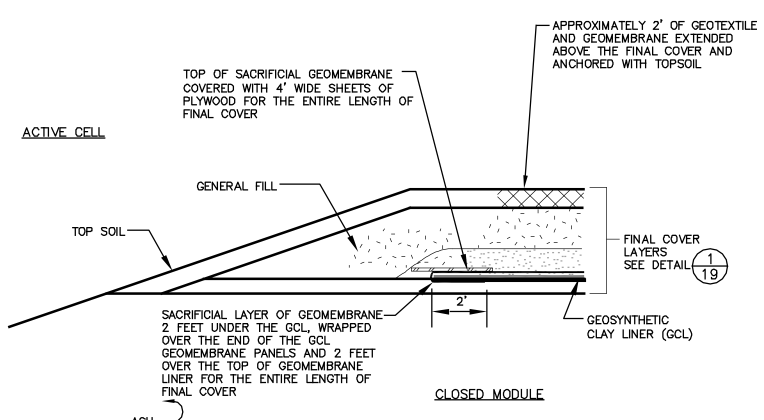
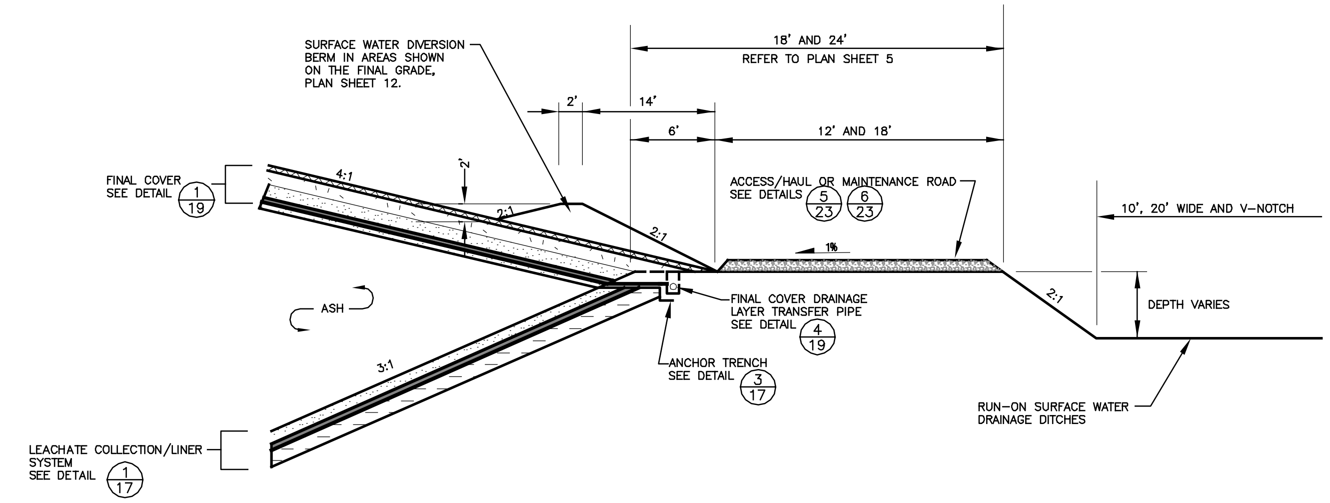


3/19 **CONSTRUCTION OF FINAL COVER FOR SPLICING FUTURE FINAL COVER**

(NOT TO SCALE)



5/19 **LANDFILL PERIMETER BERM AND SURFACE WATER DRAINAGE DITCHES (TYPICAL)**

(NOT TO SCALE)

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NOT FOR CONSTRUCTION

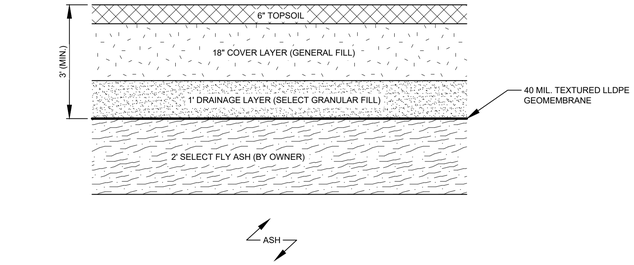
NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN**

SHEET TITLE: **DETAILS- FINAL COVER**

DRAWN BY: DEFOEJ	SCALE:	PROJ. NO. 3081.40
CHECKED BY: DM	NOT TO SCALE	FILE NO.30814004.dwg
APPROVED BY: BJK	DATE PRINTED:	SHEET 19 OF 23
DATE: OCTOBER 2000		

