

# 2021 Annual Inspection Report

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for Compliance with the Coal  
Combustion Residuals Rule  
(40 CFR Part 257)

## **Pawnee Station - North Landfill**

*14940 Morgan County Road 24  
Brush, Colorado 80723*

***January 15, 2022***

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# Certification

## **Pawnee Station - CCR Unit 2020 Annual Inspection for Compliance with the Federal Coal Combustion Residuals Rule**

I hereby certify that the North Landfill, a Coal Combustion Residuals (CCR) unit at Pawnee Station meets the inspection and operation standards specified in 40 CFR Part 257.84(b) of the Federal CCR Rule. The Pawnee Station is owned by the Public Service Company of Colorado (PSCo), an Xcel Energy Company.

I am duly licensed Professional Engineer under the laws of the State of Colorado.



Brent Leach, PE

Colorado PE License 0056841

License renewal date October 31, 2023

# 1 Introduction

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published regulations under Subtitle D of the Resources Conservation and Control Act (RCRA) meant to control the safe disposal of coal combustion residuals (CCR) generated by coal fired electric utilities. The rule defines a set of requirements for the disposal and handling of CCR within CCR units (defined as either landfills or surface impoundments). As specified in 40 CFR 257.84(b), *“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.”* Pawnee Station has two CCR landfills subject to the inspection requirements: the North CCR Landfill and the East CCR Landfill. The scope of this report covers only the North CCR Landfill; the East CCR Landfill inspection is documented in a separate report.

This is the 2021 annual inspection report for the Pawnee North CCR Landfill. This report must be completed and placed into the facility operating record no later than January 15, 2022.

The requirements of the annual inspection include:

- A review of available information regarding the status and condition of the CCR unit - §257.84 (B)(1)(i),
- A visual inspection of the CCR unit to identify signs of distress or malfunction - §257.84 (B)(1)(ii),
- An inspection report that includes the following:
  - Changes in geometry since the last inspection - §257.84 (B)(2)(i)
  - Approximate volume of CCR in unit at time of inspection - §257.84 (B)(2)(ii)
  - Appearance of actual or potential structural weakness of the CCR unit - §257.84 (B)(2)(iii)
  - Any other changes which may have affected the stability or operation of the CCR unit since the last inspection - §257.84 (B)(2)(iv)

## 2 Site Inspection

In accordance with §257.84(b)(ii) a site inspection of the Pawnee North CCR Landfill was conducted on November 9, 2021. The inspection was conducted by Brent Learch, a Colorado Professional Engineer of HDR Engineering Inc., and Richard Ferguson, an Xcel Energy Environmental Analyst at the Pawnee Station. Review of the associated paperwork and inspection reports was conducted by Brent Learch and Richard Ferguson.

The landfill CCR placement started as an incised CCR unit below existing grade but has become a fill above existing grade. Through historical site operational review, PSCo has determined that only the northern portion of the overall landfill footprint, including the contact water pond, is defined as the North CCR landfill, and is subject to the CCR Rule. The area



historically used for lime disposal located to the south of the North CCR landfill is not part of the CCR Annual Inspection.

The weather during the site visit was partly cloudy with temperatures ranging from 45 to 55 degrees Fahrenheit. The site was free of snow cover.

### 3 Review of Available Information

Numerous documents pertaining to the site operation and structural integrity were reviewed including:

1. The Engineering Design and Operation Plan (EDOP) document, Revision 3 dated January, 2018 and developed by HDR, has not been modified during 2020 and thus was not reviewed.
2. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).
3. Topographic survey with an issue date of August 25, 2021, by Flatirons, Inc. This topographic survey covered the northern portion of the site within the perimeter road and includes the contact water pond to the south of the CCR landfill area.
4. The latest CDPHE inspection of the landfill, which occurred in April of 2021.

Review of the above documents did not contain any indications of operation, safety, or structural concerns regarding the North CCR landfill.

