CLOSURE AND POST-CLOSURE PLAN

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Upstream Raise CCR Surface Impoundment
Coal Creek Station
Great River Energy

Submitted To: Great River Energy
Coal Creek Station
2875 Third Street SW
Underwood, North Dakota 58576

Submitted By: Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228

October 13, 2016 **1649586**

Golder Associates

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1.0 INTRODUCTION

Great River Energy (GRE) owns and operates Coal Creek Station (CCS) located near Underwood, North Dakota. GRE manages coal combustion residuals (CCR) in several existing landfills and surface impoundments including the Upstream Raise CCR Surface Impoundment (Upstream Raise). The Upstream Raise is located approximately 1 mile east of the CCS generating units (see Figure 1).

Golder Associates Inc. (Golder) has prepared this closure plan and post-closure plan for the Upstream Raise on behalf of GRE to serve as the written closure plan required under 40 CFR Section 257.102(b) (§257.102(b)), and the written post-closure plan required under §257.104(d). The facility will be closed with CCRs left in place in accordance with the requirements of §257.102(d) (EPA 2015). At the completion of closure activities in accordance with the closure plan, the post-closure care period will commence.

2.0 CLOSURE PLAN

2.1 Narrative Description of Facility Closure

The Upstream Raise footprint comprises approximately 103 acres and will be piggybacked by CCR disposal to the east from the Southeast Section 16 CCR Landfill, and from the west by the Ash Pond 91 CCR Surface Impoundment. The final configuration of the Upstream Raise is shown on the final waste grades and final cover grades drawings (Golder 2012, Appendix A). The total area receiving final cover is approximately 79 acres.

The Upstream Raise will be closed incrementally as CCR placement progresses, through construction of both temporary and final cover. The incremental closure allows placement of temporary and/or final cover on final outside slopes to aid in dust control, and to allow shedding of non-contact storm water from the facility. Installation of final cover will occur when a substantial portion of side-slope and/or cap area has reached final CCR design grades. Final cover has already been constructed over approximately 21 acres on the south slope of the Upstream Raise. Approximately 5 acres of temporary cover has been placed on the north slope of the east half of the Upstream Raise. Future final cover will be installed in accordance with the Closure Plan in effect at the time of closure.

The primary closure activities include drainage and stabilization of CCR, adjusting CCR grades if necessary, installing the final cover system with surface water controls, and establishing vegetation.

2.1.1 Drainage and Stabilization of CCR

The Upstream Raise will be operated as a CCR surface impoundment receiving sluiced flue-gas desulfurization (FGD) material, and dry CCR material until the design FGD grades are met. After FGD sluicing is completed, free water will be decanted off the surface of FGD material and a cap of dry CCR material will be placed over the FGD material. This dry CCR cap will assist in consolidation and stabilization

of the FGD material, and will provide a minimum 3% slope on the top of the Upstream Raise to promote surface water run-off. It is expected that the placement of the dry CCR cap will take several years, over which time consolidation of the FGD material will occur. As required, additional dry CCR material will be placed over consolidated areas as they are identified.

During placement of the dry CCR cap, drainage of the FGD material will continue through the bottom ash perimeter drains and sumps within the Upstream Raise. The bottom ash perimeter drain is 100 to 200 feet wide and surrounds the FGD material. Seepage pipes within the bottom ash perimeter drain will collect water and convey it passively to the Ash Pond 91 CCR Surface Impoundment. Three sumps are located around the Upstream Raise: one on the north side of the west half of the Upstream Raise, one on the north side of the east half of the Upstream Raise, and one in the southeast corner of the Upstream Raise. These sumps are connected to piping and drainage medium (sand or bottom ash) across the floor of the Upstream Raise. Water pumped from the sumps will be directed to the Drains Pond System CCR Surface Impoundment and pumping from the sumps will help drain and further stabilize the FGD material.

Through the combination of consolidation and drainage, the FGD material will be stabilized and prepared to support the final cover system.

Throughout placement of the dry CCR cap and as closure activities commence, piezometers within the Upstream Raise will continue to be monitored to review the phreatic change within the Upstream Raise in preparation for final cover placement. Consolidation analysis indicates that the FGD material may undergo substantial consolidation (through drainage) prior to final cover placement, and that steady-state conditions marking the end of significant consolidation will likely occur within one year of final cover placement, providing a sufficiently stable and static surface suitable for final cover placement.

2.1.2 Final Cover System Installation

The final cover system will be installed using conventional soil placement techniques and common earthmoving equipment, such as bulldozers, haul trucks, scrapers, motor graders, and/or compactors. Soils that are suitable for use in the final cover system will be obtained from select on-site stockpiles and borrow sources. Disruption of the integrity of the final cover system will be inhibited by compacting the underlying CCRs to establish a firm and unyielding subgrade prior to installation of the final cover system and by establishing a slope of approximately 3% to 5% across the top surface to provide positive drainage, limit ponding, and mitigate the potential effects of settling and subsidence. Final cover soil placement, moisture conditioning, compaction, and testing will be in accordance with the site construction quality assurance plan (Golder 2013). A North Dakota Registered Professional Engineer or a person working under their direct supervision will observe the placement of the final cover. A report indicating that closure was in compliance with the Closure Plan and signed by a North Dakota-registered Professional Engineer will be prepared after the closure of the facility. The closure report will be placed into the operating record of the facility.

2.1.3 Surface Water Controls

The surface of the final cover will have side slopes of up to 25% and a crown of between 3% and 5% along the top of the facility. The slopes will promote surface water run-off, aid in preventing surface water from ponding on the final cover, and allow for maintenance of the final cover (erosion repairs, mowing, etc.).

Surface water control features will be installed with the final cover and include terrace channels and down-chute channels to direct surface water run-off and minimize cover erosion.

- Terrace channels are grass-lined v-notch channels that direct flow from the side-slopes to down-chute channels. The terrace channels are constructed with the final cover approximately every 25 to 30 vertical feet to minimize erosion and soil loss.
- Down-chute channels are armored trapezoidal channels and convey run-off collected from the terrace channels off the facility to site surface water drainage ditches.

Surface water (non-contact run-off) controls have been designed for the 24-hour, 100-year storm for the Upstream Raise and are discussed further in the Run-on and Run-off Control Systems Plan (Golder 2016).

The combination of soil types, grasses, and surface water controls have been selected to control long-term surface soil loss to 2 tons per acre per year or less.