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608/831-4444



1/12 FINAL COVER
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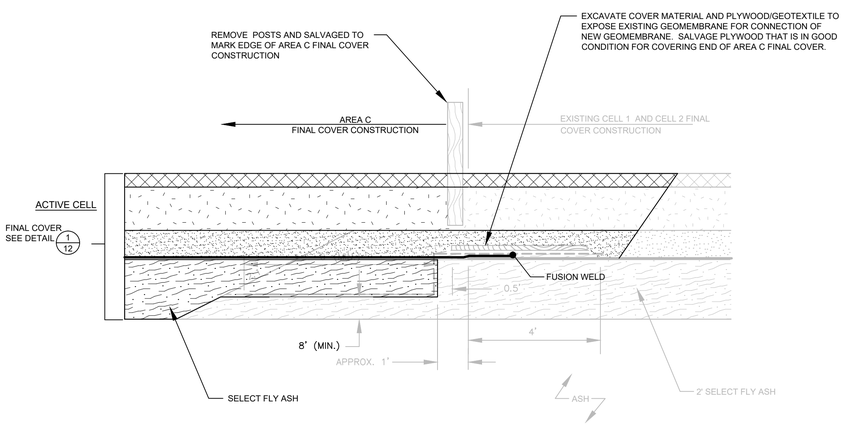

2/12 FINAL COVER CONNECTION
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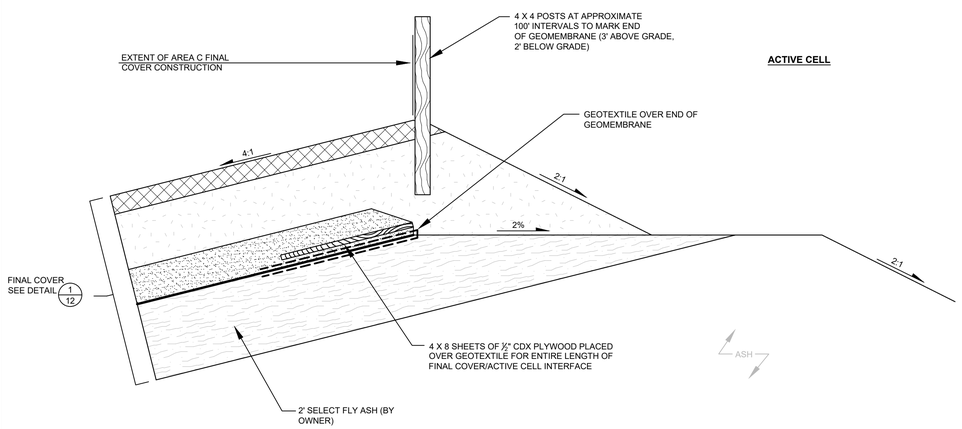
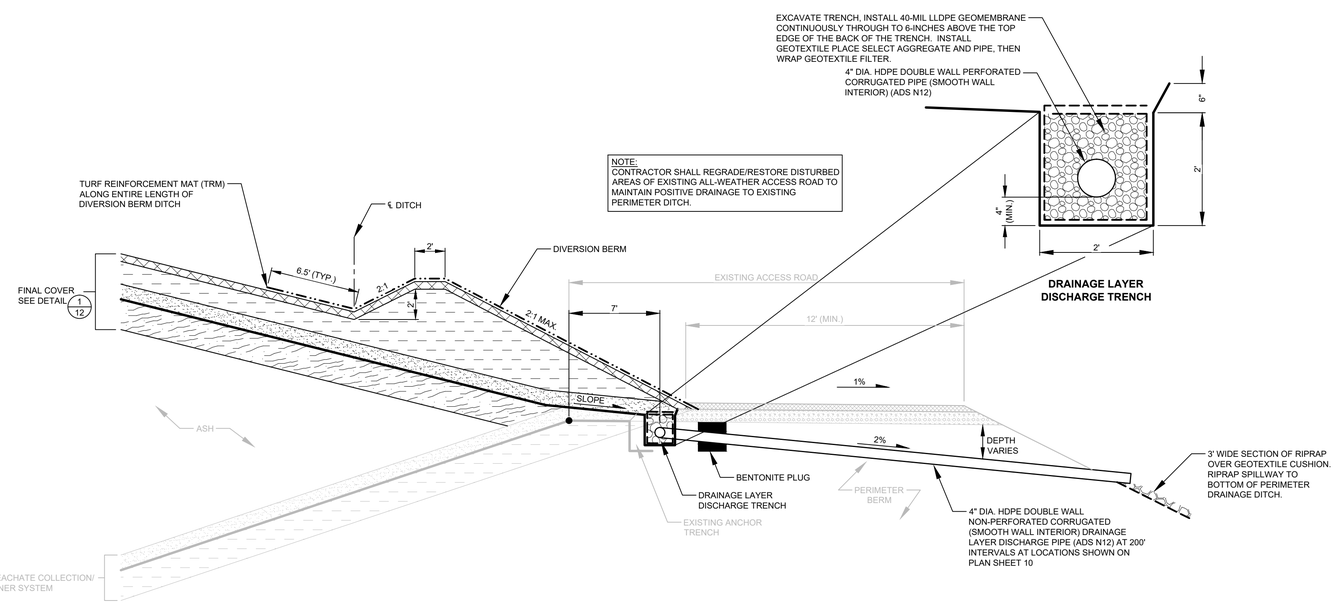
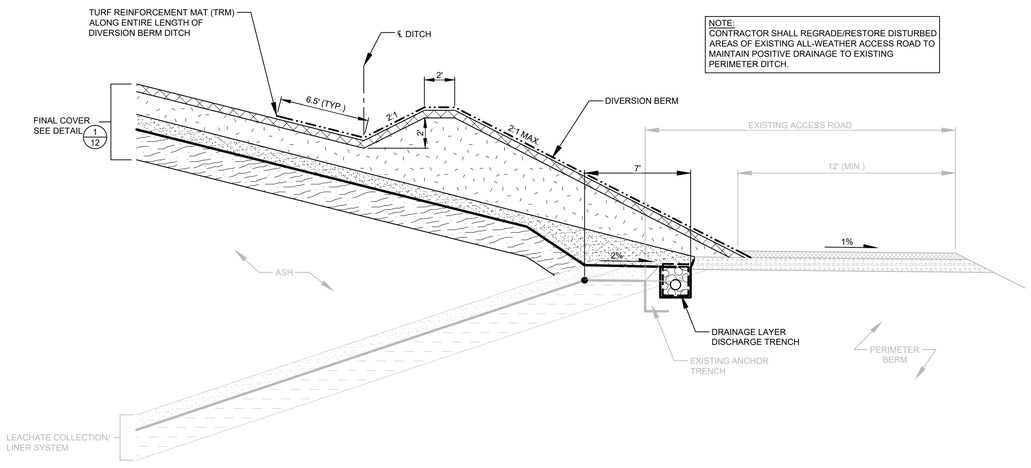