### 4 Visual Inspection

Brent Learch, escorted by Richard Ferguson, completed a site inspection, driving and walking the perimeter of the landfill and observing all landfill slopes. As the CCR Rule pertains only to the CCR landfill itself, this report does not address existing topsoil stockpiles or earthwork outside of the landfill area.

The site inspection included an evaluation of the following CCR landfill features:

1. Interior landfill and exterior landfill perimeter road-side slopes;
2. Contact water pond;
3. Access roads;
4. Active CCR fill area (CCR disposal, spreading, compaction), and;
5. Temporarily soil covered CCR landfill areas.

The following are the findings of the site inspection:

- There is a perimeter landfill access road that is incised into the native soil side slopes or is a ridge road on a constructed embankment, depending on location. The ridge road embankment sections are on the east and west side of the landfill. Both the western and eastern ridge road embankments showed no substantial signs of rill erosion, and no signs of operational or functional concern.
- The minor areas of rill erosion in the CCR landfill showed no signs of operational or functional concern. Based on the review of the weekly inspection reports, it is apparent that this is routinely maintained.
- Wind-blown CCR was not observed during dumping operations.
- The capped North CCR Landfill areas appeared to have adequate soil cover and showed no signs of operational and structural concern.

## 5 Changes in Geometry

The Federal CCR Rule requires that site geometry changes be identified since the last inspection. The landfill footprint and configuration has not changed since the last inspection. Fill operations have been consistent with the approved EDOP. There has been limited placement of CCR in the North CCR Landfill relative to previous years due to operations transitioning to the East CCR Landfill.

## 6 Approximate CCR Volume

PSCo reviewed known and extrapolated ash generation rates, reviewed known beneficial ash usage between 1996 and 2014, and calculated landfill volumes based on a prior EDOP dated February 2011, Rev. 2.0. After analyzing the calculated volumes and incorporating recent annual estimates of CCR placement, PSCo estimates that the total combined volume of CCR in the North CCR Landfill as of November 2020 to be 1,899,920 CY. The additional CCR deposited in the North CCR Landfill from December 2020 to November 2021 is estimated to be 33,400 CY, assuming one cubic yard of CCR material equates to one ton. Additionally, 2,400 CY of lime sludge was deposited via a thin spread method in the North CCR Landfill. The total CCR volume in the North CCR Landfill as of November 2021 is estimated to be 1,935,720 CY.

## 7 Appearance of Structural Weakness

Based on the site inspection, no apparent or potential structural weaknesses were observed. Continued monitoring and minor repairs should be completed to address rill and gully erosion as it occurs.

## 8 Changes Affecting Stability or Operation

There were no observed or reported operation changes that are anticipated to impact the site's near-term or long-term stability. No areas of severe rill or gully erosion were observed that had

the potential to lead to long term stability concerns. There were no new stability concerns observed or reported at the time of inspection.

## Appendix A – Landfill Site Map



Parcel Description

(PROVIDED BY CLIENT)  
PAWNEE POWER PLANT

# TOPOGRAPHIC EXHIBIT

A PARCEL OF LAND LOCATED IN SECTIONS 19 & 20, TOWNSHIP 3 NORTH, RANGE  
56 WEST OF THE 6TH P.M.,  
COUNTY OF MORGAN, STATE OF COLORADO

SHEET 1 OF 6

Notes

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3. THIS EXHIBIT WAS PREPARED FOR THE EXCLUSIVE USE OF HDR, NAMED IN THE STATEMENT HEREON. SAID STATEMENT DOES NOT EXTEND TO ANY UNNAMED PERSON WITHOUT AN EXPRESS STATEMENT BY THE SURVEYOR NAMING SAID PERSON.
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6. THE DISTANCE MEASUREMENTS SHOWN HEREON ARE U.S. SURVEY FOOT.
7. THE CONTOURS REPRESENTED HEREON WERE INTERPOLATED BY AUTOCAD CIVIL 3D (DIGITAL TERRAIN MODELING) SOFTWARE BETWEEN ACTUAL MEASURED SPOT ELEVATIONS. DEPENDING ON THE DISTANCE FROM A MEASURED SPOT ELEVATION AND LOCAL VARIATIONS IN TOPOGRAPHY, THE CONTOUR SHOWN MAY NOT BE AN EXACT REPRESENTATION OF THE SITE TOPOGRAPHY. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS FOR SITE EVALUATION AND TO SHOW SURFACE DRAINAGE FEATURES. ADDITIONAL TOPOGRAPHIC OBSERVATIONS MAY BE NECESSARY IN SPECIFIC AREAS OF DESIGN. TOPOGRAPHY SHOWN HEREON COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.
8. BENCHMARK INFORMATION: TRIMBLE VRS NOW CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) NETWORK WAS USED TO ESTABLISH A GPS DERIVED ELEVATION ON AN ON-SITE BENCHMARK AT THE NORTHEASTERLY CORNER OF THE NORTHWESTERLY POND, BEING A FOUND #5 REBAR WITH AN ELEVATION OF 4324.12 FEET (NAVD 88). NGS POINT TOWER ET, BEING A BENCHMARK DISK STAMPED "TOWER ET 1963" LOCATED 1.0 MILES FROM THE SITE, WITH A PUBLISHED ELEVATION OF 4410 FEET, WAS CHECKED INTO WITH AN AS-MEASURED ELEVATION OF 4410.21 FEET. NO DIFFERENTIAL LEVELING WAS PERFORMED TO ESTABLISH THE ELEVATION OF THE ON-SITE BENCHMARK.
9. DATES OF FIELDWORK: AUGUST 25 & 26, 2021 (CREW CHIEF J. HANNAHOE)
10. BOUNDARY DETERMINATION IS NOT A PART OF THIS EXHIBIT. THIS IS NOT A "LAND SURVEY PLAT" OR "IMPROVEMENT SURVEY PLAT" AND THIS EXHIBIT IS NOT INTENDED FOR PURPOSES OF TRANSFER OF TITLE OR SUBDIVISIONS OF LAND AND THAT IT IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OF A FENCE, BUILDING OR OTHER FUTURE IMPROVEMENT LINES. PARCEL LINES SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE DRAWN FROM RECORD INFORMATION AVAILABLE DURING THE PREPARATION OF THIS EXHIBIT. AN IMPROVEMENT SURVEY PLAT IS RECOMMENDED TO DEPICT MORE PRECISELY THE LOCATIONS OF THE IMPROVEMENTS SHOWN HEREON.

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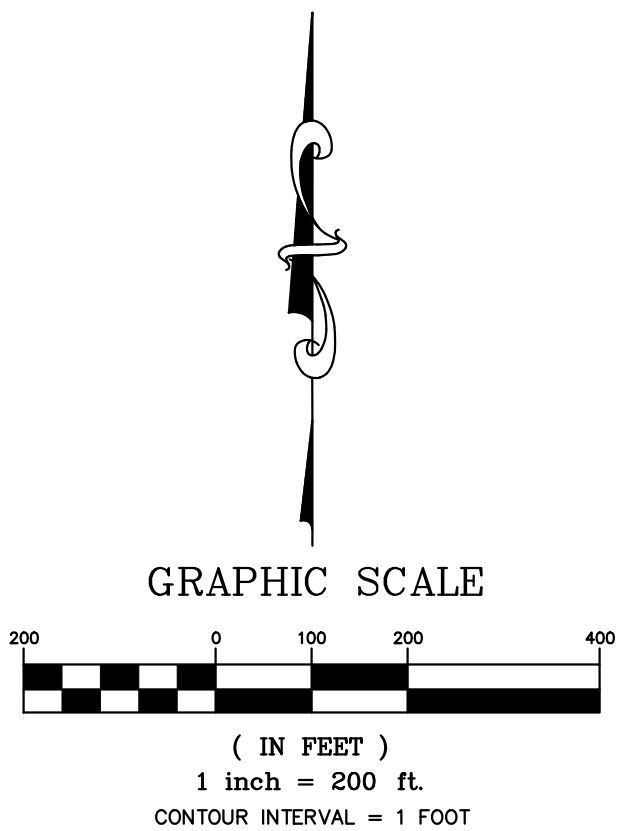
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Surveyor's Statement

I, EDGAR T. BRISTOW, A LAND SURVEYOR LICENSED IN THE STATE OF COLORADO, HEREBY STATE FOR AND ON BEHALF OF FLATIRONS, INC., TO HDR, THAT THIS TOPOGRAPHIC EXHIBIT WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, IS IN ACCORDANCE WITH APPLICABLE STANDARDS OF PRACTICE AND IS NOT A GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, SAID EXHIBIT AND THE RELATIVE ELEVATIONS SHOWN HEREON ARE ACCURATE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

EDGAR T. BRISTOW COLORADO P.L.S. #19588  
PRESIDENT, FLATIRONS, INC.





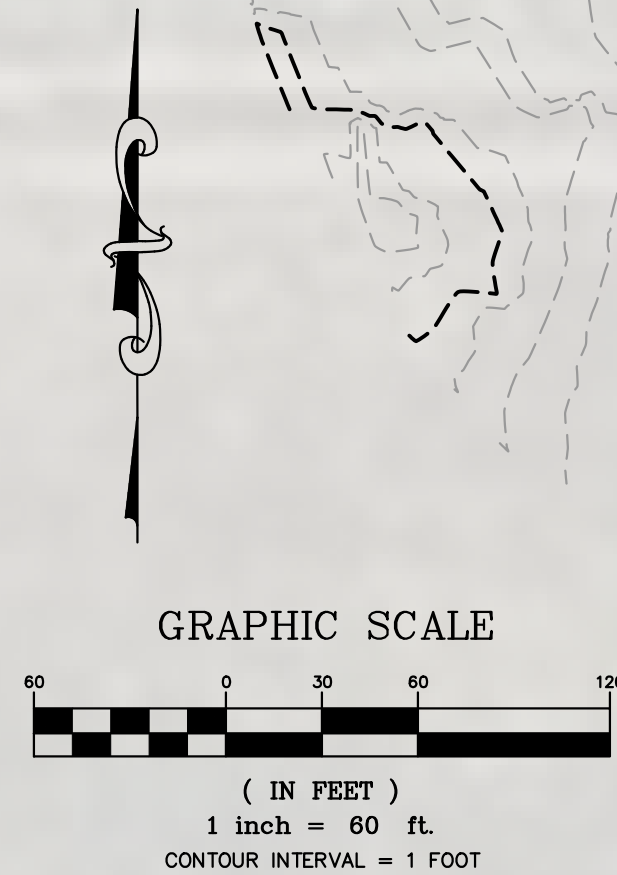
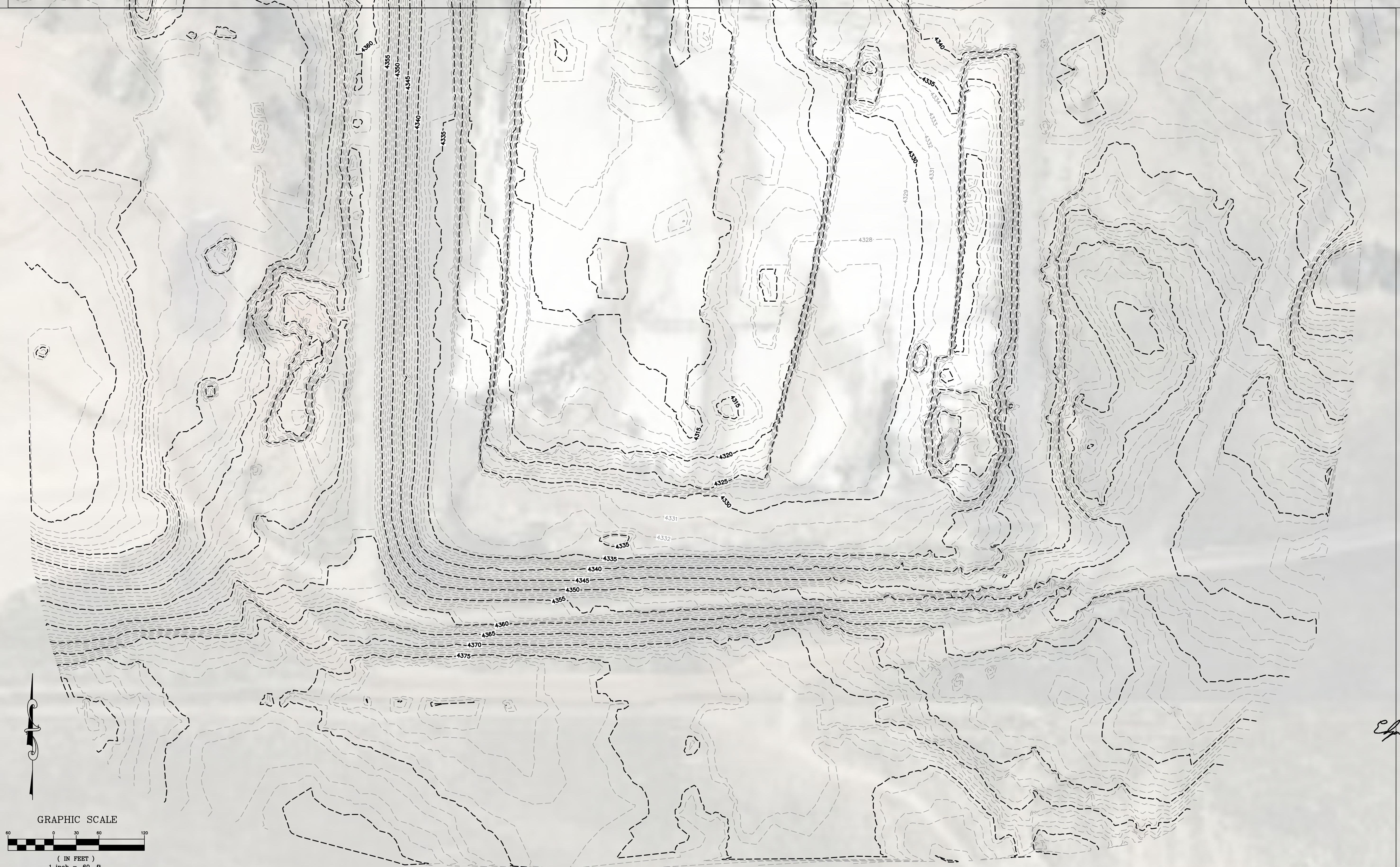
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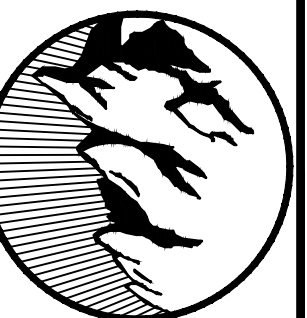
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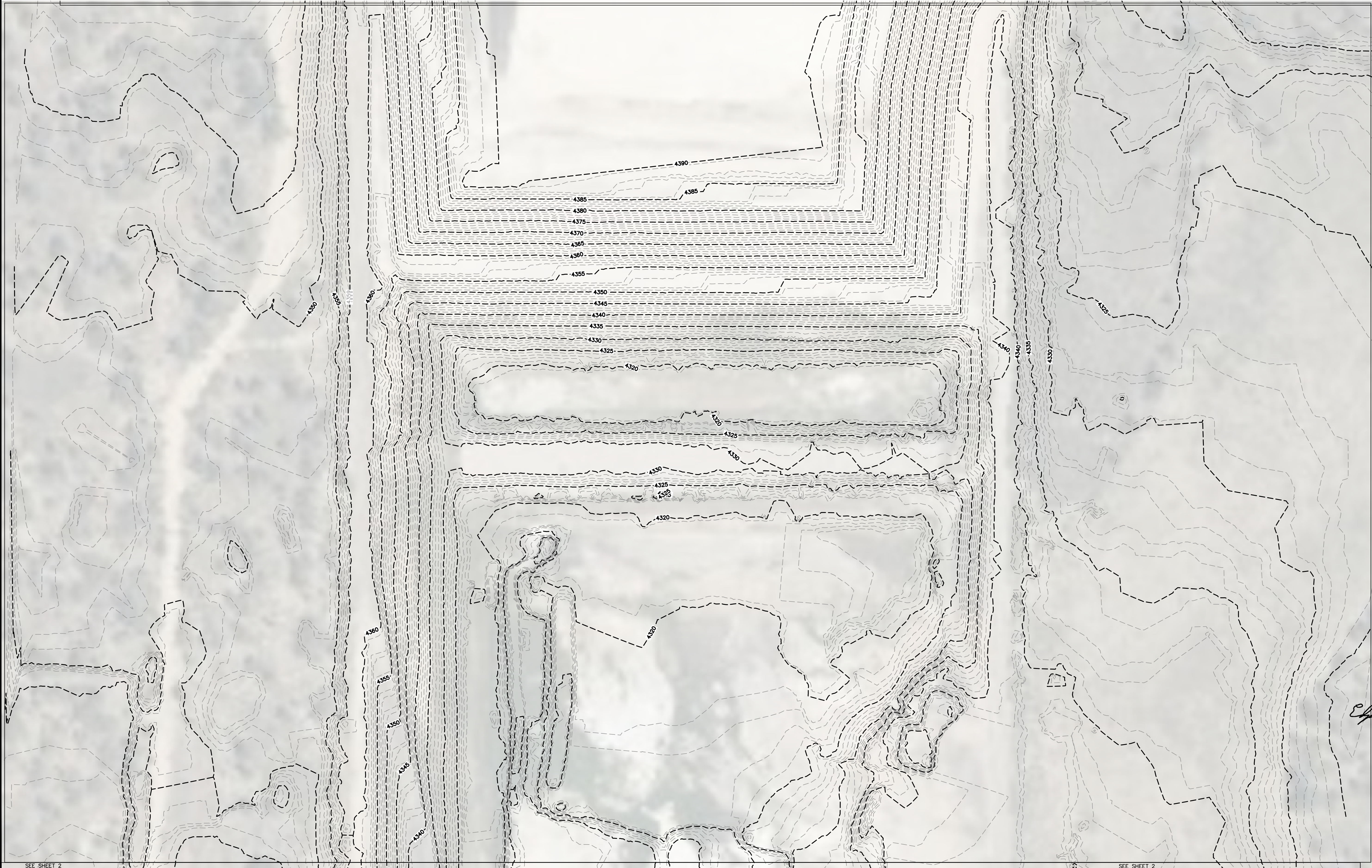
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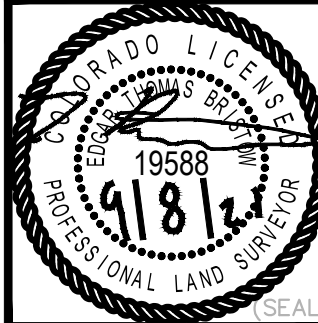
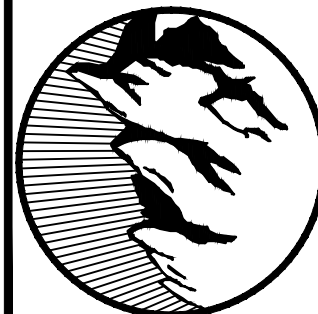
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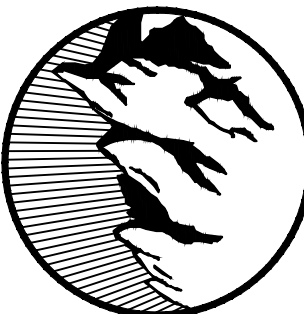
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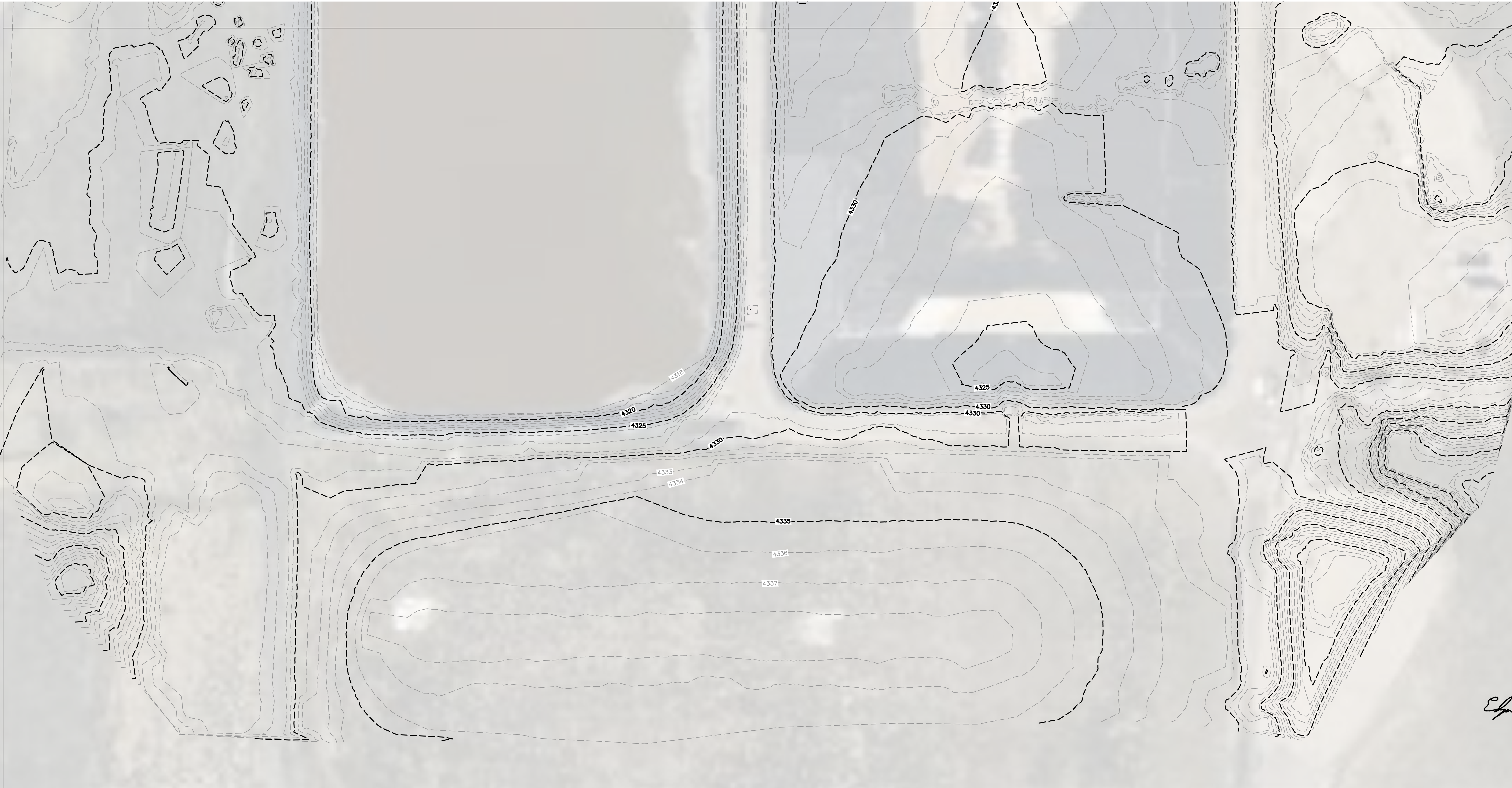
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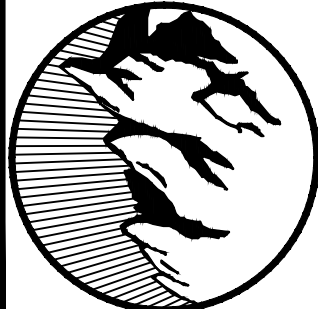
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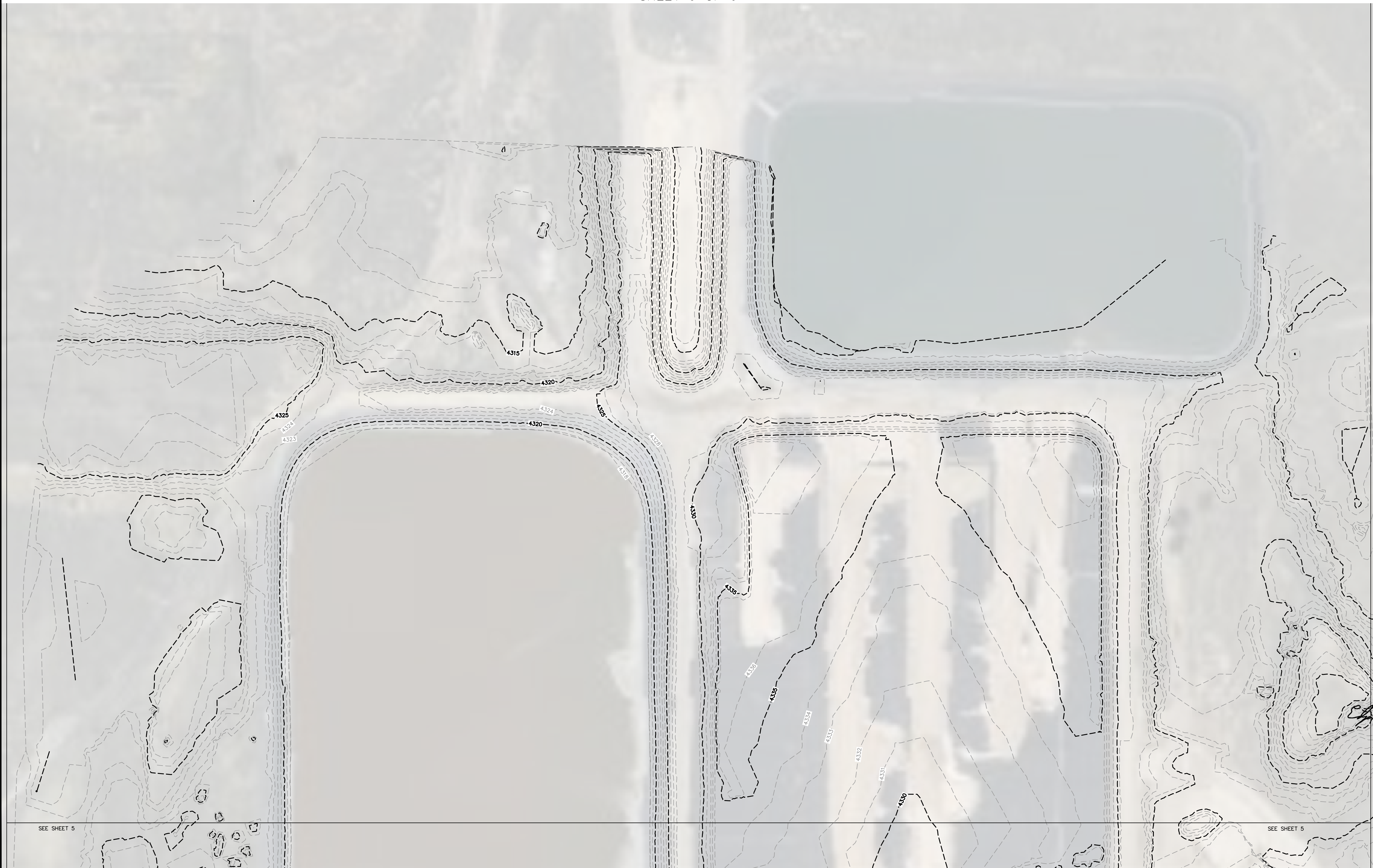
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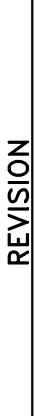
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