2.1.4 Vegetation

Vegetation enhances evapotranspiration and reduces erosion, thus playing an important part in surface water control. Vegetation activities will include preparing the soil surface, applying fertilizer if necessary, seeding, and mulching.

The seedbed should be roughened to a depth of 4 to 6 inches by scarifying, disking, harrowing, or equivalent methods. Rows should be spaced a minimum of 12 inches apart. Immediately prior to seeding in areas that have been heavily compacted by trucks or equipment, the topsoil surface should be ripped and scarified. All areas to be seeded should be dozer-tracked prior to seeding. The seedbed should not be prepared prior to completion of earthwork activities and no more than 2 weeks prior to planting.

Seed rates should be applied by broadcast or drilled methods, or by the hydraulic seeding method and are to be applied as directed in the facility's Operations Plan (Golder 2015). If broadcast or drilled, seed should be buried by harrowing, chain dragging, or other scarification measures. Equipment and procedures should be appropriate for the seed as recommended by the seed supplier. A suitable native species seed mix and application rates shall be selected at the time of final cover placement.

Straw mulch should be applied immediately after seeding at a rate of 2 tons per acre. To prevent dispersal or removal of straw by wind, mulch should be anchored using a crimper run perpendicular to the prevailing

wind direction. A disc should not be used for crimping. The mulch should be applied over the seed in a separate application. At least 50% of individual straws should be 6 inches or greater in length.

2.2 Final Cover System

The federal CCR rule requires the final cover system to meet the requirements of §257.102(d)(3) with a minimum 18-inch infiltration layer and 6-inch erosion layer. The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than $1x10^{-5}$ cm/sec, whichever is less.

The bottom liner system for the west side of the Upstream Raise consists of 2-feet of compacted clay rich material with a hydraulic conductivity of $1x10^{-7}$ cm/sec, overlain with a 40-mil high-density polyethylene (HDPE) geomembrane liner. The bottom liner system for the east side of the Upstream Raise consists of (from bottom to top) several feet of natural clay liner soil, historically placed and regraded CCRs and soil, 1 foot of compacted clay rich material with a hydraulic conductivity of $1x10^{-7}$ cm/sec, and a 60-mil linear low density polyethylene (LLDPE) geomembrane liner.

2.2.1 Alternative Final Cover System

An alternative cover design utilizing an evapotranspiration (ET) cover has been previously permitted by the North Dakota Department of Health (NDDH) for this site based on both modeling and test plot instrumentation. The ET cover design consists of the following layers (from the top down):

- 6 inches of topsoil (erosion layer) that is capable of sustaining native plant growth,
- 30 inches of clay-rich, plant root zone soil (growth medium/infiltration layer), being compacted between 80% and 95% of the maximum dry unit weight as determined by ASTM D698 (standard Proctor).

GRE intends to update the alternative cover demonstration previously done to show that the cover system described above is in compliance with the requirements of §257.102(d)(3). If this demonstration cannot be made, GRE will adjust the cover design as required. No final cover will be placed until either the demonstration is made or the cover design is adjusted to meet the requirements of §257.102(d)(3).

2.3 Closure Estimates

2.3.1 Maximum Inventory of CCR

The final design contours shown on Drawing 7 (Appendix A), provide for a maximum inventory of CCR of approximately 12,500,000 cubic yards.

2.3.2 Largest Area Requiring Final Cover

The entire footprint of the Upstream Raise has been developed (lined) and has received CCR. Excluding the areas on the east and west that will be piggybacked by adjacent facilities (Southeast Section 16 CCR

Landfill and Ash Pond 91 CCR Surface Impoundment), the current maximum area requiring final cover is approximately 58 acres. As incremental closure continues at the Upstream Raise, this maximum area requiring final cover will be reduced.

2.4 Closure Schedule

Within 30 days after the last receipt of waste (either CCR or any non-CCR waste stream) permitted for disposal, the closure plan will be implemented. Notification of intent to close the facility will be placed in the operating record prior to the commencement of closure activities. The NDDH will also be notified in accordance with the engineering design and operations plan for the facility. At this time, closure activities are expected to commence in the year 2022 depending upon plant operation and the use of the other CCR facilities at CCS.

The facility will be dewatered via the bottom ash perimeter drains, and sumps as described in Section 2.1.1. FGD material sluicing is anticipated to be complete in 2018. Dry CCR (bottom ash and fly ash) deposition will continue until approximately 2022. Dewatering will continue after final receipt of CCR at the Upstream Raise, and consolidation will be monitored prior to commencing closure activities.

Closure activities will be completed in accordance with the closure plan within 5 years after commencing closure activities, or as allowed through a closure extension demonstration in accordance with §257.102(f)(2)(i). Closure activities to be completed during this time include drainage and stabilization of CCRs, regrading of final waste slopes after drainage and stabilization of FGD material, preparation of bid documents and solicitation of contractor's bids, installation of the final cover system, and preparation and submittal of as-built documents and certifications as required under §257.102(f)(3) and the engineering design and operations plan for the facility. An extension of the closure timeframe may be pursued in accordance with §257.102(f)(2)(i) due to factors such as:

- Drainage and consolidation of the FGD materials may occur slowly and may limit the amount of the Upstream Raise able to be covered within the 5-year time period.
- The largest area requiring final cover is estimated at approximately 58 acres. The quantity of soil materials to be identified and borrowed from on-site resources as well as the magnitude of this much cover placement may extend the closure period beyond 5 years.

Notification that closure of the Upstream Raise has been completed will be placed in the operating record within 30 days of the completion of closure activities. This notification will include certification by a qualified professional engineer that closure has been completed in accordance with the closure plan. Following closure of the Upstream Raise, GRE will record a notation on the deed to the property (or another instrument that is normally examined during title search) that will notify potential purchasers of the land that the land has been used as a CCR landfill and its use is restricted under post-closure care requirements. Within 30 days of recording the notation, notification will be placed in the operating record.

3.0 POST-CLOSURE PLAN

During the post-closure care period for the Upstream Raise, GRE will implement inspection, maintenance, and monitoring programs to maintain the integrity of the final cover system, maintain the groundwater monitoring system, and monitor groundwater in accordance with the requirements of §257.90 through §257.98. The post-closure care period will be 30 years in duration. If GRE is operating under assessment monitoring in accordance with §257.95 at the conclusion of the post-closure care period, GRE will continue to conduct post-closure care until it can return to detection monitoring in accordance with §257.95. Within 60 days following the completion of the post-closure care period, GRE will prepare a notification certified by a qualified professional engineer that post-closure care has been completed in accordance with the post-closure plan and will place the notification in the operating record.

3.1 Inspection

Regular inspections will be conducted during the post-closure care period to help ensure that the integrity of the Upstream Raise is maintained. The final cover system will be inspected for signs of settlement, subsidence, erosion, and other damage or deficiency. Surface water control features, including terrace channels, down-chute channels, and culverts, will be inspected to verify that the run-on and run-off controls are adequately limiting erosion and other damage to the final cover system. Surface water control features will also be inspected for erosion damage and clogging by sediment, weeds, and other debris. Surface components of groundwater monitoring wells will be inspected for damage.

Inspections will be conducted on an annual basis (typically between late spring and early fall) to facilitate inspection of the final cover vegetation. Inspection forms will be completed to document each inspection. Completed inspection forms will be maintained in the operating record. To maintain consistency in the inspection process, trained GRE employees or contract employees will conduct the inspections. Issues identified during the inspections will be reported to the person responsible for compliance with this post-closure plan as soon as practical.

3.2 Maintenance

GRE will oversee post-closure maintenance of the Upstream Raise, using appropriate internal resources and/or third-party personnel and equipment. Post-closure maintenance of the Upstream Raise will include making necessary repairs to the final cover system to maintain its integrity and effectiveness. Earthen fill will be placed as needed to correct the effects of settlement, subsidence, and erosion and to prevent run-on and run-off from eroding or otherwise damaging the final cover system. Maintenance of surface water control features will include clearing excess sediment and debris and armoring or implementing other appropriate measures in areas of persistent erosion. The final cover system will be reseeded in areas that have been repaired and where additional vegetation is needed to effectively limit erosion and promote

transpiration of soil moisture. GRE will control noxious weeds and unwanted trees and shrubs from becoming established on the Upstream Raise.

3.3 Monitoring

Groundwater monitoring will be conducted during the post-closure care period in accordance with the requirements of §257.90 through §257.98. Groundwater samples will be collected and analyzed in accordance with the sampling and analysis program for the Upstream Raise. Results of the analyses will be placed in the operating record.

3.4 Contact Information

The post-closure contact for the Upstream Raise will be:

Attention: Manager, Regulatory Services
Great River Energy – Coal Creek Station
2875 Third Street SW
Underwood, North Dakota 58576
Phone: (701) 442- 3211
Email: Environmental@GREnergy.com

3.5 Planned Property Usage

The closed Upstream Raise will be designated as open space during the post-closure period and will be controlled via fence and/or signage. No agricultural, recreational, public, or otherwise active uses are planned for the facility during the post-closure care period. There will be no grazing or feeding of farm or domestic animals at the Upstream Raise during the post-closure care period. Activities on GRE property are anticipated to include the continued operation of a power generating station, and will be managed to not disturb the integrity of the final cover or function of the monitoring systems associated with the facility.

4.0 CERTIFICATION

The undersigned attest to the completeness and accuracy of this closure and post-closure plan, and certify that the plan meet the requirements of 40 CFR §257.102(b) and 40 CFR §257.104(d).

GOLDER ASSOCIATES INC.

Todd Stong, PE
Associate and Senior Engineer

Craig Schuettpelz, PE
Senior Project Engineer

TS/CS/rjg

5.0 REFERENCES

EPA. 2015. Environmental Protection Agency, Code of Federal Regulations Title 40 Part 257: Hazardous and Solid Waste Management System; *Disposal of Coal Combustion Residuals from Electric Utilities*. April.

Golder. 2012. *Permit Modification Document, Permit No. SP-033*. December.

Golder. 2013. *Construction Quality Assurance Guidelines for Final Cover Construction, Revision 1.* July.

Golder. 2015. *Operations Plan for Ash Pond 91, Ash Pond 92, and Section 16 – Permit No. SP-033*. February.

Golder. 2016. *Run-On and Run-Off Control System Plan, Upstream Raise CCR Surface Impoundment*. October.

FIGURE

0 800 1600

SCALE FEET

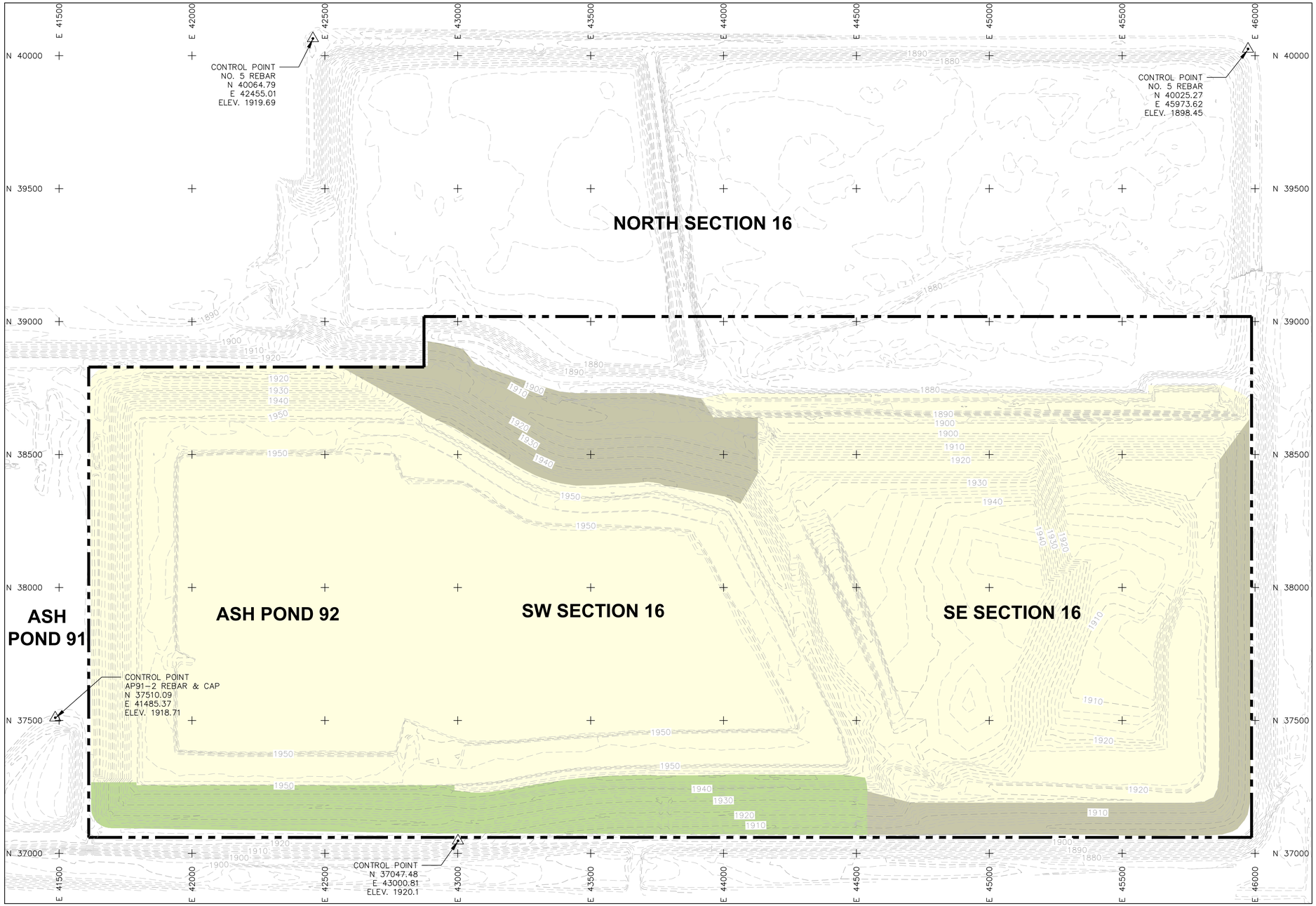
Golder Associates

COAL CREEK STATION
CCR FACILITIES

FIGURE 1

Path: \\Denver\projects\16JOBS\16449586 GRE CCS\CCR Rules\Closure and Post-Closure Plans\ | File Name: Facility Aerials 2.dwg

APPENDIX A
UPSTREAM RAISE PERMIT DRAWINGS (GOLDER 2012)



LEGEND

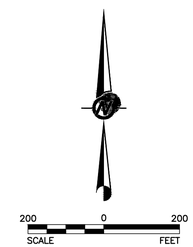
- EXISTING GROUND TOPOGRAPHY
- AREA OF ACTIVE CCP PLACEMENT
- TEMPORARY COVER PLACED
- FINAL COVER PLACED
- PERMITTED LIMIT OF CCP PLACEMENT
- SURVEY CONTROL POINT

NOTES

1. GRADES SHOWN REPRESENT FINAL AND INTERIM COVER AND CCP GRADES AS OF DECEMBER 2010.
2. PERMITTED LIMIT OF CCP PLACEMENT BOUNDARY IS APPROXIMATE.

REGULATORY DESIGN BASIS

1. CONTROL OF RUN-ON AND RUN-OFF DURING OPERATIONS, PER SUBDIVISION A OF SUBSECTION 3 OF NDAC SECTION 33-20-04.1-09.
2. OPERATE THE UPSTREAM RAISE (SURFACE IMPOUNDMENT) TO HAVE A FREEBOARD OF AT LEAST TWO FEET, PER SUBDIVISION D OF SUBSECTION 2 OF NDAC SECTION 33-20-08.1-01.
3. MINIMIZE EROSION OF FINAL COVER, PER SUBDIVISION B3 OF SUBSECTION 4 OF NDAC SECTION 33-20-04.1-09.
4. MAXIMUM FINAL SLOPES NOT LESS THAN THREE PERCENT, NOR MORE THAN TWENTY-FIVE PERCENT, PER SUBDIVISION B3 OF SUBSECTION 4 OF NDAC SECTION 33-20-04.1-09.
5. EVALUATE SLOPES STEEPER THAN FIFTEEN PERCENT TO ENSURE STABILITY, PER SUBDIVISION B3 OF SUBSECTION 4 OF NDAC SECTION 33-20-04.1-09.
6. CONTROL OF SURFACE WATER DRAINAGE FROM FINAL SLOPES, PER SUBDIVISIONS B2-B4 OF SUBSECTION 4 OF NDAC SECTION 33-20-04.1-09.
7. COMPOSITE LINER, PER SUBDIVISION B OF SUBSECTION 2 OF NDAC SECTION 33-20-08.1-01.
8. APPROPRIATE ENGINEERED FINAL COVER DESIGN, PER NDAC SECTION 33-20-07.1-02.
9. ALL OTHER APPLICABLE RULES FROM NDCC CHAPTER 23-29 AND NDAC ARTICLE 33-20.



REFERENCES

1. SITE LOCATION: SECTION 16, T145N, R82W, MCLEAN COUNTY, NORTH DAKOTA.
2. EXISTING GROUND TOPOGRAPHY PROVIDED BY GREAT RIVER ENERGY. PERFORMED BETWEEN 1996 AND 2011.
3. COORDINATES BASED ON PLANT GRID SYSTEM.
4. CONTOUR INTERVAL IS TWO FEET.
5. ALL PROPERTY SHOWN ON THIS MAP IS OWNED BY GREAT RIVER ENERGY.

ENGINEER'S STAMP

ORIGINAL DRAWING STAMPED BY TODD STONG, REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA (PE #6144), IS ON FILE AT GOLDER ASSOCIATES' LAKEWOOD, COLORADO, OFFICE.

NO.	REVISION DESCRIPTION	DATE	DESIGN	CADD	CHECK	REVIEW
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4						
3						
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A	ISSUED FOR CLIENT REVIEW	10/24/12	CCS	CCS	TJS	RRJ

PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

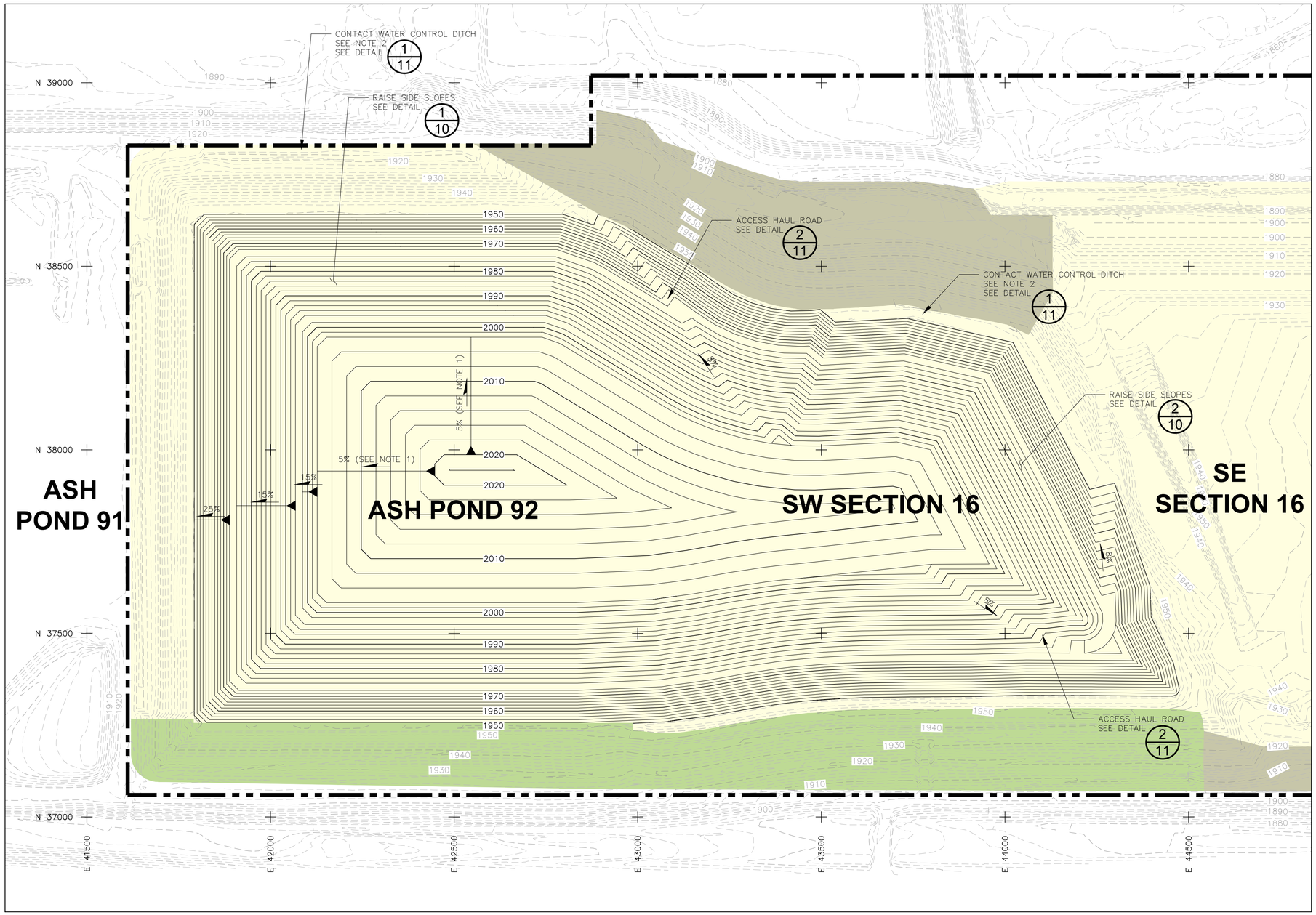
TITLE
CURRENT CONDITIONS

Golder Associates

GREAT RIVER ENERGY

FILE No. 11381519A002
PROJECT No. 113-81519

2



LEGEND

- EXISTING GROUND TOPOGRAPHY
- PROPOSED TOP OF CCP TOPOGRAPHY
- AREA OF ACTIVE CCP PLACEMENT
- TEMPORARY COVER PLACED
- FINAL COVER PLACED
- PERMITTED LIMIT OF CCP PLACEMENT

NOTES

1. CCP GRADES OF THE CROWN OF THE FACILITY ARE SHOWN AT 5%, BUT MAY BE CONSTRUCTED BETWEEN 3% AND 5%.
2. CONTACT WATER IS COLLECTED IN THE DITCH AROUND ASH POND 92 AND SW SECTION 16. WATER IS DIRECTED THROUGH CULVERTS TO ASH POND 91 OR DOWNWARD INTO THE UPSTREAM RAISE.

REFERENCES

1. SITE LOCATION: SECTION 16, T145N, R82W, MCLEAN COUNTY, NORTH DAKOTA.
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150 0 150
SCALE FEET

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PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

TITLE
PHASES 3 AND 4:
ASH POND 92 & SW SECTION 16 RAISE VERTICAL EXPANSION

Golder Associates

GREAT RIVER ENERGY

FILE No. 11381519A006
PROJECT No. 113-81519

5

SUMP EXTENSION SEE DETAIL 8/11

EXISTING CONTACT WATER SUMP AREA SEE NOTE 1

CONTACT WATER CONTROL DITCH SEE DETAIL 1/11

ACCESS HAUL ROAD SEE DETAIL 2/11

SW SECTION 16

SE SECTION 16

N 39000
N 38500
N 38000
N 37500
N 37000

E 43000
E 43500
E 44000
E 44500
E 45000
E 45500
E 46000

1880
1890
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990

5%
15%
20%

LEGEND

- EXISTING GROUND/CCP TOPOGRAPHY (1880)
- PROPOSED TOP OF CCP TOPOGRAPHY (1980)
- AREA OF ACTIVE CCP PLACEMENT
- TEMPORARY COVER PLACED
- FINAL COVER PLACED
- PERMITTED LIMIT OF CCP PLACEMENT

NOTES

1. CONTACT WATER WILL BE COLLECTED IN PERIMETER TOE DITCHES AND DIRECTED TO THE SUMP IN THE NE CORNER OF THE SE SECTION 16 LANDFILL.

REFERENCES

1. SITE LOCATION: SECTION 16, T145N, R82W, MCLEAN COUNTY, NORTH DAKOTA.
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SCALE FEET

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PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

TITLE
PHASE 5: SE SECTION 16 LANDFILL

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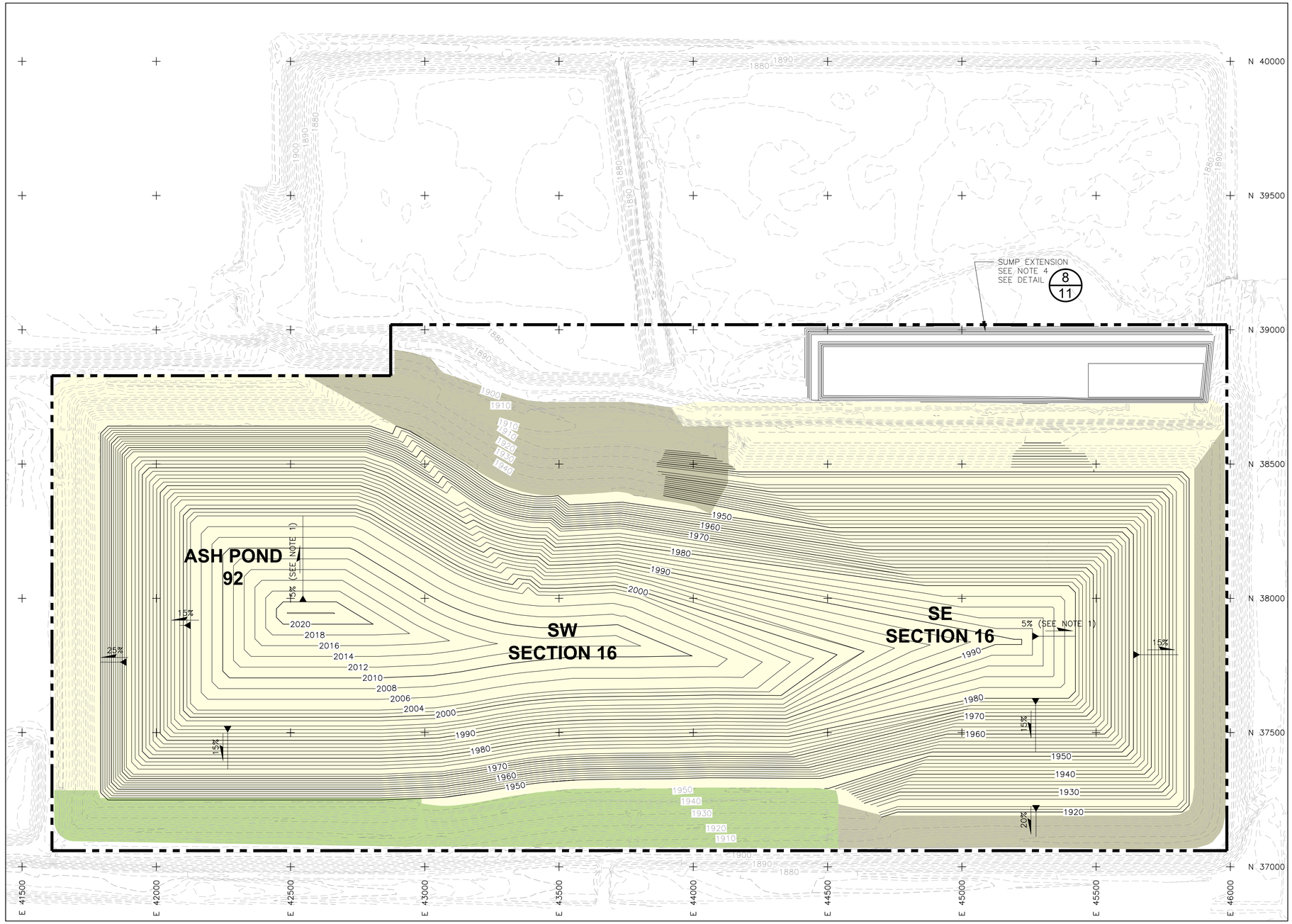
GREAT RIVER ENERGY

FILE No. 11381519A007
PROJECT No. 113-81519

6



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- PROPOSED TOP OF CCP TOPOGRAPHY
- AREA OF ACTIVE CCP PLACEMENT
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3. CONTACT WATER WILL BE COLLECTED IN PERIMETER TOE DITCHES AROUND SE SECTION 16 AND DIRECTED TO THE SUMP IN THE NE CORNER OF THE LANDFILL.
4. THE SUMP WILL BE ENLARGED AS REQUIRED. SEE CONTACT WATER ENGINEERING WORKSHEET FOR DETAILS.

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SCALE FEET

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PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

TITLE
FINAL WASTE GRADES

Golder Associates

GREAT RIVER ENERGY

FILE No. 11381519A008
PROJECT No. 113-81519

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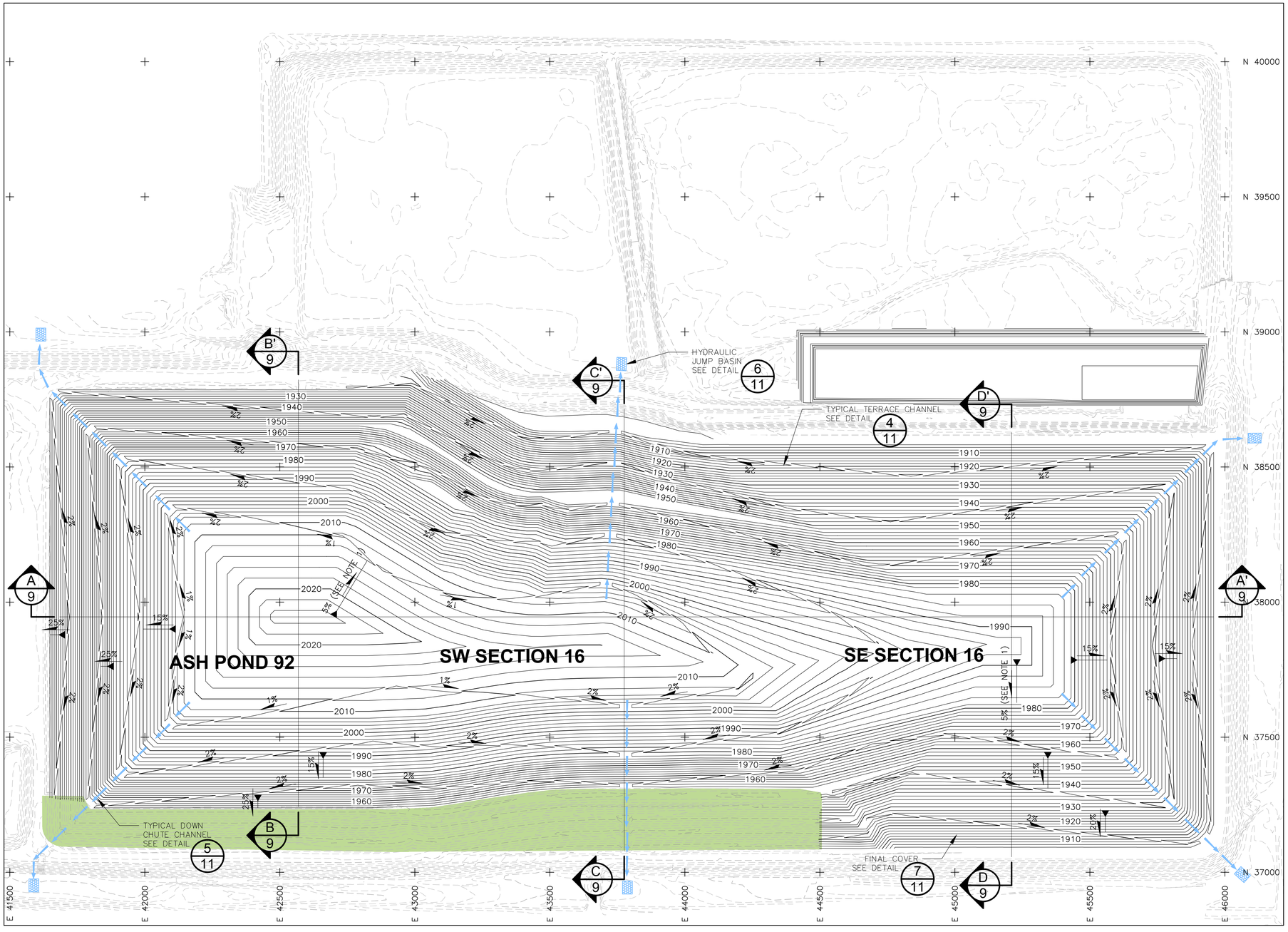

LEGEND

- EXISTING GROUND TOPOGRAPHY (1880)
- PROPOSED TOP OF COVER TOPOGRAPHY (1980)
- FINAL COVER PLACED
- DOWNCHUTE/OUTLET CHANNEL

NOTES

1. TOP OF COVER GRADES OF THE CROWN OF THE FACILITY ARE SHOWN AT 5%, BUT MAY BE CONSTRUCTED BETWEEN 3% AND 5%.
2. SEE THE SURFACE WATER ENGINEERING WORKSHEET FOR FURTHER DETAILS CONCERNING THE SURFACE WATER CONTROL PLAN.

REFERENCES

1. SITE LOCATION: SECTION 16, T145N, R82W, MCLEAN COUNTY, NORTH DAKOTA.
2. EXISTING GROUND TOPOGRAPHY PROVIDED BY GREAT RIVER ENERGY. PERFORMED BETWEEN 1996 AND 2011.
3. COORDINATES BASED ON PLANT GRID SYSTEM.
4. CONTOUR INTERVAL IS TWO FEET.
5. ALL PROPERTY SHOWN ON THIS MAP IS OWNED BY GREAT RIVER ENERGY.

200 0 200
SCALE FEET

ENGINEER'S STAMP

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B	ISSUED FOR PERMIT MODIFICATION	11/30/12	CCS	CCS	TJS	RRJ
A	ISSUED FOR CLIENT REVIEW	10/24/12	CCS	CCS	TJS	RRJ

PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

TITLE
FINAL COVER GRADES AND SURFACE WATER PLAN

Golder Associates

GREAT RIVER ENERGY

FILE No. 11381519A009
PROJECT No. 113-81519

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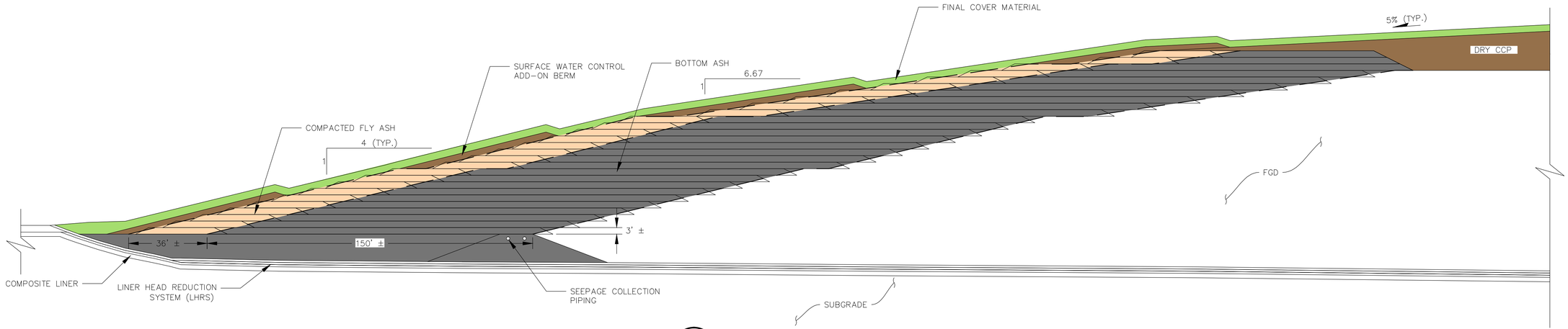
Drawing File: N:\11\113-81519\LWVE Permit Drawings\ 11381519A009.dwg | Layout: 11381519A008 (2) | Modified: Nov 28, 2012 09:05 CSChuettpelz | Plotted: 11/28/12 9:25am CSChuettpelz



1/10 ASH POND 92 PROFILE
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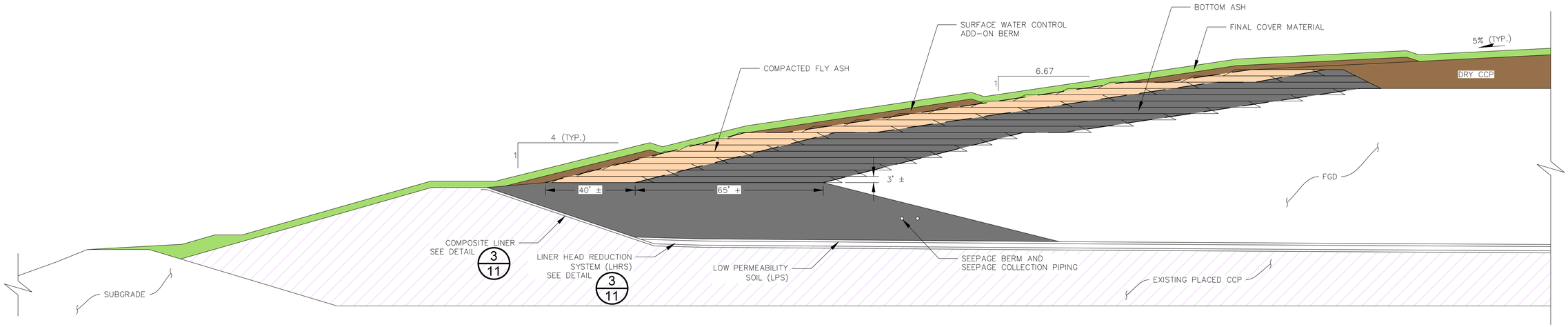

2/10 SW SECTION 16 PROFILE
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A	ISSUED FOR CLIENT REVIEW	10/24/12	CCS	CCS	TJS	RRJ

PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

TITLE
DETAIL SHEET 1

Golder Associates

GREAT RIVER ENERGY

FILE No. 11381519A011
PROJECT No. 113-81519

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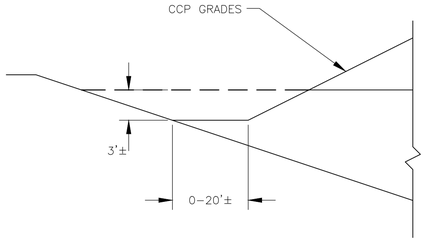

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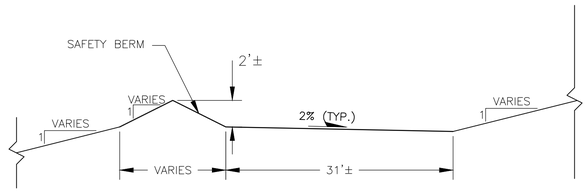

2/11 ACCESS HAUL ROAD
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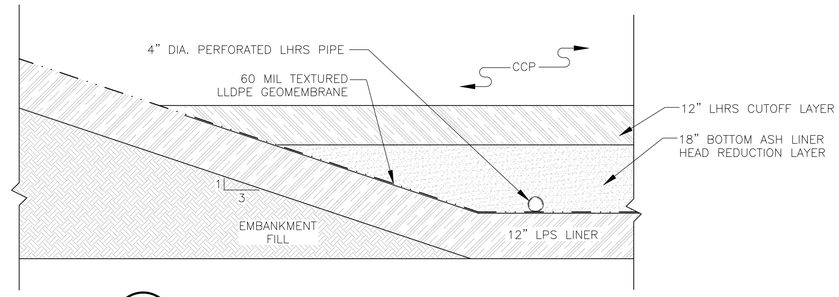

3/11 SW 16 INTERMEDIATE LINER/CAP AND LHRS DETAIL
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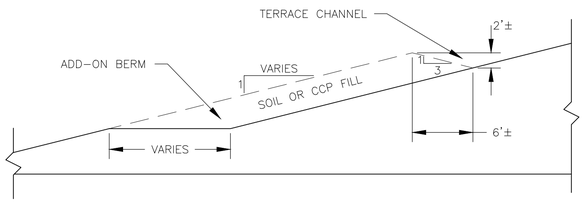

4/11 TERRACE CHANNEL DETAIL
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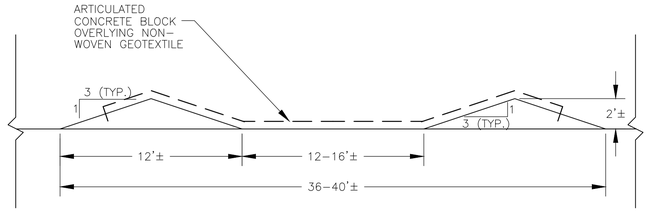

5/11 TYPICAL DOWN-CHUTE CHANNEL
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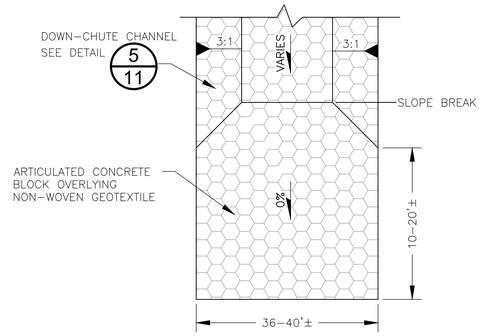

6/11 HYDRAULIC JUMP BASIN
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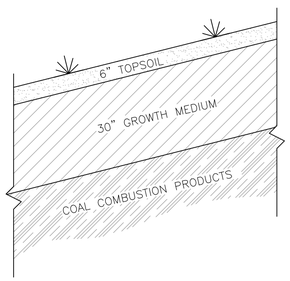

7/11 FINAL COVER DETAIL
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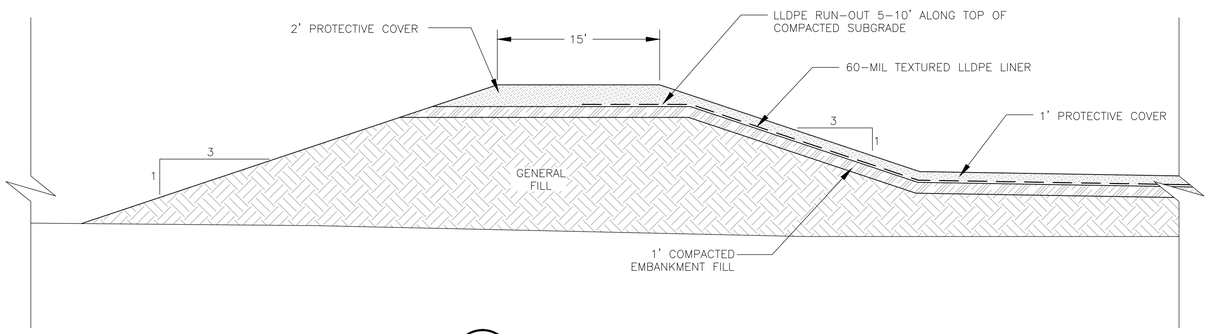

8/11 SUMP EXTENSION DETAIL
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PROJECT
GREAT RIVER ENERGY
COAL CREEK STATION
PERMIT NO. SP-033 PERMIT MODIFICATION

TITLE
DETAIL SHEET 2

Golder Associates

GREAT RIVER ENERGY
A Touchstone Energy Cooperative

FILE No. 11381519A012
PROJECT No. 113-81519

11

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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