3/12 FINAL COVER TRANSITION
(NOT TO SCALE)



4/12 FINAL COVER TERMINATION WITH TOE DRAIN DISCHARGE PIPE
(NOT TO SCALE)



5/12 FINAL COVER TERMINATION (OVER CELL 1 LINER CONSTRUCTION)
(NOT TO SCALE)

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS CONTRACT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D

PROJECT:
DAIRYLAND POWER COOPERATIVE
PHASE IV, CELL 3B LINER CONSTRUCTION & AREA C (OVER CELLS 1 & 2) FINAL COVER CONSTRUCTION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE:
DETAILS

DRAWN BY:	LSTORMER	SCALE:	PROJ. NO. 216851.0005
CHECKED BY:	DM	AS SHOWN	FILE NØ16851.0004.SHT12-DT.dwg
APPROVED BY:	TWM	DATE PRINTED:	SHEET 12 OF 13
DATE:	MARCH 2015		

TRC
708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

PLOT DATA
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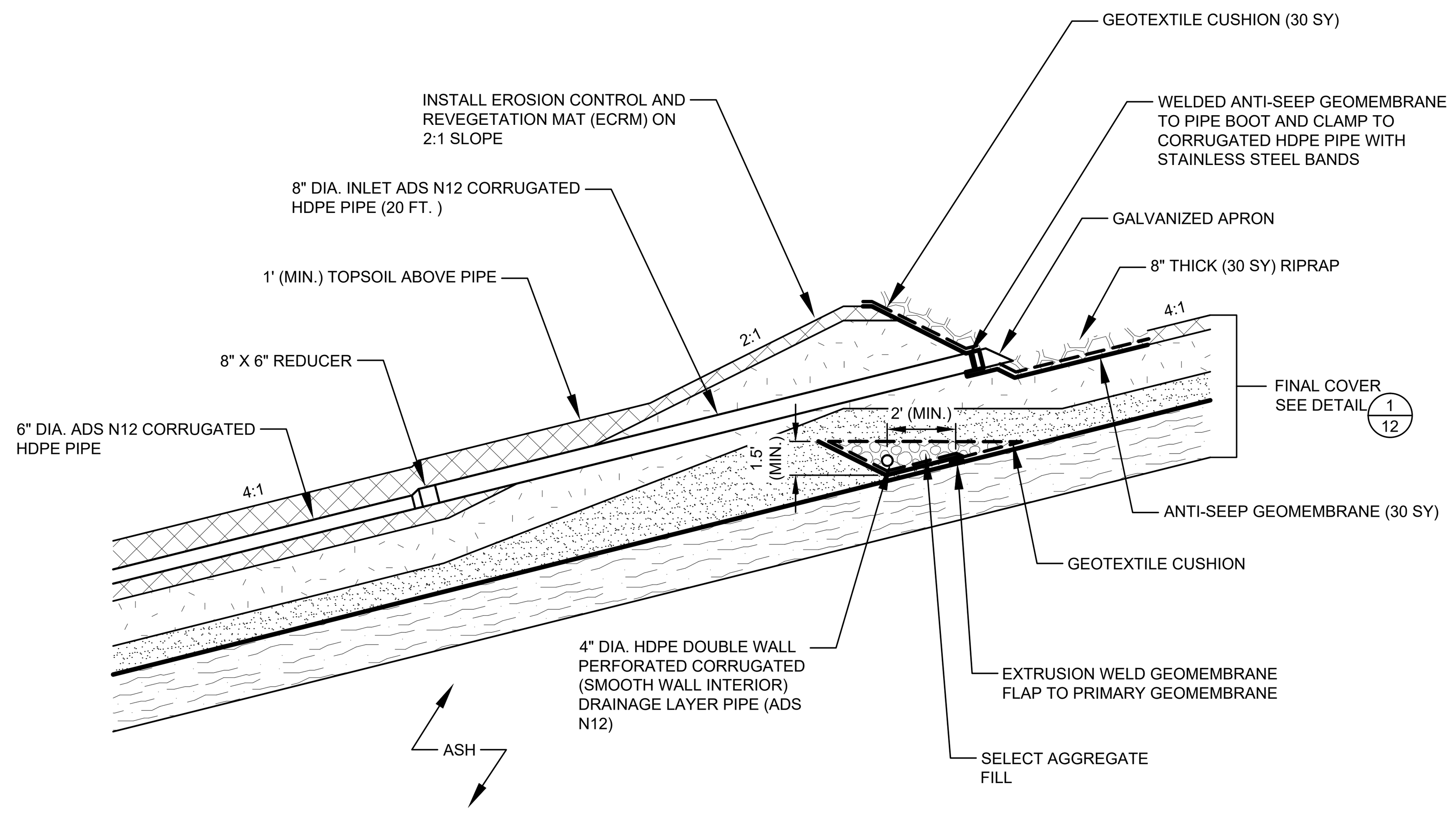
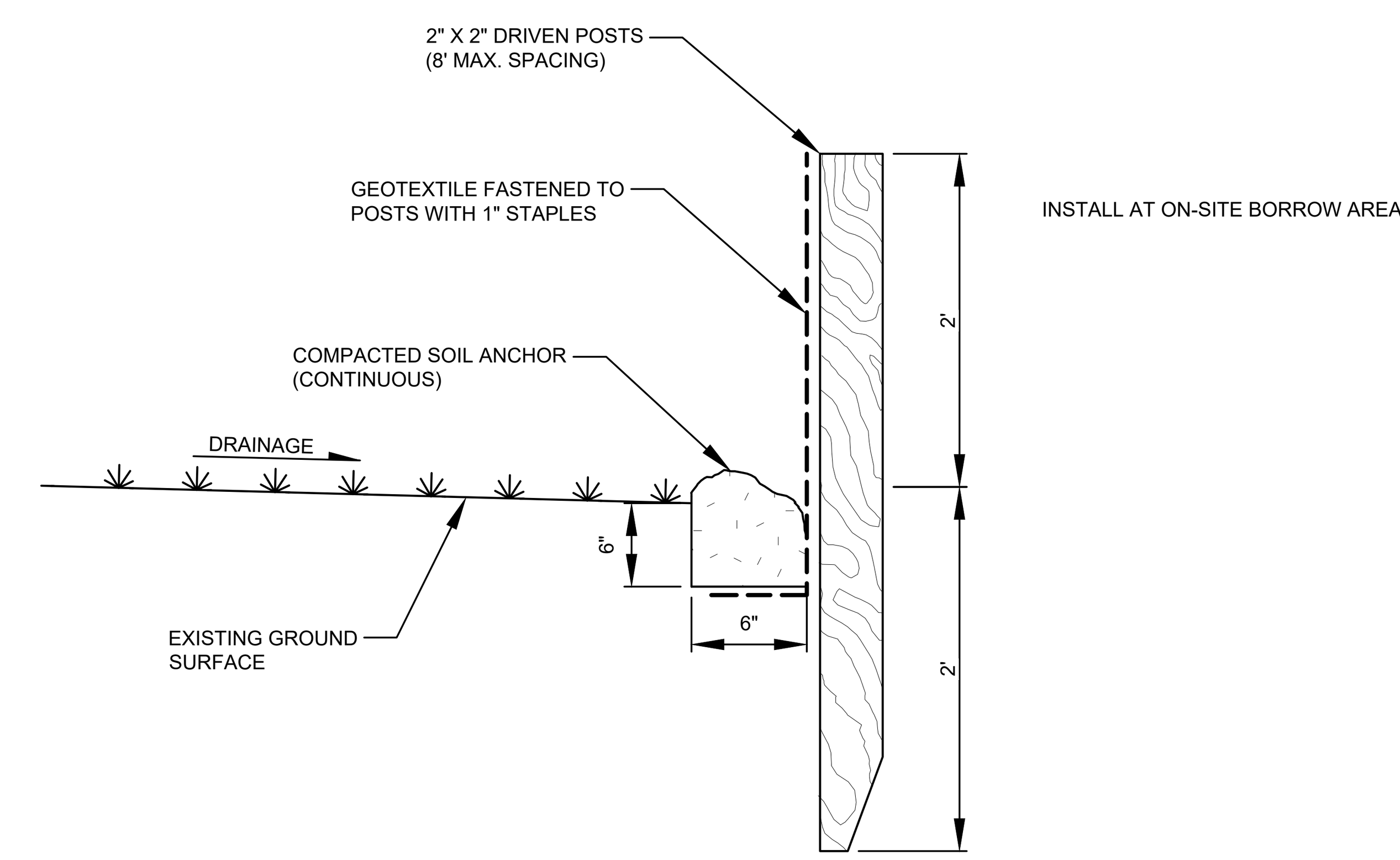
Operator Name: STORMER, LARRY
Device Info: DWG To PDF.pc3
Layout: SHEET 12
Attached Xref's: Attached Images
File Size: 11.79 Mb
Plot Date: 16 March 2015
Plot Time: 1:24 PM



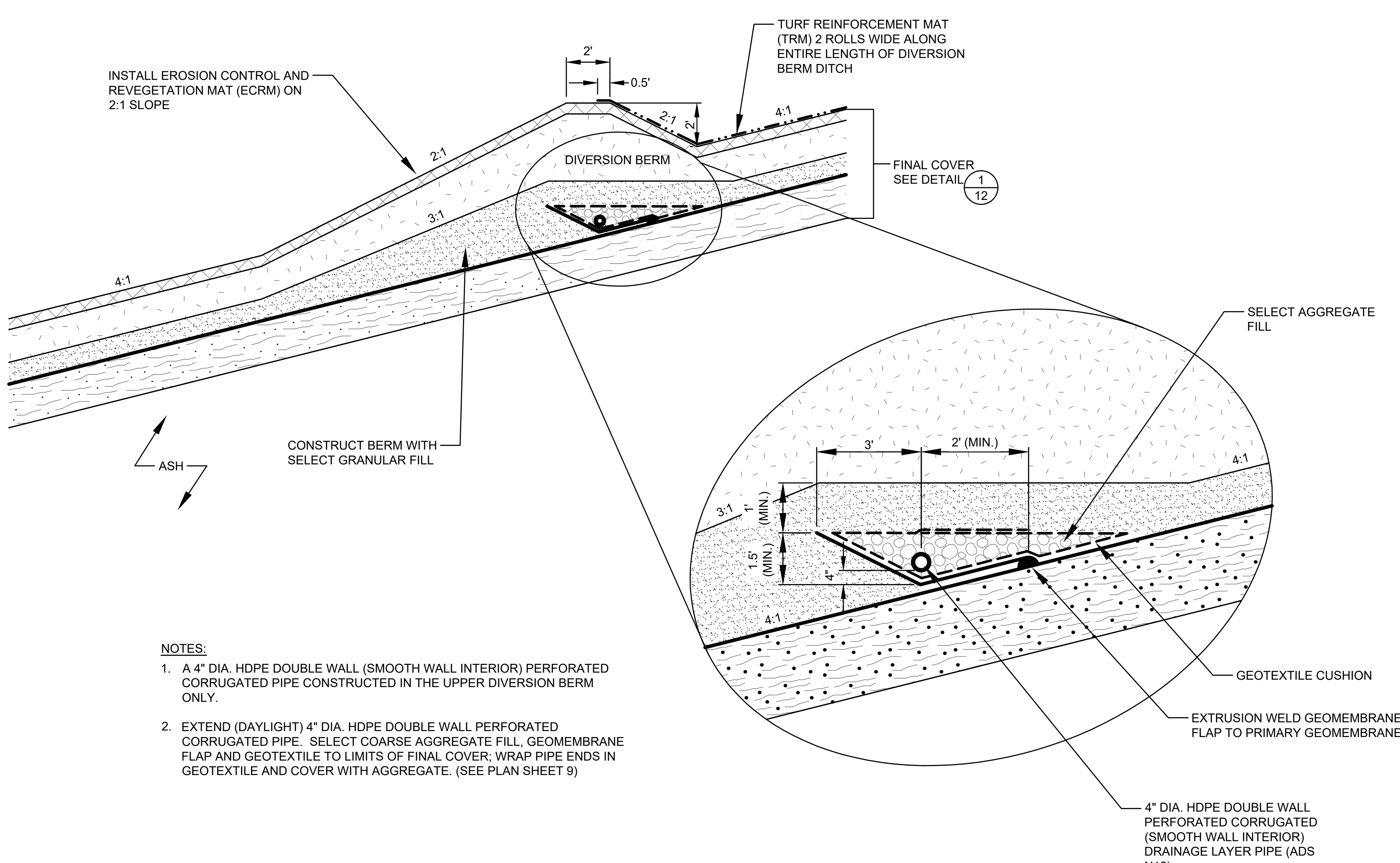
1/13 **8" DIA. INLET STRUCTURE**

(NOT TO SCALE)



