

Rosebud Power Plant Annual Engineer's Inspection Report



Prepared for Rosebud Operating Services, Inc.
by Allied Engineering Services, Inc.
2017 Report
Posted: January 19, 2018



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INTRODUCTION

This annual engineer's report presents Allied Engineering's inspection of the CCR landfill and assessment of the landfill operations for the Rosebud Power Plant *in Rosebud County, Montana* in order to fulfill the requirements of the CCR rule as published in the Federal Register on April 17, 2015 and July 2, 2015 and its effective date of October 19, 2015. The applicable rule section is 40 CFR Parts 257 and 261. The landfill in this report holds inert hydrated fly ash, which is solid and nearly impermeable to water, similar to concrete. This report follows the same format as the previous Engineer's Annual Inspection Reports.

The project site is located approximately seven miles north of the town of Colstrip, Montana in the southwest quarter of Section 29 and the northwest quarter of Section 32 Township 3 North, Range 41 East (Latitude 45.978859°, Longitude -106.663772° (WGS 84)). Vicinity maps are included on Sheet CO-3 & CO-4 in Appendix A. The landfill serves an on-site Power Plant owned by Colstrip Energy Limited Partnership (CELP). The Power Plant and the landfill are operated by Rosebud Operating Services, Inc.

The landfill area covered by this report is an active landfill located on the subject property. There is also a closed landfill, last used in October, 2005, that has since been reclaimed in general accordance with permits and regulations at the time. This closed landfill is not subject to regulation by the above referenced rules and is not the subject of this report. The active landfill includes Phase I and Phase II of a contiguous landfill permitted in 1996 and placed in service in October, 2005. This active landfill is subject to regulation by the above referenced CCR rules.

The information contained herein is based on an investigation and analysis of the property's topographical and subsurface conditions, a review of existing permits, regulatory requirements, maps and literature for the project area as related to the landfilling operations of combusted coal residuals (CCR), more familiarly referred to as fly ash. The purpose of this report is to assess existing conditions, fulfill the Engineer's Annual Inspection requirements of the CCR rule, and provide recommendations for the ongoing landfilling operations.

BACKGROUND

Rosebud Power Plant is a waste coal burning facility using a fluidized bed reactor. During the burning process of the coal, fly ash or combusted coal residuals (CCR) are produced. The CCR are either sold for commercial/industrial purposes or landfilled on-site near the power plant. The active landfill, consisting of two phases, is located northwest of the power plant. Construction of Phase 1 was completed and began receiving ash when the now retired landfill was closed. Construction of Phase 2 was initiated in the first week of September, 2015, completed in December, 2015, and has been receiving Ash since the spring of 2016. Ash has continued to be deposited in both phases, but is currently placed primarily in Phase 2. Once the ash surface in Phase 2 reaches the ash surface elevation of Phase 1, the two phases will be operated as one continuous surface.

In 1996, Chandler Geotechnical, Inc. (a predecessor to Allied Engineering Services, Inc.) was hired as a sub-consultant to JSM, Inc. to provide engineering analysis and design of the current active landfill (Phases 1 and 2). During the initial construction of Phase 1, the planned landfill footprint/area was reduced. Over the course of operations at the plant, fly ash was sold in certain years; thus, the amount of fly ash placed in the Phase 1 area was less than anticipated with the original design and has not yet reached its maximum storage capacity. These changes resulted in the need for minor modifications of

the original design of the landfill area. Phase 2 modifications began in September of 2015 and were completed in December of 2015. Construction was completed for Phase 2 of the active landfill in general conformance with the original 1996 design with modifications undertaken during construction under the direction of Allied Engineering Services, Inc. The active landfill modifications were designed to store the rest of the expected volume of 635,897 CY (at the time of the redesign, late 2015/early 2016) for the remainder of the anticipated lifetime of the power plant. This volume assumed that no fly ash will be sold and was considered a conservative value. This volume is also less than the originally designed and permitted ash quantity. The original design had a final storage volume of approximately 2,200,000 CY and the revised design will have a total storage volume of approximately 1,300,000 CY.

REGULATORY SETTING

As of April 17, 2015, new rules for coal combustion residuals (CCR) were published in the Federal Register Volume 80, Number 74, dated Friday April 17, 2015. The applicable sections include 40 CFR Parts 257 and 261. These rules spell out the conditions for existing operating CCR landfills such as the active landfill at the Rosebud Power Plant. The rules provide location restrictions, structural stability assessment requirements, groundwater monitoring requirements, surface water protection, design and operating criteria, along with inspection requirements.

The power plant is currently operating under several permits that include protection criteria for air, surface water, and groundwater quality. Permits include:

- Montana Ground Water Pollution Control System (MGWPCS) Permit No. MTX000052
- Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity. Permit No. MTR000058
- Air Quality Permit No. #2035-06

The applicable requirements of the current CCR rule cover active CCR landfills and exclude closed landfills.

EXISTING CONDITIONS

This third annual inspection report details the operation efforts of ash placement, landfill construction and maintenance, monitoring of the drainage piping system and groundwater. Over the course of 2017, an additional CCR document was produced to satisfy the following regulations:

1. 40 CFR § 257.90-§ 257.98 Groundwater Monitoring and Action Plan

In 2017, the power plant experienced an operational failure that caused a shutdown from July 23, 2017 to December 5, 2017. During this period, no ash was produced or sold. During 2017 when the plant was running, approximately 2,244 tons (~2131 CY) of fly ash was sold and not placed in the Phase 2 Landfill.

EXISTING CONDITIONS AND ANNUAL ENGINEER'S INSPECTION REPORT

The following section quotes the requirements of the EPA CCR rule with the findings from the Engineer's Annual Inspection written as a response to each. The EPA CCR rule excerpts are listed in *italics*. Responses are provided in **bold**.

§257.64 Unstable Areas

- a) *An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.*

As demonstrated in the 2015 Annual Engineer's Inspection Report, this CCR landfill is not located in an unstable area.

- b) *The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable.*
- 1) *On-site or local soil conditions that may result in significant differential settling;*

Differential settlement within the landfill was not observed. The design and construction included the removal of topsoil and 5-feet of subsoil prior to placement of fly ash. The construction sequencing with haul truck traffic provided a compaction effort of the subsoil. The base of the Phase 2 area of the active landfill was compacted by a vibratory roller before ash placement. Pozzolanic characteristics of hydrated fly ash provide a relatively strong mass of material that distributes the load evenly across the landfill footprint. Point load tests of hydrated ash core samples were completed by Ray Womack in 1992 on the retired CCR landfill. The results of the testing indicated compressive strength values comparable to a weak rock or concrete. The shear stresses exerted at depth by the weight of the ash landfill are proportional to the steepness and the height of the finished slope, and to the unit weight of the landfill materials. Due to the gentle overall finished side slopes of 3H:1V (considering the 10' wide benches) and the low density of the ash (about 80 pounds per cubic foot), the ash landfill will exert considerably less stress on the foundation materials than many of the natural slopes in the immediate vicinity of the landfill.

- 2) *On-site or local geologic or geomorphologic features*

The landfill is located in the mapped Lebo member of the Fort Union Formation. As mentioned previously, the relative low-density characteristics of the fly ash distributed over a large area should not exert significant force to the underlying geology. There are no observed or mapped faults in the immediate vicinity of the active landfill. In addition, there is no indication of settlement in the closed landfill located approximately 1,300 feet southeast of the active landfill.

The landfill is characterized as a cross valley fill across two ephemeral swales. The design includes water conveyance under the landfill by way of piping systems with bypass spillways designed to divert water around the perimeter in order to limit oversaturation of vicinity soil. To assure long term drainage stability, the final configuration for closure includes perimeter conveyance of water and

abandonment of the piping system under the landfill (See 2016 Annual Engineer's Inspection Report for perimeter conveyance plans).

- 3) *On-site or local human-made features or events (both surface and subsurface).*

The design of the landfill accounted for appropriate side-slopes to limit the likelihood of instabilities. The original design as well as the 2015 design update utilized 3H:1V side slopes for the man-made berms surrounding the landfill area. This side slope is a common and conservative reclamation slope throughout the country, and specifically in the local Colstrip area which includes extensive coal mines.

The active landfill is located across two ephemeral drainages. The original design called for three pipes that convey the natural drainage of the active landfill site. The main drainage covers an area of 103 acres with a secondary drainage covering an area of 16 acres. The original design utilized a HDPE dual wall corrugated pipe. The reason for the selection of this pipe was for its flexibility which would cause bridging of the soil in a deep bury situation. The 2015 design update continued the use of an HDPE pipe, but selected a steel-reinforced HDPE pipe for added stability. The storm water conveyance pipes themselves are likely the most vulnerable element in the landfill system in terms of long term stability (in the event of a pipe failure). As stated previously, a surface conveyance system will replace the current piping system.

- c) *The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this section.*

The landfill area was designed by a professional engineer. Additionally, this report serves as Allied Engineering Services, Inc.'s certification that the landfill is not situated in an unstable area.

- d) *The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this section by the date specified in either paragraph (d)(1) or (2) of this section.*

- 1) *For an existing CCR landfill or existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.*

This requirement was met prior to the first annual Engineer's Inspection Report (dated January 19, 2016) which was before the deadline, and was provided to the facility for placement in their operating record.

- 2) *For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.*

Not applicable, the active CCR landfill area has been in use prior to the regulatory timeframe of October 19, 2015.

- 3) *The owner or operator has completed the demonstration required by paragraph (a) of this section when the demonstration is placed in the facility's operating record as required by § 257.105(e)*

Reporting requirements as outlined in § 257.105(e) will be followed. CELP maintains operational requirements on their webpage (<http://www.celpccr.com>)

- 4) *An owner or operator of an existing CCR surface impoundment or existing CCR landfill who fails to demonstrate compliance with the requirements of paragraph (a) of this section by the date specified in paragraph (d)(1) of this section is subject to the requirements of § 257.101(b)(1) or (d)(1), respectively.*

Acknowledged.

- 5) *An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this section is prohibited from placing CCR in the CCR unit.*

Not applicable to existing landfills and the requirements of paragraph (a) were met with the first annual Engineer's Inspection Report (dated January 19, 2016).

- e) *The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(e), the notification requirements specified in § 257.106(e), and the Internet requirements specified in § 257.107(e)*

Acknowledged.

§257.84 Inspection requirements for CCR Landfills

- b) *Annual inspections by a qualified professional engineer.*
- 1) *Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:*
- i. *A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections); and*

Weekly inspections have been undertaken by facility personnel during the calendar year of 2017. A review of the weekly inspection reports reveals no significant issues with the existing CCR landfill. A few of the highlights of 2017 are:

5/12/17	Phase I ash surface was sprayed with a surfactant solution to reduce dust.
5/26/17	Work was done on surface erosion on Phase I embankments, east end.
7/23/17	Rosebud Power Plant Shut Down
9/8/17	16 loads of coal where placed on Phase II ash surface for storage.
10/13/17	Ash surface heaves were flattened with grader and watered.

The ash was recorded to have surface cracks and heaves after drying. It is believed these issues are caused by contraction and expansion associated with the nature of the ash and its hydration process. These areas were remixed by re-grading of the affected areas back to a flat surface and re-watering. By addressing these heaving and cracking areas when they arise on the surface (during normal operation) it will better mix the ash and help even out hydration of the ash layer. Copies of the weekly inspection reports are provided in Appendix C. The landfill continues to be operated in general conformance with the original design. No new ash has been placed on Phase 1 in 2017 and has only been graded flat for vehicle storage. The Phase 2 area has received all the ash for 2017. Soil containment berms will not be needed until the ash reaches an elevation of about 3150 FT (Current elevation is about 3137 FT). At this elevation, containment berms will be constructed on the perimeter of the ash as the landfill elevation continues upward.

- ii. *A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.*

Personnel from Allied Engineering Services, Inc. have visited the site on multiple occasions. Recent site visit dates are as follows:

- October 23, 2017 (Groundwater Monitoring Site Visit)
- November 14, 2016*

The date indicated with the * was the primary inspection of the landfill area and existing piping and was most applicable to the 'Annual Engineers Inspection'. The other site visit included some inspection in support of the Engineers Report but also focused on the existing landfill and groundwater monitoring requirements.

During the primary inspection, test holes were dug to measure the soil cover on the Closed and Phase 1 landfills. These results are shown in Appendix B. The test holes were dug to investigate the existing soil cover and investigate erosion issues

- 2) *Inspection report. The qualified professional engineer must prepare a report following each inspection that addresses the following:*
 - i. *Any changes in geometry of the structure since the previous annual inspection;*
 - ii. *The approximate volume of CCR contained in the unit at the time of the inspection;*
 - iii. *Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit; and*
 - iv. *Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.*

The geometry of the landfill is actively changing as CCR is placed in lifts and hydrated. The attached as-built survey sheets depict the topography of the ash surface as of November 14, 2017. The elevation of the ash placed in Phase 2 has changed an average of 8.34-ft since the last as-built survey on November 9, 2016. The general shape of Phase 2 is concave which captures precipitation within the ash footprint. Currently, coal is temporarily being stored in the Phase 2 footprint as the coal plant is being worked on and was not measured as part of this report. The average elevation of Phase 1 and 2 is now 3160-FT and 3137-FT respectively. A total of 108,560 CY of ash was placed in both Phases 1 & 2 during the time between as-built surveys.

Routine cleaning and maintenance in the installed piping under the landfill has been observed. All piping installed in 2015, along with the previously existing piping is functioning as designed with in-place trash racks and rock riprap.

Landfill Volumes Table

Description	Volume
Ash Placed in Phase 1	344,310 CY
Ash Placed in Phase 2	124,470 CY
Closed Landfill Ash Placed	836,000 CY
Stockpile 1 – Top Soil	6,000 CY
Stockpile 2 – Sub Soil	82,460 CY
Stockpile 3 – Sub Soil	5,090 CY
Stockpile 4 – Sub Soil	27,430 CY
*Soil volumes are approximate and estimated from topographic data taken on 11/14/2017. Stockpiles may have been changed since this survey date.	

CONCLUSION

The landfill inspection at the Rosebud Power Plant revealed that there is currently no significant or damaging active settlement or significant stability issues related to landfilling of CCR. As mentioned previously, additional soil cover should be provided on the existing embankments. All existing piping is functioning as designed, and all disturbed areas have been hydro-seeded.

- 3) *Timeframes for conducting the initial inspection -*
 - i. *Existing CCR landfills. The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this section no later than January 18, 2016.*

The first Annual Inspection report was completed prior to the stated deadline and has therefore addressed this requirement.

- ii. *New CCR landfills and any lateral expansion of a CCR landfill. The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this*

section no later than 14 months following the date of initial receipt of CCR in the CCR unit.

Not applicable to the existing landfill.

- 4) *Frequency of inspections. The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by § 257.105(g)(9).*

The Engineer's Inspection Report will be completed annually with the potential to complete them more frequently if a deficiency or release is identified in the facility weekly inspections.

- 5) *If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.*

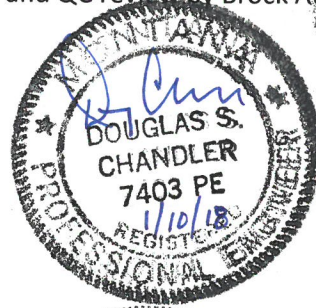
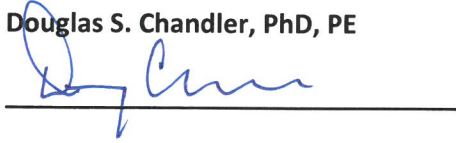
Acknowledged.

CERTIFICATION

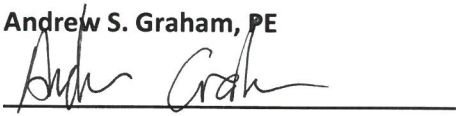
This report was prepared by Allied Engineering Services, Inc., under the direction of Douglas S. Chandler, PhD, PE, with assistance from Andrew Graham, PE, and QC review by Brock Athman, PE.

ALLIED ENGINEERING SERVICES, INC

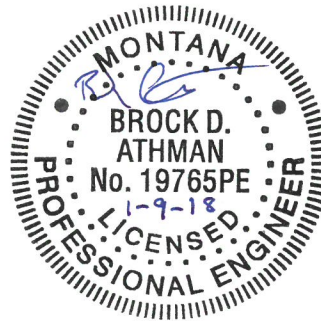
Douglas S. Chandler, PhD, PE



Andrew S. Graham, PE



QC Approval: Brock D. Athman, PE



REFERENCES

1. Environmental Protection Agency, 2015. "Federal Register", Vol. 80, No. 74, Part 257.
2. Hydrologic Analysis and Design, Third Edition. McCuen, Richard. 2005
3. Montana Bureau of Mines and Geology, 2007. Geologic Map of the Lame Deer 30' x 60' quadrangle, eastern Montana. Vuke, S.M., Heffern, E.L., Bergantino, R.N., and Colton, R.B. Accessed via the USGS National Geologic Map Database Map View. Accessed 12/23/15
<http://ngmdb.usgs.gov/maps/mapview/>
4. Montana Bureau of Mines and Geology, Groundwater Information Center, Well log data website, <http://mbmaggwic.mtech.edu/sqlserver/v11/menus/menuData.asp>. Accessed 1/6/15
5. Natural Resource Conservation Service, Web Soil Survey. <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> Accessed 12/23/15.
6. Rosebud Power Plant Ash Disposal Site Engineering Design and Construction Specifications by Chandler Geotechnical. Chandler, D.S. dated July 16, 1996.

Appendix A: Plan Set – Fly Ash Landfill Post-Closure Design - Dated September 15, 2016

ROSEBUD EXISTING LANDFILL

EXISTING LANDFILL CLOSURE PLAN

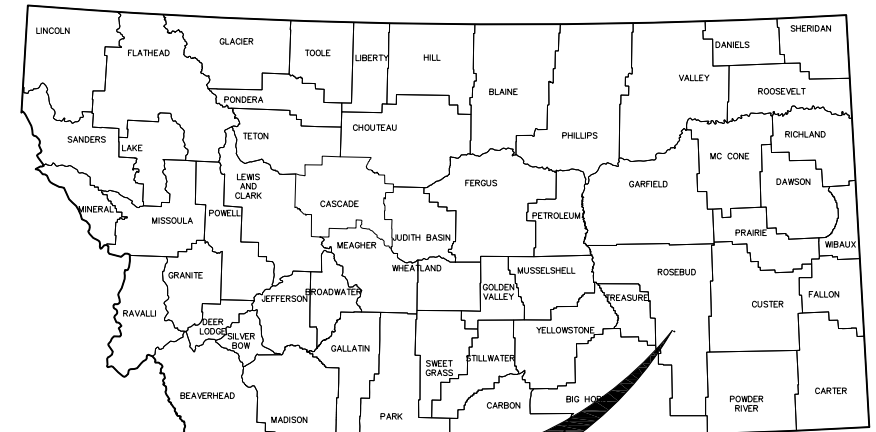
PROJECT LOCATION: 6.5 MILES NORTH OF COLSTRIP, MT ON HIGHWAY 39

LEGAL DESCRIPTION: NW $\frac{1}{4}$, SECTION 32, TOWNSHIP 3N, RANGE 41E, P.M.M., ROSEBUD COUNTY, MT

OWNER: COLSTRIP ENERGY LIMITED PARTNERSHIP (CELP) **CLIENT:** ROSEBUD OPERATING SERVICES, INC.
 1087 W. RIVER STREET, SUITE 200
 BOISE, ID 83702

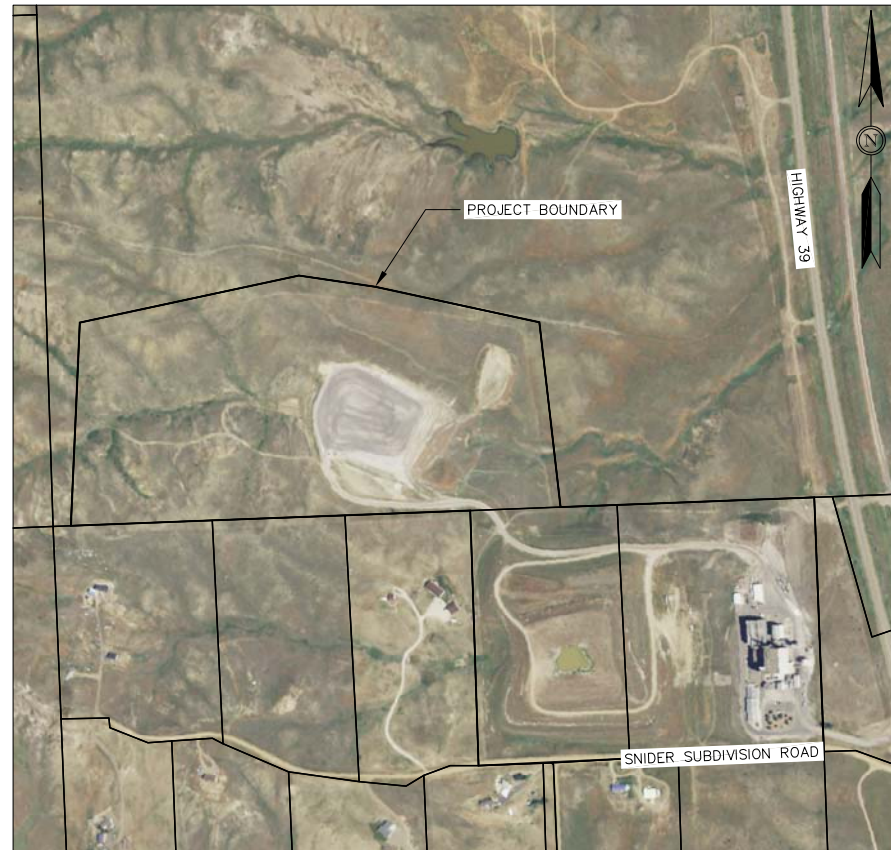
AUGUST 2, 2017

SET NO. _____

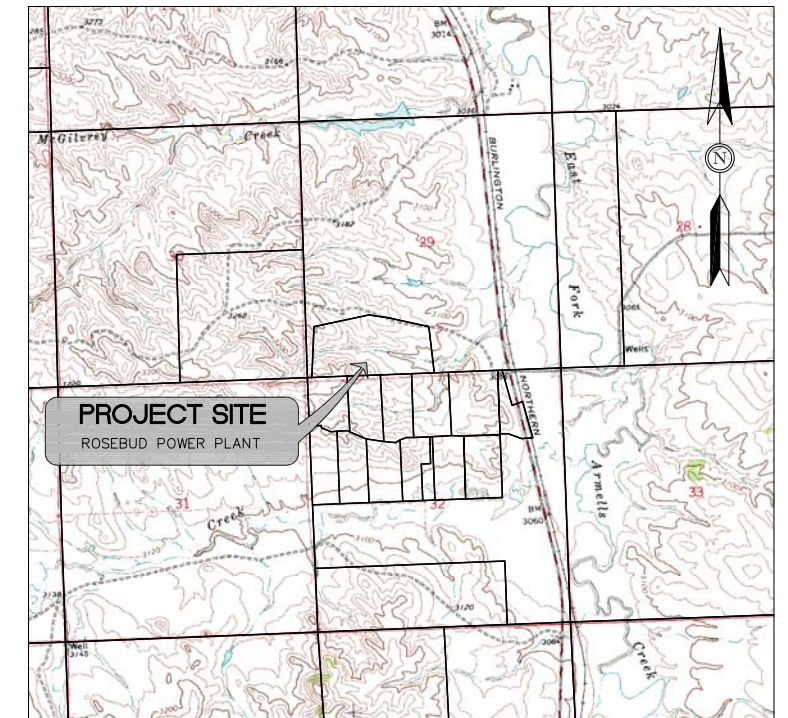


PROJECT LOCATION

PRINCIPAL-IN-CHARGE: DOUG CHANDLER, PE, Ph.D
PROJECT ENGINEER: ANDREW S. GRAHAM, PE
QC REVIEW: BROCK D. ATHMAN, PE
PROJECT SURVEYOR: KYLE THOMPSON, PLS
 GREG FINCK, PLS



LOCATION MAP
 SCALE (FEET)



VICINITY MAP
 SCALE (FEET)

32 DISCOVERY DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 582-0221
 FAX (406) 582-5770
 www.alliedengineering.com

Civil Engineering
Geotechnical Engineering
Land Surveying



ROSEBUD EXISTING LANDFILL
 ROSEBUD COUNTY, MONTANA

NO.	REVISIONS	DATE

P:\2015\15-125 Rosebud Power Plant Ash Disposal Site\09 CAD Data Existing Landfill Top Existing Cover & Notes.dwg

SHEET INDEX

SHEET NO.	
GENERAL SHEETS	
C0-1	COVER SHEET
C0-2	SHEET INDEX, LEGEND, & GENERAL NOTES
DRAINAGE SHEETS	
C1-1	DESIGN PLAN - EXISTING LANDFILL
C1-2	PROFILE VIEW - EXISTING LANDFILL PROFILE 1
C1-3	PROFILE VIEW - EXISTING LANDFILL PROFILE 2
DESIGN PLAN	
C2-1	DESIGN PLAN - EXISTING LANDFILL DRAINAGE CAP
C2-2	PLAN & PROFILE - DRAINAGE WAY 4
C2-3	PLAN & PROFILE - DRAINAGE WAY 4
DETAILS	
C3-1	DETAILS - SWALE SECTIONS
C3-2	DETAILS
E-1	EASEMENTS - DRAINAGE WAY 4
SLOPE FIGURES	
S-1	PHASE 1 LANDFILL SLOPES
S-2	EXISTING CLOSED LANDFILL SLOPES

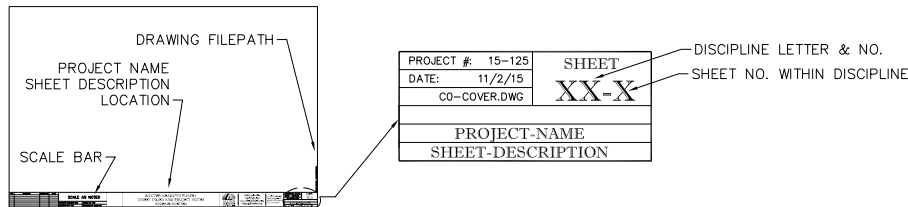
GENERAL NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALLIED ENGINEERING'S PLAN SET; ALONG WITH THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS), SIXTH EDITION.

CIVIL ABBREVIATIONS:

AESI	ALLIED ENGINEERING SERVICES, INC.
AC	ACRE
AVE	AVENUE
BLDG	BUILDING
BM	BENCHMARK
BOG	BACK OF GRATE (GUTTER)
CI	CAST IRON
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COB	CITY OF BOZEMAN
CONC	CONCRETE
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
DWG	DRAWING
E	EAST
EA	EACH
EG	EXISTING GRADE
ELEV	ELEVATION
EOG	EDGE OF GRAVEL
EOP	EDGE OF PAVEMENT
EX	EXISTING
FETS	FLARED END TERMINAL SECTION
FG	FINISHED GRADE
FHYD	FIRE HYDRANT
FL	FLANGE
FL	FLOWLINE
FM	SEWER FORCE MAIN
FT	FEET
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HORZ	HORIZONTAL
HP	HIGH POINT
HWY	HIGHWAY
IE	INVERT ELEVATION
IN	INCH
INV	INVERT
LF	LINEAR FEET
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MP	MID POINT
MPWSS	MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS
MSU	MONTANA STATE UNIVERSITY
N	NORTH
PC	POINT OF CURVATURE
PE	PLAIN END
PE	POLYETHYLENE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RP	RADIUS POINT
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH
SCH	SCHEDULE
SD	STORM DRAIN
SECT	SECTION
SG	SUBGRADE
S	SANITARY SEWER MAIN
SS	SANITARY SEWER SERVICE
ST	STREET
STA	STATION
STD	STANDARD
SY	SQUARE YARD
TBM	TEMPORARY BENCH MARK
TBC	TOP BACK OF CURB
TDH	TOTAL DYNAMIC HEAD
TYP	TYPICAL
UG	UNDERGROUND
VC	VITRIFIED CLAY
VERT	VERTICAL
W	WATER MAIN
W	WEST
W/	WITH
W/O	WITHOUT
WS	WATER SERVICE

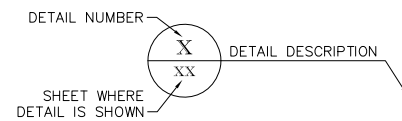
AESI STANDARD BORDER FORMAT



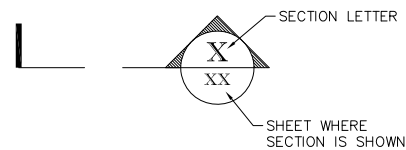
LEGEND

	4770 MAJOR CONTOUR - FG		SEWER MAIN
	4771 MINOR CONTOUR - FG		SEWER MAIN - EXISTING
	4770 MAJOR CONTOUR - EG		SEWER SERVICE
	4771 MINOR CONTOUR - EG		SANITARY SEWER MANHOLE
	FOUND MONUMENT AS NOTED		SEWER CLEANOUT
	SET MONUMENT		WATER MAIN
	CONTROL POINT		WATER MAIN - EXISTING
	FENCE - EXISTING		WATER SERVICE
	OVERHEAD POWER - EXISTING		FIRE HYDRANT
	UTILITY GAS - EXISTING		BLOW-OFF HYDRANT
	UTILITY PHONE - EXISTING		WATER VALVE
	UTILITY ELECTRIC - EXISTING		WELL
	UTILITY POWER POLE - EXISTING		MONITORING WELL
	LIGHT POLE - EXISTING		STORM MAIN
	ELECTRICAL PEDESTAL - EXISTING		CULVERT - EXISTING
	ELECTRICAL METER - EXISTING		DITCH-CENTERLINE - EXISTING
	TELEPHONE PEDESTAL - EXISTING		STORM MAIN JOINT, BEND, OR STRUCTURE
	GAS METER - EXISTING		
	GAS VALVE - EXISTING		
	GUY ANCHOR - EXISTING		
	EASEMENT LINE		
	BOUNDARY/ LOT LINE		
	ROAD CENTERLINE		
	ROAD - CURB		
	CONCRETE SIDEWALK		
	STREET SIGN		

PLAN SHEET DETAIL CALLOUTS



PLAN SHEET SECTION CALLOUTS



NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG, BDA	REVIEWED BY: DSC, BDA

ROSEBUD EXISTING LANDFILL SHEET INDEX, LEGEND, & GENERAL NOTES ROSEBUD COUNTY, MT

32 DISCOVERY DRIVE
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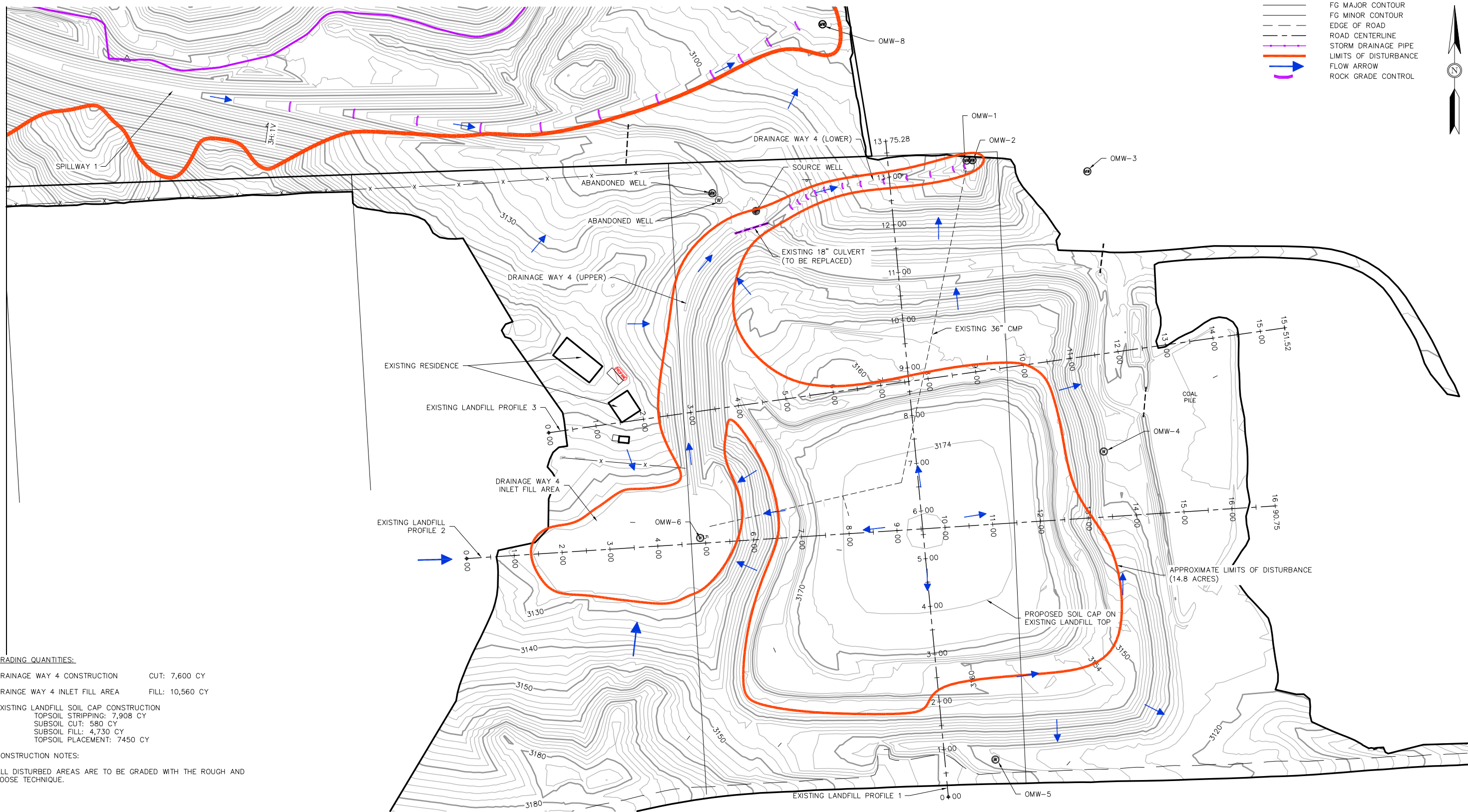
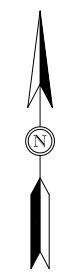
PROJECT #: 15-125
DATE: 08/02/2017

SHEET
C0-2

INDEX, LEGEND, & NOTES

LEGEND

-  EG MAJOR CONTOUR
-  EG MINOR CONTOUR
-  FG MAJOR CONTOUR
-  FG MINOR CONTOUR
-  EDGE OF ROAD
-  ROAD CENTERLINE
-  STORM DRAINAGE PIPE
-  LIMITS OF DISTURBANCE
-  FLOW ARROW
-  ROCK GRADE CONTROL



GRADING QUANTITIES:
 DRAINAGE WAY 4 CONSTRUCTION CUT: 7,600 CY
 DRAINAGE WAY 4 INLET FILL AREA FILL: 10,560 CY
 EXISTING LANDFILL SOIL CAP CONSTRUCTION
 TOPSOIL STRIPPING: 7,908 CY
 SUBSOIL CUT: 580 CY
 SUBSOIL FILL: 4,730 CY
 TOPSOIL PLACEMENT: 7450 CY

CONSTRUCTION NOTES:
 ALL DISTURBED AREAS ARE TO BE GRADED WITH THE ROUGH AND LOOSE TECHNIQUE.

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC DRAWN BY: ASG
 DESIGNED BY: ASG REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
 DESIGN PLAN - EXISTING LANDFILL
 ROSEBUD COUNTY, MT**

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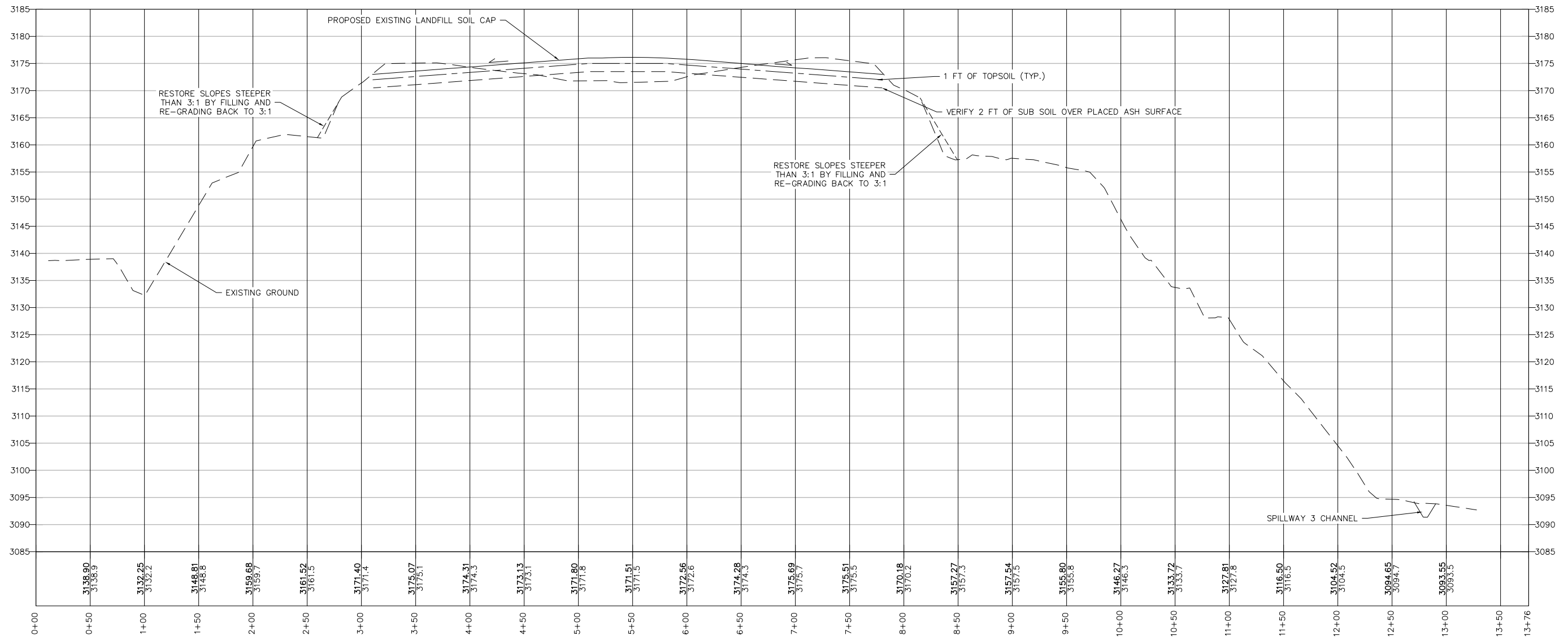
SHEET
C1-1

DESIGN PLAN - EXISTING

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PLAN VIEW - EXISTING LANDFILL PROFILE 1



PROFILE VIEW - EXISTING LANDFILL PROFILE 1

NO.	REVISIONS	DRAWN BY	DATE

HORIZONTAL SCALE FEET 		VERTICAL SCALE FEET 	
PROJECT ENGINEER:	DRAWN BY:	DESIGNED BY:	REVIEWED BY:

ROSEBUD EXISTING LANDFILL
PLAN & PROFILE - EXISTING LANDFILL PROFILE 1
 ROSEBUD COUNTY, MT

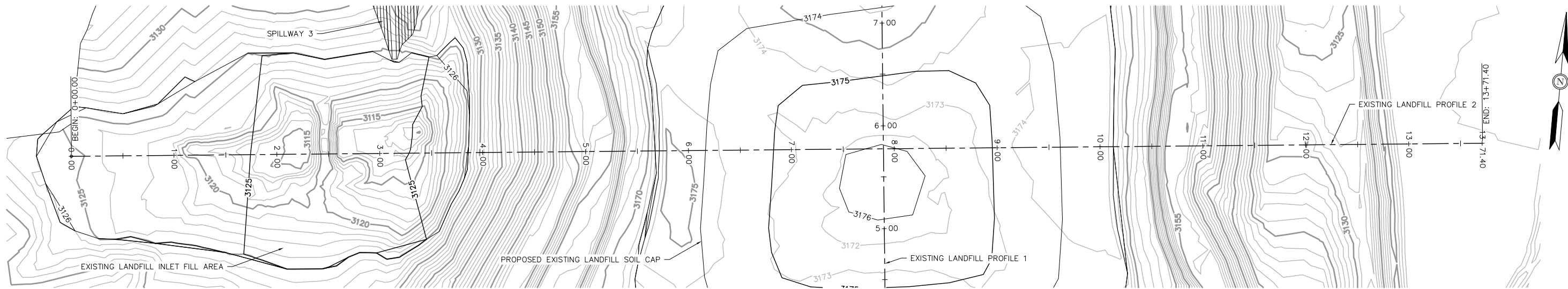
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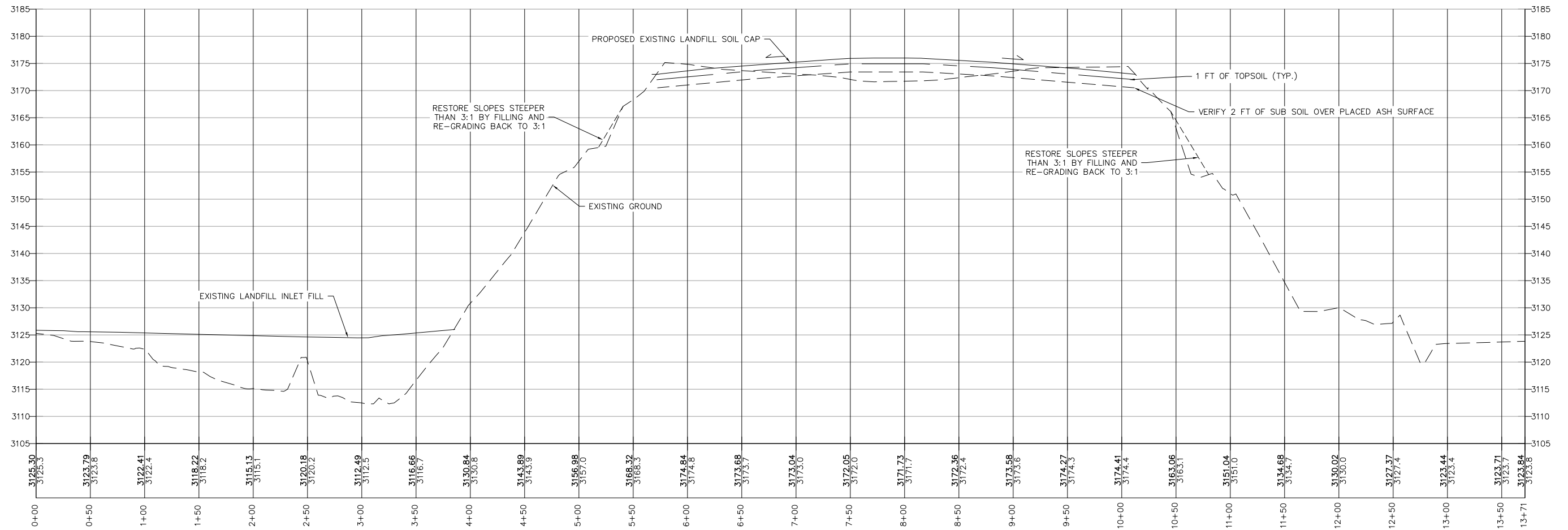


PROJECT #:	15-125	SHEET
DATE:	08/01/2017	
		C1-2

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PLAN VIEW - EXISTING LANDFILL PROFILE 2



PROFILE VIEW - EXISTING LANDFILL PROFILE 2

NO.	REVISIONS	DRAWN BY	DATE

HORIZONTAL SCALE FEET		VERTICAL SCALE FEET	
0	50	0	20
PROJECT ENGINEER:	DRAWN BY:	DESIGNED BY:	REVIEWED BY:

ROSEBUD EXISTING LANDFILL
PLAN & PROFILE - EXISTING LANDFILL PROFILE 2
 ROSEBUD COUNTY, MT

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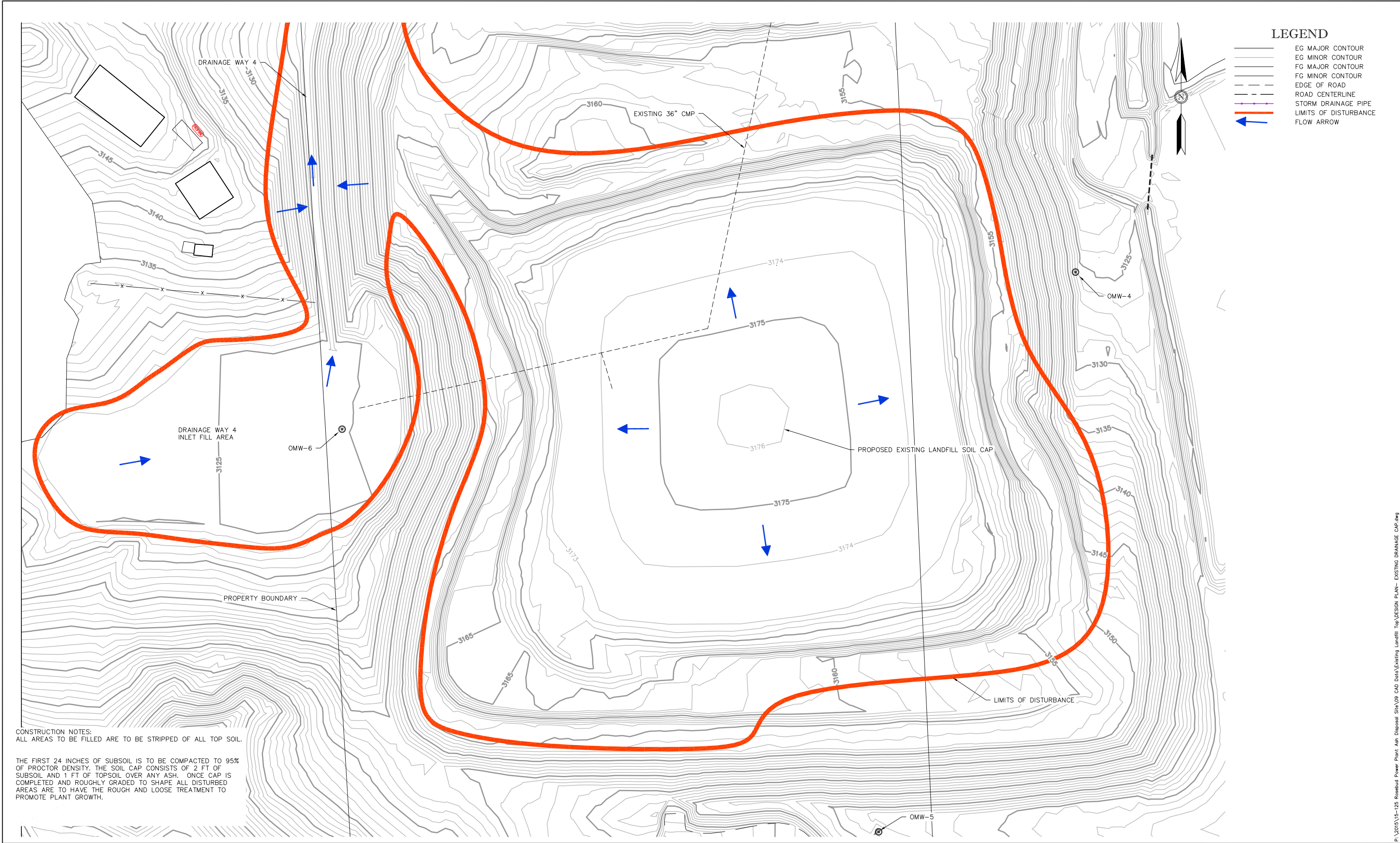
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PROJECT #: 15-125
 DATE: 08/01/2017

SHEET
C1-3

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LEGEND

- EG MAJOR CONTOUR
- EG MINOR CONTOUR
- FG MAJOR CONTOUR
- FG MINOR CONTOUR
- - - EDGE OF ROAD
- - - ROAD CENTERLINE
- STORM DRAINAGE PIPE
- LIMITS OF DISTURBANCE
- ← FLOW ARROW

CONSTRUCTION NOTES:
ALL AREAS TO BE FILLED ARE TO BE STRIPPED OF ALL TOP SOIL.

THE FIRST 24 INCHES OF SUBSOIL IS TO BE COMPACTED TO 95% OF PROCTOR DENSITY. THE SOIL CAP CONSISTS OF 2 FT OF SUBSOIL AND 1 FT OF TOPSOIL OVER ANY ASH. ONCE CAP IS COMPLETED AND ROUGHLY GRADED TO SHAPE ALL DISTURBED AREAS ARE TO HAVE THE ROUGH AND LOOSE TREATMENT TO PROMOTE PLANT GROWTH.

NO.	REVISIONS	DRAWN BY	DATE

<p>SCALE (FEET)</p>	
PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
DESIGN PLAN - EXISTING LANDFILL DRAINAGE CAP
ROSEBUD COUNTY, MT**

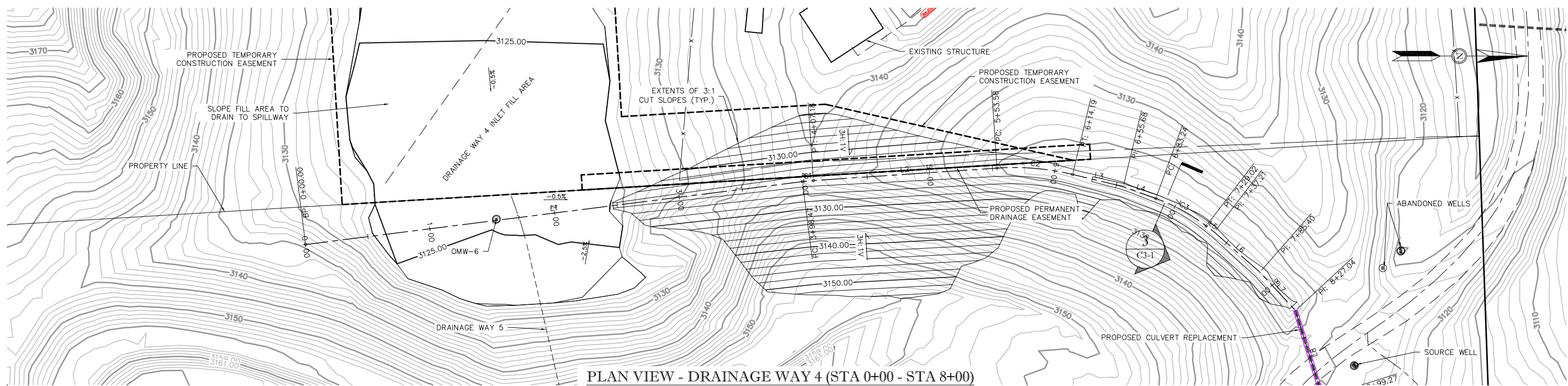
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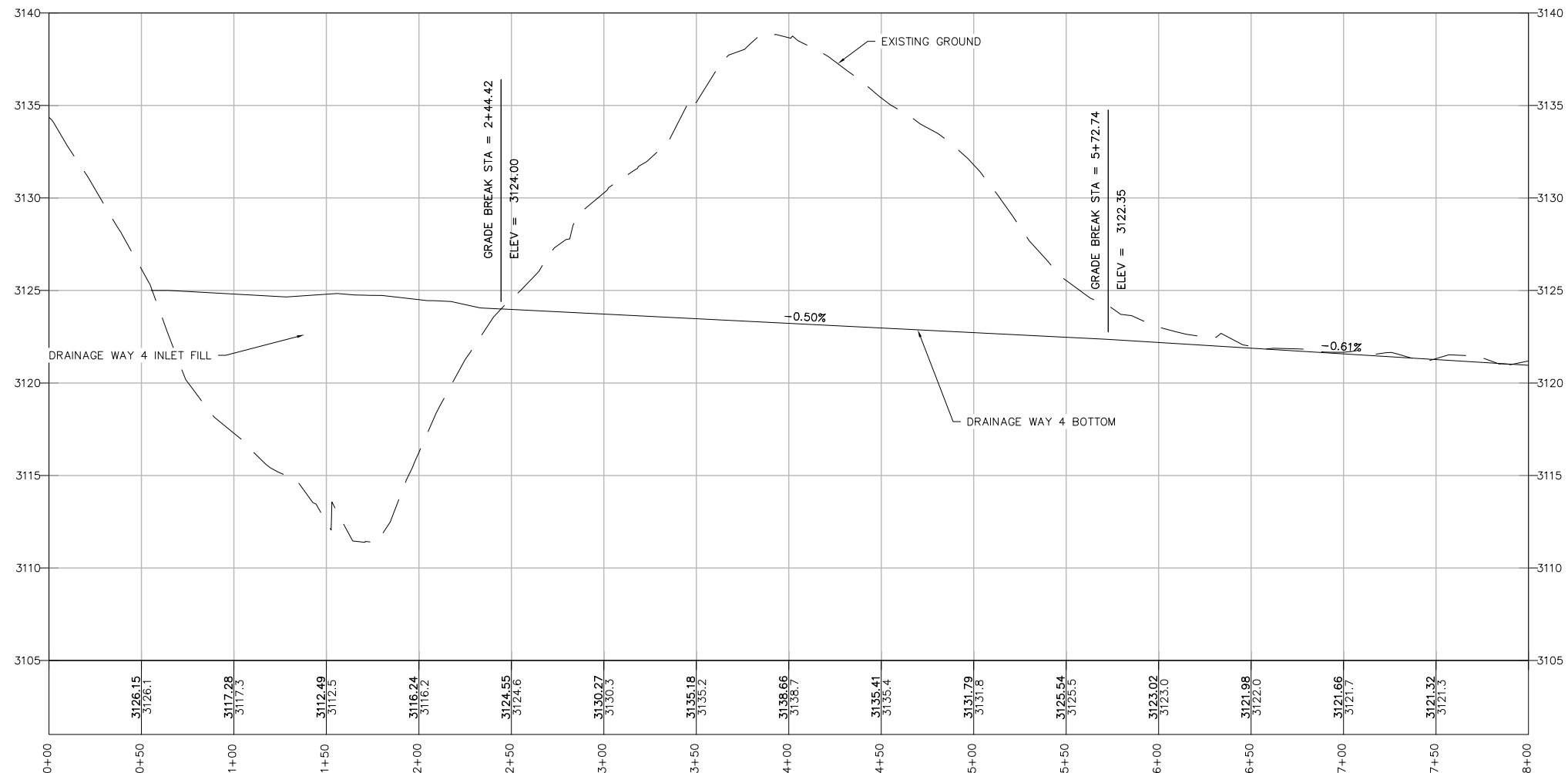


PROJECT #:	15-125	SHEET	C2-1
DATE:	08/01/2017		
DESIGN PLAN - EXISTING			

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PLAN VIEW - DRAINAGE WAY 4 (STA 0+00 - STA 8+00)



PROFILE VIEW - DRAINAGE WAY 4 (STA 0+00 - STA 8+00)

NOTE:
SEE SHEET DETAILS FOR ALIGNMENT TABLE.

NO.	REVISIONS	DRAWN BY	DATE

HORIZONTAL SCALE FEET 0 40 80		VERTICAL SCALE FEET 0 4 8	
PROJECT ENGINEER: DSC	DRAWN BY: ASG	DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
PLAN & PROFILE - DRAINAGE WAY 4
ROSEBUD COUNTY, MT**

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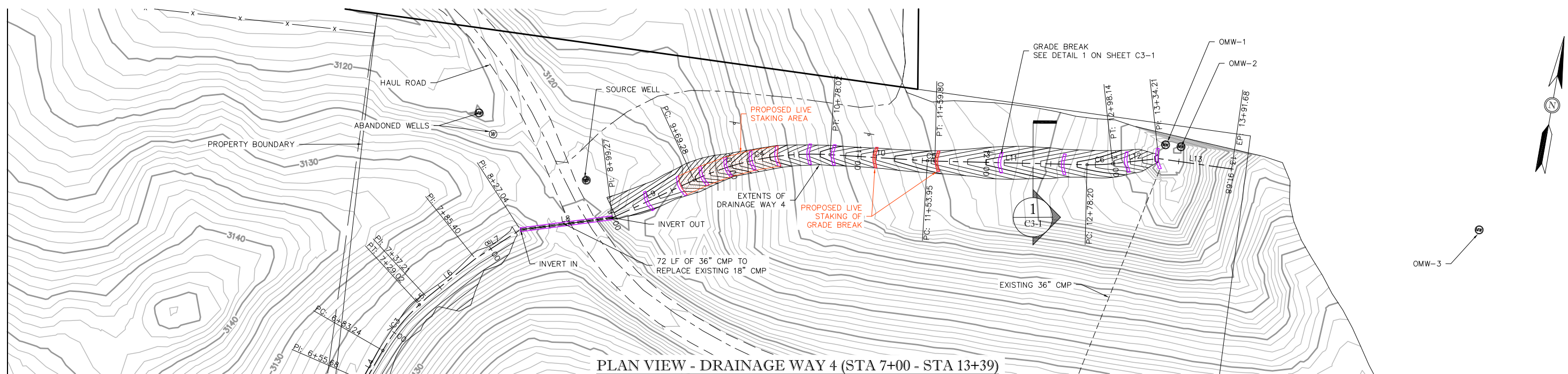
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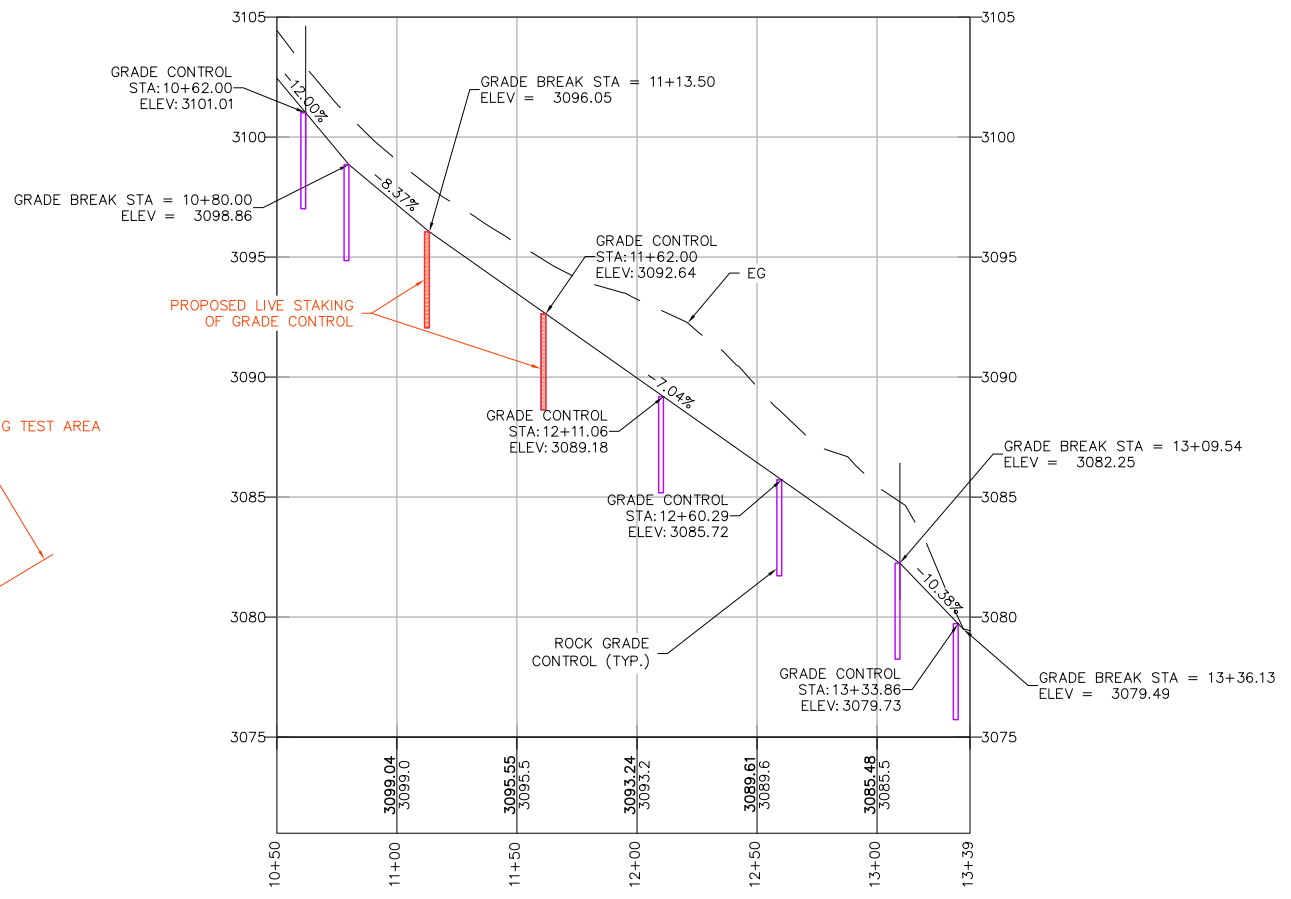
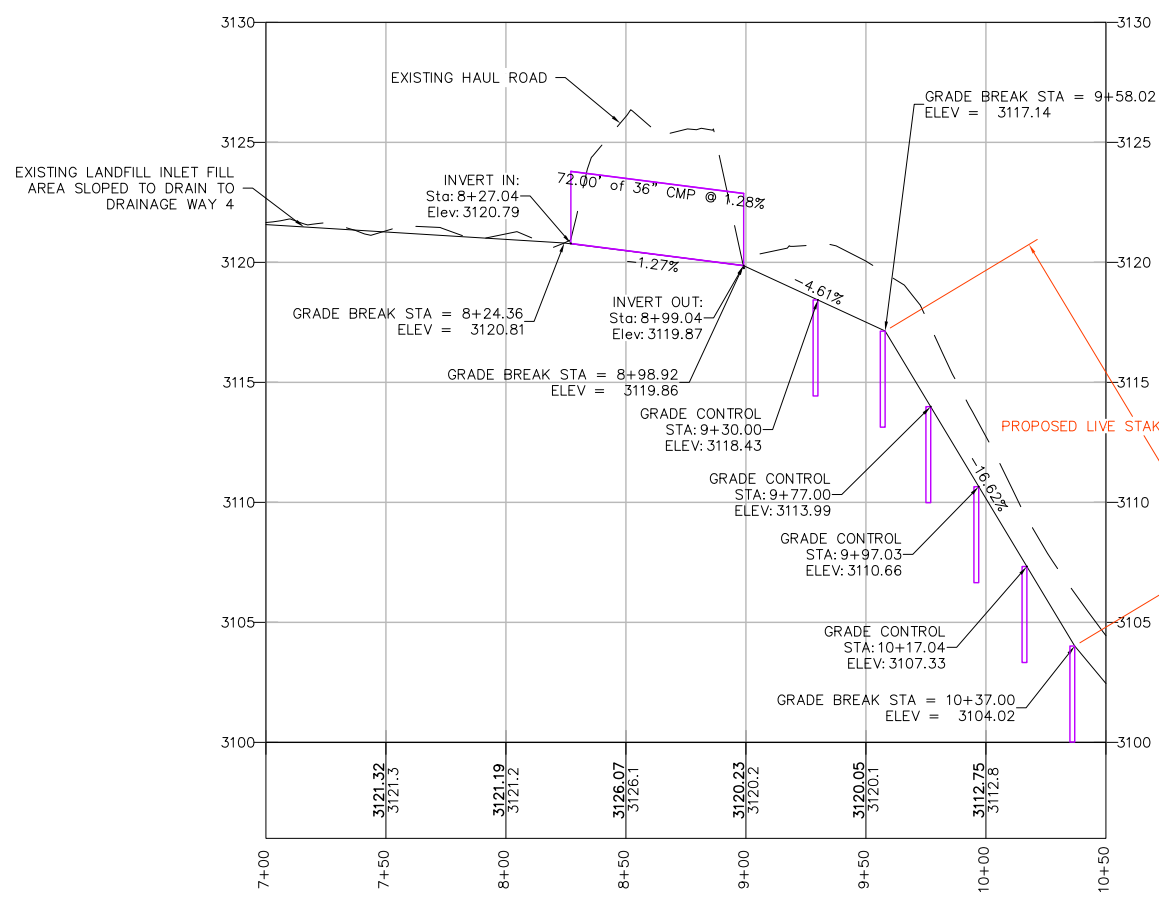
PROJECT # 15-125
DATE: 08/01/2017

SHEET
C2-2

P & P - DRAINAGE WAY 4



PLAN VIEW - DRAINAGE WAY 4 (STA 7+00 - STA 13+39)



PROFILE VIEW - DRAINAGE WAY 4 (STA 7+00 - STA 13+39)

NO.	REVISIONS	DRAWN BY	DATE

HORIZONTAL SCALE FEET 0 40 80		VERTICAL SCALE FEET 0 4 8	
PROJECT ENGINEER: DSC	DRAWN BY: ASG	DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
PLAN & PROFILE - DRAINAGE WAY 4
ROSEBUD COUNTY, MT**

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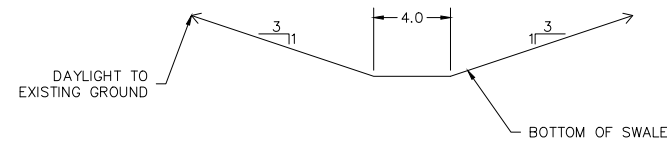


PROJECT #: 15-125
DATE: 09/14/2017

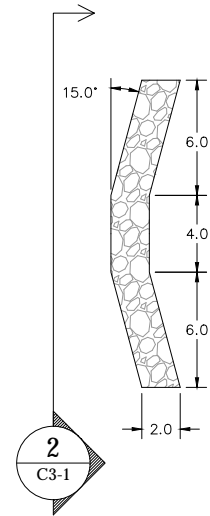
SHEET
C2-3

P & P - DRAINAGE WAY 4

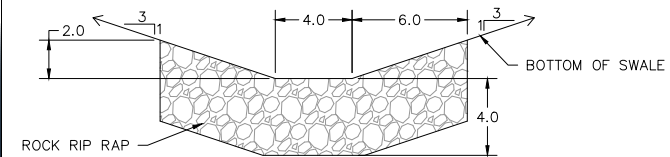
P: 2015\15-125 Rosebud Power Plant Ash Disposal Site\09 CAD Data\Existing Landfill Top\DRAINAGE WAY 4 Existing.dwg



1 SECTION
C3-1 4' DRAINAGE SWALE
1" = 5'

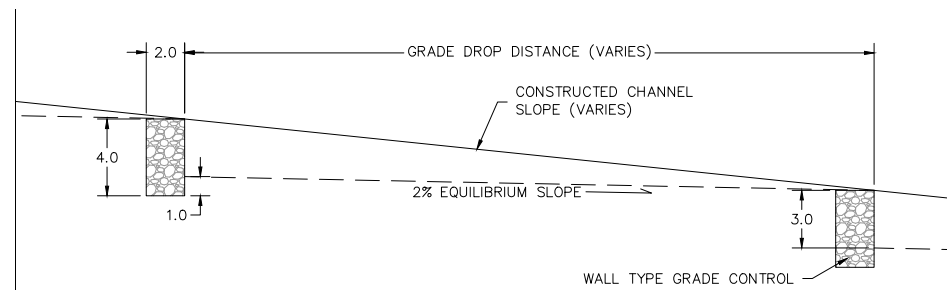


1 DETAIL
C3-1 DRAINAGE WAY 4 GRADE CONTROL - PLAN VIEW
1" = 5'



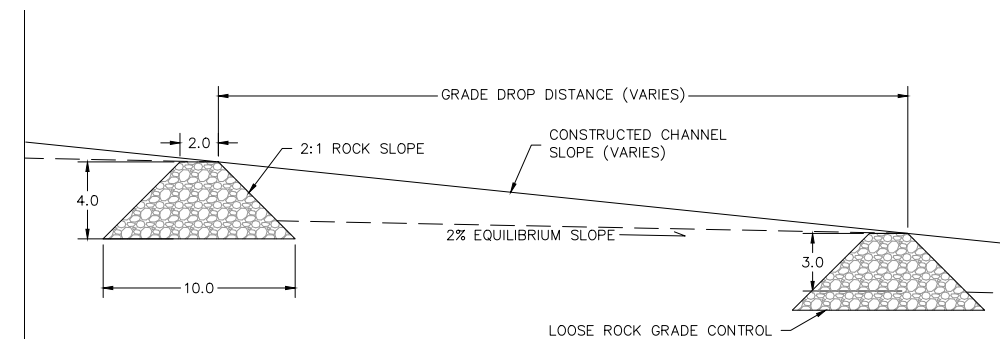
NOTES:
1. ROCK RIPRAP IS TO BE ANGULAR ROCK WITH A D50 OF 8 INCHES.

2 SECTION
C3-1 DRAINAGE WAY 4 GRADE CONTROL
1" = 5'



NOTES:
1. WALL GRADE BREAKS WILL CONSIST OF COHESIVE MATERIAL OR STRUCTURE SUCH AS REINFORCED CONCRETE, GROUTED ROCK, OR GABION WALL.
2. DISTANCE BETWEEN GRADE DROPS IS SHOWN ON PLANS. IT VARIES WITH CHANNEL SLOPE.
3. EQUILIBRIUM SLOPE WAS DETERMINED BY COMPARISON OF EXISTING SLOPES.

2 DETAIL
C3-1 TYPICAL WALL GRADE CONTROL PROFILE
1" = 5'



NOTES:
1. ROCK RIPRAP IS TO BE ANGULAR ROCK WITH A D50 OF 8 INCHES.
2. DISTANCE BETWEEN GRADE DROPS IS SHOWN ON PLANS. IT VARIES WITH CHANNEL SLOPE.
3. EQUILIBRIUM SLOPE WAS DETERMINED BY COMPARISON OF EXISTING SLOPES.

3 DETAIL
C3-1 TYPICAL LOOSE ROCK GRADE CONTROL PROFILE
1" = 5'

NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
DETAILS - SWALE SECTIONS
ROSEBUD COUNTY, MT**

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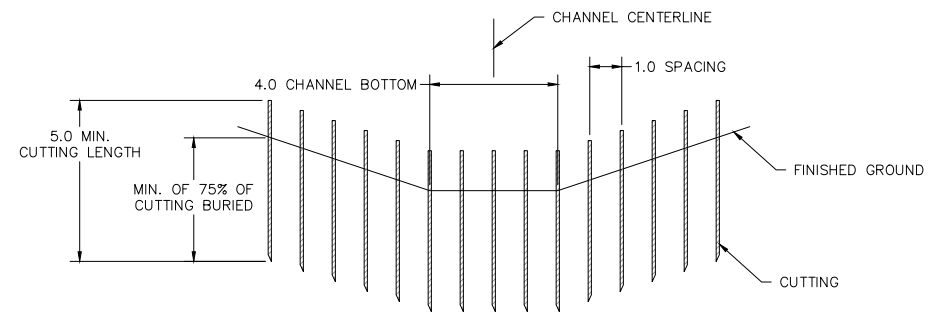
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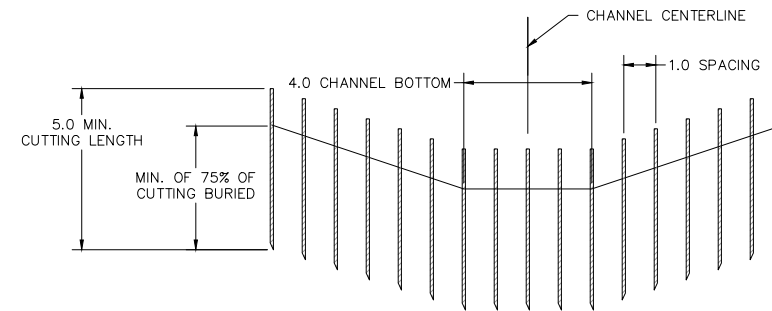
PROJECT #: 15-125
DATE: 09/14/2017

SHEET
C3-1

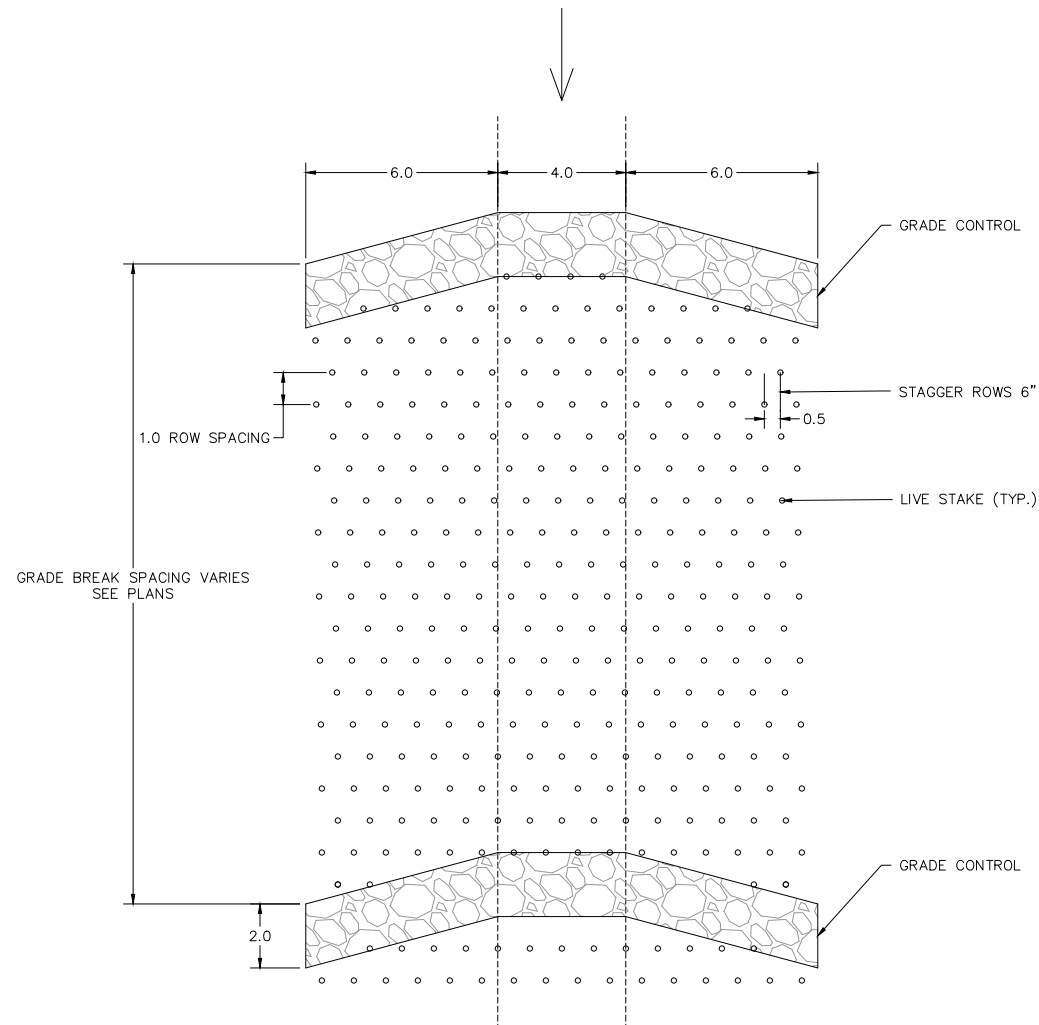
DETAILS - SWALE SECTIONS



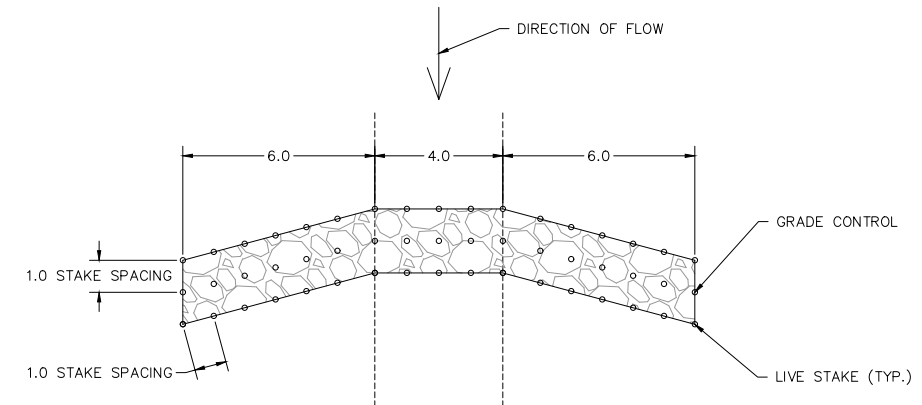
SECTION VIEW - TYPICAL FULL CHANNEL LIVE STAKING



SECTION VIEW - TYPICAL GRADE BREAK LIVE STAKING



PLAN VIEW - TYPICAL FULL CHANNEL LIVE STAKING



PLAN VIEW - TYPICAL GRADE BREAK LIVE STAKING

1 DETAIL
C3-2 DRAINAGE WAY 4 - TOTAL CHANNEL LIVE STAKING DETAIL
1" = 5'

2 DETAIL
C3-2 DRAINAGE WAY 4 - TOTAL CHANNEL LIVE STAKING DETAIL
1" = 5'

- LIVE STAKING SPECIFICATIONS:
- CUTTINGS USED IN STAKING MUST BE A MINIMUM LENGTH OF 5 FT WITH A MINIMUM DIAMETER OF 1".
 - LARGER DIAMETER AND LENGTH CUTTINGS SHOULD BE USED WHEN PLACED IN ROCK (3-5" DIAMETER, 5-10' LENGTH).
 - CUTTINGS ARE TO BE BURIED A MINIMUM OF $\frac{3}{4}$ IN THE GROUND.
 - PREFERRED SPECIES OF CUTTINGS ARE: PLAINS COTTONWOOD (*Populus deltoids*), AND BLACK COTTONWOOD (*Populus trichocarpa*).
 - CUTTINGS ARE BEST HARVESTED FROM LIVE DORMANT TREES, 2-7 YEARS OLD.
 - PREFERRED TIMING OF PLANTING IS LATE SPRING AFTER PEAK RUN-OFF.
 - IT IS RECOMMENDED TO SOAK CUTTINGS FOR A MINIMUM OF 24 HOURS BEFORE PLANTING.
 - ADDITIONAL PLANTING INFORMATION CAN BE FOUND IN THE USDA, NRCS TECHNICAL NOTE PLANT MATERIALS NO. 23 - HOW TO PLANT WILLOWS AND COTTONWOODS FOR RIPARIAN RESTORATION.

NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
DETAILS - LIVE STAKING
ROSEBUD COUNTY, MT**

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PROJECT #: 15-125
DATE: 09/14/2017

SHEET
C3-2

DETAILS - LIVE STAKING

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DRAINAGE WAY 4 ALIGNMENT						
Number	Radius	Length	Line/Chord Direction	Start Station	End Station	Start Northing, Easting
L1		398.47	N7° 12' 41.64"W	0+00.00	3+98.47	641989.0819, 2689783.7761
C1	150.00	8.71	N5° 32' 52.52"W	3+98.47	4+07.18	642384.3984, 2689733.7549
L2		146.40	N3° 53' 03.40"W	4+07.18	5+53.58	642393.0672, 2689732.9129
C2	200.00	60.61	N4° 47' 51.97"E	5+53.58	6+14.19	642539.1338, 2689722.9953
L3		41.48	N13° 28' 47.34"E	6+14.19	6+55.68	642599.3026, 2689728.0455
L4		27.57	N19° 55' 02.83"E	6+55.68	6+83.24	642639.6409, 2689737.7148
C3	150.00	45.78	N28° 39' 40.33"E	6+83.24	7+29.02	642665.5578, 2689747.1055
L5		8.19	N37° 24' 17.83"E	7+29.02	7+37.21	642705.5746, 2689768.9789
L6		48.18	N41° 16' 43.16"E	7+37.21	7+85.40	642712.0804, 2689773.9539
L7		41.65	N47° 12' 05.16"E	7+85.40	8+27.04	642748.2914, 2689805.7420
L8		72.23	N72° 35' 03.58"E	8+27.04	8+99.27	642776.5860, 2689836.2990
L9		70.01	N55° 15' 38.42"E	8+99.27	9+69.28	642798.2050, 2689905.2192
C4	219.87	108.74	N69° 25' 41.66"E	9+69.28	10+78.02	642838.0991, 2689962.7492
L10		75.94	N83° 35' 44.90"E	10+78.02	11+53.95	642875.9183, 2690063.5164
C5	150.00	5.84	N82° 28' 49.16"E	11+53.95	11+59.80	642884.3884, 2690138.9792
L11		118.41	N81° 21' 53.41"E	11+59.80	12+78.20	642885.1527, 2690144.7693
C6	150.00	19.94	N77° 33' 23.89"E	12+78.20	12+98.14	642902.9304, 2690261.8327
L12		36.07	N73° 44' 54.38"E	12+98.14	13+34.21	642907.2237, 2690281.2896
L13		57.47	N88° 02' 50.21"E	13+34.21	13+91.68	642917.3186, 2690315.9202

NATIVE VEGETATION DESCRIPTION – BIG SAGEBRUSH STEPPE

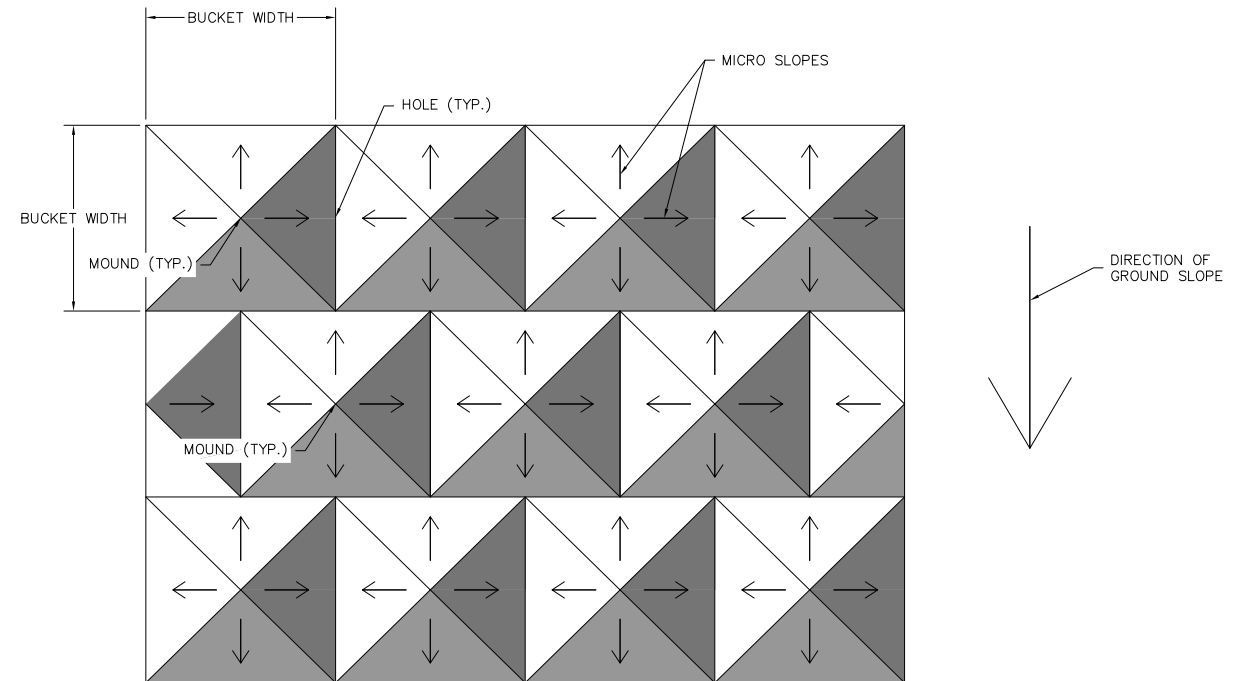
In Montana, this system is dominated by Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*). Other shrubs present may include basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), silver sagebrush (*Artemisia cana*), greasewood (*Sarcobatus vermiculatus*), saltbush (*Atriplex* species), rubber rabbitbrush (*Ericameria nauseosa*), green rabbitbrush (*Chrysothamnus viscidiflorus*), common snowberry (*Symphoricarpos albus*) and antelope bitterbrush (*Purshia tridentata*). Overall shrub cover is less than 10 percent.

Perennial herbaceous components typically contribute greater than 25% vegetative cover and consist mostly of rhizomatous and bunch-form graminoids, with a diversity of perennial forbs. In Montana, the dominant graminoid in this system is western wheatgrass (*Pascopyrum smithii*). Other species include Indian ricegrass (*Achnatherum hymenoides*), blue grama (*Bouteloua gracilis*), Sandberg's bluegrass (*Poa secunda*), or bluebunch wheatgrass (*Pseudoroegneria spicata*). Dryland rhizomatous sedges such as threadleaf sedge (*Carex filifolia*) and needleleaf sedge (*Carex duriuscula*) are very common and important in the eastern distribution of this system in Montana and Wyoming.

Common forbs include Hood's phlox (*Phlox hoodii*), sandwort (*Arenaria* species), prickly pear (*Opuntia* species), scarlet globemallow (*Sphaeralcea coccinea*), purple prairie clover (*Dalea purpurea*), gayfeather (*Liatris punctata*), and milkvetch (*Astragalus* species). Within this system, cheatgrass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*) and other invasive weeds can be abundant where there is frequent disturbance.

INFORMATION CITATION:

Big Sagebrush Steppe —Inter—Mountain Basins Big Sagebrush Steppe. Montana Field Guide. Montana Natural Heritage Program Retrieved on August 1, 2017, from http://FieldGuide.mt.gov/displayES_Detail.aspx?ES=5454



TREATMENT NOTES:

CONSTRUCTION OF A ROUGH AND LOOSE SURFACE INVOLVES AN EXCAVATOR AND A SIMPLE PATTERN TO CREATE A ROUGH SURFACE OF MOUNDS AND HOLES. THE EXCAVATOR DIGS A BUCKET OF SOIL THEN PLACES THE SOIL TO THE LEFT OF THE HOLE JUST OPENED, HALF A BUCKET WIDTH FROM THE HOLE SO IT IS HALF IN AND HALF OUT OF THE HOLE. A SECOND HOLE IS THEN EXCAVATED HALF A BUCKET WIDTH TO THE RIGHT OF THE FIRST HOLE. MATERIAL FROM THIS HOLE IS THEN PLACED BETWEEN THE FIRST AND SECOND HOLES. A THIRD HOLE IS NOW OPENED HALF A BUCKET WIDTH TO THE RIGHT OF THE SECOND HOLE, WITH THE EXCAVATED SOIL BEING PLACED BETWEEN THE SECOND AND THIRD HOLES. CARE SHOULD BE TAKEN WHEN EXCAVATING THE HOLES TO SHATTER THE MATERIAL BETWEEN THE HOLES AS DIGGING PROGRESSES. THE PROCESS OF MAKING HOLES AND DUMPING SOIL IS CONTINUED UNTIL THE REASONABLE OPERATING SWING OF THE EXCAVATOR IS REACHED. THE EXCAVATOR THEN BACKS UP THE WIDTH OF THE HOLE AND REPEATS THE PROCESS, BEING SURE TO LINE UP THE HOLES IN THE NEW ROW WITH THE SPACE BETWEEN THE HOLES (MOUNDS) ON THE PREVIOUS ROW.

ONCE AREA IS ROUGH AND LOOSE, SEVERAL OPTIONS FOR ADDITIONAL TREATMENTS ARE AVAILABLE:

- WOODY RESIDUE CAN BE SPREAD OVER THE SURFACE TO PROVIDE ADDITIONAL EROSION PROTECTION, NUTRIENTS, AND SHADING FOR PLANT GROWTH. METHODS FOR WOODY RESIDUE TREATMENTS ARE LOPPING AND SCATTERING, CHIPPING, CRUSHING, AND SHREDDING. THE MINIMUM TREATMENT PER NRCS IS THAT RESIDUE (SLASH) WILL NOT EXCEED 18 INCHES IN HEIGHT IN TREATMENT AREA. ALL SLASH OVER 3 INCHES IN DIAMETER WILL BE CUT INTO 3-5 FOOT LENGTHS. DO NOT OVERLY COVER AREAS WITH RESIDUE AS TO COVER MORE THAN 60% OF THE GROUND. (SEE NRCS SPECIFICATION MT384-1 FOR ADDITIONAL INFORMATION)
- SEED AREA WITH A NATIVE PLANT MIX. ADDITIONAL PLANTINGS OF LOCAL TREES, SHRUBS AND BUSHES CAN BE TRANSPLANTED TO AREA TO SPEED STABILIZATION. IF PLANTINGS OR LIVE PLANTS ARE TO BE USED, PLACE THEM IN THE HOLES CREATED BY THE ROUGH AND LOOSE TECHNIQUE. SEE THE VEGETATION DESCRIPTION AND SPECIFIC SPECIES NAMES FOR THIS ECOSYSTEM (THIS SHEET).

1 **DETAIL**
C3-2 **ROUGH AND LOOSE TREATMENT**
NTS

NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

ROSEBUD EXISTING LANDFILL
DETAILS
ROSEBUD COUNTY, MT

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BOZEMAN, MT 59718
PHONE (406) 582-0221
FAX (406) 582-5770
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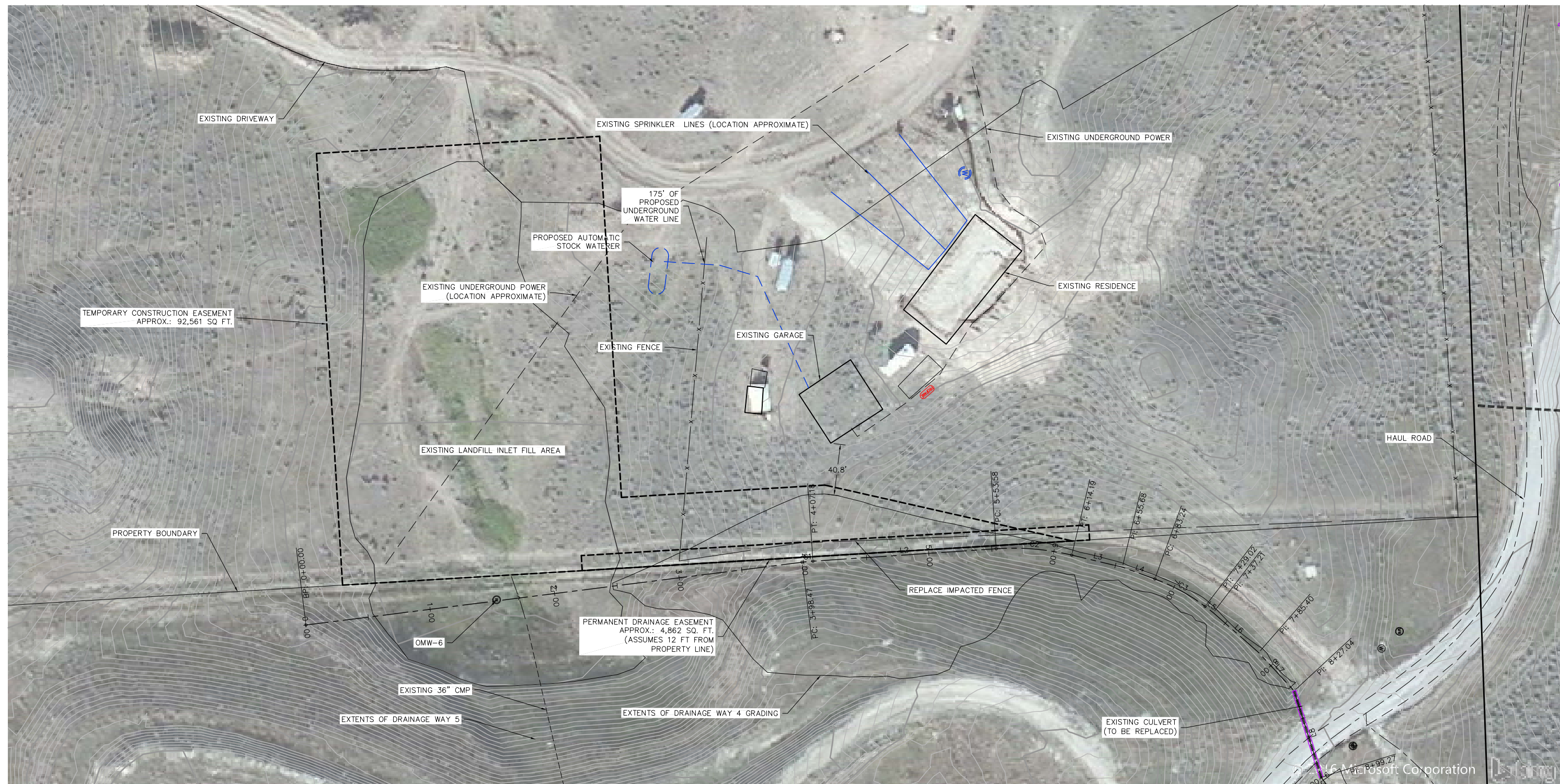
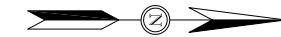
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PROJECT #: 15-125
DATE: 09/14/2017

SHEET
C3-3

DETAILS



NO.	REVISIONS	DRAWN BY	DATE

<p>SCALE (FEET)</p>	
PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
 EASEMENTS - DRAINAGE WAY 4
 ROSEBUD COUNTY, MT**

32 DISCOVERY DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 582-0221
 FAX (406) 582-5770
 www.alliedengineering.com

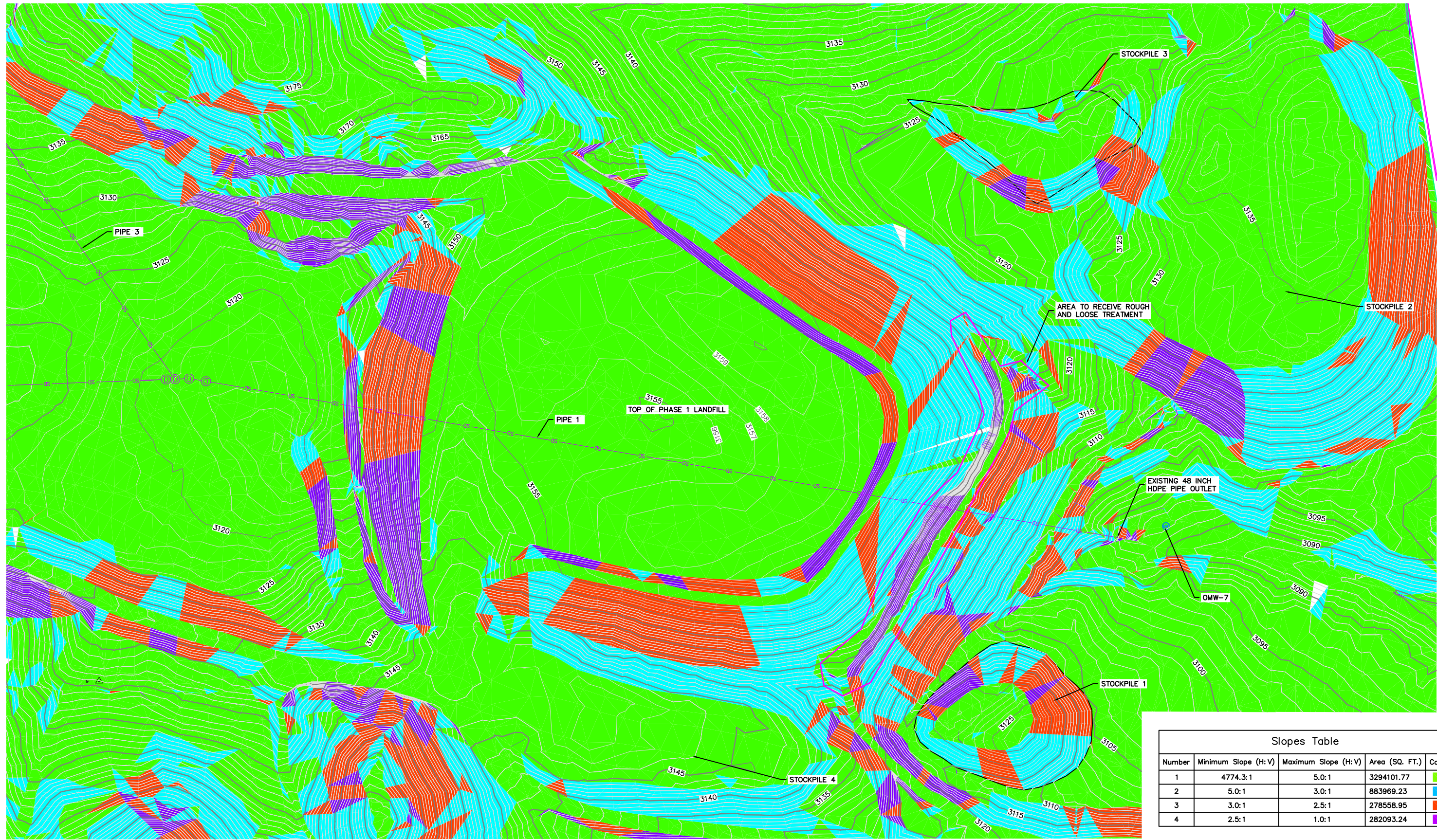
**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT #:	15-125
DATE:	08/01/2017

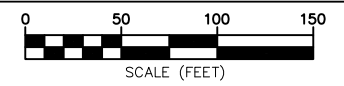
SHEET
E-1
 EASEMENTS - DW 4

P:\2015\15-125 Rosebud Power Plant Ash Disposal Site\09 CAD Data\Existing Landfill Top\DRAINAGE WAY 4 Existing.dwg



Slopes Table				
Number	Minimum Slope (H:V)	Maximum Slope (H:V)	Area (SQ. FT.)	Color
1	4774.3:1	5.0:1	3294101.77	Green
2	5.0:1	3.0:1	883969.23	Blue
3	3.0:1	2.5:1	278558.95	Orange
4	2.5:1	1.0:1	282093.24	Purple

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC DRAWN BY: ASG
 DESIGNED BY: ASG REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
 PHASE 1 LANDFILL SLOPES
 ROSEBUD COUNTY, MT**

32 DISCOVERY DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 582-0221
 FAX (406) 582-5770
 www.alliedengineering.com

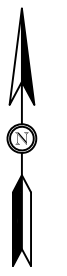
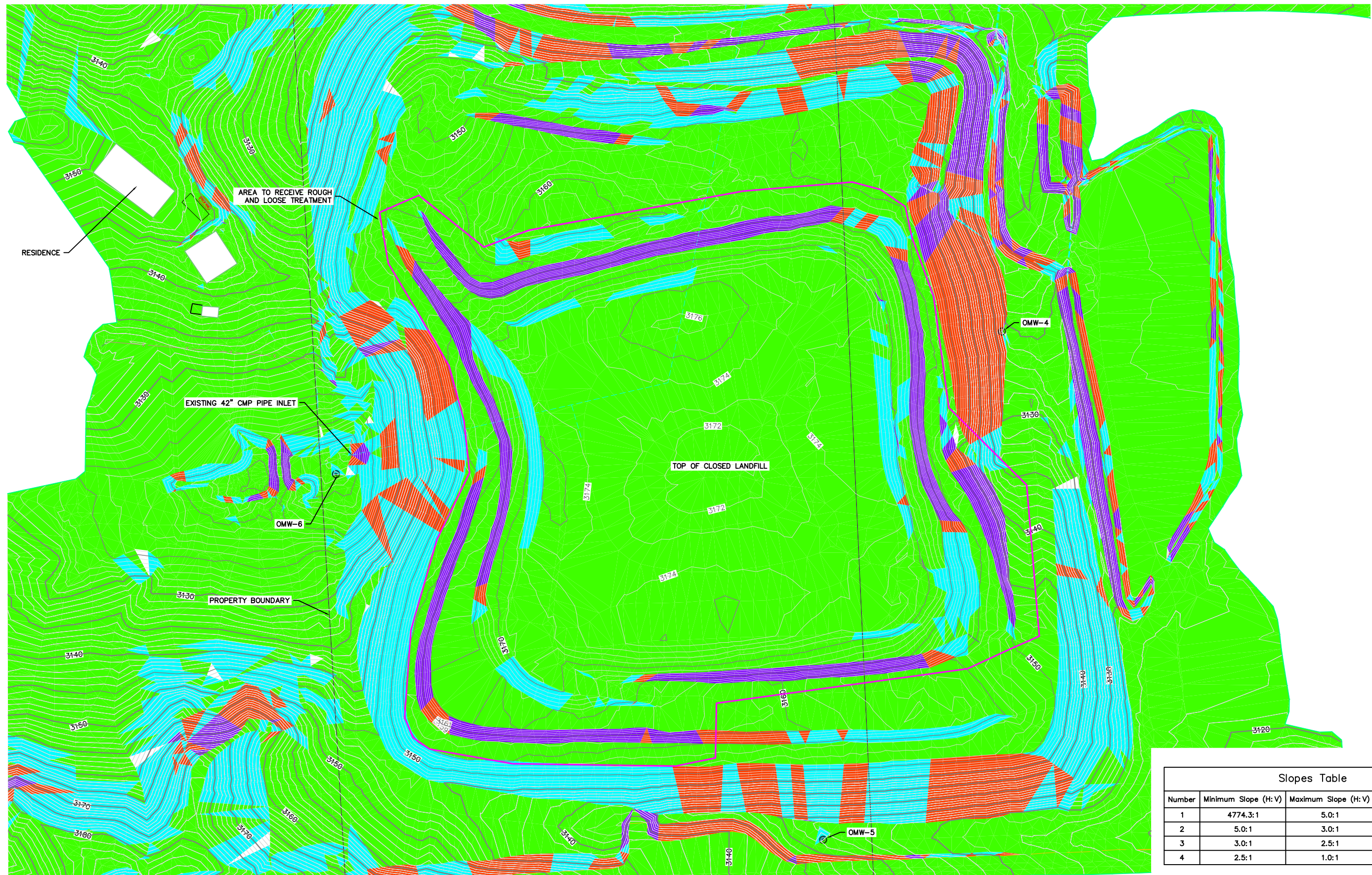
**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT #: 15-125
 DATE: 08/02/2017

SHEET
S-1

P:\2015\15-125 Rosebud Power Plant Ash Disposal Site\09 CAD Data\Existing Landfill Top_SLOPE FIGURE Existing.dwg



Slopes Table				
Number	Minimum Slope (H:V)	Maximum Slope (H:V)	Area (SQ. FT.)	Color
1	4774.3:1	5.0:1	3294101.77	Green
2	5.0:1	3.0:1	883969.23	Blue
3	3.0:1	2.5:1	278558.95	Orange
4	2.5:1	1.0:1	282093.24	Purple

NO.	REVISIONS	DRAWN BY	DATE

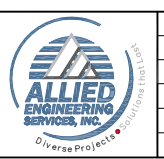
0 60 120 180
SCALE (FEET)

PROJECT ENGINEER: DSC DRAWN BY: ASG
DESIGNED BY: ASG REVIEWED BY: DSC, BDA

**ROSEBUD EXISTING LANDFILL
EXISTING CLOSED LANDFILL SLOPES
ROSEBUD COUNTY, MT**

32 DISCOVERY DRIVE
BOZEMAN, MT 59718
PHONE (406) 582-0221
FAX (406) 582-5770
www.alliedengineering.com

**Civil Engineering
Geotechnical Engineering
Land Surveying**

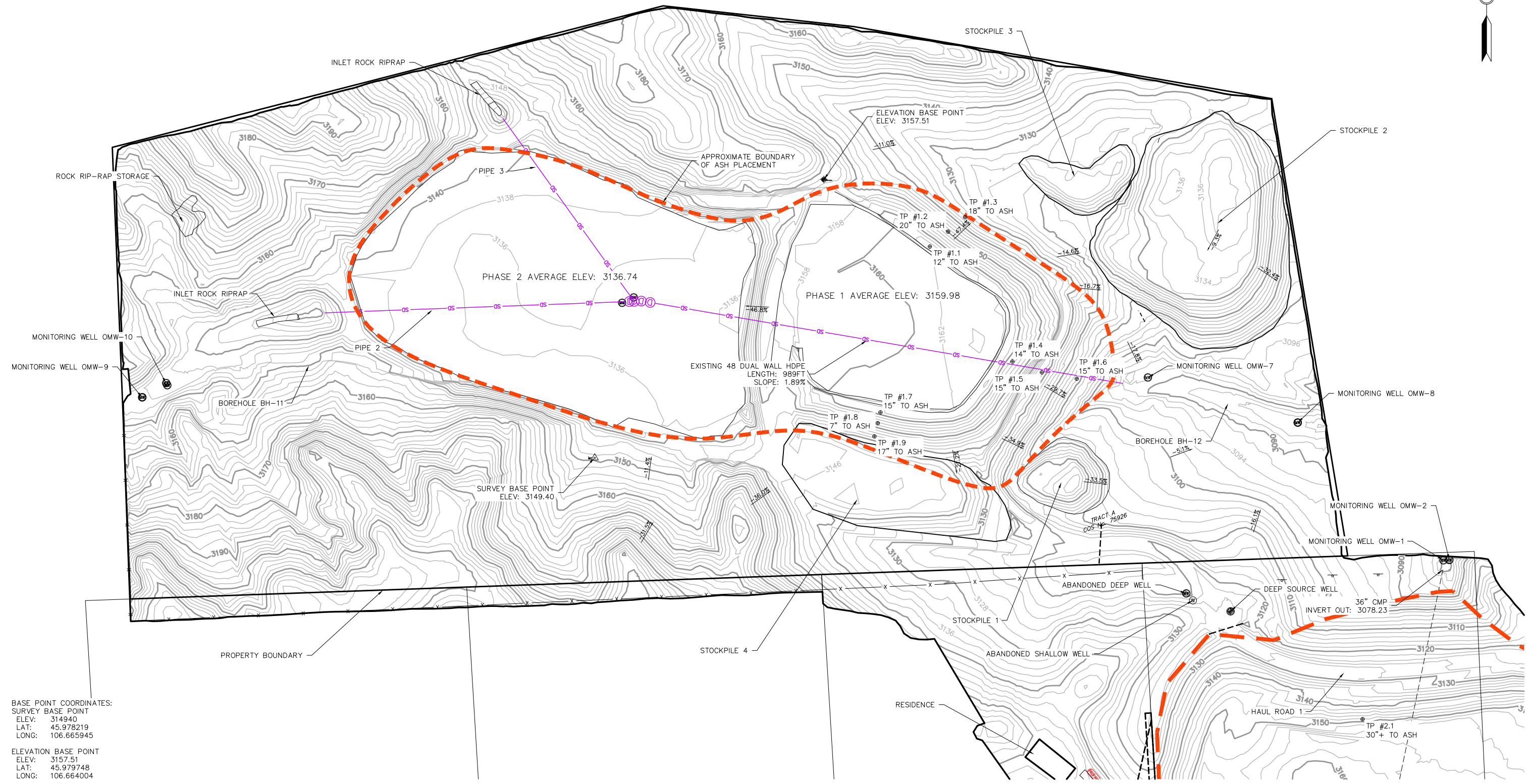


PROJECT #:	15-125	SHEET
DATE:	08/02/2017	
		S-2

P:\2015\15-125 Rosebud Power Plant Ash Disposal Site\09 CAD Data\Existing Landfill Top_SLOPE FIGURE Existing.dwg

Appendix B: Existing Conditions Survey Figure & Soil Cover Inspection Sheets

SURVEY OF PHASE 1 & 2 LANDFILL AND SURROUNDING AREA BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON:
 9/14/15 BY GREG FINCK OF AESI
 1/27/16 BY GREG FINCK AND KYLE THOMPSON OF AESI
 11/9/16 BY ANDREW GRAHAM OF AES
 11/14/17 BY ANDREW GRAHAM OF AESI



BASE POINT COORDINATES:
 SURVEY BASE POINT
 ELEV: 3149.40
 LAT: 45.978219
 LONG: 106.665945
 ELEVATION BASE POINT
 ELEV: 3157.51
 LAT: 45.979748
 LONG: 106.664004

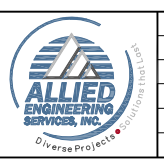
NO.	REVISIONS	DRAWN BY	DATE

<p>SCALE (FEET)</p>	
PROJECT ENGINEER: DSC	DRAWN BY: ASG
DESIGNED BY: ASG	REVIEWED BY: DSC, BDA

**ROSEBUD SURVEY FIGURE
 2017 ACTIVE LANDFILL (AS-BUILT)
 ROSEBUD COUNTY, MT**

32 DISCOVERY DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 582-0221
 FAX (406) 582-5770
 www.alliedengineering.com

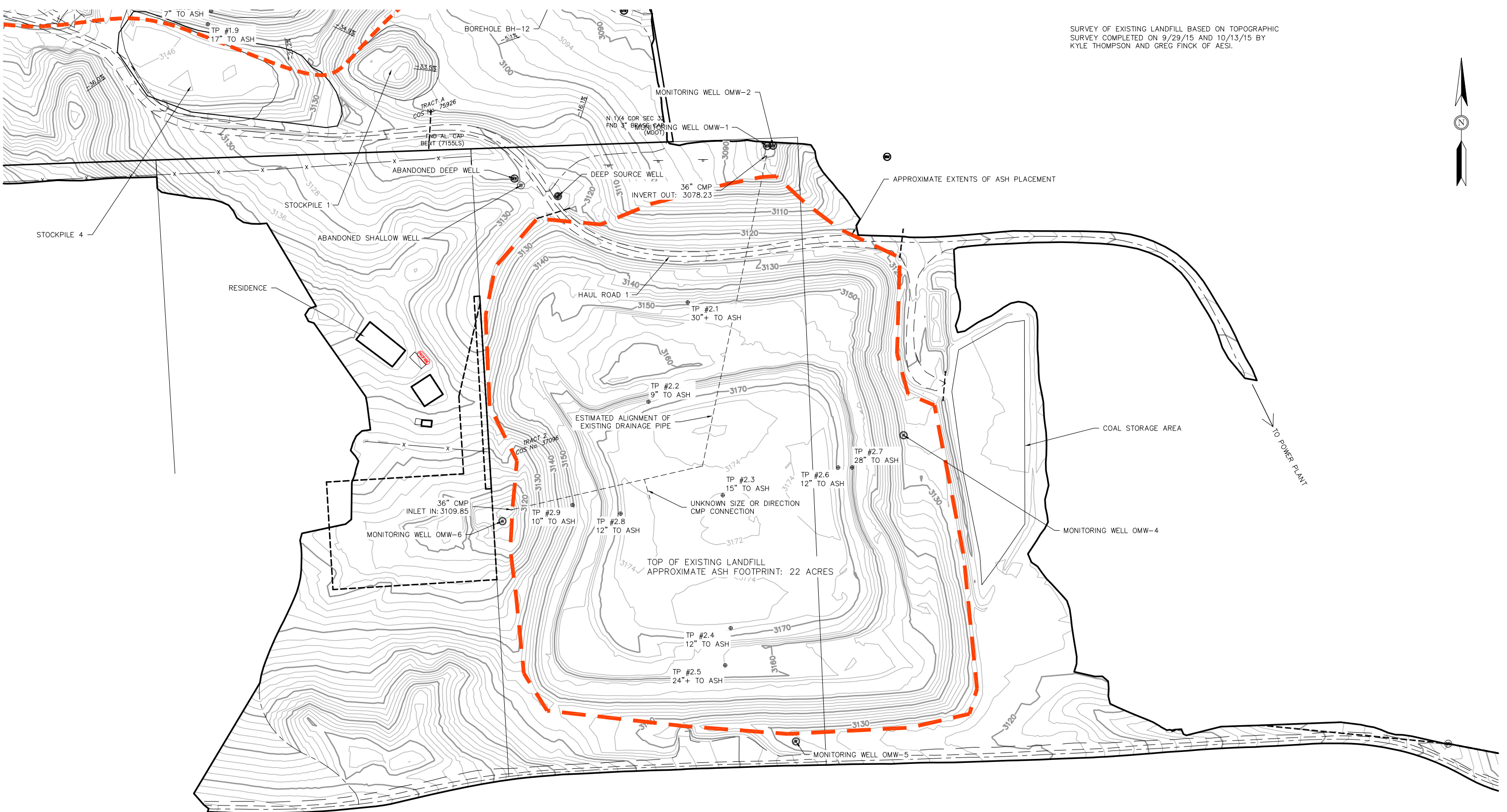
**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT #: 15-125	SHEET
DATE: 11/16/2017	1
AS-BUILT FIGURE	

C:\Users\m\Designs\2015\15-125 Rosebud Power Plant Ash Disposal Site\29 CAD-Production\Grading\EXISTING CONDITIONS.dwg

SURVEY OF EXISTING LANDFILL BASED ON TOPOGRAPHIC SURVEY COMPLETED ON 9/29/15 AND 10/13/15 BY KYLE THOMPSON AND GREG FINCK OF AESI.



NO.	REVISIONS	DRAWN BY	DATE

0 100 200 300
SCALE (FEET)

PROJECT ENGINEER: DSC DRAWN BY: ASG
DESIGNED BY: ASG REVIEWED BY: DSC, BDA

**ROSEBUD SURVEY FIGURE
EXISTING LANDFILL
ROSEBUD COUNTY, MT**

32 DISCOVERY DRIVE
BOZEMAN, MT 59718
PHONE (406) 582-0221
FAX (406) 582-5770
www.alliedengineering.com

**Civil Engineering
Geotechnical Engineering
Land Surveying**



PROJECT #: 15-125	SHEET
DATE: 11/16/2017	2
EXISTING LANDFILL	

C:\Users\j\Design\2015\15-125 Rosebud Power Plant Ash Disposal Site\29 CAD-Production\Grading\EXISTING CONDITIONS.dwg

Appendix C: Rosebud Power Plant Inspection Reports – Dated 1/13/17 thru 12/29/17

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken M. Farland
 DATE & TIME INSPECTED: 221 1/13/17
 WEATHER (temperature, wind, precipitation): 24° Clear Sunny
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 ft below beam

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10 ft / estimate

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		-	
(3) Any cracking?		-	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓	okay	
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow Covered

C. Areas without Vegetation due to erosion (describe location and size of area)

None - Snow Covered

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

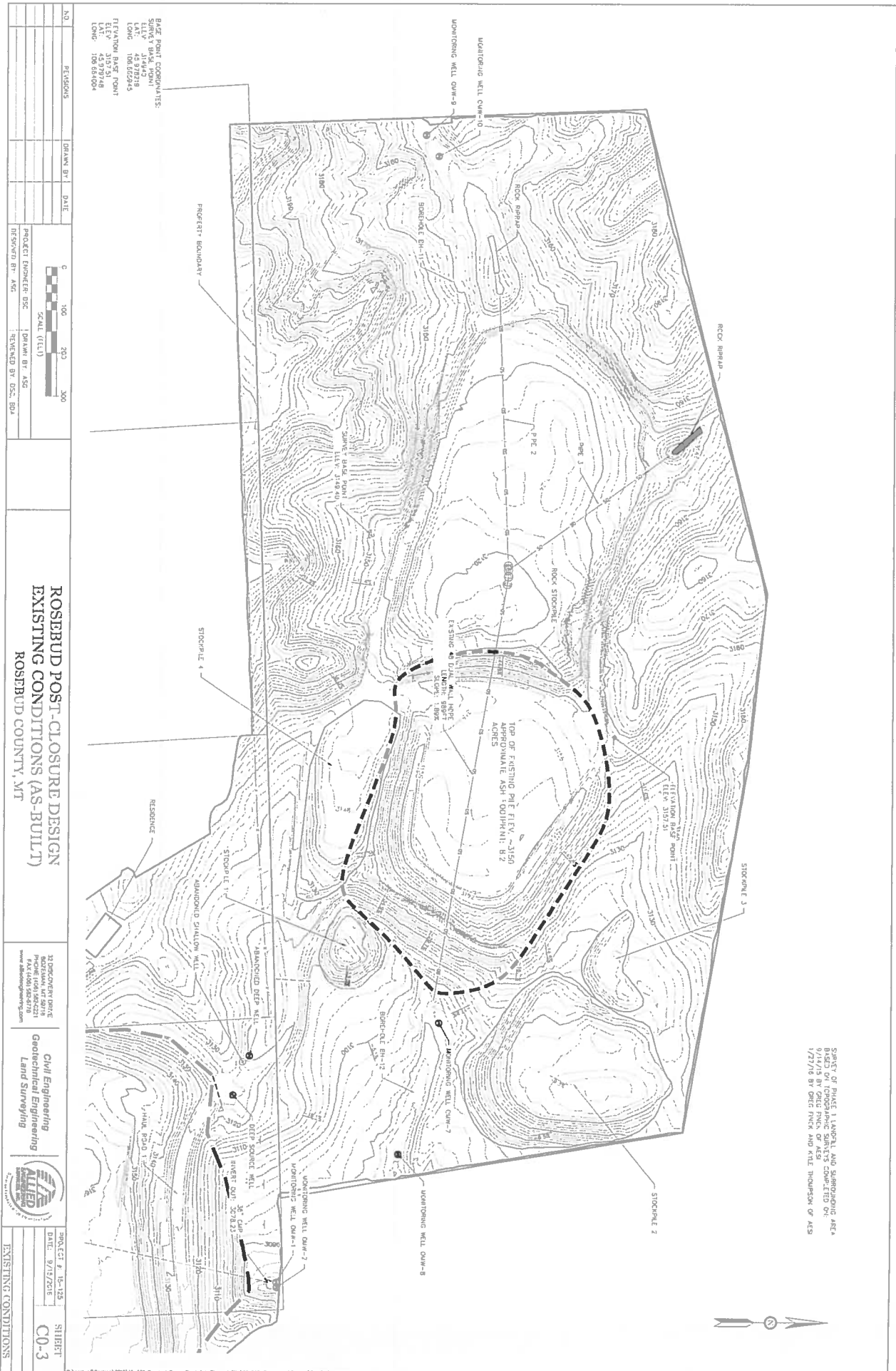
None Snow Covered

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS
(Use additional pages, if necessary, include pictures as needed)

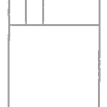
This inspection was performed by *[Signature]* Signature and Date: *1/13/17*
2



SHADES OF GRAY LANDS, AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS CONDUCTED ON:
 1/27/78 BY GREG FRANK AND NIEL THOMPSON OF ASG

BASE POINT COORDINATES
 SURVEY BASE POINT
 ELEV 3154.00
 NAD 83
 LONG 108.652945
 ELEVATION BASE POINT
 ELEV 3157.51
 NAD 83
 LONG 108.684094

NO	REVISIONS	DRAWN BY	DATE



SCALE (FEET)
 PROJECT ENGINEER, DISC
 DRAWN BY: ASG
 REVISIONS BY: ASG
 REVISIONS BY: DISC, SDA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

33 BROADWAY DRIVE
 BUTTE, MONTANA 59701
 PHONE (406) 582-5231
 FAX (406) 582-5178
 WWW.ASGENGINEERING.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT # 15-125
 DATE 9/15/2016
 SHEET
 C0-3
 EXISTING CONDITIONS

**ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT**

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services, INC

INSPECTOR: Loed Tompkins

DATE & TIME INSPECTED: 026 hrs. 1/20/17

WEATHER (temperature, wind, precipitation): 40-43°F, Slight West Wind, Rain earlier today

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 ft below berm - No Activity in phase 1

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>Good - phase I & II</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?			
(12) Any visible water/runoff spill points?			Snow melt in all areas
(13) Pipe Condition?	✓		
(14) Water flowing from pipe?		✓	None at Inlet Visible None at Outlet
(15) Any pooling or ponding at pipe inlet or outlet?		✓	Inlet & Outlet Snow Covered
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	" " " " "
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow Covered bare in spots due to melting

C. Areas without Vegetation due to erosion (describe location and size of area)

No - snow melting - no erosion

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

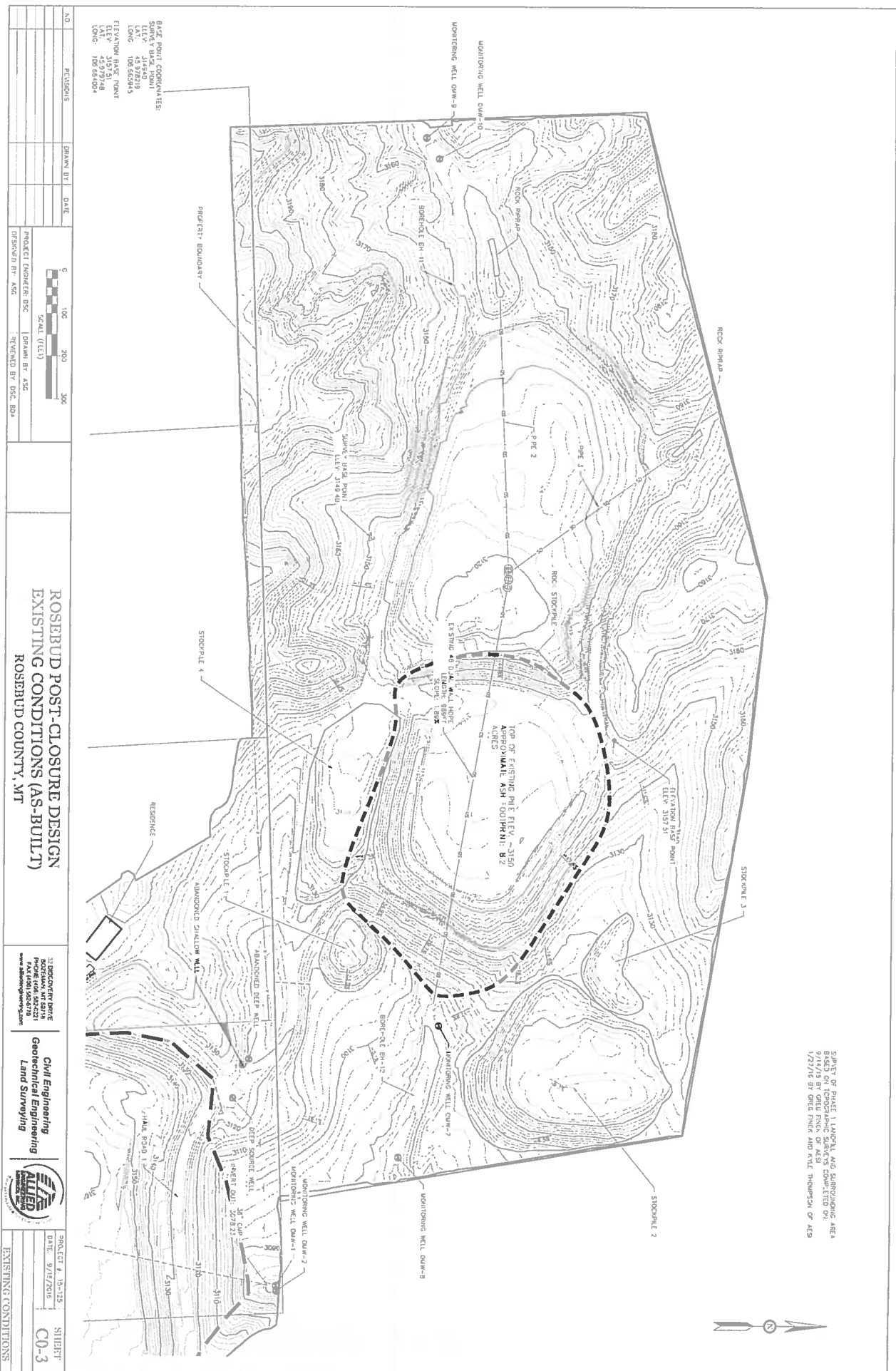
No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

No New Erosion noticed due to snow melt

This inspection was performed by: John L. [Signature] Signature and Date: 11/20/17



NO.	REVISIONS	DRAWN BY	DATE



SCALE (FEET)
 PROJECT ENGINEER: DSC
 DRAWN BY: ASC
 CHECKED BY: DSC, DDA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

33 DISCOVER PARK
 PROJECT #04 332223
 FAX (406) 524-8770
 www.discoverpark.com

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 13-113	SHEET
DATE 9/12/2016	C0-3
EXISTING CONDITIONS	

SHADES OF PHASE 1 LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 1/17/12 BY GREAT NORTH AND NEIL THOMPSON OF AS9

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 2:30 1/27/17
 WEATHER (temperature, wind, precipitation): 35° 10-15 mph - Clear sky
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 ft below beam No activity in Phase I

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

8-10' below beam

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>Good Both Phase I + II</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?			Snow melting in areas
(13) Pipe Condition?	✓		okay
(14) Water flowing from pipe?		✓	Still frozen inlet + outlet
(15) Any pooling or ponding at pipe inlet or outlet?		✓	" " "
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	" " "
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow Covered

C. Areas without Vegetation due to erosion (describe location and size of area)

No - Snow Covered

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

No Erosion from Snow melt at this time.

This inspection was performed by: K. McJell 4/27/17 Signature and Date:

PROPERTY OF
 STATE OF MONTANA
 DEPARTMENT OF LAND AND WATER
 DIVISION OF LAND SURVEYING
 1575 N. BRIDGE STREET, SPOKANE, MT 59201
 (509) 325-3300



BASE POINT COORDINATES:
 POINT B
 ELEV. 3149.0
 LAT. 45.97218
 LONG. 106.82845
 POINT C
 ELEV. 3153.0
 LAT. 45.97318
 LONG. 106.83000

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC
 DRAWN BY: ASG
 CHECKED BY: DSC, BDJ

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

2100 ROBERTS DRIVE
 SPOKANE, MT 59201
 PHONE (509) 325-2231
 FAX (509) 325-2271
 WWW.GEOTECHNICALSURVEYING.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 15-125
 DATE 9/15/2015
 SHEET
 C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 2/15/17 156
 WEATHER (temperature, wind, precipitation): Clear - 37°F
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 ft below berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

8-10' below berm Adding Daily

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	-		<u>okay</u>
(7) Height of Berm above Ash Surface (ft)	✓		<u>Good Both Phases I+II</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?		✓	
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	Snow Covered
(13) Pipe Condition?			okay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow Covered

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

Still snow covered

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS
(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: K. McFall 2/5/17 Signature and Date:



SURVEY OF PLACES IN LANDS AND SURROUNDING AREA
 9/1/15 BY DEE RICH OF ALSI
 1/27/16 BY DEE RICH AND KYLE THOMPSON OF ALSI

BACK POINT COORDINATES:
 SINKY BASIN POINT
 ELEV. 3144.0
 LONG. 106.652945
 ELEVATION BACK POINT
 ELEV. 3157.51
 LONG. 106.644094

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC
 DRAWN BY: ASD
 REVISION BY: DSC, BDA

ROSEBUD POST-CLOSURE DESIGN EXISTING CONDITIONS (AS-BUILT) ROSEBUD COUNTY, MT

2200 DICKERSON DRIVE
 ROSEBUD, MT 59718
 PH: (406) 526-7272
 WWW.ALSIENGINEERING.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT # 15-125
 DATE 7/19/2015
 SHEET
 C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROSI

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 2-13-17 0847

WEATHER (temperature, wind, precipitation): 29°F - NW Wind - 10-15 mph

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 feet below berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

8' to 10' below west berm - Adding daily

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>2-3' phase I - phase II Good</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	Water has been running through pipe - froze again now
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		Good
(14) Water flowing from pipe?		No	- frozen now
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Partial Snow Cover - Melting this week

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:

J. Zimmerman

2-13-17

Signature and Date:

NO.	PROJECT	DATE	0	100	200	300
PROJECT ENGINEER: DSC			DRAWN BY: ASG			
DESIGNED BY: ASG			CHECKED BY: DSC, BPA			



BASE POINT COORDINATES:
 SURVEY BASE POINT:
 ELEV. 3197.51
 LONG. 106.562845
 ELEVATION BASE POINT:
 ELEV. 3107.31
 LONG. 106.581009

EXTENT OF PHASE 1 LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 9/14/15 BY GREG FINCK OF AES
 1/27/16 BY GREG FINCK AND KYLE THOMPSON OF AES

ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

1108 GREEN DRIVE
 ROSEBUD, MT 59131
 PHONE: (406) 585-7772
 FAX: (406) 585-7778
 WWW.ALSIGNED.COM

CHIL ENGINEERING
 GEOTECHNICAL ENGINEERING
 LAND SURVEYING



PROJECT # 15-115
 DATE: 9/15/2018
 SHEET C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROSE

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 2-17-17

WEATHER (temperature, wind, precipitation): 55°F - Clear 17 MPH wind

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 foot below berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

3'-10' below west berm - Adding daily

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>2-3' phase I - phase II OK</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		OK
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Most Snow Gone - No major erosion

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: *J. J. [Signature]* Signature and Date: *2-17-17*

NO.	REVISION	DRAWN BY	DATE



PROJECT ENGINEER: ASG
 DRAWN BY: ASG
 CHECKED BY: ASG
 REVIEWED BY: DSC, BDA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

3200 COUNTY DRIVE
 PHOENIX, AZ 85018
 PHONE (602) 952-2271
 FAX (602) 952-2270
 WWW.GEOTECHNICAL.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 15-125
 DATE 9/17/2018
 SHEET
C0-3
 EXISTING CONDITIONS



MONITORING WELL OW-9
 MONITORING WELL OW-10
 MONITORING WELL OW-11
 MONITORING WELL OW-12
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ROCK RIPRAP
 ROCK STORAGE
 STORAGE PILE 1
 STORAGE PILE 2
 STORAGE PILE 3
 RESIDENCE
 ABANDONED SHALLOW WELL
 ABANDONED DEEP WELL
 DEEP SOURCE WELL
 RIVERS DAM 207822
 ST. CAP
 VALLEY ROAD 1
 PROJECT BOUNDARY

TOP OF EXISTING PIPE FLEV. ~3150
 APPROXIMATE ASH FODDERHILL: R 2
 ADRES
 EXISTING 20' DIA. 11' HIGH
 LIGHT BERT
 SLOPE: 80%



DATE: 9/17/2018 11:18:23 Resbud Post-Closure Design Plot: Asg (Sheet) 15-125 C:\Users\asg\Desktop\15-125-03-Production\Layouts\15-125-03-01-01.dwg

**ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT**

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Ken McFarland Rosebud Operating Services
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 2/24/17 9:01
 WEATHER (temperature, wind, precipitation): 26° 11 mph East
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' 4'

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' plus

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		<u>okay</u>
(7) Height of Berm above Ash Surface (ft)	✓		<u>2'-4'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	Frozen ground
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow covered

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS
(Use additional pages, if necessary, include pictures as needed)

No

This inspection was performed by:

[Handwritten Signature]

2/24/17
Signature and Date:



STATUS OF PLANT 1, LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 9/11/15 BY OREG PDKS OF ASB
 1/27/16 BY OREG PDKS AND MTL PROPOSOR OF ASB

BASE POINT COORDINATES:
 SUNK Y BASE POINT
 ELEV 3149.10
 LONG 106.652945
 ELEVATION BASE POINT
 ELEV 3157.51
 LONG 106.649094

NO.	REVISIONS	DRAWN BY	DATE
PROJECT ENGINEER: DSC		DRAWN BY: ASG	
DESIGNED BY: ASG		REVIEWED BY: DSC, DDA	

ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

22 DECEMBER 2016
 ROSEBUD, MT 59718
 PROJECT NO. 15-123
 SHEET NO. C0-3
 www.alliedsurvey.com

Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT #	15-123	SHEET	
DATE	9/15/2016		
		C0-3	
EXISTING CONDITIONS			

**ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT**

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: LARRY TULLO ROSI
 INSPECTOR: LARRY TULLO
 DATE & TIME INSPECTED: 3/10/17 0:37
 WEATHER (temperature, wind, precipitation): Cloudy
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

9' to 9'

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' Phase

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :
 If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		<u>OK</u>
(7) Height of Berm above Ash Surface (ft)	✓		<u>0' 4'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		✓	Snow
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow covered

C. Areas without Vegetation due to erosion (describe location and size of area)

Snow covered

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

Snow covered

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

NO

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:

[Handwritten Signature]

Signature and Date:

3/10/17

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services Inc.

INSPECTOR: Ken M. Farland

DATE & TIME INSPECTED: 3/17/17

WEATHER (temperature, wind, precipitation): 40° Scattered Clouds. 0-5 mph wind

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-4' Berms

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

20' Berms

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓	.	oKay
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?		✓	oKay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

No new growth yet.

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

Snows melting - wet

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

oKay

This inspection was performed by:

K McJLH 3/17/17

Signature and Date:

NO.	REVISIONS	
	DATE	BY
PROJECT ENGINEER: DSC		
DRAWN BY: ASB		
CHECKED BY: DSC, BDA		

SCALE (FEET)	0	100	200	300

ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

23 DICKSON DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 552-2221
 WWW.ALIEDENGINEERING.COM

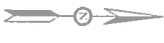
Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT # 15-125	SHEET
DATE: 9/15/2015	
EXISTING CONDITIONS	C0-3



SURVEY OF PLATE 1, LOCAL AND SURROUNDING AREA
 9/14/15 BY CHRIS FINCH OF AEG
 1/27/16 BY CHRIS FINCH AND KYLE THOMPSON OF AEG



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 3/25/17 12:05 pm
 WEATHER (temperature, wind, precipitation): 70° no wind
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-4'

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

16'-20'

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide Insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	<u>Bladed heaves down of material</u>
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?			OKAY
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			OKAY
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?			
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Seeded last fall - Some grass growing on Berms & Stock Piles.

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

good

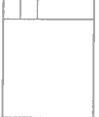
This inspection was performed by: Ken McFell 3/25/17 Signature and Date:

PLANET OF PAKET 1, LANDS AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 1/27/16 BY DEE FRENCH AND TYLE THOMPSON OF AEP



BASE POINT COORDINATES:
 SURVEY BASE POINT
 LAT: 45.978719
 LONG: 106.652845
 ELEVATION BASE POINT
 LEL: 25.973748
 LOM: 106.647004

NO.	REVISIONS	DRAWN BY	DATE



SCALE (FEET)
 PROJECT ENGINEER: DSC
 DRAWN BY: ASG
 CHECKED BY: DSC, BDA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

33 DISCOVERY DRIVE
 PHOENIX, ARIZONA 85004
 PHONE: (602) 954-2220
 FAX: (602) 954-2170
 WWW.AEPENGINEERING.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 15-119
 DATE: 9/12/2015
 SHEET
C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services
 INSPECTOR: Solun Polites
 DATE & TIME INSPECTED: 2:49 3-31-17
 WEATHER (temperature, wind, precipitation): 50 5-10 from NW
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-4' visual

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-15 feet visual

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide Insp. Map)

Any Issues From Previous Week/Inspection? NO:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>good</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		—	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Spoty vegetation from last fall seeding

C. Areas without Vegetation due to erosion (describe location and size of area)

no

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

no

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

no

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

good

This inspection was performed by: *J. B. B.* *3-31-17* Signature and Date:

NO.	REVISIONS	DRAWN BY	DATE	SCALE (FEET)		
				0	100	200
				300		
PROJECT ENGINEER, DSC				DRAWN BY, ASG		
PROJECTED BY, ASG				REVIEWED BY, DSC, BDA		

**ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT**

2208 COVENEY DRIVE
ROSEBUD, MT 59718
PHONE: (406) 838-9980
FAX: (406) 526-8773
www.alliedeng.com



PROJECT # 13-135	SHEET
DATE 9/12/2015	C0-3
EXISTING CONDITIONS	



PORTION OF MAP AND SURROUNDING AREA
BASED ON TOPOGRAPHIC SURVEY COMPLETED ON
9/11/15 BY GREG PENCE OF AEGS
1/27/16 BY GREG PENCE AND KYLE THOMPSON OF AEGS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROSI

INSPECTOR: Aaron J. Felton

DATE & TIME INSPECTED: Nov-17 10:42

WEATHER (temperature, wind, precipitation): Cloudy 79°

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2 to 4'

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-20'

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide Insp. Map)

Any Issues From Previous Week/Inspection? NO :
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		OK
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Seeded last Fall

C. Areas without Vegetation due to erosion (describe location and size of area)

NO

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NO

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

NO

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Good

This inspection was performed by: [Signature] 4/6/17 Signature and Date:

NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER, P.E.	DRAWN BY, A.S.C.
CHECKED BY, A.S.C.	CHECKED BY, P.E., D.B.

**ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT**

1100 SOUTHWEST AVE
ROSEBUD, MONTANA
PHONE (406) 525-2231
WWW.ALIENLAND.COM

Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT #	15-135	SHEET	C0-3
DATE	9/15/2016	EXISTING CONDITIONS	



635
3397

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROST

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 4/17/17 0903 hrs

WEATHER (temperature, wind, precipitation): 49°F, Cloudy, 13MPH ESE wind - No Rain

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3 ft below top of berms - visual

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-15 ft below top of berms - visual

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2-3 ft</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		—	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Vegetation starting - spotty

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

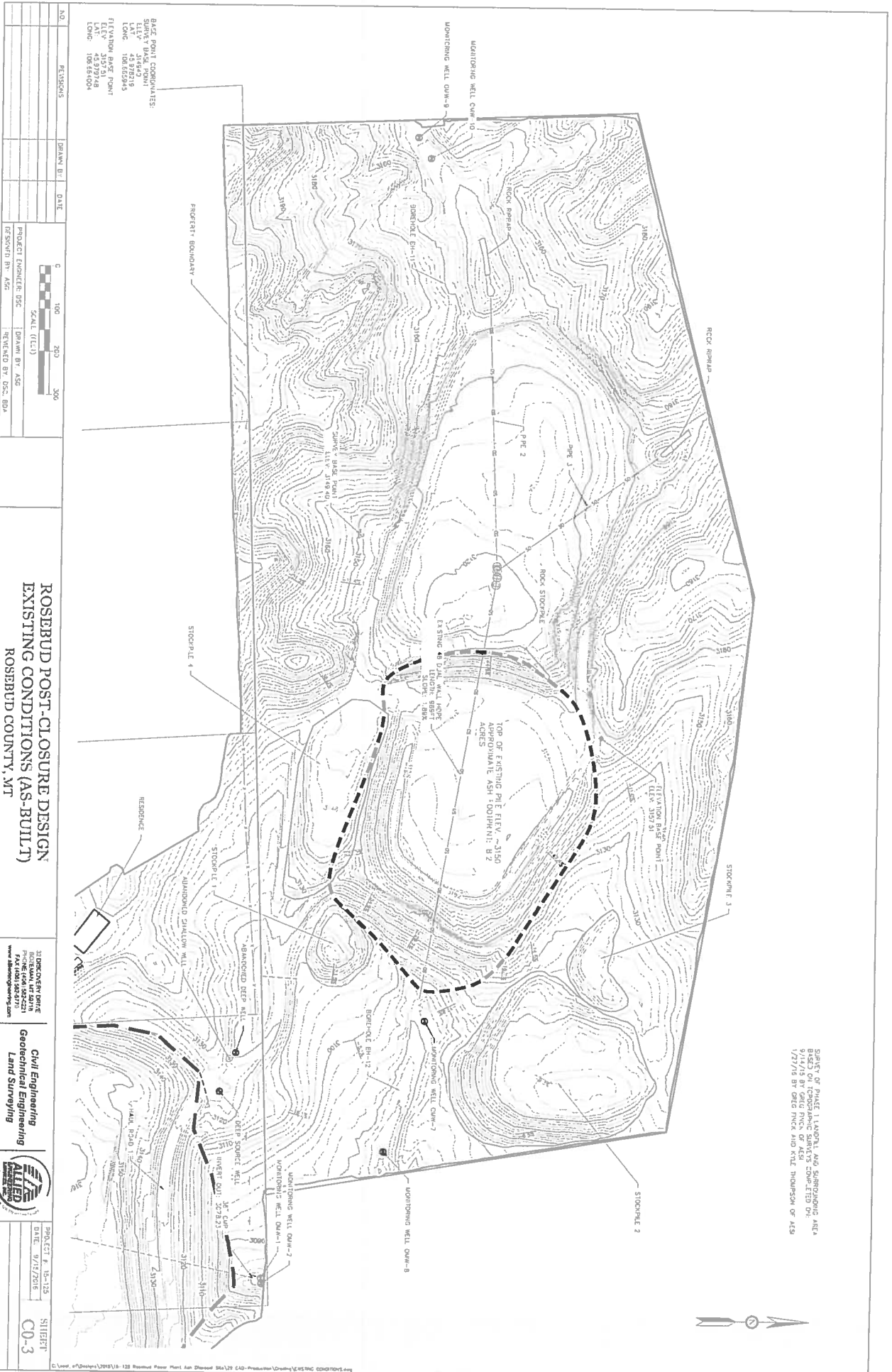
2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: Jeff J. [Signature] 4-17-17 Signature and Date:



SHADES OF PLATE 1, LOCAL AND SURROUNDING AREA
 9/14/15 BY GREG FINCK OF AEG
 1/27/16 BY GREG FINCK AND KYLE THOMPSON OF AEG

BASIC POINT COORDINATES
 SURVEY BASE POINT
 LAT 45.972719
 LONG 108.662945
 ELEVATION BASE POINT
 LAT 45.972719
 LONG 108.661004

NO.	REVISIONS	BY	DATE



PROJECT ENGINEER: DSC
 DRAWN BY: ASG
 CHECKED BY: DSC, BDA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

DESIGNED BY: DSC
 DRAWN BY: ASG
 CHECKED BY: DSC, BDA

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 15-125
 DATE 9/17/2015
 SHEET
 C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services Inc.

INSPECTOR: Ken McFarland

DATE & TIME INSPECTED: 4/21/17 150

WEATHER (temperature, wind, precipitation): 56°F partly sunny wind 3 mph.

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-3' below top berms

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' below top berms

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		-	
(11) Any visible water pooling or ponding?		-	
(12) Any visible water/runoff spill points?		-	
(13) Pipe Condition?	✓		
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Some vegetation showing

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

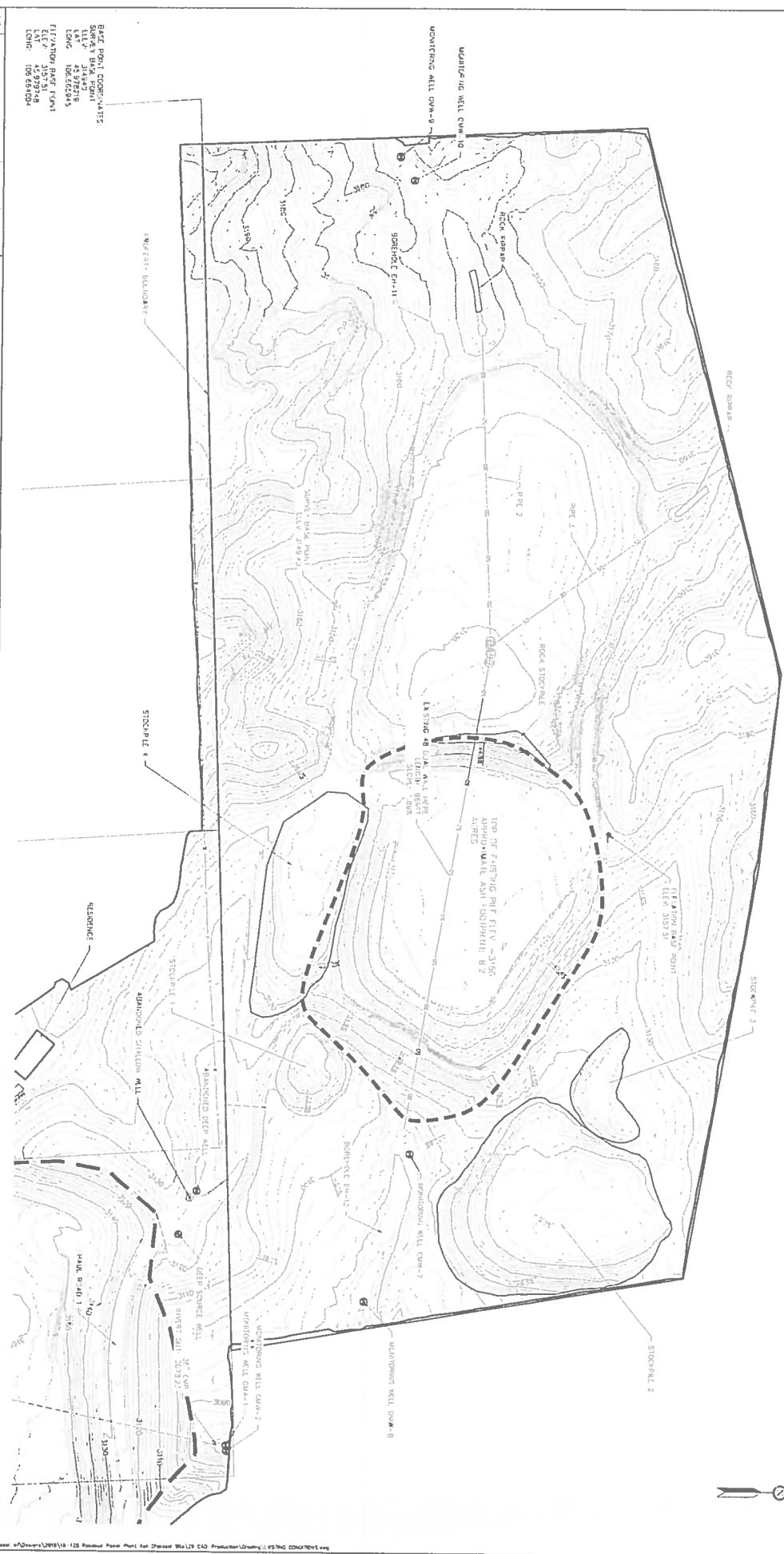
No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: Ray McJannet Signature and Date: 4/21/17

SHEET OF PLATE 1, AREA AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SHEET 55-206-100 OF
 1/27/76 BY OPEN RANGE AND FINE THOMPSON OF AS9



NO.	REVISION	BY	DATE



ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

22 DUNDAS DRIVE
 ROSEBUD, MT 59131
 P.O. BOX 156517
 BILLINGS, MT 59115
 www.as9eng.com

Civil Engineering
Geotechnical Engineering
Land Surveying

200-427-7111
 DATE: 9/1/2011

SHEET
C0-3

EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: RCSI

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 5-12-17

WEATHER (temperature, wind, precipitation): 61°F - 5 MPH South Wind - dry

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2 to 3' below top of berms

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' to 16' below top of berms

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>OK - 2 to 3' above</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Vegetation is sparse on main berm, but still coming in

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

having phase I capped with water/soap solution on ~~open~~ ^{open} 4th surface

This inspection was performed by:

John J. Janssen

Signature and Date:

5-12-17

SURVEY OF PLATE 1 LANDFILL AND SURROUNDING AREA
AS SHOWN ON GEODESIC SURVEYS COMPLETED ON
1/27/15 BY GREG FRICK AND KYLE THOMPSON OF K&S



NO 1	PLANSHEET	DATE	SCALE

ROSEBUD POST-CLOSURE DESIGN EXISTING CONDITIONS (AS-BUILT) ROSEBUD COUNTY, MT

Civil Engineering
Geotechnical Engineering
Land Surveying

PROJECT # 15-125	SHEET #
DATE 9/15/2015	C0-3
EXISTING CONDITIONS	

BUREAU OF LAND MANAGEMENT
STATE OF MONTANA
ELEVATION
LONGITUDE
UTM ZONE
UTM EASTING
UTM NORTHING

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 843 am 9/19/17 36° 8 mph NE
 WEATHER (temperature, wind, precipitation): _____
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' Below Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' Below top of Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? None :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		/	
(3) Any cracking?		/	
(4) Any traffic or animal damage?		/	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	/		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>OKay</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		-	
(12) Any visible water/runoff spill points?		-	
(13) Pipe Condition?	✓		
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Some vegetation growing

C. Areas without Vegetation due to erosion (describe location and size of area)

NO

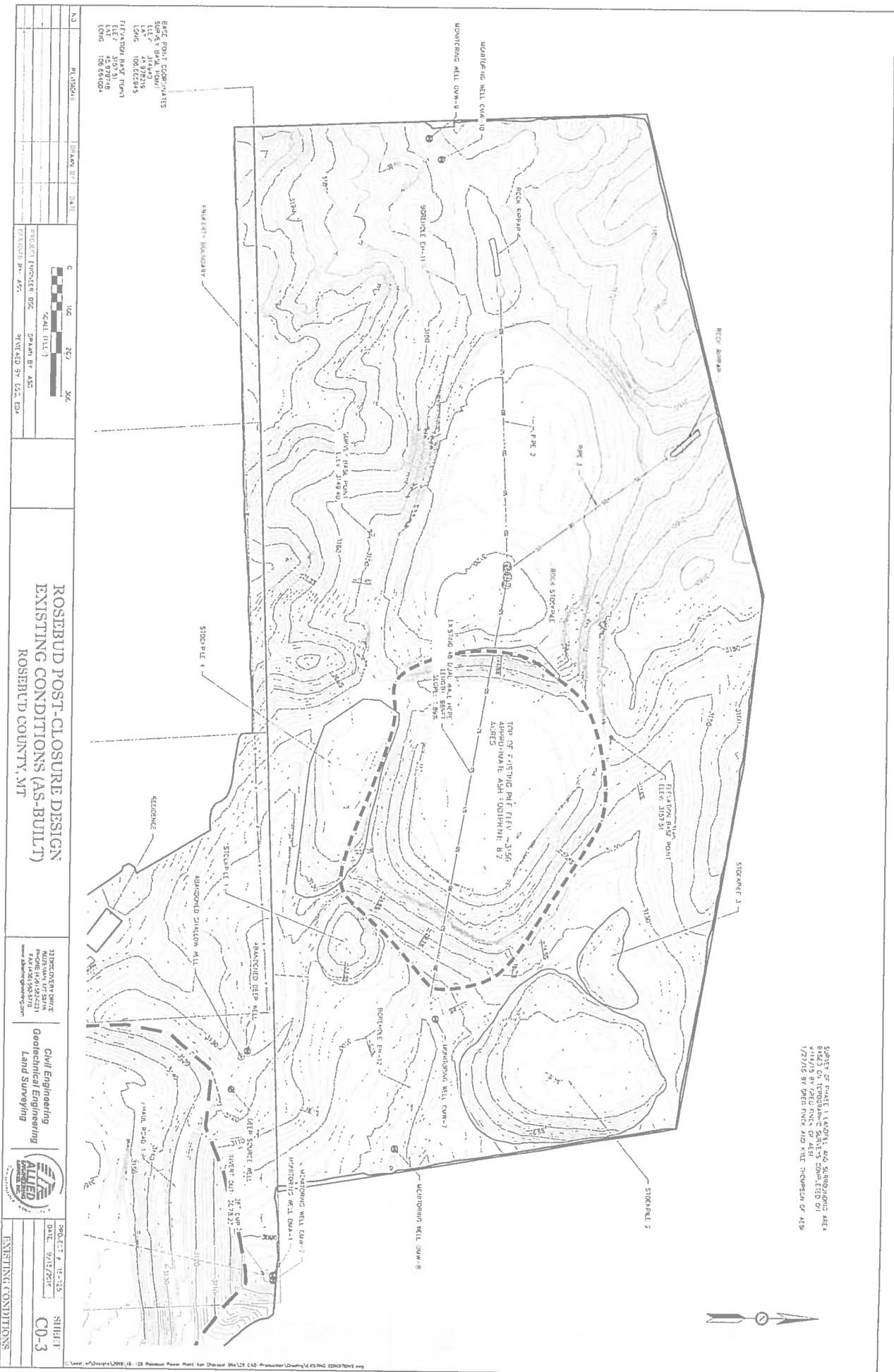
D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NO

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS
(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: K. McJill 5/19/17 Signature and Date:



SPRINT OF PLATE 1, LAND AND SURROUNDING AREA
 BASED ON RECONSTRUCTION SURVEY CONDUCTED BY
 1/27/10 BY DEE RICH AND KEIL THOMPSON OF ASR

PROJECT	ROSEBUD POST-CLOSURE DESIGN
PROJECT NO.	455
DATE	9/15/2014
DRAWN BY	ASR
REVIEWED BY	CSJ, EDJ



**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)**
 ROSEBUD COUNTY, MT

3300 GREEN DRIVE
 BUTTE, MONTANA 59701
 PHONE (406) 592-2211
 WWW.ASRENGINEERING.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



DATE: 9/15/2014
 SHEET: C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 5/26/17 820
 WEATHER (temperature, wind, precipitation): 49° Partly Cloudy WNW 9 mph
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):
2'-3' Below berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):
10'-15' Below Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? None :
 If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

Worked an Erosion area East end pit phase I

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>okay</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			okay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

growth is showing

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

okay

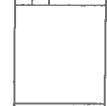
3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Work on Erosion area Phase I

This inspection was performed by: K. McFalls 5/26/17 Signature and Date:

NO.	REVISIONS	DATE	BY



PROJECT ENGINEER: JSC
 DRAWN BY: ASD
 CHECKED BY: GSC, BSA

ROSEBUD POST-CLOSURE DESIGN EXISTING CONDITIONS (AS-BUILT)

33 DOW GARDEN DRIVE
 ROSBUD, MONTANA 59723
 PHONE (406) 932-2233
 FAX (406) 932-2775
www.rosebudpostclosure.com

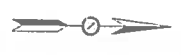
**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



DATE: 9/12/2016
 SHEET: C0-3
 PROJECT: EXISTING CONDITIONS



PROPERTY OF PRIVATE LANDLORDS AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 10/17/15 BY GSC, BSA, AND THE PERSONNEL OF AEG



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROSI

INSPECTOR: LARRY FACTOR

DATE & TIME INSPECTED: 6-02-17 13:32

WEATHER (temperature, wind, precipitation): 74° Clear on South 9mph

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

8'-3' Below Bench

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' Below Bench

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		<input checked="" type="checkbox"/>	
(2) Any misalignments?		<input checked="" type="checkbox"/>	
(3) Any cracking?		<input checked="" type="checkbox"/>	
(4) Any traffic or animal damage?		<input checked="" type="checkbox"/>	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	<input checked="" type="checkbox"/>		
(6) Interior Side Slopes (1.5H:1V design)	<input checked="" type="checkbox"/>		
(7) Height of Berm above Ash Surface (ft)	<input checked="" type="checkbox"/>		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		ok
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

good vegetation growth

C. Areas without Vegetation due to erosion (describe location and size of area)

NO

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

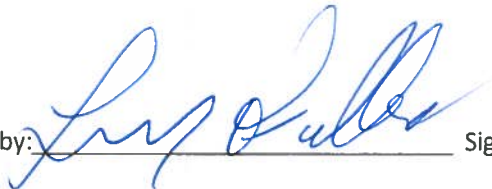
2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

NO

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:



Signature and Date:

NO. REVISION. DRAWN BY. DATE.

PROJECT ENGINEER. DSC. DRAWN BY. ASG. REVISION BY. DSC, BSA.

SCALE (FEET)
 0 100 200 300

BASE POINT COORDINATES
 SURVEY BASE POINT
 ELEV. 4537.91
 LAT. 45 37 21.9
 LONG. 106 52 24.5

PROPERTY BOUNDARY
 STOCKPILE 1
 STOCKPILE 2
 STOCKPILE 3
 STOCKPILE 4
 RESIDENCE
 ADJACENT TO CHALTON MILL
 ADJACENT TO DEEP WELL
 DEEP SOURCE WELL
 MONITORING WELL CWM-1
 MONITORING WELL CWM-2
 MONITORING WELL CWM-3
 MONITORING WELL CWM-4
 MONITORING WELL CWM-5
 MONITORING WELL CWM-6
 MONITORING WELL CWM-7
 MONITORING WELL CWM-8
 MONITORING WELL CWM-9
 MONITORING WELL CWM-10
 MONITORING WELL CWM-11
 MONITORING WELL CWM-12
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 MONITORING WELL CWM-14
 MONITORING WELL CWM-15
 MONITORING WELL CWM-16
 MONITORING WELL CWM-17
 MONITORING WELL CWM-18
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 MONITORING WELL CWM-27
 MONITORING WELL CWM-28
 MONITORING WELL CWM-29
 MONITORING WELL CWM-30

ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, VT

22 DECEMBER 2016
 PHONE: (802) 882-2221
 FAX: (802) 882-2210
 www.rosebudeng.com

Civil Engineering
 Geotechnical Engineering
 Land Surveying



SHEET # 1-128
 DATE: 9/15/2016
 C0-3
 EXISTING CONDITIONS



SHEET OF PHASE 1 LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 1/27/16 BY DRG INCK AND AYL THOMPSON OF AEG

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 6/14/17 1035
 WEATHER (temperature, wind, precipitation): 68°
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3ft below Beam

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-15ft below Beam

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? None:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		/	
(2) Any misalignments?		/	
(3) Any cracking?		/	
(4) Any traffic or animal damage?		/	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	/		
(6) Interior Side Slopes (1.5H:1V design)	/		
(7) Height of Berm above Ash Surface (ft)			<u>okay 2'-3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>		
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?			okay
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

growing nicely

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

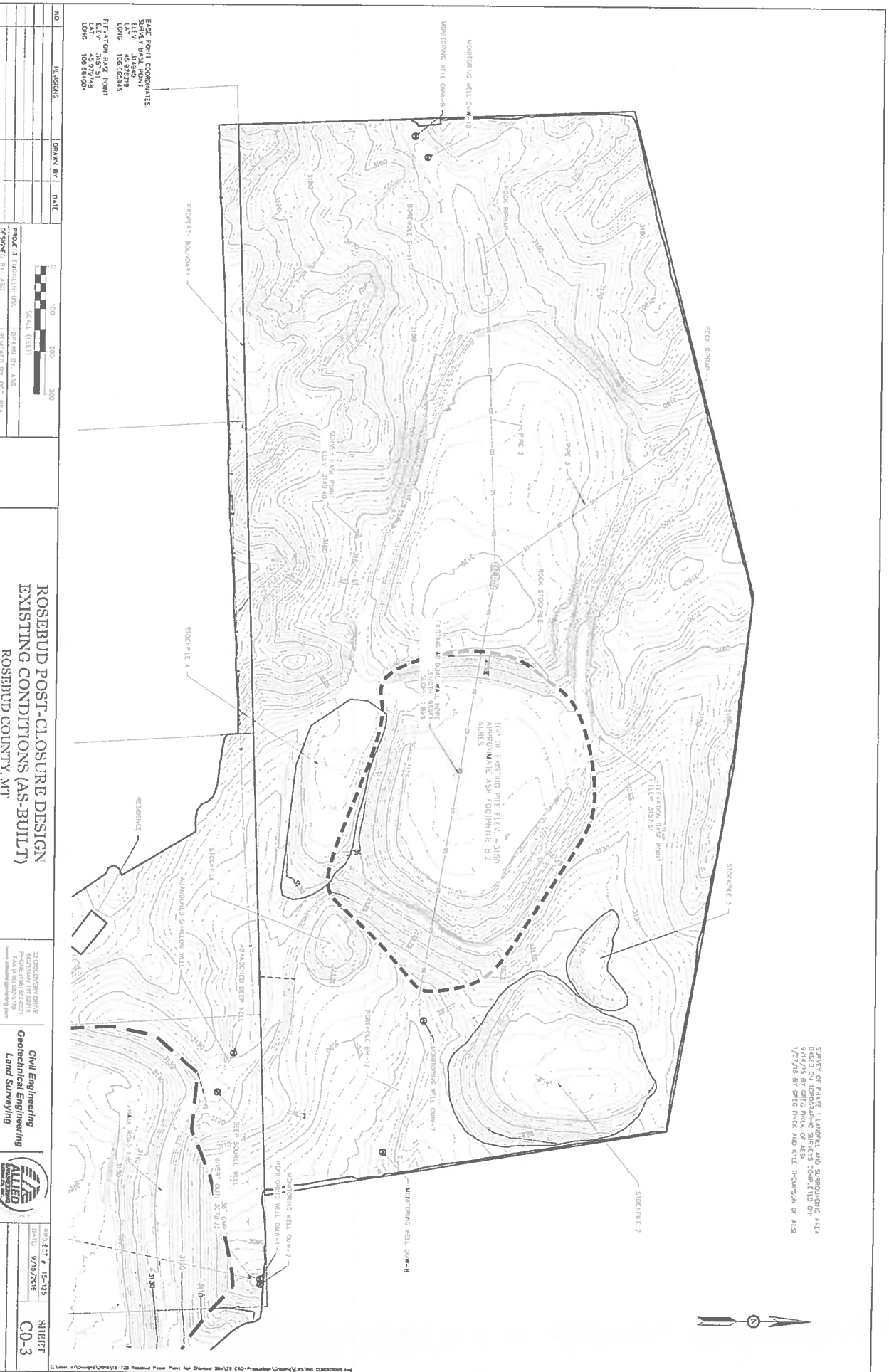
No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

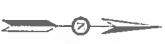
3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: LA McJL 6/16/17 Signature and Date:



STATE OF PHASE 1 LANDFILL AND SURROUNDING AREA
 VARIATIONS BY GEOLOGIC PLAN OF AREA COMPLETED ON
 1/27/16 BY ERIC PINCK AND KYLE THOMPSON OF AES



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosi

INSPECTOR: John Beales

DATE & TIME INSPECTED: 6-21-17

WEATHER (temperature, wind, precipitation): 2:36 PM Dry - 80°F

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' below

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10+ below berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NONE :
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>3'-4'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

gross weed mix

C. Areas without Vegetation due to erosion (describe location and size of area)

no

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

no

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:

[Handwritten Signature]

6-21-17

Signature and Date:

PORTION OF PLANS 1 THROUGH 10 AND SURROUNDING AREA
 SHOWN ON THESE PLANS ARE NOT TO BE CONSIDERED AS
 1/2" = 1' BY DEER RUNN AND WILE THOMPSON OF A/S



NO. 1	PLANS	DATE	SCALE
			1" = 100'
			1" = 200'
			1" = 300'
			1" = 400'
			1" = 500'
			1" = 600'
			1" = 700'
			1" = 800'
			1" = 900'
			1" = 1000'
			1" = 1100'
			1" = 1200'
			1" = 1300'
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			1" = 8900'
			1" = 9000'
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			1" = 9400'
			1" = 9500'
			1" = 9600'
			1" = 9700'
			1" = 9800'
			1" = 9900'
			1" = 10000'

ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT

Civil Engineering
Geotechnical Engineering
Land Surveying



EXISTING CONDITIONS

SHEET
C0-3

**ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT**

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: ROSEBUD
 INSPECTOR: LARRY FUGATE
 DATE & TIME INSPECTED: 6/30/17
 WEATHER (temperature, wind, precipitation): 98°
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2 to 3' Below Beam

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

16' + Below Beam

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2' to 3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Good Vegetation

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

None

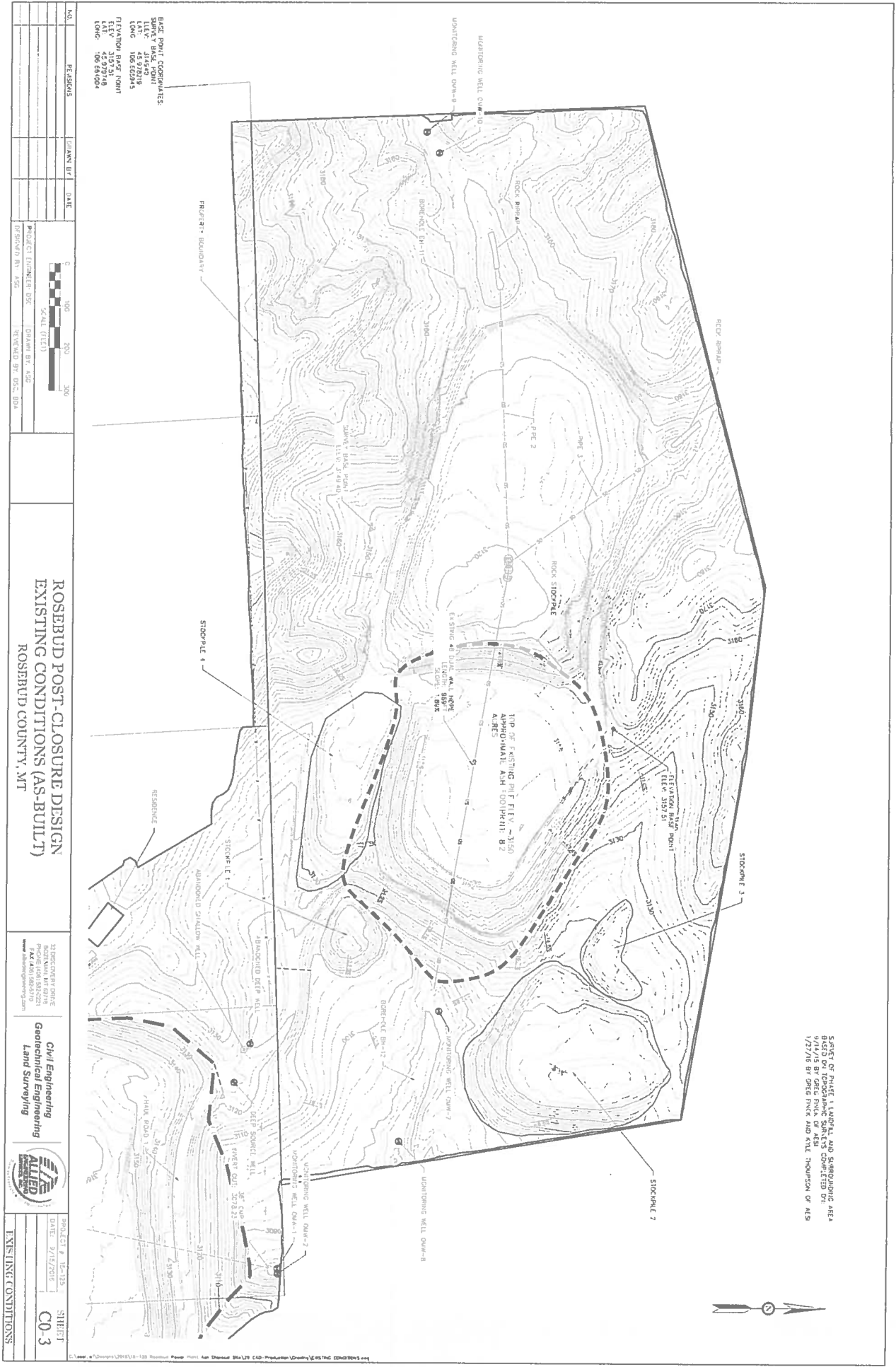
2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: None Signature and Date: Lynette 6-30-17



NO.	REVISIONS	ISSUED BY	DATE

PROJECT ENGINEER: DSC	DRAWN BY: ASZ
DESIGNED BY: ASZ	REVIEWED BY: DSC, BJA

**ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)**
ROSEBUD COUNTY, MT

ROSEBUD COUNTY ENGINEERING
300 WEST 10TH AVENUE
PO BOX 1048, SHELBY, MT 59601
PHONE: (406) 585-2221
FAX: (406) 585-2119
WWW: www.rosebudcountyengineering.com

**Civil Engineering
Geotechnical Engineering
Land Surveying**



PROJECT # 12-123	SHEET
DATE: 8/17/2016	C0-3
EXISTING CONDITIONS	

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services, LLC
 INSPECTOR: Toel Zimmerman
 DATE & TIME INSPECTED: 7-7-17 0809
 WEATHER (temperature, wind, precipitation): 73° ENE - 7 MPH
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3' below berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10+ feet below shortest berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2-3 ft</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Good vegetation

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

None

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

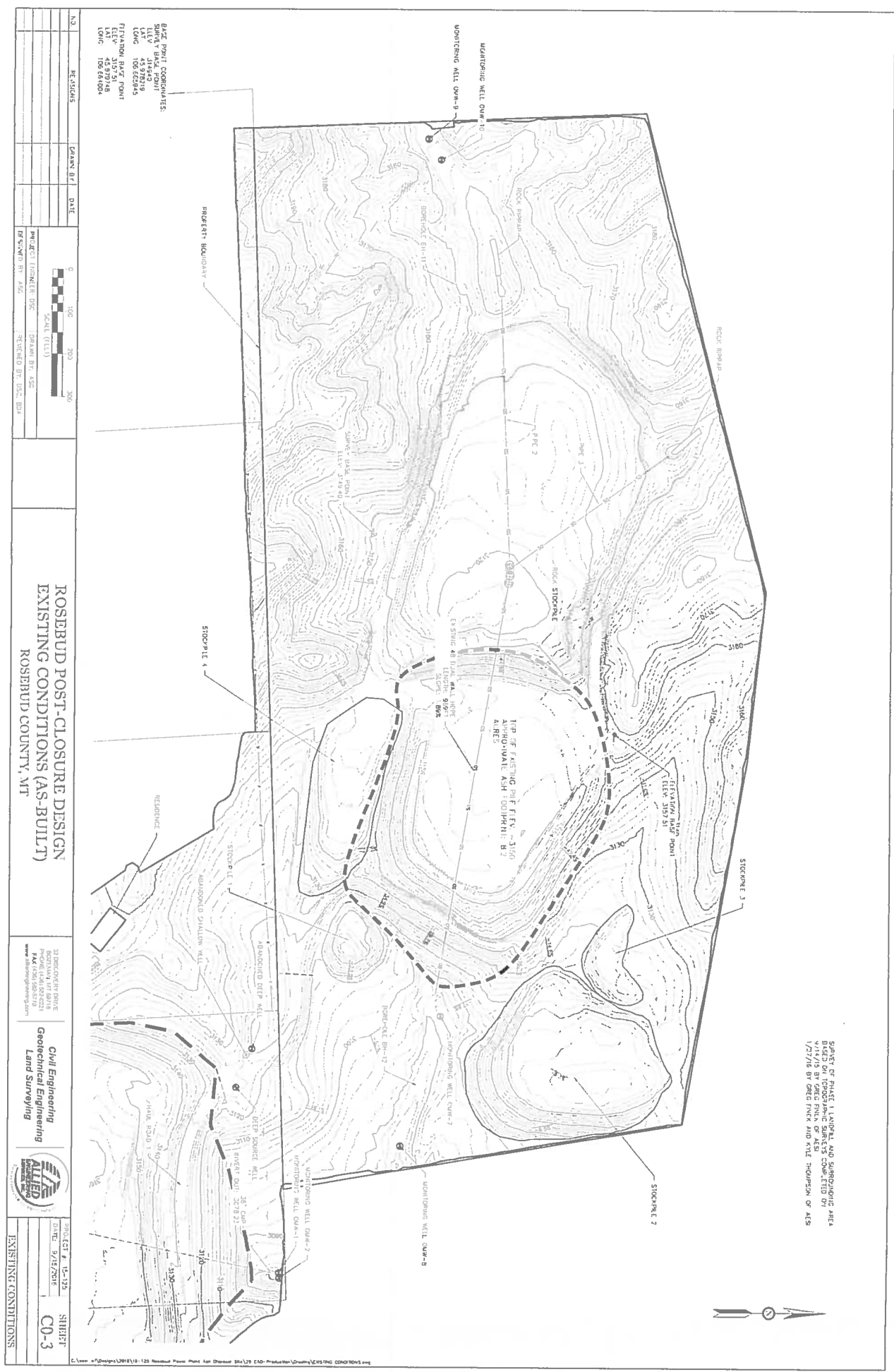
None

This inspection was performed by:

[Handwritten Signature]

Signature and Date:

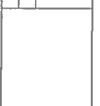
7-7-17



SCOPE OF PLANS IS REGIONAL AND SURROUNDING AREA
 EXISTING CONDITIONS AS SHOWN ON THESE PLANS OF ASH
 1/27/16 BY OREGON INK AND KYLE THOMPSON OF AISC

BASE POINT COORDINATES:
 ELEV. 3144.9
 LONG. 106.68294
 LAT. 45.97948
 UTM 106 68294
 UTM 45 97948

NO.	REVISIONS	DATE	BY



PROJECT ENGINEER: OSE
 DRAWN BY: ASZ
 REVISION BY: OSE, BJA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

3230 CEDAR STREET
 BOZEMAN, MT 59717
 PHONE: (406) 552-2221
 FAX: (406) 552-2221
 www.rosebudengineering.com

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT NO.	14-125	SHEET	CO-3
DATE	5/13/2016		
EXISTING CONDITIONS			

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 7/14/17
 WEATHER (temperature, wind, precipitation): 85° 7 mph WNW
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3' below beam -

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' below beam Adding daily

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NONE :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		<u>OKAY</u>
(7) Height of Berm above Ash Surface (ft)			<u>OKAY 2-3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		o.kay
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			o.kay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Vegetation growing

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NO

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

NONE

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: [Signature] 7/14/17 Signature and Date:

NO.	REVISIONS	ISSUED BY	DATE

PROJECT ENGINEER	DATE
DESIGNER	DATE
CHECKED BY	DATE
APPROVED BY	DATE

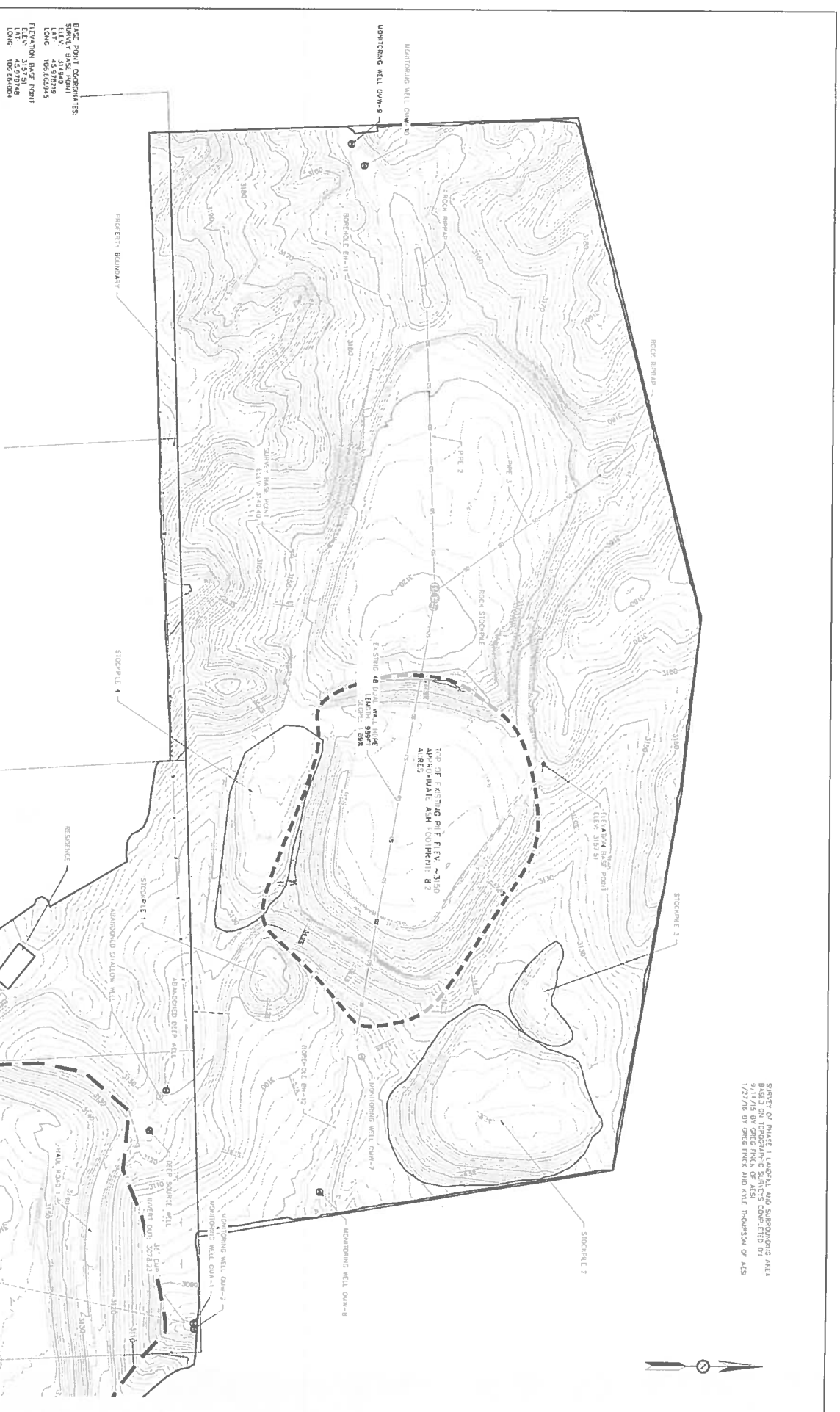
**ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT**

303 DECKENY DRIVE
BOZEMAN, MT 59717
PHONE (406) 552-3223
FAX (406) 552-3778
www.alleddesign.com

**Civil Engineering
Geotechnical Engineering
Land Surveying**

ALLEDD

DATE: 9/15/2016
SHEET: C0-3
EXISTING CONDITIONS



SHEET OF PLATE 1 LABEL AND SURROUNDING AREA
BASED ON TOPOGRAPHIC SURVEY COMPLETED ON
1/27/15 BY DRS PINK AND SHIL THOMPSON OF ASG



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc
 INSPECTOR: Ken McFurland
 DATE & TIME INSPECTED: 7/21/17 800
 WEATHER (temperature, wind, precipitation): 72° F 12 mph NNW
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-3' below top of berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' below berm Adding ash daily

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)			<u>OKay</u>
(7) Height of Berm above Ash Surface (ft)	✓		<u>2'-3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			OKAY
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Dry Brown vegetation No Rain

C. Areas without Vegetation due to erosion (describe location and size of area)

OKAY

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

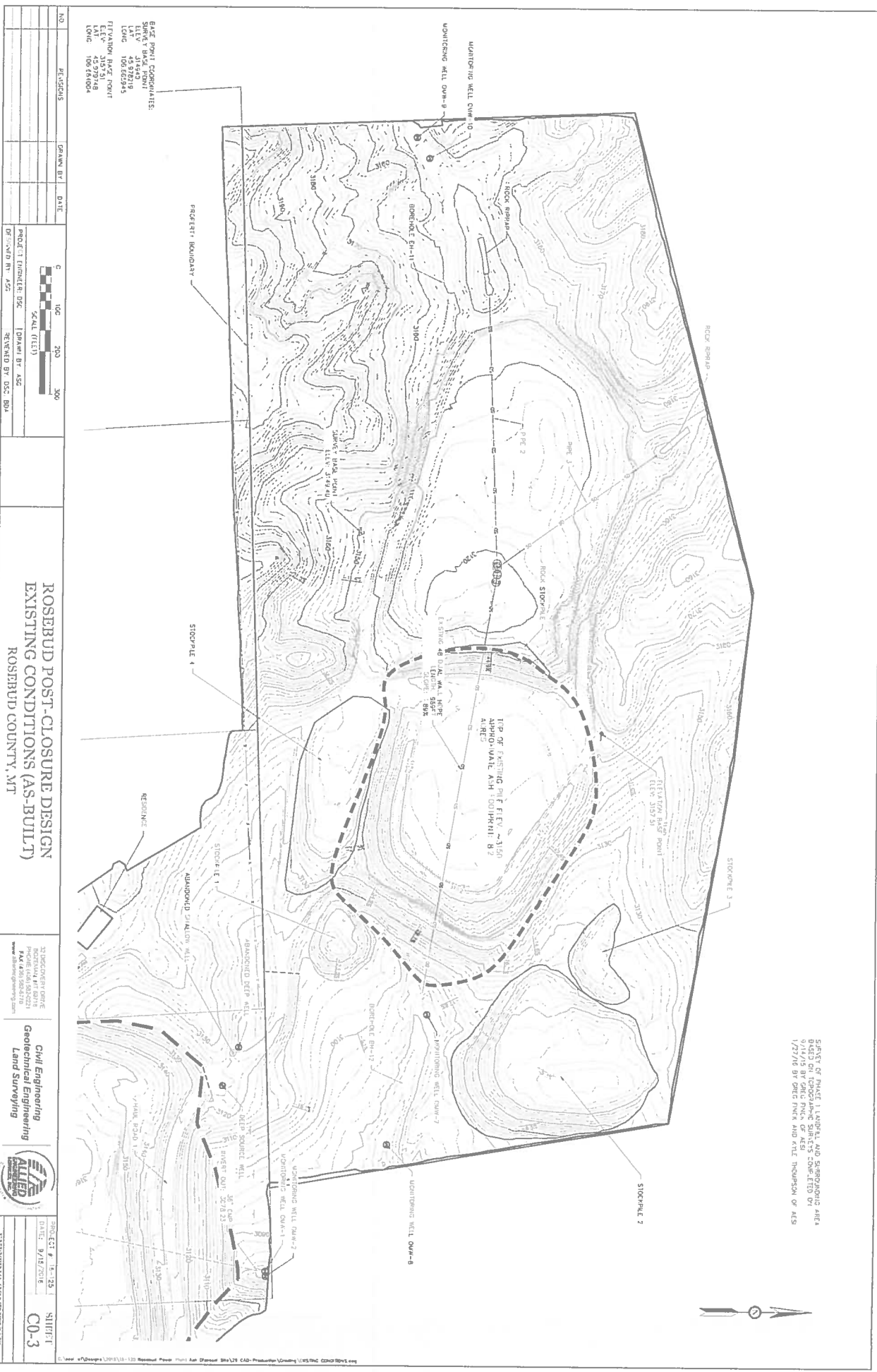
(Use additional pages, if necessary, include pictures as needed)

Dry Conditions

This inspection was performed by:

[Handwritten Signature] 2/2/17

Signature and Date:



N&D	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC
DRAWN BY: ASZ
REVIEWED BY: DSC, BOJ

**ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT**

3200 DEWEY DRIVE
MONTICELLO, MONTANA 59401
TEL: 406.833.5555
WWW.ROSEBUDENG.COM

**Civil Engineering
Geotechnical Engineering
Land Surveying**



SHEET # 12
DATE: 9/15/2016
C0-3
EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services LLC.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 7/28/17 805
 WEATHER (temperature, wind, precipitation): 72°F 7 mph West
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' Below the Top Beam

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' Below Top of Beam

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)			<u>OKAY</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		-	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	-	-	
(10) Any exposed ash on exterior slope?		-	
(11) Any visible water pooling or ponding?		-	
(12) Any visible water/runoff spill points?		-	
(13) Pipe Condition?			o.kay
(14) Water flowing from pipe?		-	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

a Dry & Brown No Rain

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: *[Signature]* Signature and Date: *7/28/17*

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROSI

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 8-5-17 10 AM

WEATHER (temperature, wind, precipitation): 82°F - Calm dry

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3' below top of Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-15' below top of berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2' to 3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		OK
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Dry - No Rain - Weeds on top of phase 1 berm

C. Areas without Vegetation due to erosion (describe location and size of area)

NA

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NA

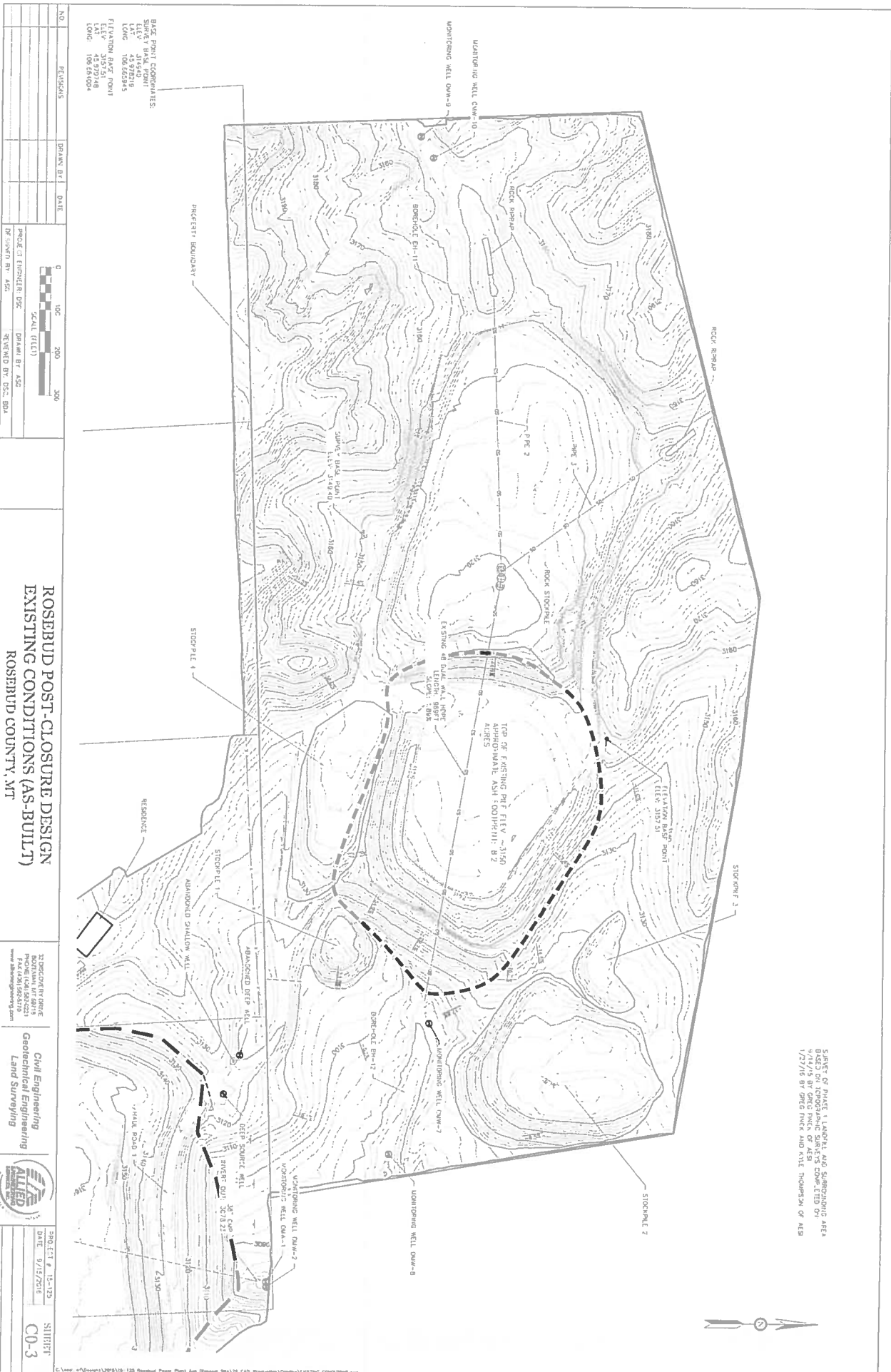
2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: Jellyman 8/5/17 Signature and Date:



ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

SHARE OF PLATE LAYOUT, AND SURROUNDING AREA
 BASED ON TOPOGRAIC SURVEYS COMPLETED ON
 1/23/10 BY DRG MACK AND KYLE MORGENTHAU OF ALS

12 DISCOVERY DRIVE
 NORTH AVONDALE, ARIZONA 85623
 PH: (480) 502-6770
 WWW.ALSENGINEERING.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



NO. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PROJ. NO. 10-11-12
 DATE 8/15/2016
 SHEET C0-3

EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services

INSPECTOR: Kan M. Furlong

DATE & TIME INSPECTED: 8/10/17

WEATHER (temperature, wind, precipitation): 69° No Wind

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' to Top Ash Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' to Top Ash Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? ND :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		<u>okay</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2' - 3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		/	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	/		
(10) Any exposed ash on exterior slope?		/	
(11) Any visible water pooling or ponding?		/	
(12) Any visible water/runoff spill points?		/	
(13) Pipe Condition?		⊗	okay
(14) Water flowing from pipe?		/	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		/	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Brown. Some green showing yet

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: *[Signature]* 8/10/07 Signature and Date:

STATE OF MONTANA
 DIVISION OF LAND SURVEYING
 9/14/15 BY DEIC INDK AND KTL THOMPSON OF AEG
 1/27/16 BY DEIC INDK AND KTL THOMPSON OF AEG



NO.	REVISIONS	DRAWN BY	DATE



SCALE (FEET)
 PROJECTED BY: AEG
 CHECKED BY: DEIC, BOA

ROSEBUD POST-CLOSURE DESIGN EXISTING CONDITIONS (AS-BUILT) ROSEBUD COUNTY, MT

31 DEER CREEK DRIVE
 PO BOX 64100
 BUTTE, MONTANA 59706
 WWW.AEGENGINEERS.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT # 15-125	SHEET
DATE 7/15/2016	C0-3
EXISTING CONDITIONS	

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: La Methyl
 DATE & TIME INSPECTED: 8/18/17 10 AM
 WEATHER (temperature, wind, precipitation): 80° 3 mph
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' from Top Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10 - 15 from Top of Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? no :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)			<u>oKay</u>
(6) Interior Side Slopes (1.5H:1V design)			<u>oKay</u>
(7) Height of Berm above Ash Surface (ft)			<u>2' - 3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>		
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?		<input checked="" type="checkbox"/>	
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Dry No Rain

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

No Ash being added in Phase II Plant is down

This inspection was performed by:

[Signature]

8/18/17

Signature and Date:

NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER/DR	DESIGNED BY	DRAWN BY
REVIEWED BY		

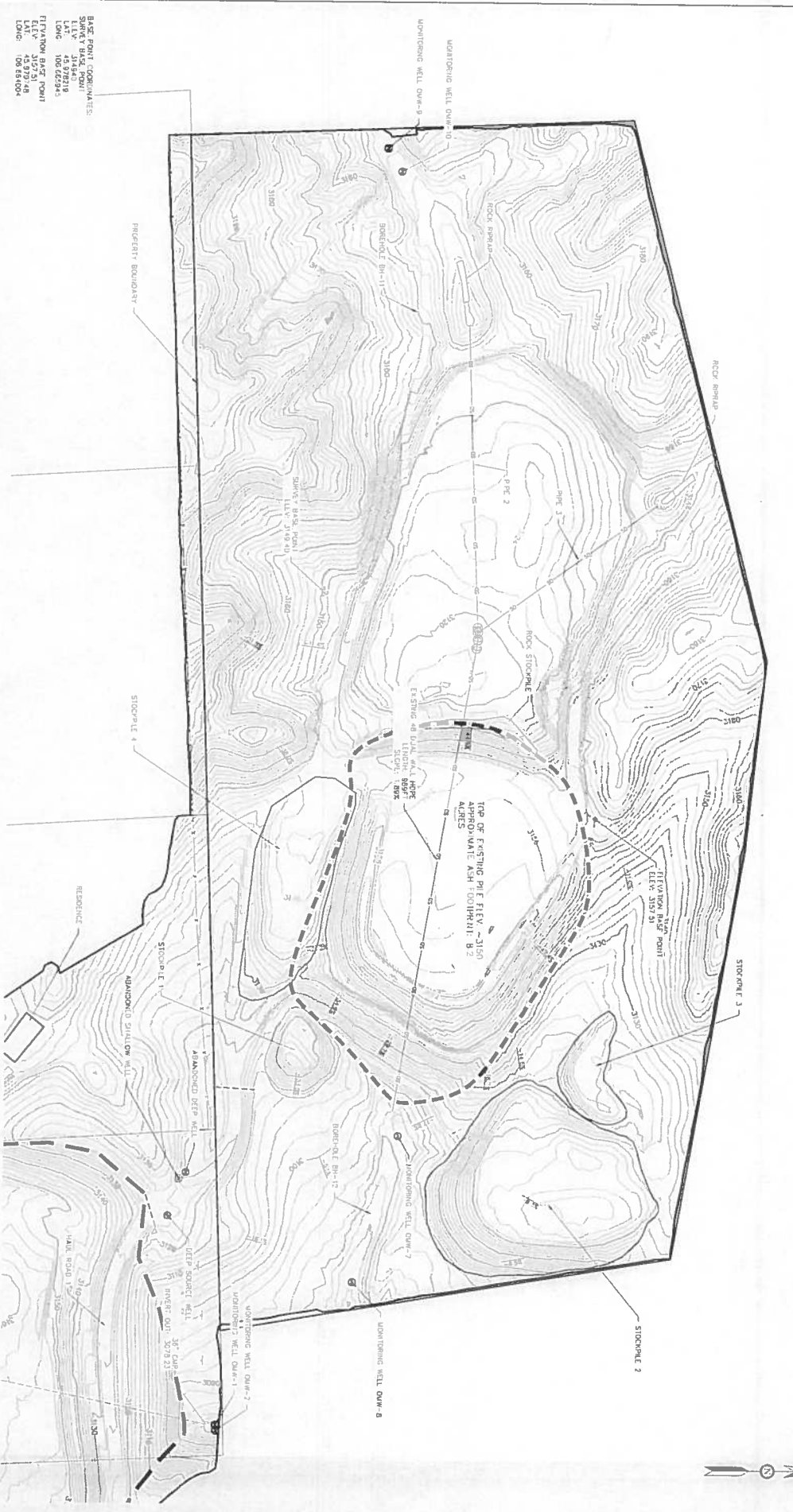
ROSELBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSELBUD COUNTY, VT

22 DISCOVERY DRIVE
ROSELBUD, VT 05668
PHONE: (802) 882-8778
FAX: (802) 882-8778
www.aldredengineering.com

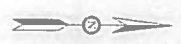
Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT #	15-125	SHEET
DATE	9/15/2016	C0-3
EXISTING CONDITIONS		



SHEET OF PHASE 1 LAYOUT AND SURROUNDING AREA
BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
FALL 2015 BY GREG HORN AND MILD THOMPSON OF AEG
1/27/16



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Power Plant Operating Services LLC.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 8/25/17 2pm
 WEATHER (temperature, wind, precipitation): 83° F N 14 mph
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-3' from Top Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' from Top of Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? no :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		/	
(2) Any misalignments?		/	
(3) Any cracking?		/	
(4) Any traffic or animal damage?		/	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	/		
(6) Interior Side Slopes (1.5H:1V design)	/		<u>OKay</u>
(7) Height of Berm above Ash Surface (ft)			<u>2'-3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		—	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	—		
(10) Any exposed ash on exterior slope?		—	
(11) Any visible water pooling or ponding?		—	
(12) Any visible water/runoff spill points?		—	
(13) Pipe Condition?		—	
(14) Water flowing from pipe?		—	
(15) Any pooling or ponding at pipe inlet or outlet?		—	
(16) Any erosion/undermining of pipe at inlet or outlet?		—	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Dry No Rain

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

No Ash being added pit Phase II shut down

This inspection was performed by *[Signature]* 8/25/17 Signature and Date:

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc
 INSPECTOR: Ken McKeand
 DATE & TIME INSPECTED: 9/1/17 9:15am
 WEATHER (temperature, wind, precipitation): 69° 12 mph NW
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-3' Top Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' Top Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? None :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>2'-3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓	✓	
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?		✓	D/lay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

grass Dry No Rain

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No No Rain

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

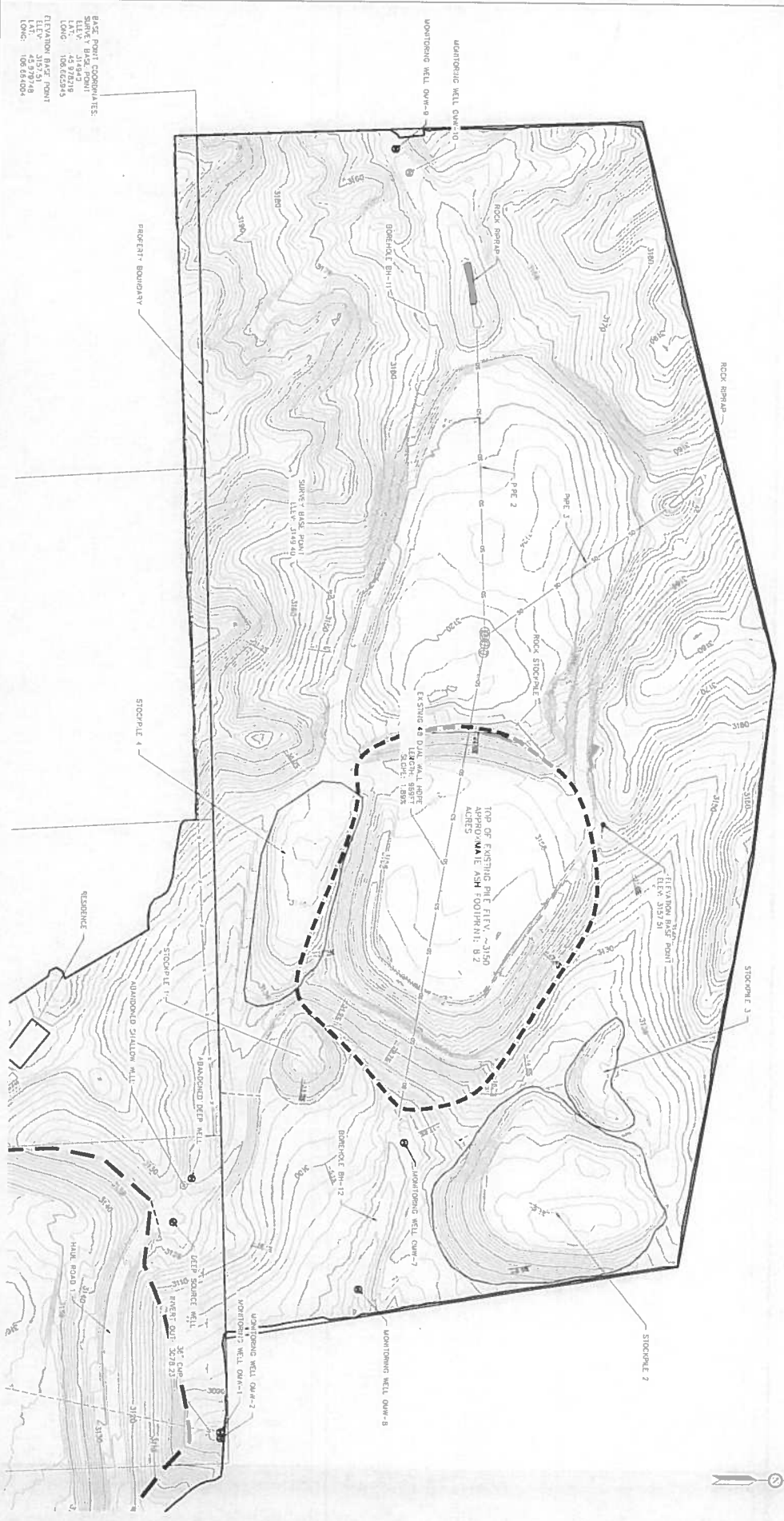
3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Watching for Fire Dangers

This inspection was performed by: K. McFLA Signature and Date: 9/1/17

STATE OF PHASE 1 LANDFILL AND SURROUNDING AREA
 8/14/15 BY ERIC RUCK OF AES
 1/27/16 BY ERIC RUCK AND AYLE HOPKINSON OF AES



BASE POINT COORDINATES:
 POINT
 ELEV. 3164.3
 LONG. 106.02289
 ELEVATION BASE POINT
 ELEV. 3157.51
 LONG. 106.01528

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC
 DRAWN BY: ASB
 PROJECT BY: ASB
 REVIEWED BY: DSC, DSA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

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Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT #	DATE	SHEET #
15-125	9/15/2016	C0-3

EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services (nc.)
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 9/8/17 12:15
 WEATHER (temperature, wind, precipitation): 78° 8 mph ESE
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' Below From top Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' From top Berm Below

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NONE:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		2'-3'

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		-	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓	✗	
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			OKay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		-	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

grass Dry No Rain

C. Areas without Vegetation due to erosion (describe location and size of area)

NO

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NO

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

NO

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

No ash being dumped & port is Down.

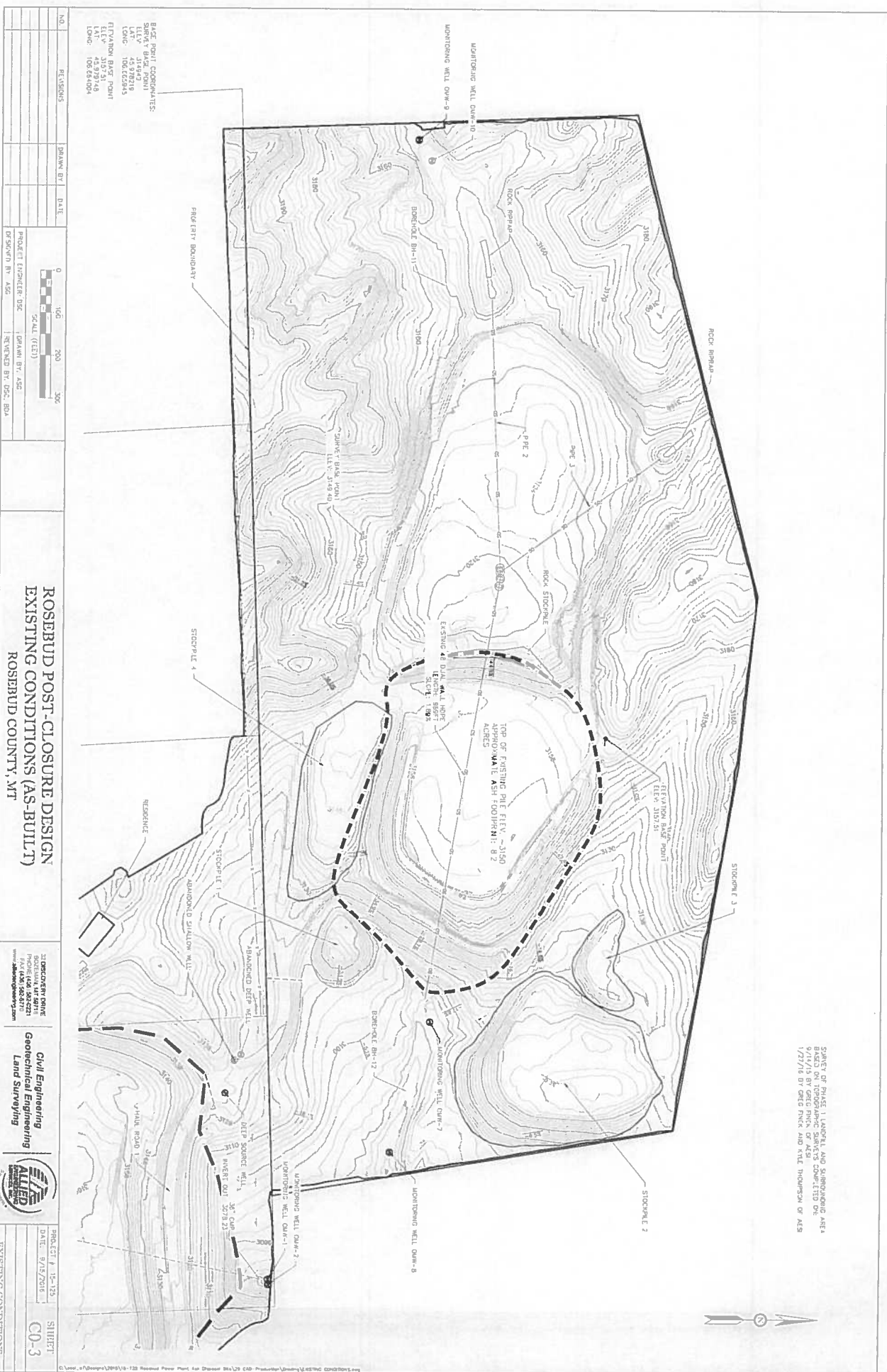
Dumped 16 loads Coal @ Dump Tak-Phase II

This inspection was performed by:

[Signature]

Signature and Date:

9/2/17



BASE POINT COORDINATES:
 ELEV. 3154.31
 LONG. 105.97218
 LAT. 45.37948
 UTM ZONE 18Q UTM
 ELEV. 3107.31
 LONG. 106.81804

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: OSC
 DRAWN BY: ASB
 PROJECT BY: ASB
 REVIEWED BY: OSC, BOA

ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

CONTACT INFORMATION:
 ADDRESS: 1405 W. 10TH ST.
 BUTTE, MT 59717
 PHONE: (406) 339-2221
 WWW: www.alliedsurveying.com

Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT: 15-123	SHEET: C0-3
DATE: 8/15/2016	EXISTING CONDITIONS

SURVEY OF PHASE 1 LANDFILL AND SURROUNDING AREA
 COMPLETED ON:
 9/14/15 BY OREG PINK AND KYLE THOMPSON OF AES
 1/27/16 BY OREG PINK AND KYLE THOMPSON OF AES



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELPL)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McNeil
 DATE & TIME INSPECTED: 9/15/17 1143
 WEATHER (temperature, wind, precipitation): 48°F 16 mph NNE
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' Below Berm Top

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' Below Berm Top

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NONE:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2' - 3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓	✓	
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

OKay

C. Areas without Vegetation due to erosion (describe location and size of area)

NO

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NO

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

NONE

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Raining today

This inspection was performed by:

[Handwritten Signature]

9/15/17

Signature and Date:



SHEET OF PHASE I LEGAL AND SURROUNDING AREA
DRAWN BY DENG PINEK AND XIAO HOUZHEN ON
1/21/16 BY DENG PINEK AND XIAO HOUZHEN OF AES

NO.	REVISIONS	DRAWN BY	DATE

PROJECT ENGINEER: DSC DRAWN BY: A55
PROJECT BY: A55 REVENED BY: DSC, BSA

SCALE (FEET)
0 100 200 300

ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT

REGISTERED PROFESSIONAL ENGINEER
PHYSICIAN STATE OF MONTANA
DENG PINEK, INC.
1500 S. UNIVERSITY BLVD., SUITE 200
BOZEMAN, MONTANA 59717
WWW.DENGPINEK.COM

Civil Engineering
Geotechnical Engineering
Land Surveying

ALLIUM
Geotechnical Engineering

PHASE I - 15-123 SHEET
DATE: 6/25/2016 **60-3**

EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 9/22/17 3:14
 WEATHER (temperature, wind, precipitation): 45° Cloudy - NE 11 mph Chama Rain
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'3' from top berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 15' from Top of Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		<u>okay</u>
(7) Height of Berm above Ash Surface (ft)			<u>2'3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		Okay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Okay

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

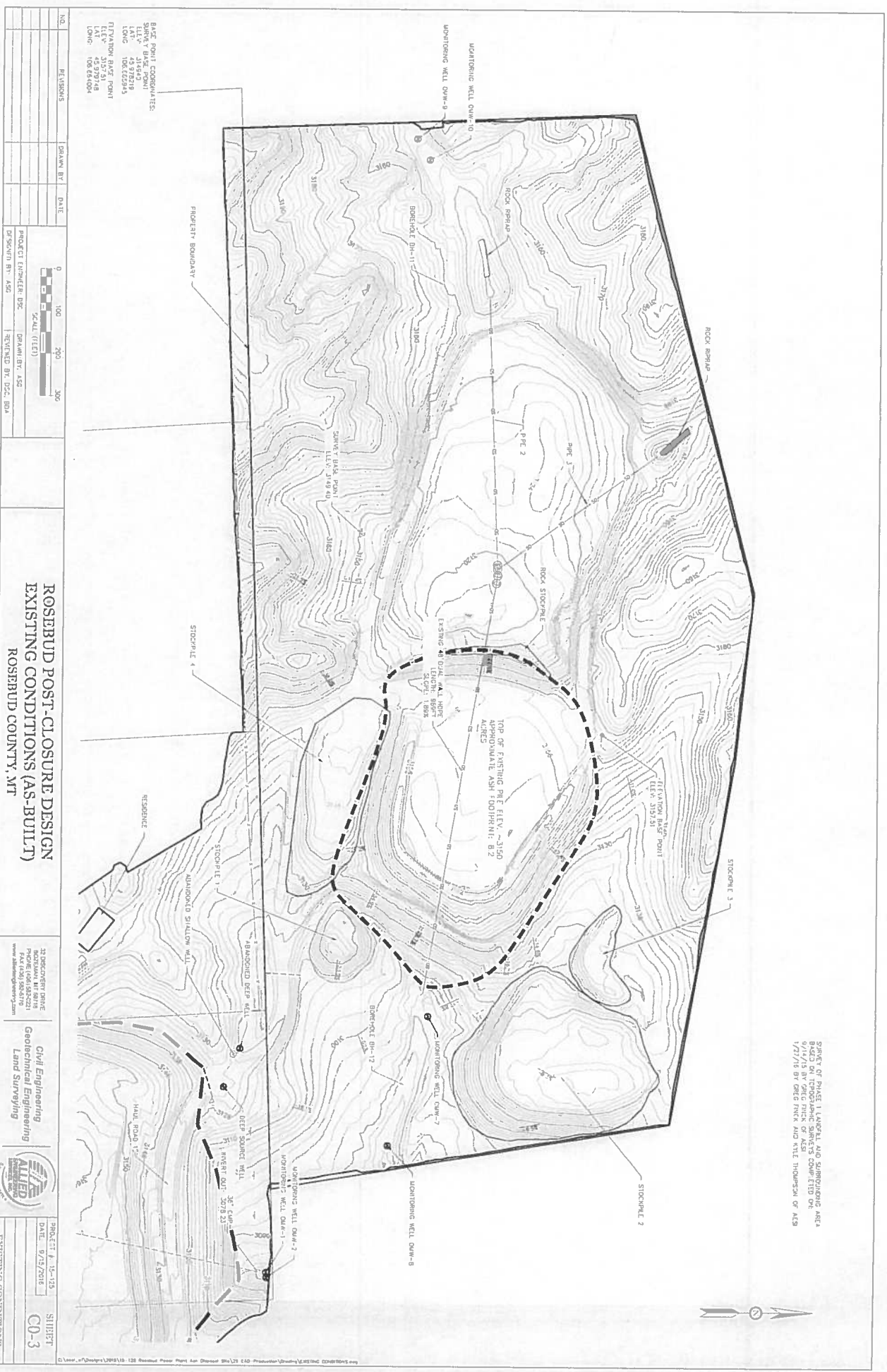
None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Chance for Rain today + Thru weekend

This inspection was performed by: K. M. J. H. 9/22/17 Signature and Date:



SHREVEY OF PHASE 1 LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 1/21/16 BY CREIG FINN AND KEIL THOMPSON OF AEG

NO.	REVISIONS	ISSUED BY	DATE

BASE POINT COORDINATES:
 SHREVEY BASE POINT
 LAT: 45.978218
 LONG: 106.022843
 FLAVARON BASE POINT
 LAT: 45.979748
 LONG: 106.640004

SCALE (FEET)
 0 100 200 300

PROJECT ENGINEER: DSC
 DRAWN BY: ASG
 DESIGNED BY: ASG
 REVIEWED BY: DSC, BJA

**ROSEBUD POST CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

32 ROCKCREEK DRIVE
 PHOENIX, AZ 85021
 PHONE (480) 988-8271
 FAX (480) 988-8276
 WWW.AEGENGINEERING.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT: 15-125
 DATE: 9/15/2016
 SHEET: C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 9/29/17 225
 WEATHER (temperature, wind, precipitation): 68° 13 mph South Part Cloudy
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-3' top of berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' from top of berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		/	
(2) Any misalignments?		/	
(3) Any cracking?		/	
(4) Any traffic or animal damage?		/	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	/		
(6) Interior Side Slopes (1.5H:1V design)	/		
(7) Height of Berm above Ash Surface (ft)			<u>2'-3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>		
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?			<i>okay</i>
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

okay

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

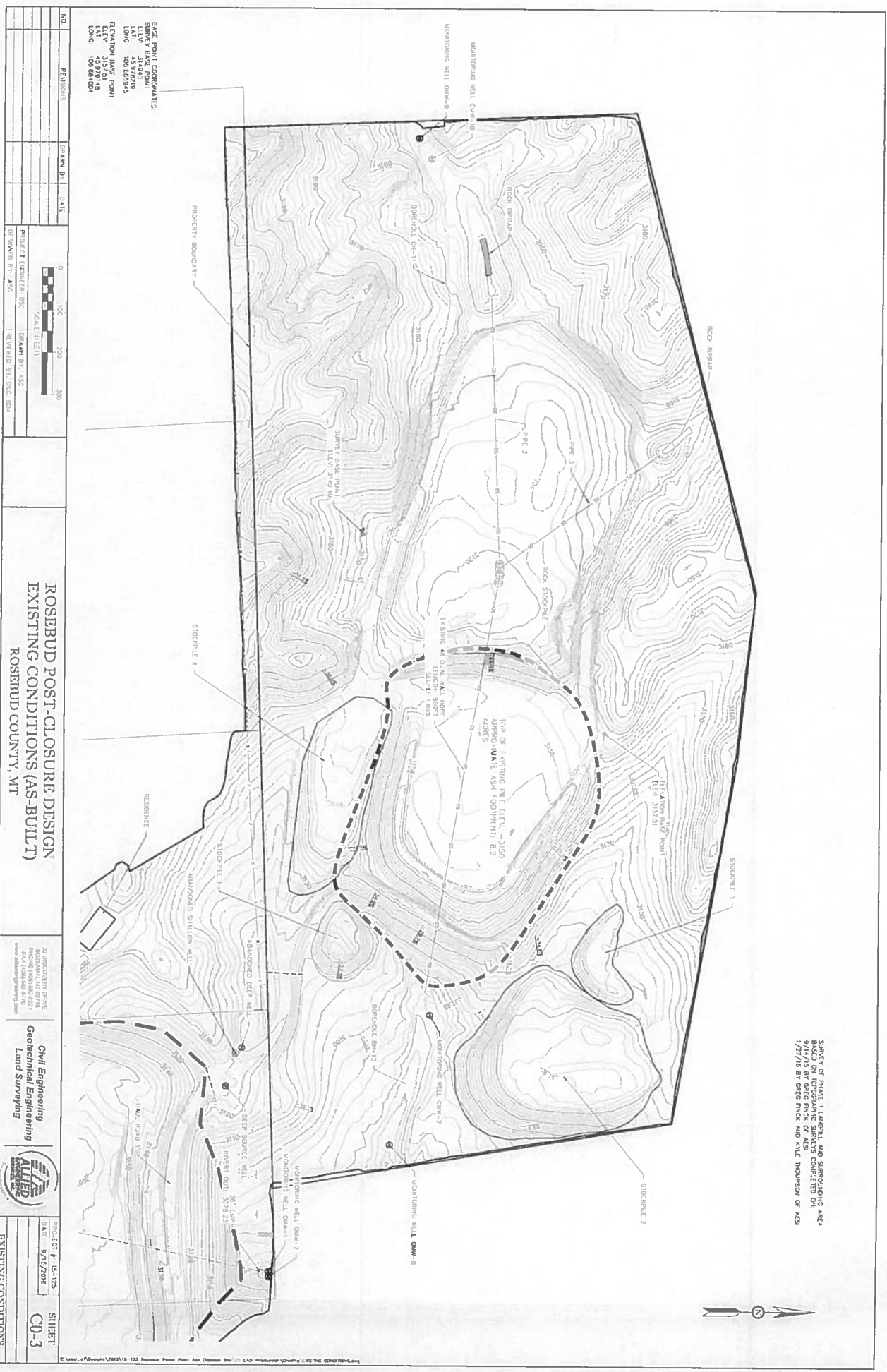
2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

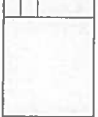
(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: *K. M. [Signature]* Signature and Date: *9/29/17*



BASE POINT COORDINATES
 SURVEY BASE POINT
 NAD 83
 LAT: 45.97218
 LONG: 106.62343
 ELEVATION BASE POINT
 LAT: 45.970148
 LONG: 106.62004

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC
 DRAWN BY: ASJ
 REVISION BY: DSC, BOA

ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSBUD COUNTY, MT

22 DEPOCENY DRIVE
 PHOENIX (602) 862-2231
 www.rosebudpostclosure.com

Civil Engineering
Geotechnical Engineering
Land Surveying

SHEET
 C0-3
 DATE: 9/15/2018
 EXISTING CONDITIONS

SURVEY OF PHASE 1 LABEL AND SURROUNDING AREA
 BASED ON PROGRAMMATIC SURVEYS COMPLETED ON
 1/27/16 BY DCS FINCH AND KYLE THOMPSON OF AES

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosbud Operating Services, Inc
 INSPECTOR: ARMY Factor
 DATE & TIME INSPECTED: 10/6/17 14:00
 WEATHER (temperature, wind, precipitation): 64 10mph WSW
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' to 3' above top of berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10 to 15 FT above top of berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>2' - 3'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			OK
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

OK

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

None

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

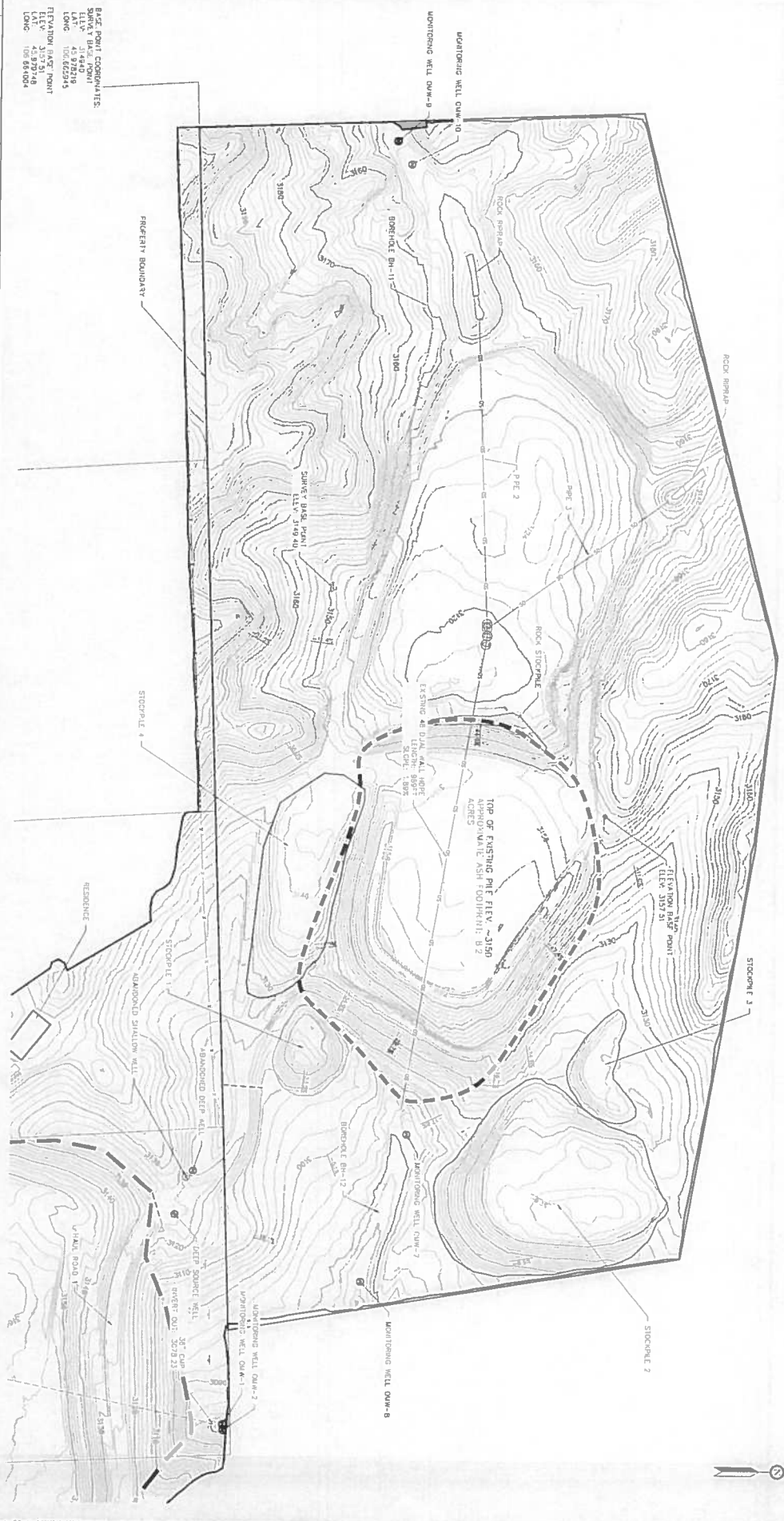
This inspection was performed by:

[Handwritten Signature]

Signature and Date:

10/6/17

SHADE OF PHASE 1 LABELS AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 1/27/16 BY DRG INC AND FILE NUMBER OF A29



BASE POINT COORDINATES
 BULLY BASIN POINT
 NAD 83 ELEVATION
 LAT 43.978218
 LONG 100.622349
 ELEVATION BULLY POINT
 LAT 43.970148
 LONG 100.650004

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DRG
 DRAWN BY: ASG
 PREPARED BY: ASG
 CHECKED BY: DEC, BOA

**ROSBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSBUD COUNTY, VT**

22 DEER COUNTRY DRIVE
 FRENCH CREEK, VT 05450
 PHONE (802) 528-8773
 FAX (802) 528-8779
 www.drginc.com

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT NO. 15-125	SHEET
DATE: 8/12/2016	C0-3
EXISTING CONDITIONS	

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 10/13/17 7:50
 WEATHER (temperature, wind, precipitation): 32° 4 mph SW
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3' from Top Berm.

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-15' from Top Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide Insp. Map)

Any Issues From Previous Week/Inspection? No :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	Heaving Andy Bladed behind
(4) Any traffic or animal damage?		✓	water spray water
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		okay
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			2'-3'

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			okay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

okay

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

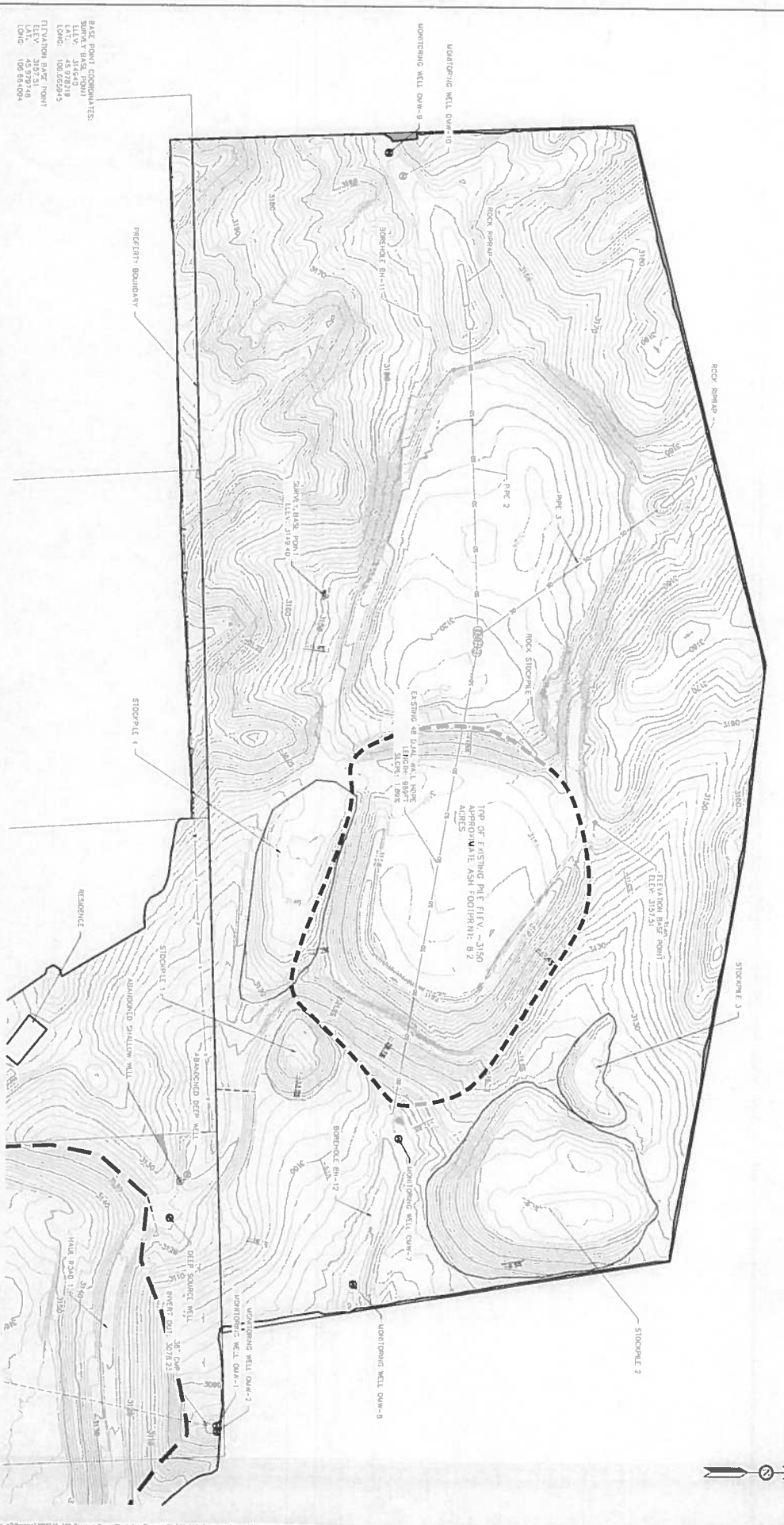
None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: Ray McFadden 10/13/17 Signature and Date:

SURFACE OF PILE 1, LARGE AND SURROUNDING AREA
 BASED ON TERRESTRIAL SURVEYING BY
 9/11/15 BY GREG FRICK AND KYLE THOMPSON OF AES
 1/27/16 BY GREG FRICK AND KYLE THOMPSON OF AES



NO.	REVISIONS	DRAWN BY	DATE
1			
PROJECT ENGINEER USE: DATE BY ASG CHECKED BY: ASG DRAWN BY: ASG REVISIONS BY: 052, BDA			

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

22 DISCOVERY DRIVE
 BOZEMAN, MT 59718
 PHONE (406) 552-8270
 WWW.ALIATEDENGINEERING.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT: U-123
 DATE: 9/15/2016
 SHEET: **C0-3**
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosti

INSPECTOR: Toel Zimmerman

DATE & TIME INSPECTED: 10/23/17 - 0913 hrs

WEATHER (temperature, wind, precipitation): 44°F - 17 West Wind - Dry

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2-3' below top of berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-15' from tops of berms

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>2' to 3"</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?	✓		Good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Okay -

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

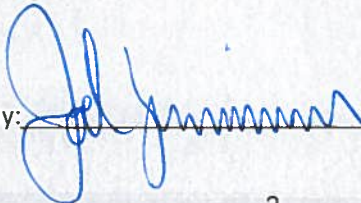
No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:  Signature and Date: 10/23/17

NO	REVISIONS	DRAWN BY	DATE
PROJECT ENGINEER DISC		DRAWN BY	ASC
DESIGNED BY		REVIEWED BY	ASC, BJA



BASE POINT COORDINATES:
 SURVEY BASE POINT
 ELEV 3149.0
 LONG 100.652945
 ELEVATION BASE POINT
 ELEV 3157.518
 LONG 100.651004

ROSEBUD POST-CLOSURE DESIGN EXISTING CONDITIONS (AS-BUILT) ROSEBUD COUNTY, MT

3020 CENTER DRIVE
 SUITE 200
 PHOENIX, ARIZONA 85004
 PHONE: (480) 988-2221
 FAX: (480) 988-2222
 WWW.ALLEDEVELOPMENT.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT # 15-123
 DATE 5/15/2016
 SHEET
 CO-3
 EXISTING CONDITIONS



SURVEY OF PLATE 11 LABEL AND SURROUNDING AREA
 W/AS 5' GRID PINK SURVEY COMPLETED BY
 1/27/15 BY DREG FINCH AND KYLE THOMPSON OF AEG

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc
 INSPECTOR: Ken M. Fanderson
 DATE & TIME INSPECTED: 10/30/17 0925 hrs
 WEATHER (temperature, wind, precipitation): 27°F 15 mph NW Cloudy
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2' - 3' Below Top of the Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' - 19' Below Top of the Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO:

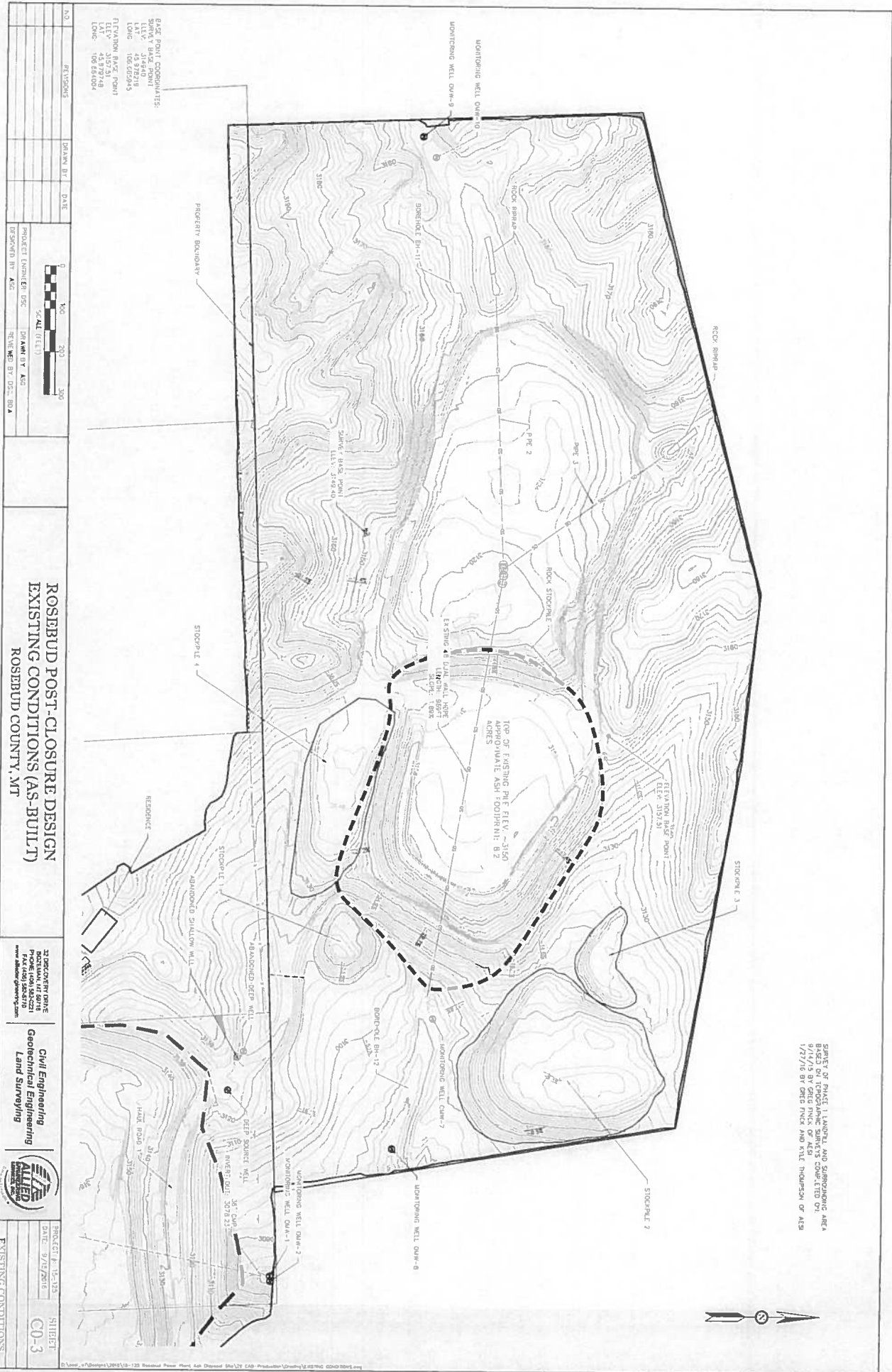
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		<u>okay</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>2' 3' Top of Berm</u>



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc.
 INSPECTOR: Ken McFarland
 DATE & TIME INSPECTED: 11/3/17 9:40 am
 WEATHER (temperature, wind, precipitation): 31°F 8 mph West Cloudy / Snow
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

2'-3' ft from top of berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10-19' ft from top of berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? None :

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		<u>o Key</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)			<u>2'-3' to Top Berm</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		okey
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

okey

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

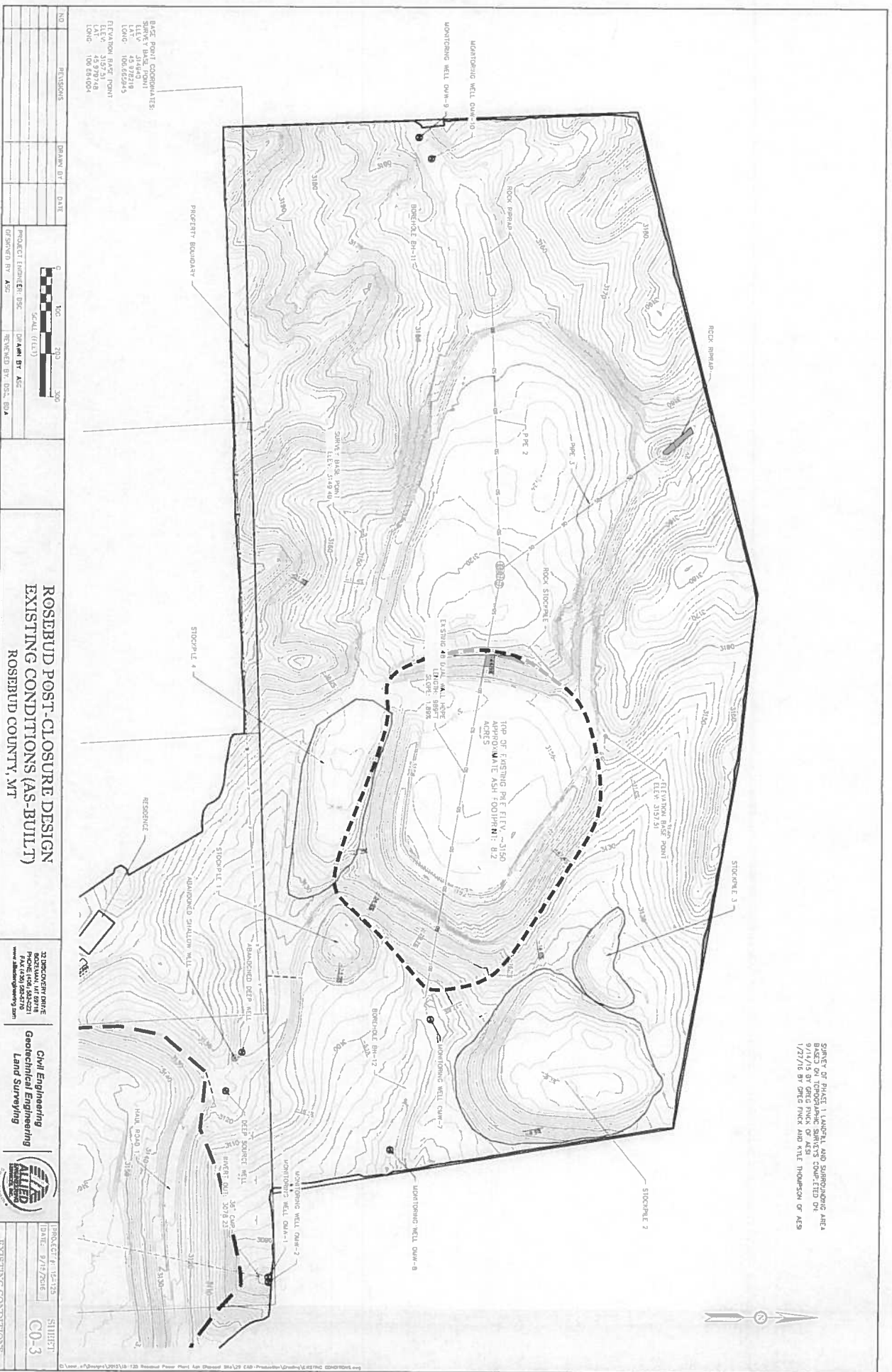
None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Blankets of snow last night

This inspection was performed by: Kim McJannet 11/3/17 Signature and Date:



SURVEY OF PILE 1, LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 1/27/10 BY DMC FICK AND TYLE THOMPSON OF AS9

BASE POINT COORDINATES:
 SURVEY BASE POINT
 LAT: 45 9 22.18
 LONG: 100 55 29.45
 ELEVATION BASE POINT
 LEV: 2153.3148
 DAT: 4/12/2010
 LONG: 100 55 29.45

NO.	REVISIONS	DRAWN BY	DATE



PROJECT ENGINEER: DSC
 DRAWN BY: AS9
 CHECKED BY: DSC, BOA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

22 DECKERT DRIVE
 PHOENIX, AZ 85021
 FAX (602) 962-8776
www.as9surveying.com

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT: P. 15-125
 DATE: 8/15/2016
 SHEET: C0-3
 EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services Inc

INSPECTOR: Ken McFarland

DATE & TIME INSPECTED: 11/10/17

WEATHER (temperature, wind, precipitation): 36° F 95W

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1-2' from Top Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10'-19' from Top Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide Insp. Map)

Any Issues From Previous Week/Inspection? NO :
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

2-3" Snow fall since last inspection

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		/	
(2) Any misalignments?		/	
(3) Any cracking?		/	
(4) Any traffic or animal damage?		/	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)			<u>okay</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>1-2' from Top Berm</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?		<input checked="" type="checkbox"/>	okay
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Okay Snow Covered

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by: *[Signature]* 11/10/17 Signature and Date:



EISEN POINT 3008 WATERS
 ELEV. 3144.1
 LON. 100.572716
 ELEV. 3157.31
 LON. 100.572716
 ELEV. 3157.31
 LON. 100.572716

PROJECT #	DATE	SCALE
PROJECT ENGINEER: DDC	DRAWN BY: ASG	SCALE (FEET)
PROJECT BY: ASG	REVIEWED BY: DDC, BBA	

ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

THE ENGINEER'S OFFICE
 PHONE: (406) 832-2231
 FAX: (406) 832-2270
 www.theengineersoffice.com

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT #	DATE	SHEET
15-123	8/15/2015	C0-3
EXISTING CONDITIONS		

STATE OF MONTANA AND SURVEYING AREA
 BASED ON TOPOGRAPHIC SURVEY'S COMPLETED ON
 1/27/78 BY GARY FRENK AND THE PROVISION OF AS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROST

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 11-17-17

WEATHER (temperature, wind, precipitation): 35°F - SMH west wind

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1'-2' from top of Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' + below top of Berms

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No : - Allied here this week for Annual Insp.
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

Rain this week - top surface wet - No standing water.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>1' - 2' from top of Berm in phase 1 of Active Pit</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>		
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			No

B. Amount and Type of Vegetation on the Embankment & Bench Areas

OK

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

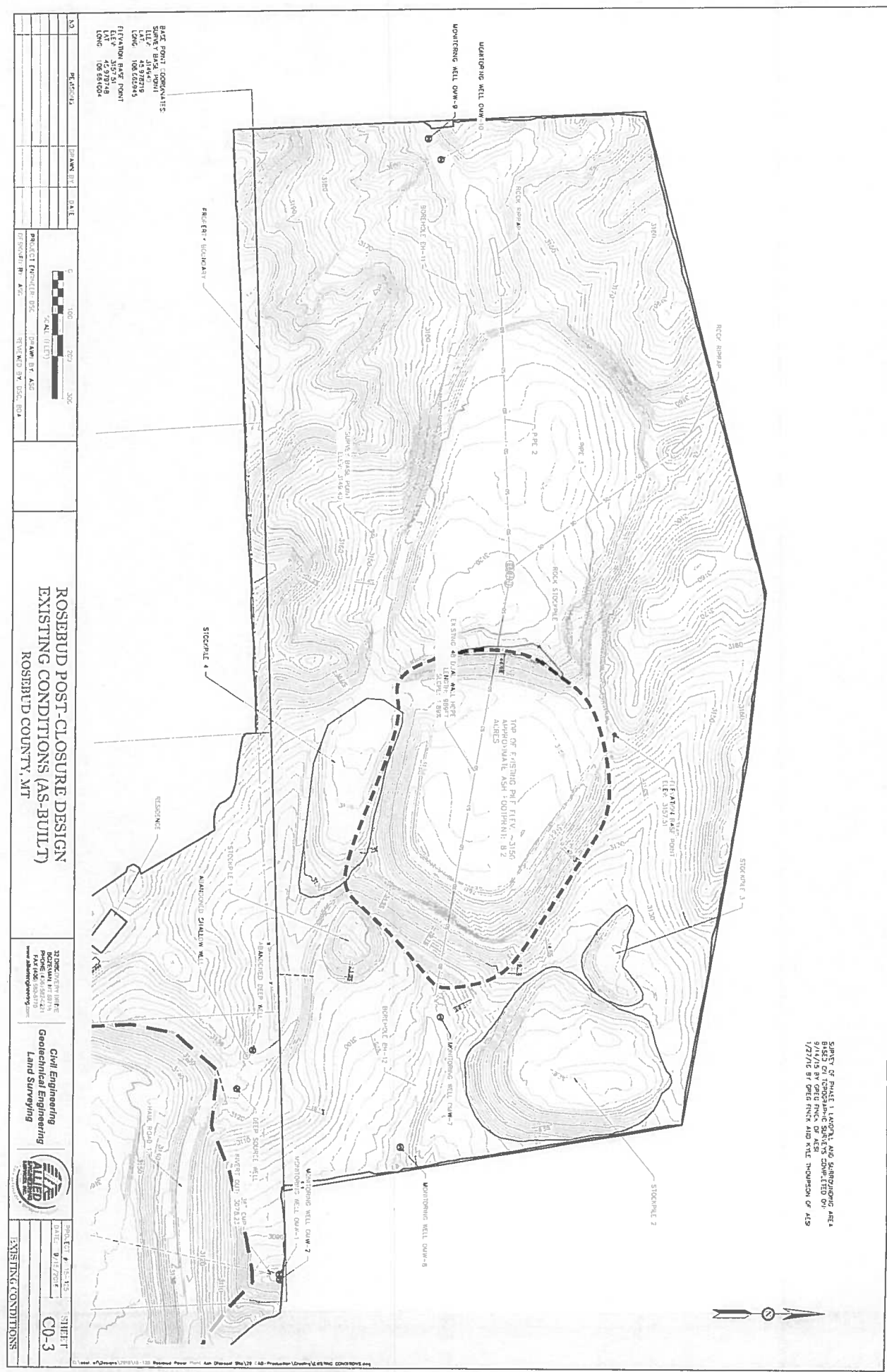
None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

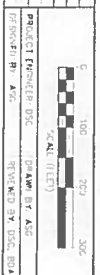
(Use additional pages, if necessary, include pictures as needed)

No

This inspection was performed by: J. J. [Signature] Signature and Date: 11/17/17



BUREAU OF CONSTRUCTION
 STATE OF MONTANA
 DIVISION OF HIGHWAYS
 PROJECT NO. 100000000
 DRAWING NO. 100000000
 DATE 10/20/04



ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

3300 EASTERN BLVD
 BOZEMAN, MT 59717
 PHONE: (406) 552-1111
 WWW.ASHERENGINEERING.COM

Civil Engineering
Geotechnical Engineering
Land Surveying



SHEET NO. 100000000
 DATE 9/17/2014
CO-3
 EXISTING CONDITIONS

SCALE OF PLAN: 1"=400'
 DATE: 9/17/15
 BY: GREG FRICK, PE
 1/27/16 BY GREG FRICK AND KYLE THOMPSON, CE

**ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT**

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc
 INSPECTOR: Ken McQuill
 DATE & TIME INSPECTED: 11/27/17 8:10
 WEATHER (temperature, wind, precipitation): 51° W 9 mph
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1' - 2' from Top of Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' + below top of Berms

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :
 If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		/	
(2) Any misalignments?		/	
(3) Any cracking?		/	
(4) Any traffic or animal damage?		/	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	/		
(6) Interior Side Slopes (1.5H:1V design)	/		
(7) Height of Berm above Ash Surface (ft)	/		<u>1' - 2' from top berm</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>		
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?		<input checked="" type="checkbox"/>	Good
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			None

B. Amount and Type of Vegetation on the Embankment & Bench Areas

OK

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

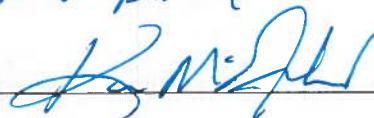
None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

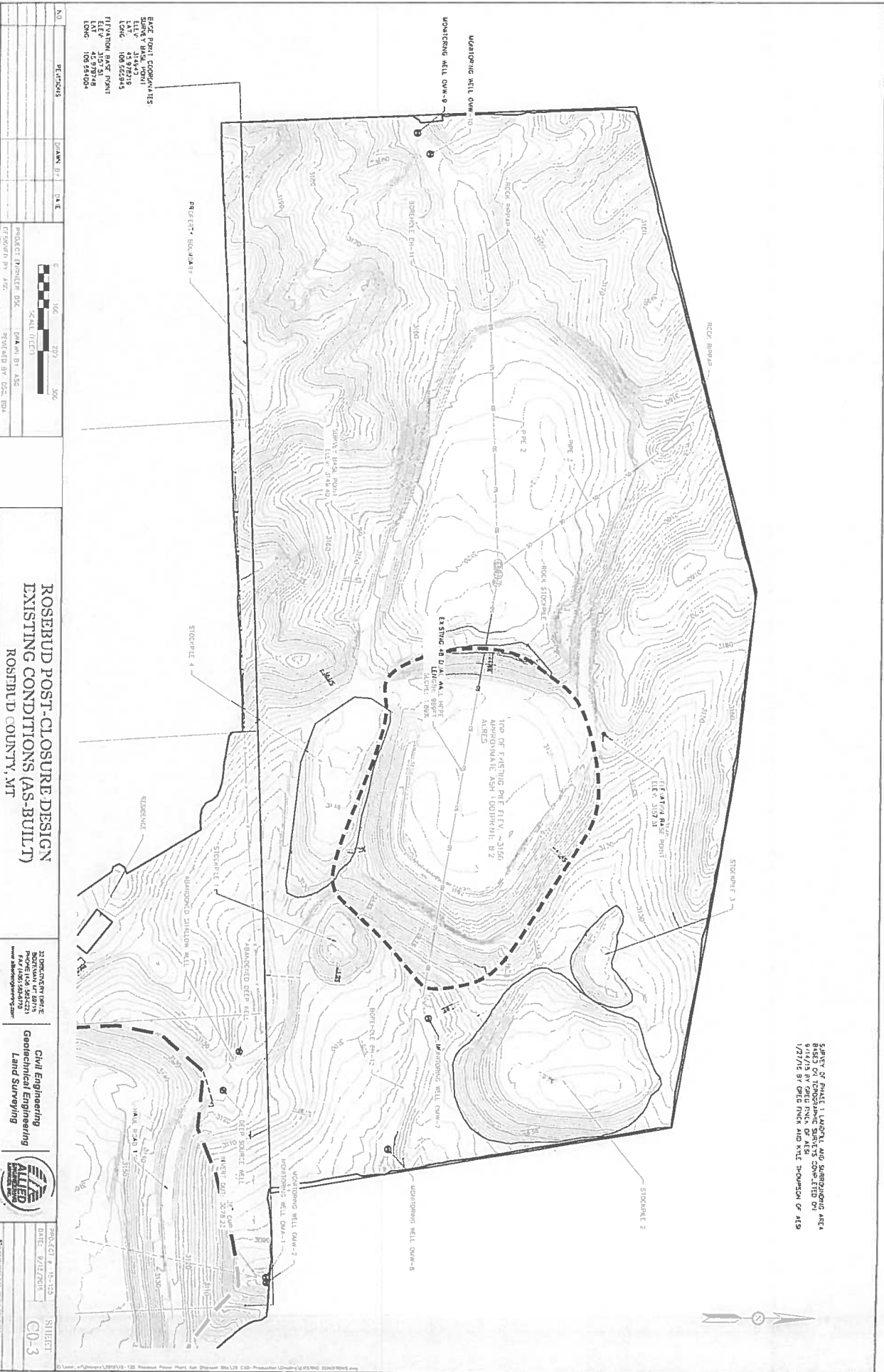
Haul road Blocked

This inspection was performed by:



Signature and Date:

11/27/17



BASE POINT COORDINATES
 SOURCE: STATE OF MONTANA
 ELEV. 3144.31
 LONG. 108.662445
 ELEVATION BASE POINT
 ELEV. 3157.31
 LONG. 108.671004

NO.	REVISIONS	DATE	BY



PROJECT DESIGNER: DSC
 DRAWN BY: ASZ
 CHECKED BY: DSC, RPA

**ROSEBUD POST-CLOSURE DESIGN
 EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT**

21 DORCHESTER BLVD
 BOZEMAN, MT 59717
 TEL: (406) 552-4170
 WWW.GEOTECHNICALSOLUTIONS.COM

**Civil Engineering
 Geotechnical Engineering
 Land Surveying**



PROJECT #	14-113
DATE	3/12/2014
SHEET	C0-3
EXISTING CONDITIONS	

SHEET OF PLAN 1, LOCATION AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEY BY
 9/11/15 BY PERI RICH OF ALSI CONSULTING INC
 1/27/16 BY DRIG RICH AND NATE THOMPSON OF ALSI

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services Inc

INSPECTOR: Ken M. Foxhead

DATE & TIME INSPECTED: 12/4/17 731

WEATHER (temperature, wind, precipitation): 18°F 18 mph WSW

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1' - 2' From Top Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' plus From Top of Berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		<u>42'</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>1'-2'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓	✗	
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			okay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

okay

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

NO

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

light snow last night

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

None

This inspection was performed by R. M. Hill 12/4/17 Signature and Date:

NO.	REVISIONS	BY	DATE

PROJECT NUMBER: DSC	DRAWN BY: ASS
DESIGNED BY: ASS	REVIEWED BY: DSC, RD

**ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
ROSEBUD COUNTY, MT**

REGISTERED PROFESSIONAL ENGINEER
STATE OF MONTANA
No. 10001 (02/03/2013)
www.rosebudpostclosure.com

Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT # R-15
DATE: 2/15/2014
SHEET
C0-3
EXISTING CONDITIONS



BASE POINT COORDINATES
SOUTH BY BASS POINT
EAST BY BASS POINT
ELEVATION BASS POINT
LONG
LAT

SCALE (FEET)
0 100 200 300

PROJECT NUMBER: DSC
DRAWN BY: ASS
DESIGNED BY: ASS
REVIEWED BY: DSC, RD

REGISTERED PROFESSIONAL ENGINEER
STATE OF MONTANA
No. 10001 (02/03/2013)
www.rosebudpostclosure.com

Civil Engineering
Geotechnical Engineering
Land Surveying



PROJECT # R-15
DATE: 2/15/2014
SHEET
C0-3
EXISTING CONDITIONS

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud Operating Services Inc.

INSPECTOR: Ken McFarland

DATE & TIME INSPECTED: 12/8/17 940

WEATHER (temperature, wind, precipitation): 35°F partly Sunny WSW 12 14 mph Gust

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1'-2' from Top of berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' plus from Top of berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		<u>good</u>
(6) Interior Side Slopes (1.5H:1V design)	✓		<u>OKay</u>
(7) Height of Berm above Ash Surface (ft)			<u>1'-2' Top Berm</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		<input checked="" type="checkbox"/>	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	<input checked="" type="checkbox"/>		
(10) Any exposed ash on exterior slope?		<input checked="" type="checkbox"/>	
(11) Any visible water pooling or ponding?		<input checked="" type="checkbox"/>	
(12) Any visible water/runoff spill points?		<input checked="" type="checkbox"/>	
(13) Pipe Condition?			o Kay
(14) Water flowing from pipe?		<input checked="" type="checkbox"/>	
(15) Any pooling or ponding at pipe inlet or outlet?		<input checked="" type="checkbox"/>	
(16) Any erosion/undermining of pipe at inlet or outlet?		<input checked="" type="checkbox"/>	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

o Kay

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

Plant running again Dumping Ash again Phase II

This inspection was performed by: [Signature] 12/8/17 Signature and Date:

ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: ROSI

INSPECTOR: LARRY FULTON

DATE & TIME INSPECTED: 12/15/17 08:00

WEATHER (temperature, wind, precipitation): 38° 10 WSW (20 mph)

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1' to 1.5' From Top of Beam

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' ±

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? NO :
If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		<input checked="" type="checkbox"/>	
(2) Any misalignments?		<input checked="" type="checkbox"/>	
(3) Any cracking?		<input checked="" type="checkbox"/>	
(4) Any traffic or animal damage?		<input checked="" type="checkbox"/>	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	<input checked="" type="checkbox"/>		
(6) Interior Side Slopes (1.5H:1V design)	<input checked="" type="checkbox"/>		
(7) Height of Berm above Ash Surface (ft)			<u>1-2 FT</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

OK

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

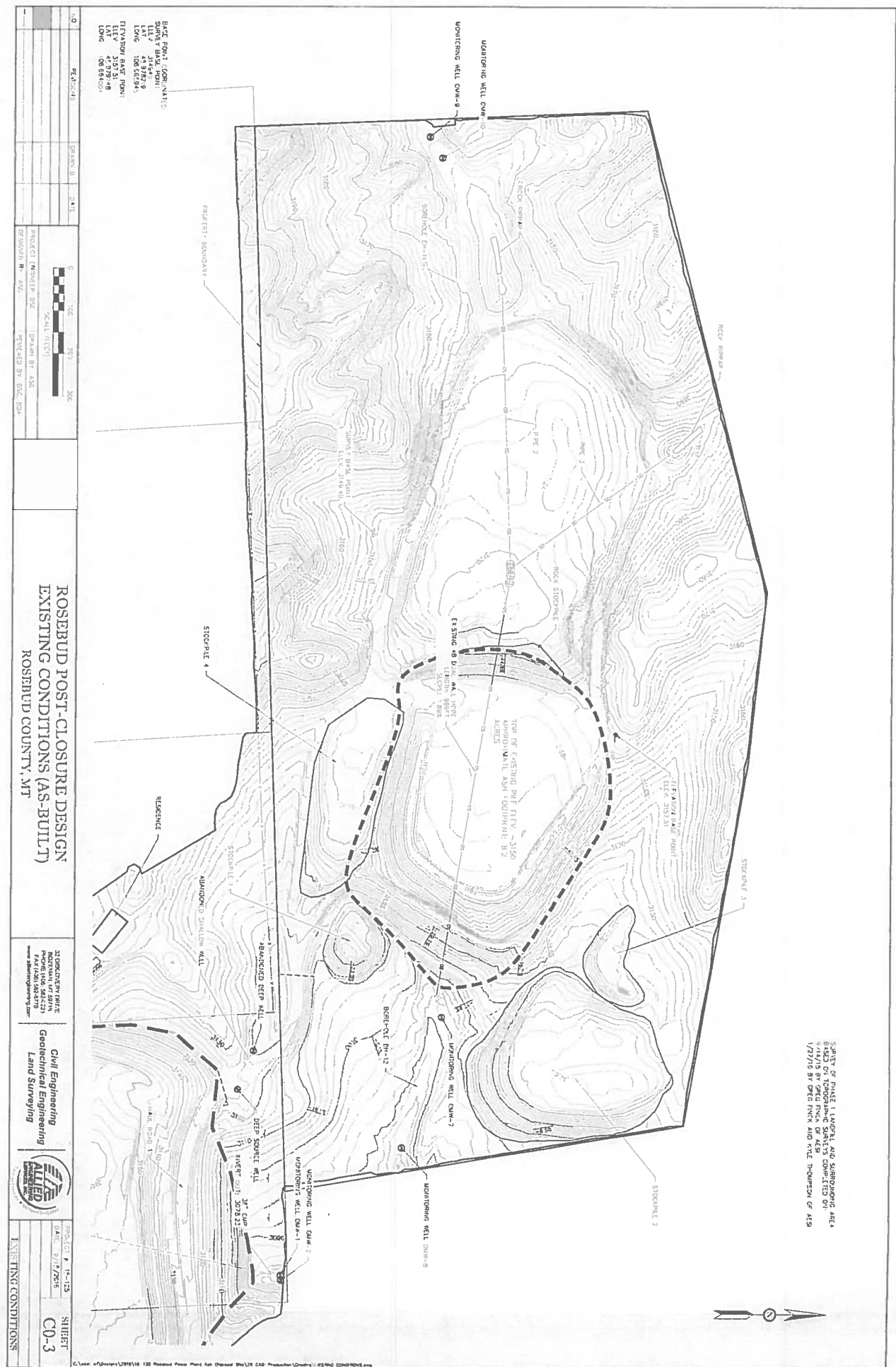
(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:

[Handwritten Signature]

Signature and Date:

12/15/17



BACK POINT CORNER NOTES:
 STATION 1
 ELEV. 3144.00
 LONG. 108° 07' 29.00
 ELEVATION BACK POINT
 ELEV. 4707.18
 LONG. 108° 07' 29.00

NO.	REVISIONS	DRAWN BY	DATE
1			
2			
3			

PROJECT NUMBER	DATE
PROJECT NAME	SCALE (FEET)
DESIGNED BY	DRAWN BY
CHECKED BY	DATE

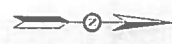
ROSEBUD POST-CLOSURE DESIGN
EXISTING CONDITIONS (AS-BUILT)
 ROSEBUD COUNTY, MT

REGISTERED PROFESSIONAL ENGINEER
 STATE OF MONTANA
 LICENSE NO. 10000
 CIVIL ENGINEERING



PROJECT # 14-135
 DATE 2/17/2015
SHEET
C0-3
 EXISTING CONDITIONS

PART OF RANGE 1 LAND AND SURVEYING AREA
 AS SHOWN ON PLAT 14-135
 1/27/16 BY ERIC FINN AND KYLE THOMPSON OF AES



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)
 OPERATOR: Rosebud Operating Services Inc
 INSPECTOR: Don McJunk
 DATE & TIME INSPECTED: 10/26/17 1030 am
 WEATHER (temperature, wind, precipitation): -4° partly cloudy - NE 2 mph
 FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,
 MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1'-2' from top beam

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

10' plus from top of the beam

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No :
 If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)		✓	<u>1'-2'</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?		.	okay
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?			

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow Covered

C. Areas without Vegetation due to erosion (describe location and size of area)

None

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

None

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

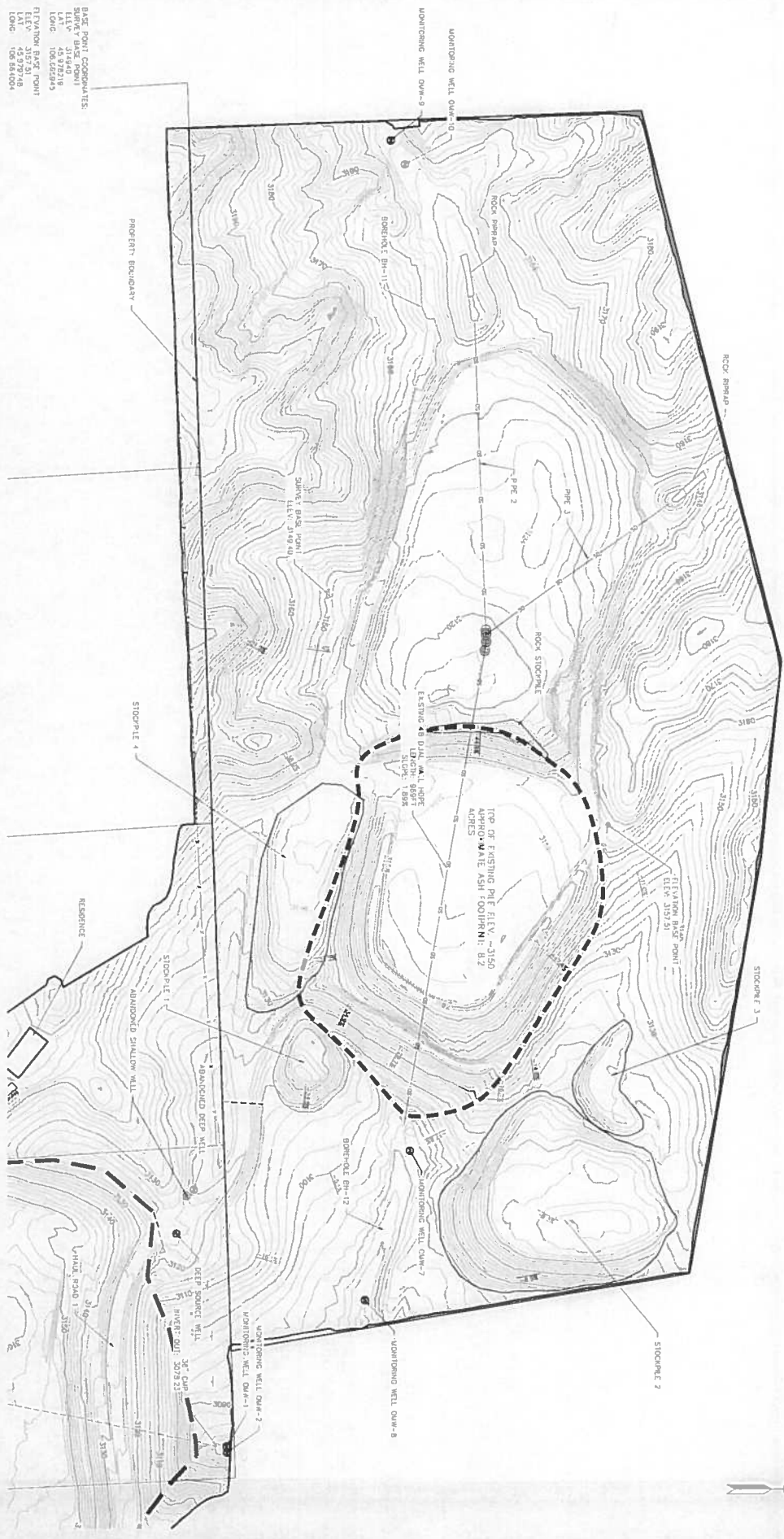
(Use additional pages, if necessary, include pictures as needed)

Snowed & Cold

This inspection was performed by:

[Signature] 12/6/12

Signature and Date:



BASE POINT COORDINATES:
 SURVEY BASE POINT
 ELEV. 45.97218
 LONG. 106.62649
 FLATION BASE POINT
 LAT. 45.97218
 LONG. 106.62649

NO.	PERSONS	DRAWN BY	DATE

PROJECT ENGINEER: DSC
 DRAWN BY: ASS
 DESIGNED BY: ASS
 REVENDED BY: DSC, BSA



ROSEBUD POST-CLOSURE DESIGN EXISTING CONDITIONS (AS-BUILT) ROSEBUD COUNTY, MT

35 DISCOVERY DRIVE
 BOZEMAN, MT 59718
 TEL (406) 552-2777
 WWW.ALSOURCEENGINEERING.COM

Civil Engineering
 Geotechnical Engineering
 Land Surveying



PROJECT # 15-125	SHEET
DATE 9/12/2016	C0-3
EXISTING CONDITIONS	

SHEET OF SHEET 1, LANDFILL AND SURROUNDING AREA
 BASED ON TOPOGRAPHIC SURVEYS COMPLETED ON
 9/11/15 BY GREG FRICK OF ALS
 1/27/16 BY GREG FRICK AND KYLE THOMPSON OF ALS



ROSEBUD POWER PLANT
CCR LANDFILL INSPECTION REPORT

OWNER: Colstrip Energy Limited Partnership (CELP)

OPERATOR: Rosebud operating services, Inc

INSPECTOR: Joel Zimmerman

DATE & TIME INSPECTED: 12/29/17

WEATHER (temperature, wind, precipitation): 10F - Snow - Wind 13 MPH NW

FLYASH STORAGE SITE INSPECTED: Phase 1 and 2 of Rosebud Power Plant CCR Landfill,

MDEQ Groundwater Permit # MTX000052, MDEQ Stormwater Discharge Permit #MTR000058, SWPPP # PEP-9

Flyash Storage Site Status

Approximate FlyAsh Surface Elevation Phase 1 (feet, describe method of measurement):

1-2 ft below top of Berm

Approximate FlyAsh Surface Elevation Phase 2 (feet, describe method of measurement):

about 10' ft below top of berm

This Form Should be Attached to Reference Map, list date of inspection on map along with notations relating to locations of comments/picture indicated below. (Allied Provide insp. Map)

Any Issues From Previous Week/Inspection? No:

If so, note here: _____

General Instructions: Inspect for the general criteria below. Indicate locations of findings on an inspection map, take pictures (include date stamp), and indicate location of pictures on the inspection map.

1. EMBANKMENT & PIPE

A. Berm (Exterior, Top, Interior, Benches) & Pipe

ITEM	YES	NO	REMARKS/LOCATION
(1) Any visual settlement, sloughing, slumps, depressions or bulges?		✓	
(2) Any misalignments?		✓	
(3) Any cracking?		✓	
(4) Any traffic or animal damage?		✓	
(5) Top Width (10-ft design) except at prescribed exterior bench locations (see map)	✓		
(6) Interior Side Slopes (1.5H:1V design)	✓		
(7) Height of Berm above Ash Surface (ft)	✓		<u>1-2 ft below</u>

ITEM	YES	NO	REMARKS/LOCATION
(8) Any Debris, Erosion, or Cracking?		✓	
(9) Side Slopes meet minimums (3:1 exterior, 1.5:1 interior)?	✓		
(10) Any exposed ash on exterior slope?		✓	
(11) Any visible water pooling or ponding?		✓	
(12) Any visible water/runoff spill points?		✓	
(13) Pipe Condition?			Good
(14) Water flowing from pipe?		✓	
(15) Any pooling or ponding at pipe inlet or outlet?		✓	Snow
(16) Any erosion/undermining of pipe at inlet or outlet?		✓	
(17) Other?		✓	

B. Amount and Type of Vegetation on the Embankment & Bench Areas

Snow Covered Vegetation

C. Areas without Vegetation due to erosion (describe location and size of area)

No

D. Areas without Vegetation due to lack of topsoil cover (describe location and size of area)

No

2. Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit?

No

3. GENERAL INSPECTION COMMENTS / ADDITIONAL COMMENTS AND RECOMMENDATIONS

(Use additional pages, if necessary, include pictures as needed)

This inspection was performed by:

Joel Zimmerman

12-29-17

Signature and Date:

