2024 Sinkhole Filling and Maintenance AML Project Summary

Contractor Name: Young Gun Construction, LLC
Contract Number: AM-901-24
Total Project Cost: $226,306

Locations:
1. Five miles north of Bowman, ND, Section 15, T132N, R102W
2. Within one mile of Scranton, ND, Section 24 and 26, T131N, R100W
3. Three-mile northeast of Haynes, ND, Section 16, T129N, R94W
4. Eight miles southwest of Beach ND, Section 34, T139N, R106W
5. Three miles southeast of Dickinson ND, Sections 8, 17, and 18, T139N, R95W
6. Within one mile of Richardton, ND, Section 5, T139N, R92W
7. Within one mile of Beulah, ND, Section 12 and 13, T144N, R88W and Section 30, T144N, R87W
8. Seven miles west of Washburn, ND, Sections 10 and 11, T144N, R83W
9. Twelve miles northwest of Mandan, ND, Section 17, T140N, R82W

2024 eAMLIS Project Completion Information

Project and Location	Problem Area Number & Name	Project Start Date	Project End Date	Working Days	Project Cost	Estimated Population Impacted:	Acres Reclaimed
2024 Sinkhole Filling Bowman Site	ND033: Andrews Lake PA	9/30/2024	10/1/2024	4	$6,010	Estimated at 5 per site	0.31 Acres
2024 Sinkhole Filling South Scranton Site	ND003: South Scranton PA	10/3/2024	10/3/2024	1	$2,842	Estimated at 5 per site	0.09 Acres
2024 Sinkhole Filling Scranton Site	ND528: Scranton PA	10/2/2024	10/2/2024	1	$4,393	Estimated at 5 per site	0.27 Acres
2024 Sinkhole Filling Haynes Site	ND124: Haynes PA	10/3/2024	10/4/2024	2	$9,245	Estimated at 5 per site	0.75 Acres
2024 Sinkhole Filling Beach Site	ND009: Sokolski PA	10/14/2024	10/16/2024	2	$5,200	Estimated at 5 per site	0.13 Acres
2024 Sinkhole Filling Dickinson Site	ND024: Binek B, C, D, E,H PA	10/16/2024	10/24/2024	6	$19,011	Estimated at 5 per site for a total of **15**	0.93 Acres
2024 Sinkhole Filling Richardton Site	ND025: Abbey A, B PA	10/23/2024	10/25/2024	3	$3,100	Estimated at 5 per site	0.10 Acres

2024 Sinkhole Filling Beulah Sites	ND014: Beulah PA	10/25/2024	11/8/2024	11	$29,105	Estimated at 5 per site for a total of **15**	1.16 Acres
2024 Sinkhole Filling Washburn Site	ND006: Black Diamond PA	11/8/2024	11/13/2024	4	$9,650	Estimated at 5 per site for a total of **10**	0.64 Acres
2024 Maintenance Helm Brothers Site	ND216: Helm Brothers	9/16/2024	9/20/2024	5	$137,750	Estimated at 5 per site	16.5 Acres

AML Background

The Public Service Commission administers the Abandoned Mine Lands (AML) Program on behalf of the State of North Dakota. The State AML Program was approved by the U.S. Department of the Interior in 1981 under the authority of the Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87, Title IV). Program funding comes from a federal reclamation fee on coal mined in the United States since the late 1970's. These fees are placed into the AML fund, and the money that North Dakota receives from this fund is used to eliminate existing and potential public hazards resulting from abandoned surface and underground coal mines.

AML sinkhole filling projects reduce the likelihood of death or injuries to property owners and the public. However, new hazardous sinkholes are reported each year. Sinkhole-filling projects have been conducted annually in North Dakota and will likely continue into the foreseeable future. Some towns including Williston, Beulah, New Salem, and Garrison have abandoned underground mines within city limits and nearby developed property. The surface is inherently unstable and could collapse without warning. While most sinkholes in North Dakota occur in agricultural fields and pastures, the AML Division advises against the development of land containing underground mines. Anyone with concerns or questions about historic coal mines in North Dakota may contact the Public Service Commission AML Division for further information.

Project Overview

In 2024, 132 sinkholes were filled on several AML sites in the western half of North Dakota.

The AML Division requires contractors to follow these steps to reclaim sinkholes:

1. Remove and stockpile topsoil or other suitable plant growth material around/within the sinkhole and borrow areas.
2. Excavate the sinkhole with a backhoe or excavator.
3. Backfill the sinkhole with approved fill material; if trucks are used, compaction with a backhoe bucket and wheels is required between dumps. If a scraper is used, holes shall be ramped into and filled in such a way as to achieve maximum compaction.
4. Grade the area to blend with adjacent topography and re-establish drainage.
5. Respread topsoil evenly over disturbed areas and finish grade.

6. Till all areas with a Harley Box Rake (or equivalent equipment) sufficiently to break up all clods, prepare the seedbed, and cover all seed.
7. Seed the disturbed areas with the required mixture.
8. Fill material may be taken only from approved borrow areas determined in consultation with the property owner. Borrow areas are located as near as possible to the sinkholes, but haul distances may vary.

Bowman

Four large sinkholes were filled between September 30 and October 1, 2024. The sinkholes were in hayland that had not been grazed or hayed. This made the sinkholes very dangerous as they were difficult to see (**Figure 1**). One sinkhole was over 20 feet deep. Once all the sinkholes were filled, topsoil was respread, and the areas were seeded with a native pasture seed mixture.

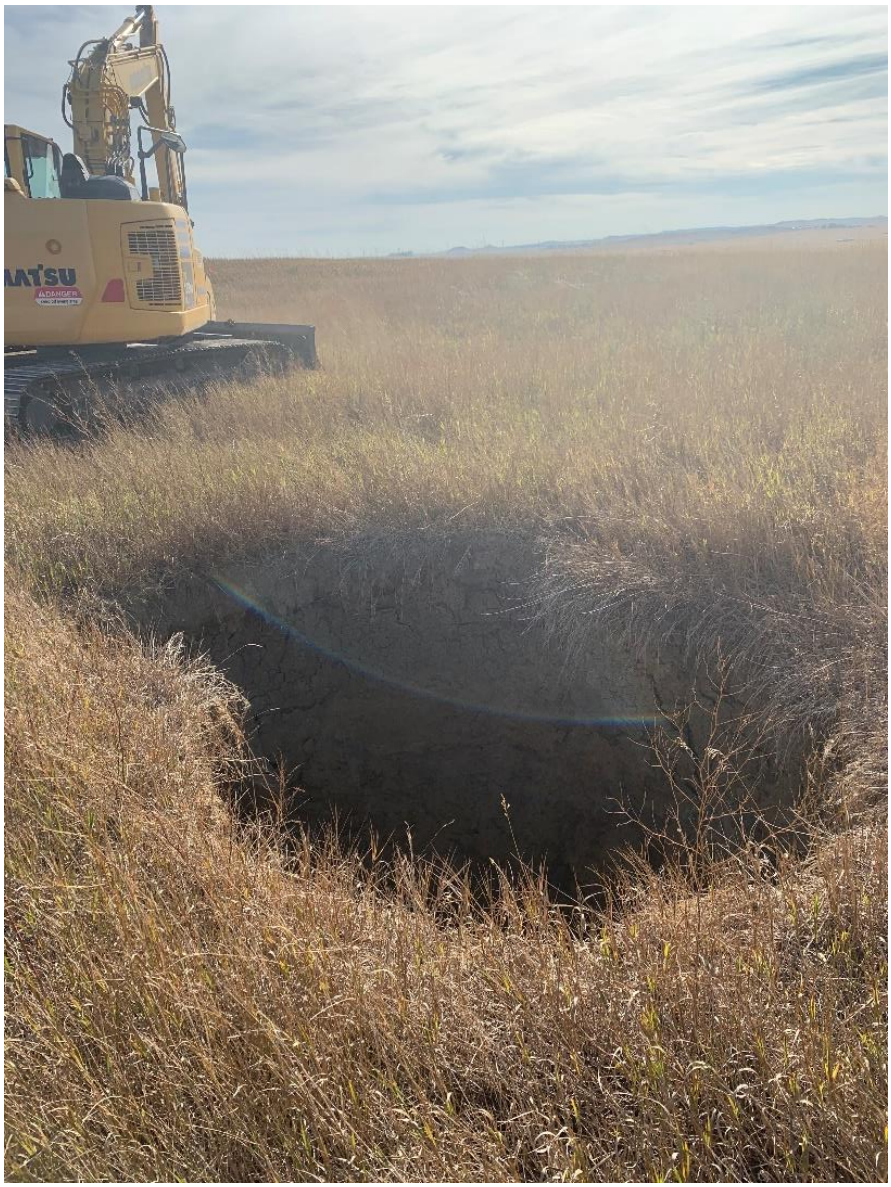


Figure 1: *Tall, thick grass made this sinkhole very difficult to see.*

Scranton

Twelve sinkholes were filled on two AML sites near Scranton between October 2-3, 2024. A few of the sinkholes were much larger than anticipated. Underground mine tunnels often collapse in a diagonal direction that cannot be seen until the excavation begins (**Figure 2**). Once all the sinkholes were filled, topsoil was respread, and the areas were seeded with a native pasture seed mixture.

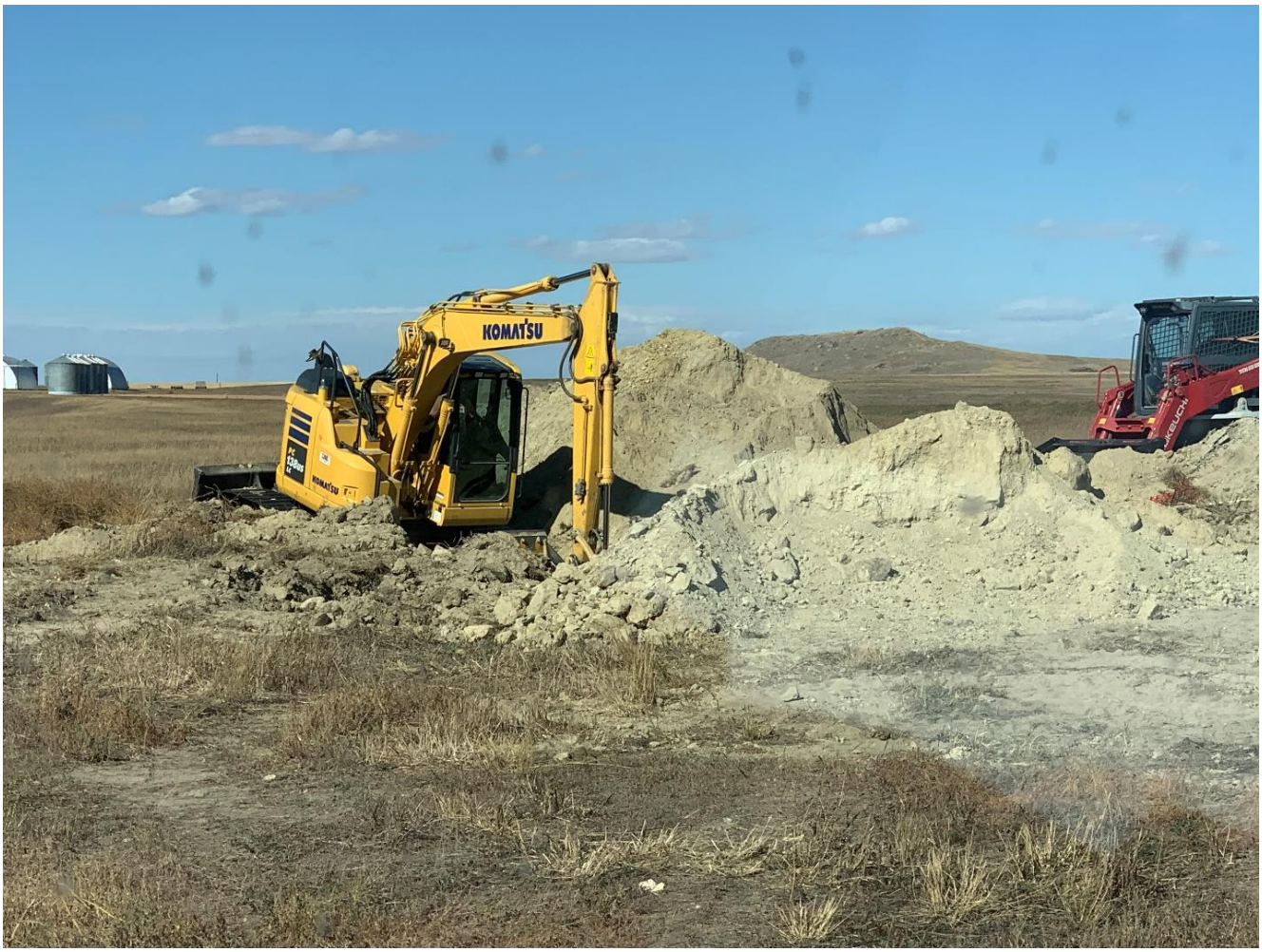


Figure 2: *When the excavator opened up this sinkhole, the mine void was more than twice as large as expected.*

Haynes

This AML site is located on state school land managed by the Department of Trust Lands. Nine large sinkholes were filled between October 3-4, 2024. Four sinkholes were over 10 feet deep, and a few tunneled extensively underneath the ground's surface (**Figure 3**). Once all the sinkholes were filled, topsoil was respread, and the areas were seeded with a native pasture seed mixture (**Figure 4**).

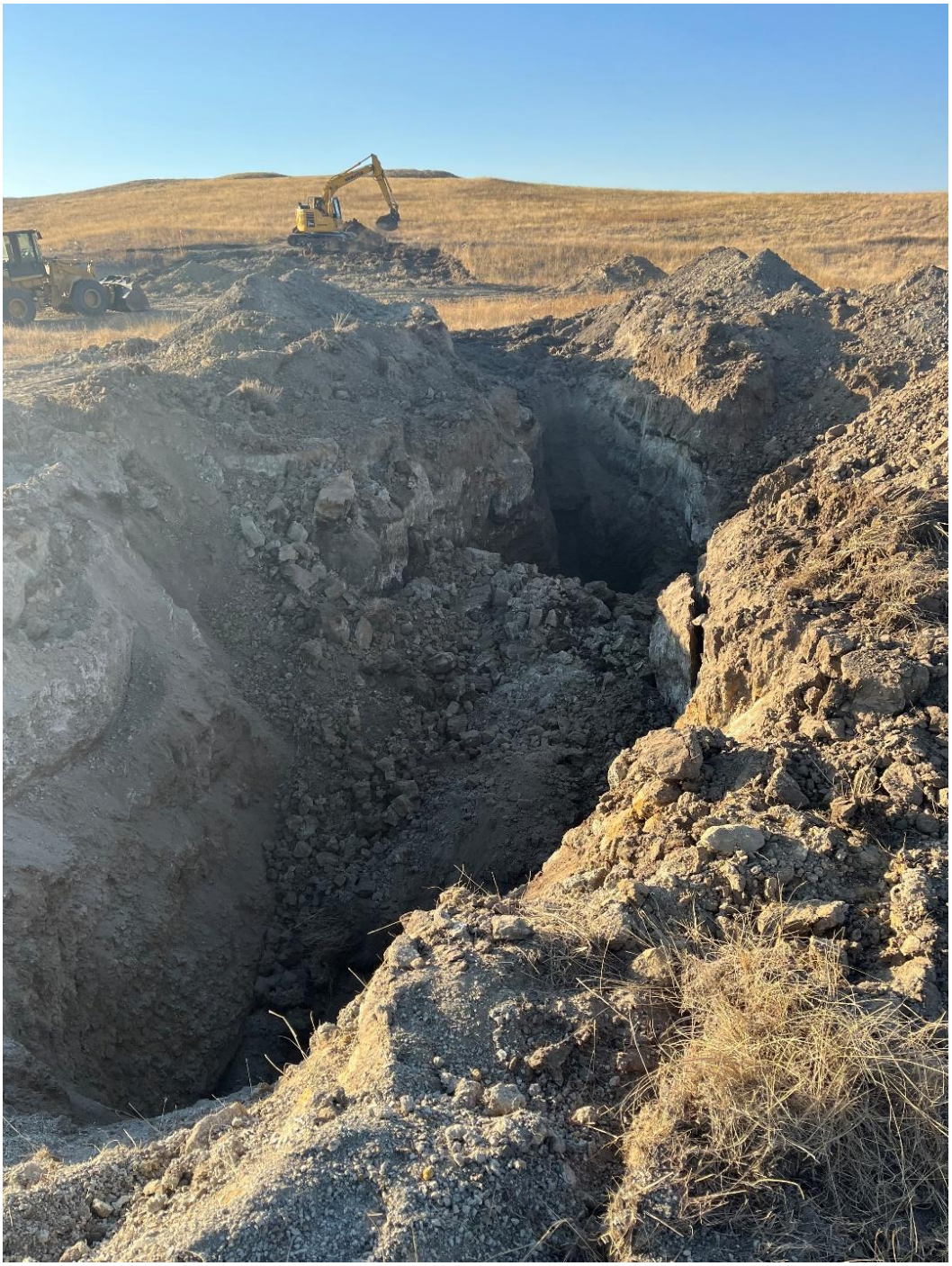


Figure 3: *This mine void tunneled extensively underneath the ground's surface.*

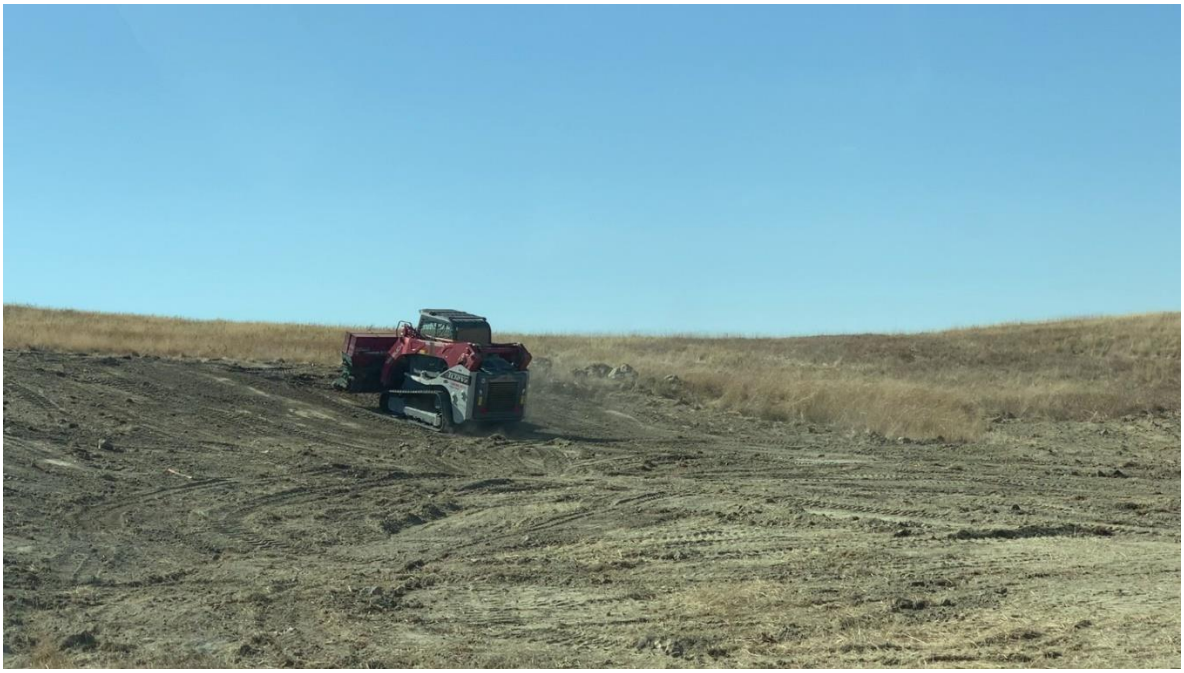
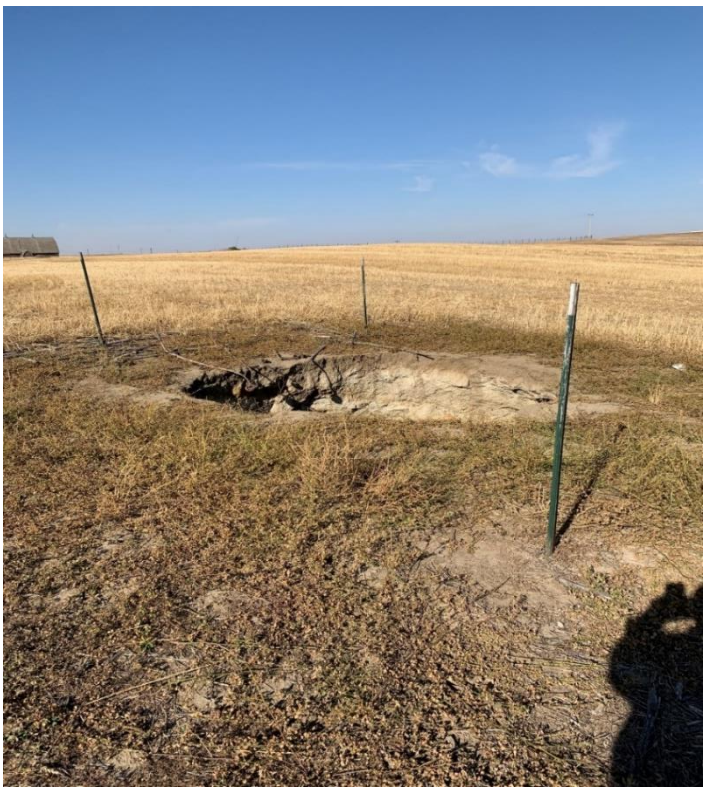


Figure 4: *A skid steer with a till attachment was used to till the reclaimed sinkhole areas.*

Beach

One large sinkhole was filled on this site between October 14-16, 2024. The sinkhole was over 15 feet deep and on the border of cropland (**Figure 5**). All landowners provide us with on-site soil, also called borrow areas, so we can cost-effectively fill sinkholes (**Figure 6**). Once this sinkhole was filled, topsoil was respread and the borrow area was seeded with winter wheat seed provided by the landowner.



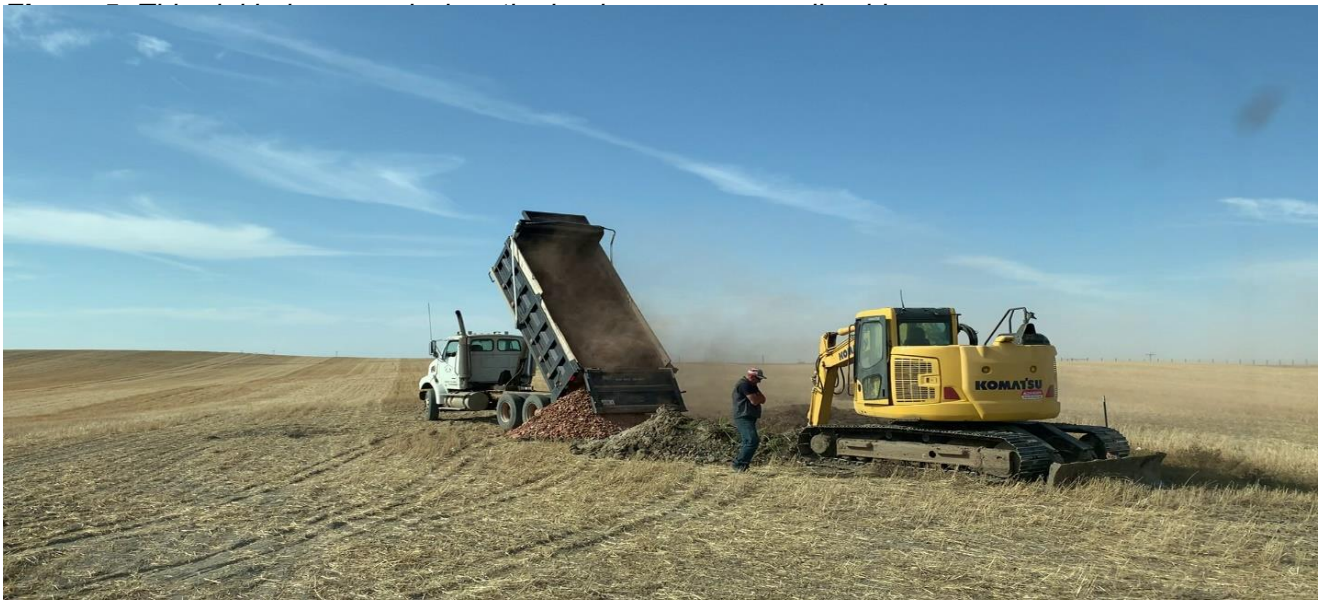


Figure 6: *This sinkhole is being filled with scoria and soil from a nearby borrow location provided by the landowner.*

Dickinson

Twenty-five sinkholes were filled on three separate AML sites between October 16-24, 2024. Numerous sinkholes were over 10 feet deep, and many had small surface openings which made them difficult to see *(**Figures 7 and 8**).* Once all the sinkholes were filled, topsoil was respread, and the areas were seeded with a native pasture seed mixture.

Figure 7: *Some sinkholes are very hard to see, making them extremely dangerous. A child or pet could have easily fallen into this hole.*

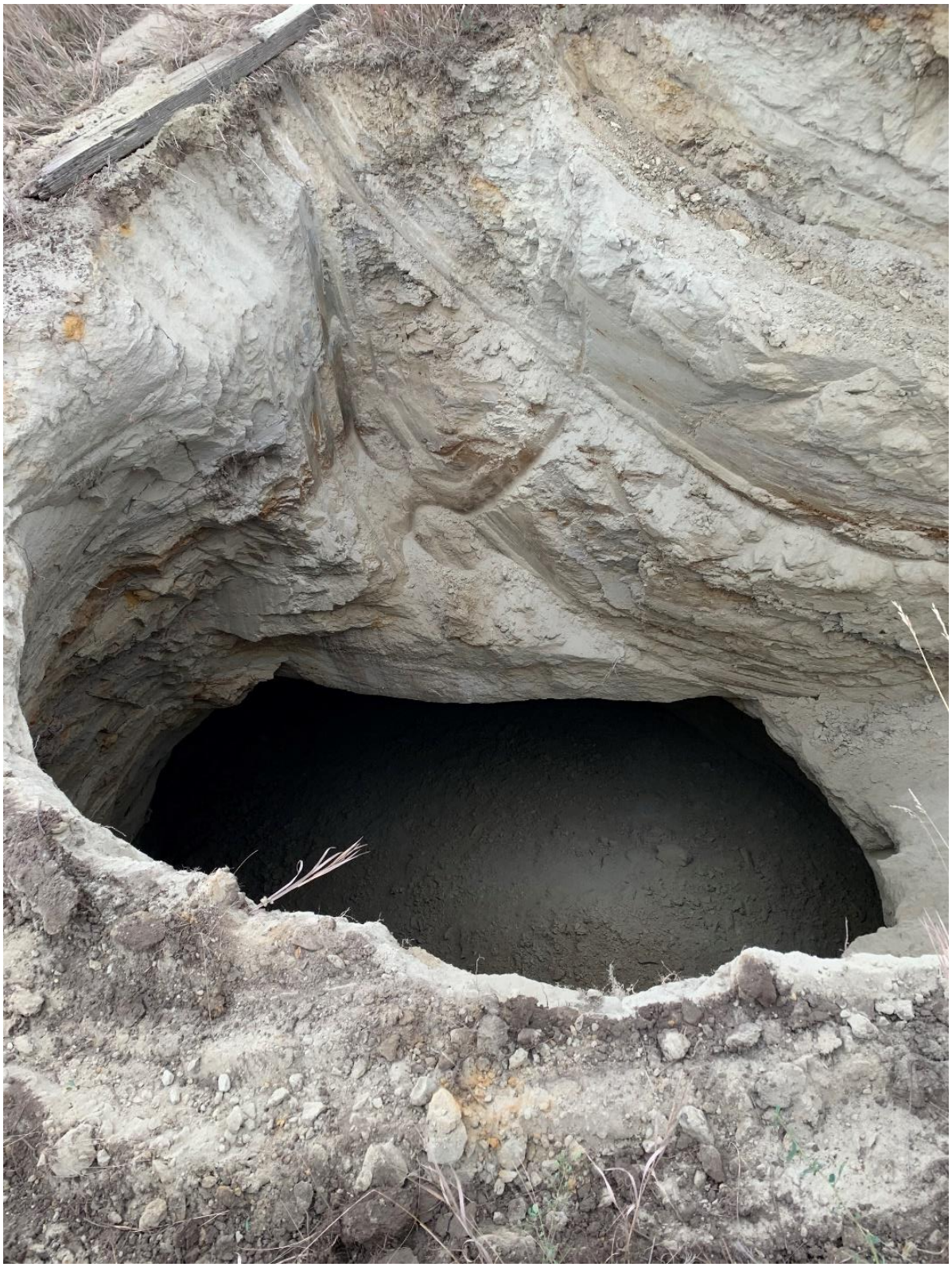


Figure 8: *The same sinkhole was approximately 10 feet wide and measured 27 feet deep after the contractor removed the topsoil and subsoil.*

Richardton

Five sinkholes were filled near Richardton between October 23-25, 2024. One of the sinkholes was over 10 feet deep. Contractors are required to compact sinkholes between truck loads (**Figure 9**). Once all the sinkholes were filled, topsoil was respread, and the areas were seeded with a native pasture seed mix.

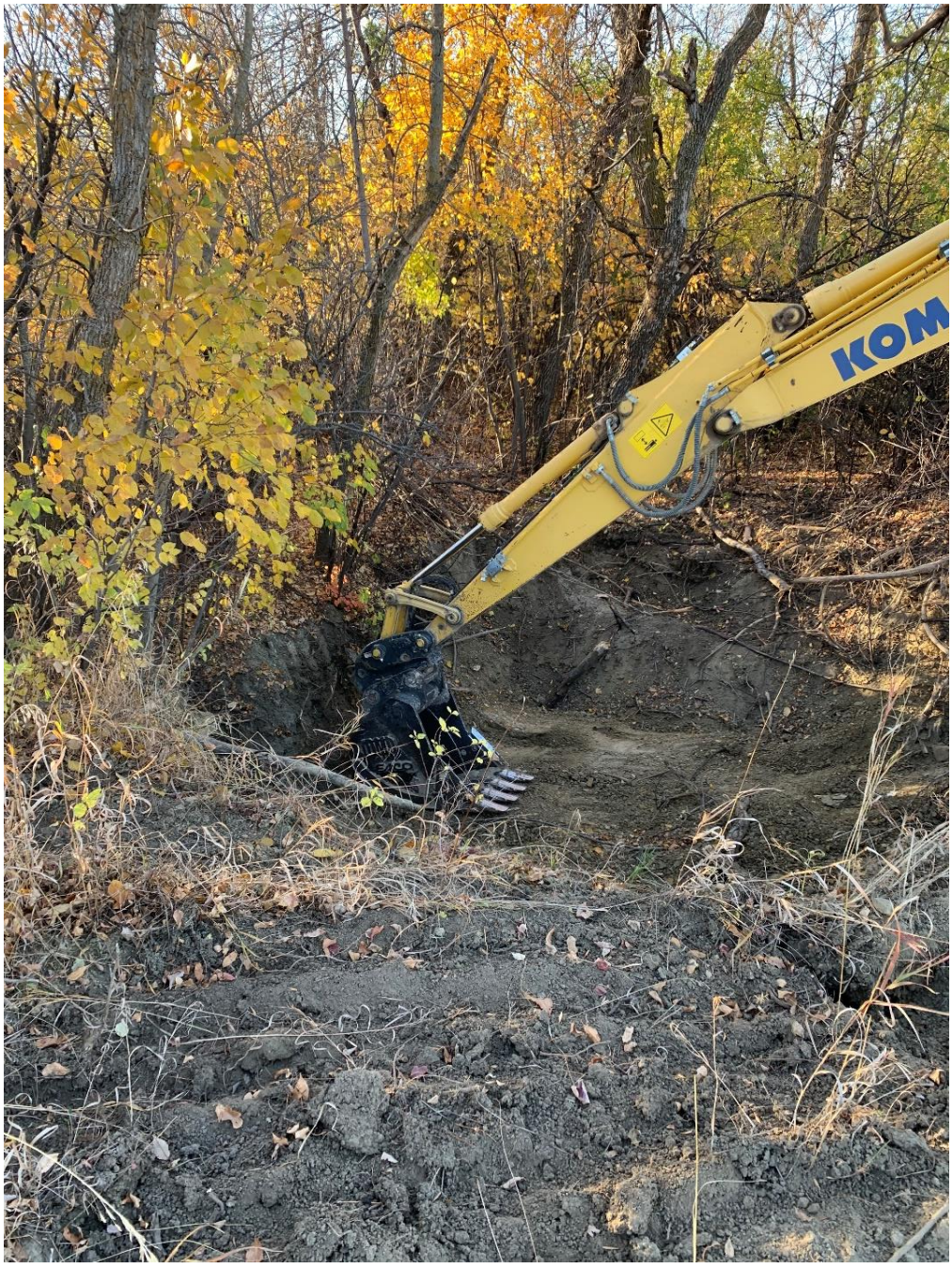
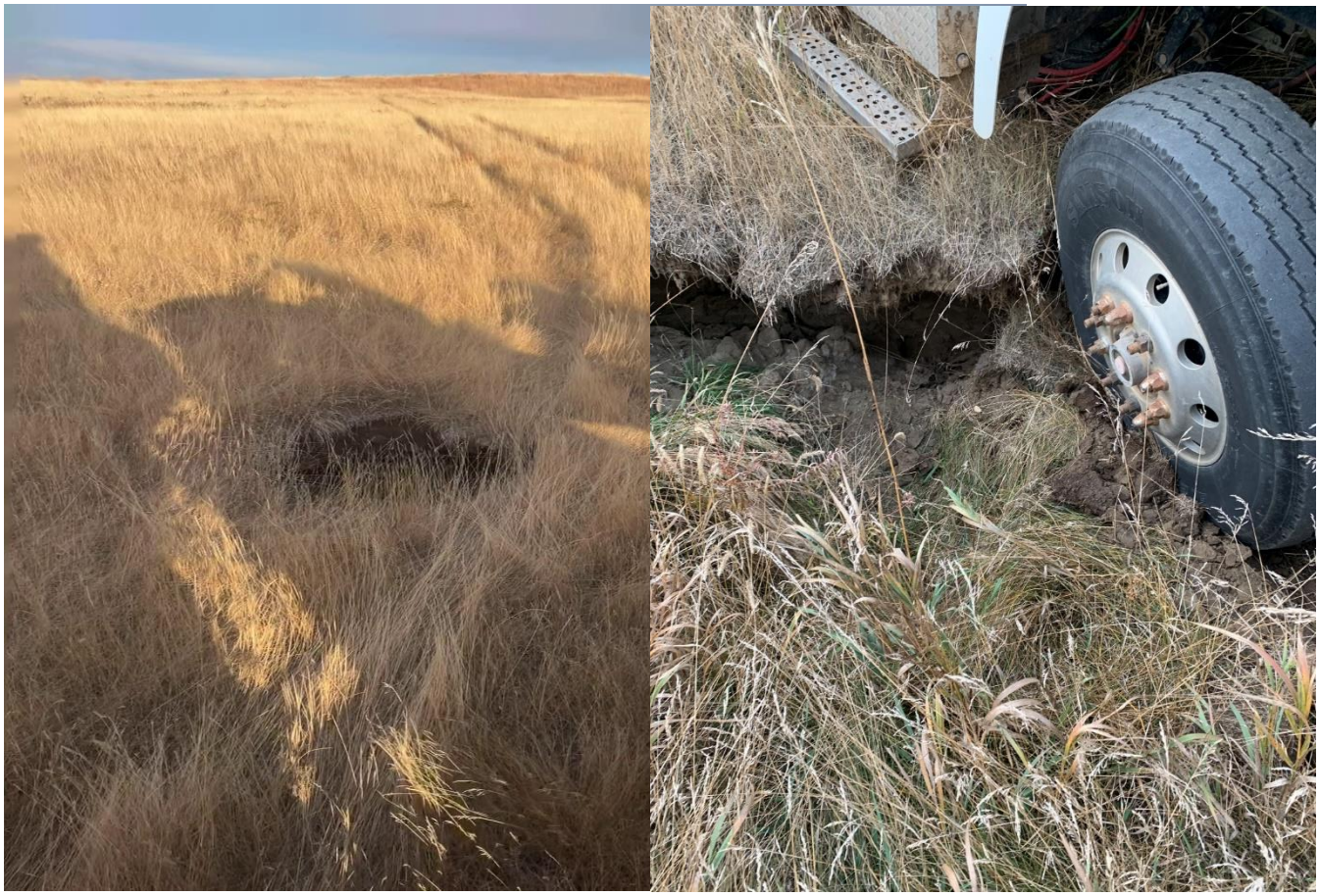


Figure 9: *This sinkhole is being compacted and graded with an excavator.*

Beulah

Forty-six large sinkholes were filled on three AML sites between October 25 and November 8, 2024. The thickest mined coal seam in the Beulah area ranges between 15-24 feet. This has resulted in some of the deepest sinkholes documented in North Dakota. Several of the sinkholes filled were over 15 feet deep. New sinkholes generally appear after heavy precipitation events or spring snow melts. However, heavy equipment can also cause mine voids to migrate to the surface (**Figures 10 and 11**). Once all the sinkholes were filled, topsoil was respread, and the areas were seeded with a native pasture seed mixture.



Figures 10 and 11: *Heavy equipment caused two mine voids to migrate to the surface in the form of sinkholes.*

Washburn

Thirty large sinkholes were filled on two AML sites between November 8th and November 13th, 2024. Several of the sinkholes were over 10 feet deep. Once all the sinkholes were filled, topsoil was respread (**Figure 12**), and the area was seeded with a native pasture seed mixture.

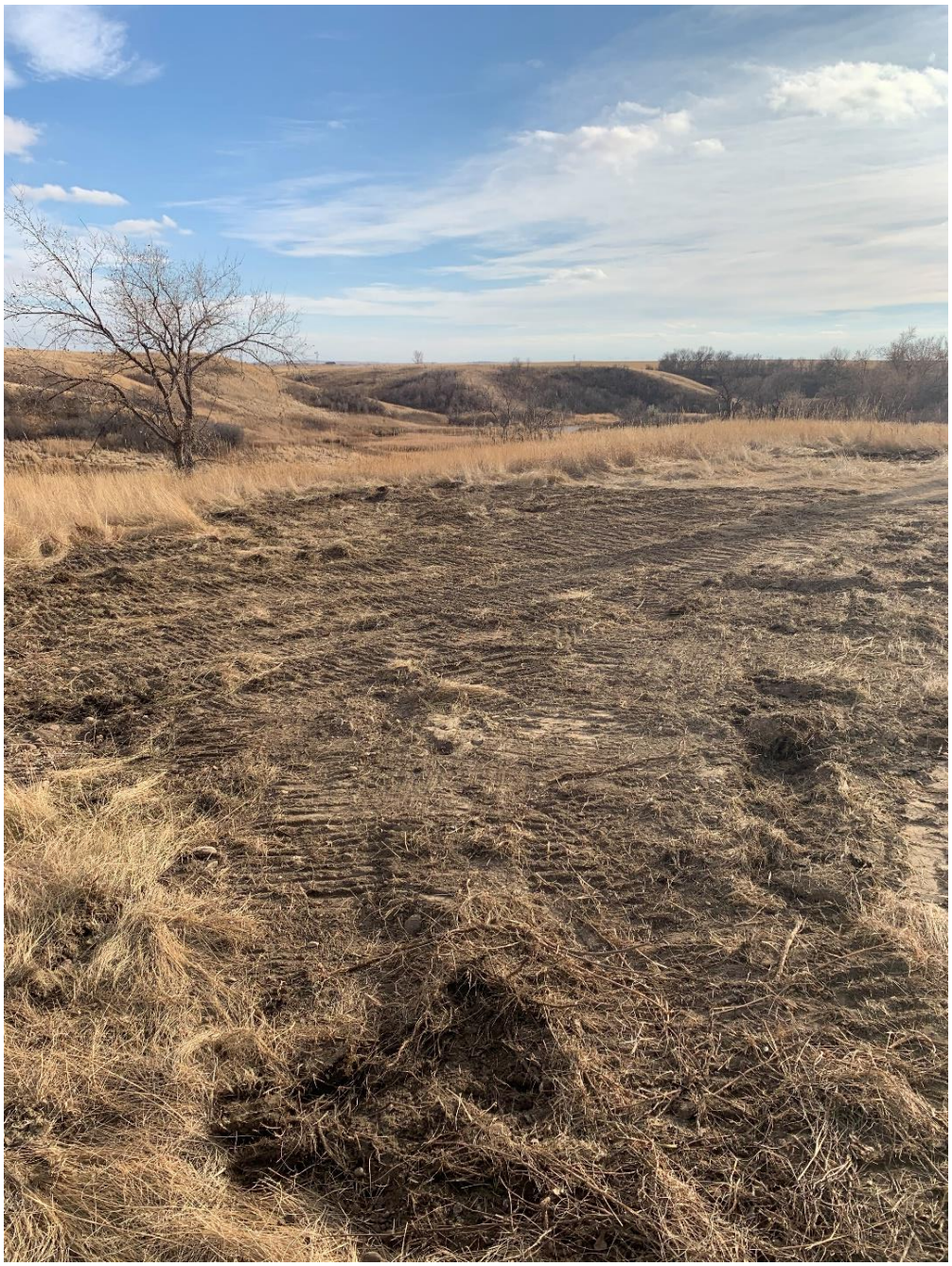


Figure 12*: Reclaimed sinkhole before tilling and seeding.*

Helms Brothers

This 16.5-acre surface mine site was reclaimed in 2018 under the Morton County Phase 2 Project. Limited on-site topsoil and low precipitation resulted in sparse vegetation (**Figure 13**). Eventually, some erosional rills formed. Construction began with the grading of several erosion features on September 16. Soil amendments consisting of leonardite, gypsum, a soil microbial product, and fertilizer were spread across the site and mixed into the existing topsoil with a heavy harrow. The site was then re-seeded with a native pasture seed mix and mulched (**Figure 14**). Construction was completed on September 20, 2024.

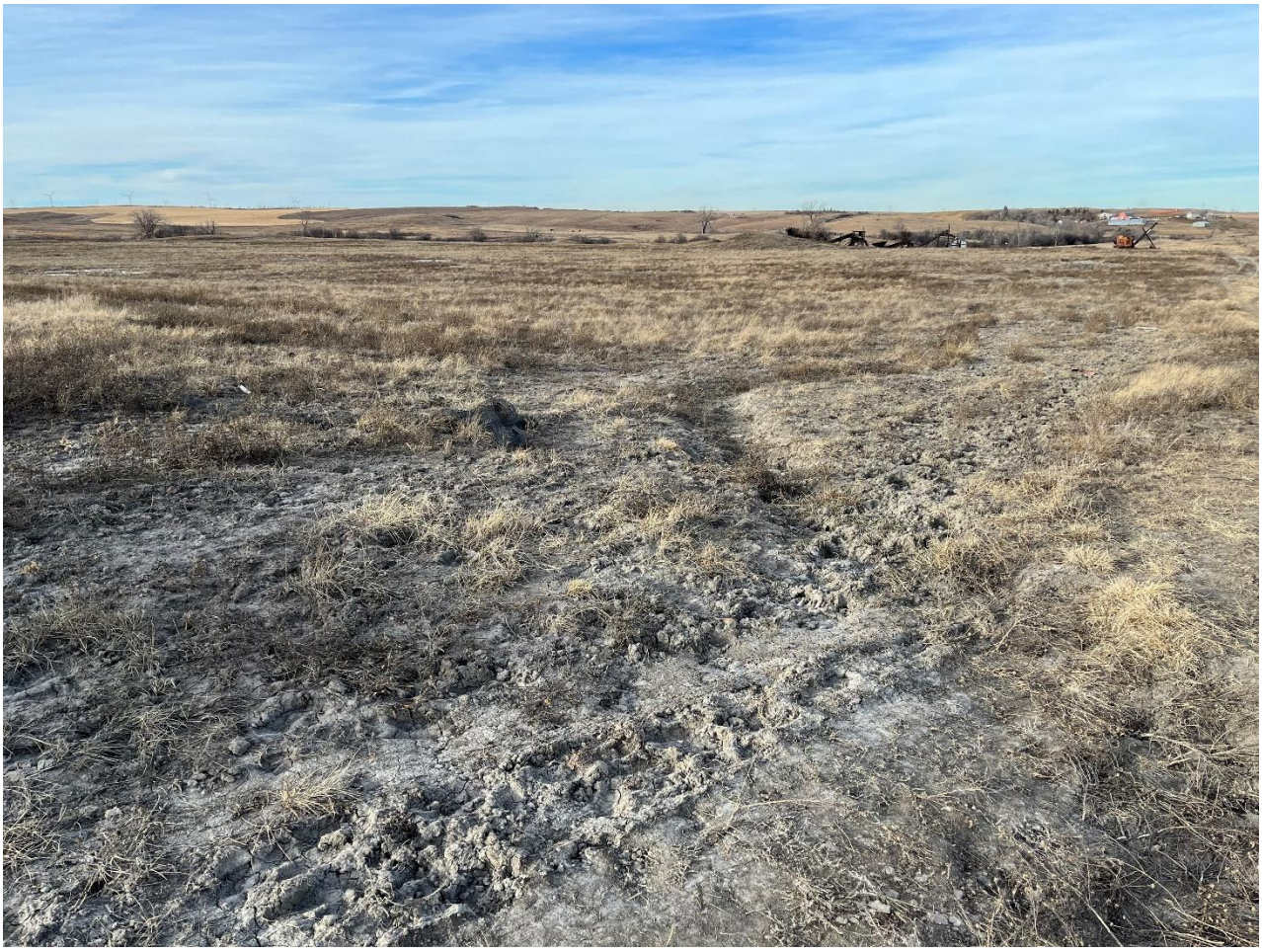


Figure 13: *This area had sparse vegetation and an erosion rill before construction.*

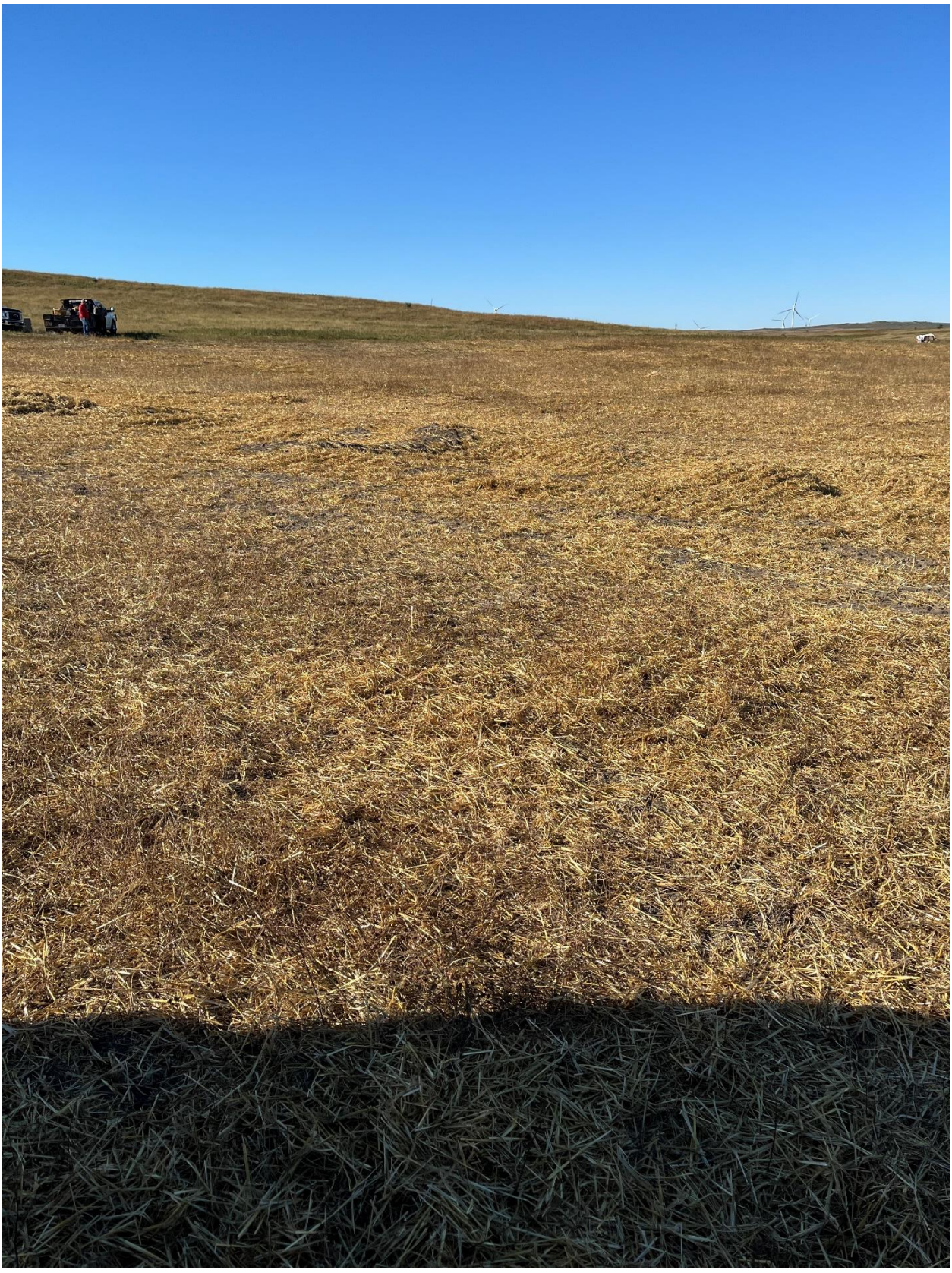


Figure 14: *Erosion features were graded, and straw mulch was crimped to prevent further erosion.*