3/13 **SEDIMENT CONTROL FENCE**

(NOT TO SCALE)



NOTES:

1. A 4" DIA. HDPE DOUBLE WALL (SMOOTH WALL INTERIOR) PERFORATED CORRUGATED PIPE CONSTRUCTED IN THE UPPER DIVERSION BERM ONLY.
2. EXTEND (DAYLIGHT) 4" DIA. HDPE DOUBLE WALL PERFORATED CORRUGATED PIPE. SELECT COARSE AGGREGATE FILL, GEOMEMBRANE FLAP AND GEOTEXTILE TO LIMITS OF FINAL COVER; WRAP PIPE ENDS IN GEOTEXTILE AND COVER WITH AGGREGATE. (SEE PLAN SHEET 9)

2/13 **DIVERSION BERM**

(NOT TO SCALE)

PLOT DATA
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Operator Name: STORMER, LARRY — File Size: 0.62 Mb
Drawing Size: 22x34 — Plot Date: March 9, 2015
Layout: SHEET 13 — Plot Time: 1:24 PM
Attached Xref's:
Attached Images:

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS CONTRACT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.

PROJECT: DAIRYLAND POWER COOPERATIVE
PHASE IV, CELL 3B LINER CONSTRUCTION & AREA C (OVER CELLS 1 & 2)
FINAL COVER CONSTRUCTION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE: **DETAILS**

DRAWN BY: LSTORMER	SCALE:	PROJ. NO. 216851.0005
CHECKED BY: DM	AS SHOWN	FILE NØ216851.0004.SHT13-DT.dwg
APPROVED BY: TWM	DATE PRINTED:	SHEET 13 OF 13
DATE: MARCH 2015		

TRC
708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

Appendix Q: Post-Closure Plan

Post-Closure Plan

Alma Offsite Disposal Facility, Phase IV Landfill Alma, Wisconsin

January 2023

Prepared For:

Dairyland Power Cooperative
3200 East Avenue South
La Crosse, Wisconsin 54601

Prepared By:

TRC
999 Fourier Drive, Suite 101
Madison, Wisconsin 53717

BreAnne Kahnk, P.E.
Project Engineer

Todd W. Martin
Principal Project Manager

TABLE OF CONTENTS

Revision History

Revision Number	Revision Date	Section Revised	Summary of Revisions
01	01/12/2023	1-3	Updated text per WDNR regulations.

1.0 Introduction

This Post-Closure Care Plan (Plan) was prepared by TRC Environmental Corporation (TRC) on behalf of Dairyland Power Cooperative (DPC) for the Alma Offsite Disposal Facility, Phase IV Landfill (Landfill) where coal combustion residuals (CCR) are disposed. The approximately 32.1 acre Landfill is located in Sections 18 and 19, T21N, R12W, Town of Belvidere, Buffalo County, Wisconsin. DPC owns and operates the landfill in compliance with the Plan of Operation as permitted by the Wisconsin Department of Natural Resources (WDNR).

This Plan meets the post-closure (long-term) care requirements of the United States Environmental Protection Agency's (USEPA) CCR Rule, Title 40 Code of Federal Regulations (40 CFR) Parts 257 and 261 Subpart D - "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments" and s. NR 506.084. Post-closure care requirements apply to the owners or operators of CCR landfills subject to closure criteria under 40 CFR 257.102. Because DPC plans to conduct closure of the Landfill through leaving the CCR material in-place, post-closure/long-term care requirements are necessary. Following closure of the CCR landfill (placement of final cover), the owner or operator shall begin to conduct long-term care for the Landfill in accordance with this Plan.

2.0 Post-Closure Care

2.1 Post-Closure Period

Following closure of the CCR landfill, the site owner is required to maintain and monitor the closed site for a minimum of 40 years. The post-closure period begins on the date identified in the notification of closure of the CCR unit as required by 40 CFR 257.102(h) and s. NR 506.084(1). Post-closure care will be provided to maintain integrity and effectiveness of the final cover system, the leachate collection system in accordance with 40 CFR 257.70(d), and groundwater monitoring system in accordance with 40 CFR 257.90 through 40 CFR 257.98. These goals are consistent with those detailed in s. NR 514.07(10)(d)(1)(b),(c), and (d).

2.2 Post-Closure Contact

The post-closure contact for this facility will be:

Manager, Water and Waste Programs
Dairyland Power Cooperative
3200 East Avenue South
La Crosse, WI 54601
Phone: 608-787-1311
ccrinfodesk@dairylandpower.com

2.3 Inspection, Monitoring and Maintenance

The site will be inspected annually during the post-closure care period. The Landfill post-closure/long-term monitoring program was initially outlined in the 2000 Plan of Operation. A written record of the inspection(s) will be made and retained in the operating record. The inspector will assess the condition and need for repair of the final cover, vegetation, monitoring points, and storm water control features.

Minor repairs may be required to maintain the integrity and functionality of the drainage structures, roads, monitoring points, etc. Repairs will be made as warranted.

2.3.1 Final Cover Maintenance

Because the CCR is handled dry, moisture conditioned, and compacted in the Landfill, settlement of the final cover system is not anticipated. However, erosion may require minor final cover repairs. Areas of the final cover where ponding or erosion are observed will be repaired to maintain the integrity of the final cover system. Minor repairs may be required to maintain the integrity and functionality of the drainage structures, storm water controls, roads, monitoring points, etc.

2.3.2 Vegetation Maintenance

During inspections, areas lacking vegetation where it is required will be noted. Reworked surfaces, areas of failed or eroded vegetation, and repaired surfaces will be revegetated appropriately. Vegetation maintenance includes mowing. Mowing will be conducted as needed or on a semi-annual basis, whichever is more frequent. Mowing is not required where native prairie grass vegetative cover has been installed as previously approved by the WDNR.

2.3.3 Storm Water Runoff Management System Maintenance

Erosion controls and avoiding ponding of water are addressed by the design, grading, construction, and establishing vegetation on the landfill final cover to ensure proper run-on and run-off of storm water. During site inspections, diversion berms, perimeter dikes, roads, slopes, and storm water sedimentation basins will be inspected for erosion, seeps, depressions, obstructions to flow, vegetation cover, and other maintenance concerns. Maintenance associated with sediment accumulations and erosion will be performed as needed.

2.3.4 Leachate Collection System Maintenance and Monitoring

The leachate collection system will be maintained as needed during the post-closure care period. Features of the system that will be inspected annually include manholes, surface features, transfer piping, controls, the storage tank, and leachate collection volumes. Leachate lines will be cleaned and televised on an annual basis at a minimum. Miscellaneous repairs will be performed on an as-needed basis. The leachate storage tank will be replaced as necessary.

The leachate monitoring program will continue to be conducted during the post-closure period. At a minimum, leachate sampling from the storage tank will occur on a bi-annual basis and leachate head wells will be recorded annually, as presented in the 2000 Plan of Operation and the Environmental Sampling Plan.

Leachate collected in the leachate collection tanks will be utilized on-site for approved activities or hauled to the DPC wastewater treatment plant (WWTP), located in Alma, Wisconsin or the La Crosse Waste Water Utility WWTP location in La Crosse, Wisconsin for treatment and disposal. Miscellaneous repairs will be performed on an as-needed basis to maintain the integrity and effectiveness of the system.

2.3.5 Groundwater Monitoring Well Maintenance and Monitoring

Groundwater monitoring wells will be sampled as outlined in the Environmental Sampling Plan during the post-closure care period. Results associated with CCR wells will be presented in the annual Groundwater Monitoring and Corrective Action Report submitted to the WDNR and posted to the publicly accessible website. The remainder of the results will be submitted to the WDNR as required. Groundwater monitoring records will be maintained in the operating record. The groundwater monitoring system will be maintained throughout the post-closure care period.

Sampling procedures and the groundwater monitoring program, as described in the Environmental Sampling Plan, will be followed throughout the post-closure care period. The parameters, frequency, and monitoring locations are summarized within the Environmental Sampling Plan.

If adverse trends develop, then the WDNR will be notified and further evaluation will be performed. If corrective action becomes necessary, then a plan will be developed and submitted to the WDNR for approval.

2.4 Post-Closure Uses

After the Landfill is closed, the site will be secured and maintained by the owner as open green space and recreation. These uses do not conflict with long-term care plans for the area. The

final use is intended to prohibit agricultural uses, building construction, and excavation of the final cover or CCR. These uses are protective of the final cover system and do not increase the potential threat to human health or the environment.

2.5 Post-Closure Care Termination

Post-closure care termination may be considered after a period of 40 years from the notification of closure. In the event that the Landfill is operating under assessment groundwater monitoring in accordance with 40 CFR 257.95, the Owner will continue to perform post-closure care and groundwater monitoring in accordance with 40 CFR 257.95 until the Landfill returns to detection monitoring.

No later than 60 days following completion of the post-closure care period, the owner or operator of the CCR landfill shall post the notification of completion of post-closure care period to the operating record in accordance with 40 CFR 257.104(e) and s. NR 506.084(2)(b). Section 3 provides details on notification requirements.

2.6 Revision of the Post-Closure Plan

This Post-Closure Plan should be amended and submitted to the WDNR at least 60 days prior to a planned change that will substantially affect this plan or within 60 days of an unanticipated event after post-closure activities have commenced. If the Post-Closure Care Plan is revised after long-term care activities have commenced, the owner or operator shall submit the modification request to the WDNR no later than 30 days following the triggering event. Modifications to the Post-Closure Care Plan shall be completed in accordance with s. NR 514.04(6).

3.0 Notifications

3.1 Operating Record

The following items will be maintained in the operating record for a minimum of five years:

- 40 CFR 257.105(h): applicable requirements for groundwater monitoring
- 40 CFR 257.105(i)(12): the current post-closure plan and any amendment of the plan; the current version of the post-closure plan will be maintained in the facility's operating record irrespective of time,
- 40 CFR 257.105(i)(13): the notification of completing post-closure care
- Inspection reports

3.2 Notification Requirements

The following required notifications will be provided before the close of business on the day the notification is required to be completed:

- 40 CFR 257.106(h): *applicable* requirements for groundwater monitoring
- 40 CFR 257.106(i)(12): the availability of the written post-closure plan and any amendment of the plan
- 40 CFR 257.106(i)(13): the availability of completion of post-closure care

3.3 Publicly Accessible Internet Site

The following required items will be posted on the publicly accessible internet site:

- 40 CFR 257.107(h): *applicable* requirements for groundwater monitoring
- 40 CFR 257.107(i)(12): the written post-closure plan and any amendment of the plan
- 40 CFR 257.107(i)(13): the notification of completion of post-closure care

Information should be posted within 30 days of placing the pertinent information in the operating record. Records will be made available to the public for at least five years following the date on which the information was posted on the internet site.

4.0 Engineer's Certification

Pursuant to 40 CFR 257.104 and by means of this certification I attest that:

(i) I am familiar with the requirements of the federal CCR rule (40 CFR 257);

(ii) this Post-Closure Plan has been prepared in accordance with good engineering practice; and

(iii) this Post-Closure Plan meets the requirements of 40 CFR 257.104(d).

For the purpose of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion." The certification is understood and intended to be an expression of my professional opinion as a Wisconsin licensed professional engineer, based upon knowledge, information, and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee or a warranty of the analysis herein.

Signature of Registered Professional Engineer

Registration No. E-46825 State: Wisconsin

Appendix R: Long-Term (Post-Closure) Care Costs

Table 2: Opinion of Probable Cost
Long-term Care, Phase IV Landfill
Dairyland Power Cooperative, Alma Off-Site Disposal Facility
Plan Modification - February 2023

Major Cost Item	Unit	Unit Cost 2019 (Submitted August 27, 2019)	Unit Cost 2022 (Adjusted for Inflation) (1)	Quantity	Average Cost Per Year
Cover Vegetation					
Reseed/Erosion Damage	Acre	$ 738.60	$ 774.80	32	$ 25,000.00
Lawn Mowing	Event	$ 4,727.04	$ 4,958.72	1	$ 5,000.00
O&M					
Storm Water Control Structures	LS	$ 7,386.00	$ 7,748.00	1	$ 7,800.00
Settlement/Siltation					
Repair Cover	Acre	$ 295.44	$ 309.92	32	$ 10,000.00
Sedimentation Basin Cleaning	LS	$ 738.60	$ 774.80	1	$ 800.00
Leachate Control Features					
Leachate Collection Line Cleaning	LS	$ 2,954.40	$ 3,099.20	1	$ 3,100.00
Operation and Maintenance	LS	$ 4,431.60	$ 4,648.80	1	$ 4,700.00
Leachate Disposal	Gallon	$ 0.04	$ 0.04	876,000	$ 34,000.00
Environmental Monitoring	LS	$ 9,601.80	$ 10,072.40	1	$ 10,100.00
Inspections	LS	$ 2,954.40	$ 3,099.20	1	$ 3,100.00
Reporting	LS	$ 4,431.60	$ 4,648.80	1	$ 4,700.00
				Long-term Care Subtotal:	$ 108,300.00
				Contingency (10%):	$ 10,900.00
				Yearly Grand Total:	$ 119,200.00
				40-year Long-term Care Cost:	**$ 4,768,000.00**

Note:

(1) Costs are in 2022 dollars according to Wisconsin DNR Owner Financial Responsibility Inflation Factor Table. Some totals may not agree due to rounding.

Update By: Z. Bauman 12/21/2022

Checked By: