



**BOOMHOG 8-59 3 OGDW SWMP**

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## **Article I. Introduction**

### *Location Information*

This document provides site-specific information for the Boomhog 8-59 3 Pad within the Boomhog 8-59 3 OGD. The information in this document relates specifically to the time during the construction, drilling, completion, and production of the twelve (12) proposed horizontal wells on this location.

The proposed location is rangeland approximately 4.9 miles north of the intersection of WCR 115 and Highway 14. The Pad will be in the NWSW of Section 3, Township 8 North, Range 59 West, zoned Agricultural within Weld County's Ag-Rural planning area. A 1041WOGA was filed in June 2023 as 1041WOGA22-0045.

The proposed Pad will be 15.0 acres, reduced to 10.6 after interim reclamation. The working pad surface will be 9.6 acres. The Pad is on Parcel 053903000013 owned by Wade E Castor and Deland Castor. The location is currently used for grazing.

The proposed production facility equipment for the Boomhog 8-59 3 Pad will be located within the WPS adjacent to the wells and will consist of gas lift meters, heater treaters, scrubbers, oil tanks, produced water tanks, recycle pumps, oil and water Lease Automatic Custody Transfers (LACTs), gas lift compressors, sales gas meters/buildings, electrical skids, vapor recovery towers (VRT), vapor recovery units (VRU), blower/oxygen destructors, and emission control devices (ECD).

Phase	Duration (days)	Estimated Start Date
Construction	+/- 20 days	2 <sup>nd</sup> Quarter (May) 2024
Drilling	+/- 120 days	2 <sup>nd</sup> Quarter (June) 2024
Completion	+/- 45 days	3 <sup>rd</sup> Quarter (August) 2024
Flowback	+/- 10 days	4 <sup>th</sup> Quarter (October) 2024
Production	Ongoing +/- 30 years	4 <sup>th</sup> Quarter (October) 2024
Interim Reclamation	+/- 30 days	4 <sup>th</sup> Quarter (November) 2024*

*\*or the first favorable weather/growing season.*

## **Article II. Site Information**

### *Soil Description*

Pad and Access Soil type(s)\*\*: 4 - Ascalon fine sandy loam, 0 to 6 percent slopes

**\*\*NRCS Web Soil Survey is not accurate at scale to capture access road soil types.**

Total area of soil disturbance in acres including accesses, pipeline, and utility corridors: approximately 15.2 acres. There are no flowline, pipeline, or utility corridors planned as part of the OGD. **(15.0 acres pad disturbance + 0.2 acres access road)**

### *Vegetation*



Location is in Rangeland.

Dominant Vegetation: Prairie Sandreed

*Known Weed Infestations*

- None

*Non-stormwater discharges*

- Non-stormwater discharges are not expected. There are no municipal discharge outfalls within the immediate vicinity. Storm culverts and diversion ditches in close proximity to construction activities associated with this Project Area are detailed on the site-specific grading plans.

*Receiving waters*

- The Project area covered by CDPHE permit COR402915 which includes the Crow Creek. The ultimate receiving water is the South Platte River.

*CDPS Permit*

- PERMIT COR402915

*Operator Stormwater Manager*

- The authorized officer(s) for this SWMP:

Bison IV Operating, LLC  
518 17<sup>th</sup> Street, Suite 1800  
Tarah Garza  
Environmental Protection Specialist  
720-664-6997  
tgarza@bisonog.com

**Article III. Stormwater Management Control Measures**

*Potential Pollution Sources*

- Potential pollutant sources will be inspected on a regular basis and include:
  - All disturbed and stored soils
  - Management of contaminated soils
  - Loading and unloading operations
  - Outdoor storage activities



- Vehicle and equipment maintenance and fueling
- Significant dust or particulate generating processes
- On-site waste management practices
- Truck/equipment washing
- Non-industrial waste sources such as worker trash and portable toilets

#### *Pollution Prevention*

- As part of the regular stormwater inspections, all disturbed and stored soils will be monitored to ensure sediment transport is not occurring.
- Areas of contaminated soils will be identified through regular inspections. If found, contaminated soils will be excavated and disposed of at an appropriate facility.
- No fertilizers or building materials will be kept on-site. Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment.
- Limited vehicle and equipment maintenance and fueling is expected to occur at the project facilities. On-site maintenance and fueling will be done in designated areas cleared of vegetation and located away from any drainage areas.
- Areas of disturbed soils will be stabilized after construction operations are completed.
- Dumpsters for worker trash will be maintained on site and portable toilets will be staked and located in a safe area where the potential of accidental tipping is reduced.

#### *Structural and Non-Structural Practices*

- There are a number of structural practices that may be used on the project including: earthen berms, fiber rolls, diversion ditches (lined and unlined), check dams, culvert outlet protection, temporary slope drains, and sediment traps.
- Non-structural erosion and sediment control BMPs that may be used to include techniques such as phasing construction, minimizing disturbance to existing vegetation, preservation of natural vegetation, re-establishing/replacing vegetation, mulching, rolled erosion control products, surface roughening, and land grading.

#### *Erosion Controls*

- Please see BMP below for site-specific Erosion Control BMP.



*Materials handling and Spill prevention*

- Materials stored at the construction site will be covered or otherwise protected from the elements
- The quantity of fuel and lubricants stored on the construction site will be limited to the amount that is reasonable to support the specific construction or maintenance activity
- Bulk storage areas for materials not consumed daily will be enclosed and protected from the elements and contained in a manner to prevent release to the environment
- General construction site debris will be stored in trash containers and removed from the job site on a regular basis to prevent overflowing.

*Management of Waste Material*

- Wastes will be managed so as to not contribute to stormwater pollution as detailed in the Waste Management Plan.

**Article IV. Site-Specific Construction and Stormwater/Erosion Control Measures**

*Initial Construction Layout Drawings*

- Please see attached Grading Plan sheets.

*Interim Reclamation and Production Areas Construction Layout Drawings*

- Please see attached Grading Plan sheets.

**Article V. Inspections and Maintenance Procedures**

*Training*

- Please see BMP below for site-specific training BMP.

*Scope of Inspections*

- The construction site perimeter, all disturbed areas, designated haul roads, material and waste storage areas exposed to precipitation, locations where stormwater has the potential to discharge offsite, and locations where vehicles exit the site will be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. During the inspection, Bison, or their designee, will:



- Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.
- Determine if there are new potential sources of pollutants.
- Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.
- Identify all areas of noncompliance with the Permit requirements and, if necessary, implement corrective actions.

#### *State and Local Inspection Requirements*

- All inspections shall be in accordance with the Colorado Department of Public Health and Environment's CDPS General Permit for Stormwater Discharges Associated with Construction Activity, and the Colorado Energy Carbon Management Commission (ECMC) 304.c.15 and 1002.f rules and requirements.

#### *Inspection Procedures and Frequency*

- Specific schedules for permittees to conduct inspections of their sites are prescribed in Part I.D of CDPHE permit COR402915. In addition, Bison will inspect the drainage structures at least once annually, generally in the Spring, observing the amount of sediment in the forebay and checking for debris at the outlet structure.

#### *Reporting and Recordkeeping Requirements*

- Included in CDPHE Stormwater General Permit Part II: Standard Permit Conditions L. REPORTING REQUIREMENTS.

### **Article VI. Site-Specific Construction and Stormwater/Erosion Control BMP**

- Stabilization and revegetation will be performed as part of interim reclamation.
- Ingress, egress, and parking will occur in designated areas.
- Stormwater inspection will be performed at least every 7 days during well production and every 30 days after interim reclamation.
- Bison will install stormwater controls, constructed in a manner consistent with good engineering practices, to prevent offsite migration of sediment/contaminant into the nearby sensitive areas.
- Stormwater controls shall be installed prior to construction activities.
- Gas, oil, and water gathering lines will be co-located to minimize potential for erosion associated with construction of any pipeline(s).
- The stormwater system for the Boomhog 8-59 3 Pad includes three diversion channels into two onsite detention ponds, one with a PVC standpipe outlet structure and one with a concrete outlet structure.



## **Bison IV Operating, LLC**

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518 17<sup>th</sup> Street, Suite 1800  
Denver, CO 80202  
Phone: 720-644-6997  
Fax: 303-974-1767

- Bison will be responsible for segregating the topsoil, backfilling, re-compacting any backfill, reseeding, and re-contouring the surface of any disturbed areas and will reclaim such area to be returned to preexisting conditions as best as possible with control of all weeds.
- Any areas reclaimed will be planted with the recommended CPW/Weld County seed mix.
- Personnel responsible for inspections and monitoring will be trained on the contents of the Plan and the requirements herein.
- Bison shall install stormwater controls, constructed in a manner consistent with good engineering practices, that will prevent offsite migration of sediment/contaminant, into the nearby sensitive areas. Stormwater controls shall be installed prior to construction activities. Gas, oil, and water gathering lines will be co-located to minimize potential for erosion associated with construction of any pipeline(s).
- Pumper will visit the location daily and visually inspect all wellheads and fittings for leaks, corrosion, or other conditions that could lead to a discharge.

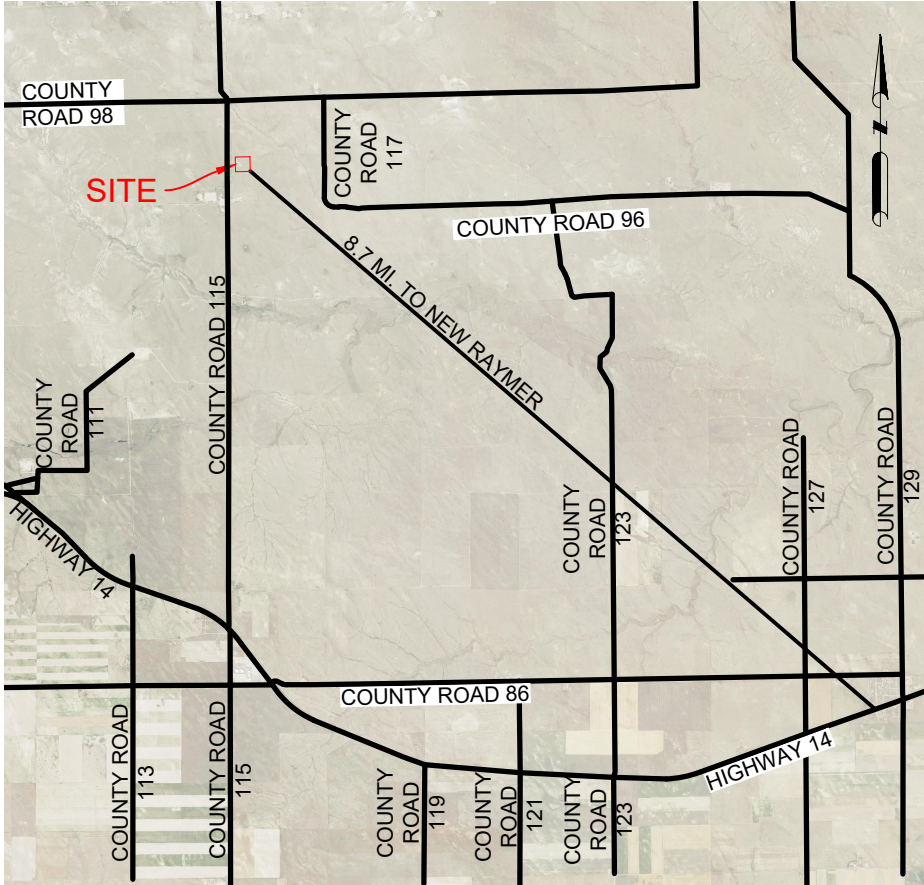
### **Article VII. Exhibits/References/Appendices**

Grading Plan  
CDPHE Stormwater General Permit

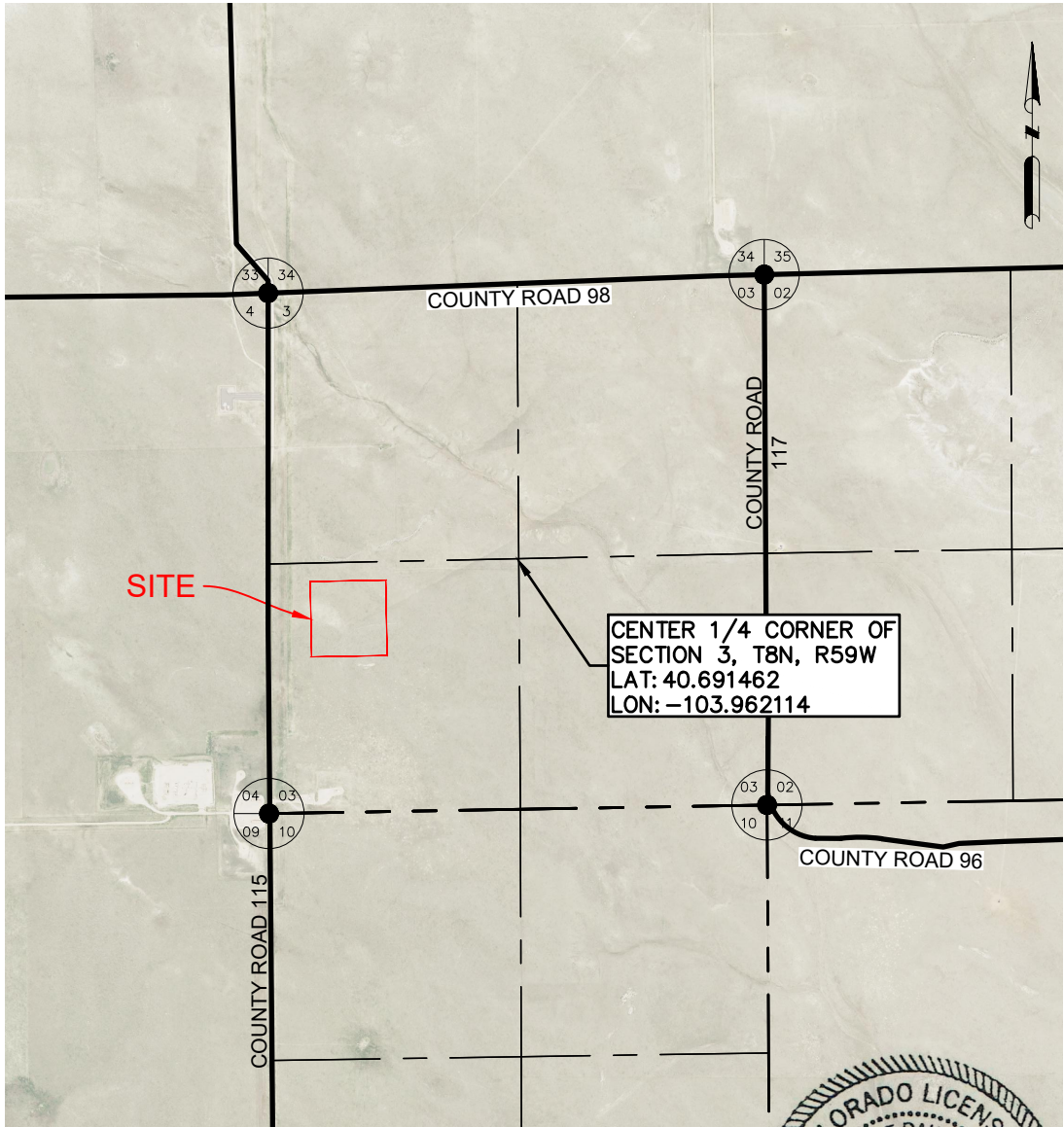


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BOOMHOG 8-59 3 PAD  
GRADING PLAN



REGIONAL MAP  
N.T.S.



VICINITY MAP  
N.T.S.



DATA SOURCE:  
AERIAL IMAGERY: NAIP 2021

PUBLICLY AVAILABLE DATA SOURCES HAVE NOT  
BEEN INDEPENDENTLY VERIFIED BY ASCENT.

DISCLAIMER:  
THIS PLOT DOES NOT REPRESENT A MONUMENTED LAND SURVEY AND  
SHOULD NOT BE RELIED UPON TO DETERMINE BOUNDARY LINES, PROPERTY  
OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL LINES, IF DEPICTED  
HAVE NOT BEEN FIELD VERIFIED AND MAY BE BASED UPON PUBLICLY  
AVAILABLE DATA THAT ALSO HAS NOT BEEN INDEPENDENTLY VERIFIED.

DRAWING INDEX

SHEET NO.	TITLE	REV.
01	COVER SHEET	1
02	GENERAL NOTES	0
03	CONSTRUCTION LAYOUT	0
04	CROSS SECTIONS	0
05	RIG LAYOUT	1
06	COMPLETIONS LAYOUT	1
07	FLOWBACK LAYOUT	1
08	PRODUCTION LAYOUT	1
09	INTERIM RECLAMATION LAYOUT	1
10	EROSION CONTROL PLAN - INITIAL	0
11	EROSION CONTROL PLAN - INTERIM	0
12	EROSION CONTROLPLAN - FINAL	1
13	EROSION CONTROL NOTES	0
14	EROSION CONTROL DETAILS	0
15	EROSION CONTROL DETAILS	0
16	STANDPIPE OUTLET STRUCTURE DETAILS	1
17	SOUTHEAST POND - SPILLWAY DETAILS	0
18	CONCRETE OUTLET STRUCTURE DETAILS	0
19	CONCRETE OUTLET STRUCTURE DETAILS	1
20	SOUTHWEST POND - SPILLWAY DETAILS	1



ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME:  
COVER SHEET  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	REVISION DESCRIPTION	BY	DATE	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22	KH	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23	KH	5/23/23

DRAWING DATE:  
12/08/22

DRAFTED BY:  
SG

SHEET NO.  
01 OF 20



P:\BOLC\_B220001\PROD\Grading\02 GENERAL NOTES.dwg

GENERAL NOTES

- 1. SHOULD ARTIFACTS OF POTENTIAL HISTORICAL SIGNIFICANCE BE ENCOUNTERED DURING EXCAVATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY CLIENT AND DISCONTINUE EXCAVATION IN THE AFFECTED AREA UNTIL OTHERWISE NOTIFIED BY THE CLIENT OR ENGINEER. ANY DAMAGE TO A DESIGNATED ARCHEOLOGICAL SITE AS A RESULT OF CONTRACTOR NEGLIGENCE SHALL BE THE SOLE RESPONSIBILITY OF CONTRACTOR.
- 2. DO NOT PERFORM ANY GRADING OR GRUBBING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS, OR INTO NATURAL WATERCOURSES.
- 3. THE CONTRACTOR SHALL NOT CHANGE OR DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE OWNER AND ENGINEER.
- 4. CONTRACTOR SHALL MAINTAIN A SET OF AS-BUILT DRAWINGS WITH ALL CHANGES IDENTIFIED. THE AS-BUILT FIELD DRAWINGS SHALL BE SUBMITTED TO CLIENT AT PROJECT COMPLETION.

SAFETY

- 5. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY OF HIS OWN PERSONNEL, ALL VISITORS TO THE SITE, AND THE GENERAL PUBLIC. CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF ALL APPLICABLE HEALTH AND SAFETY STANDARDS INCLUDING, BUT NOT LIMITED TO, OSHA 29 CFR PARTS 1910 AND 1926 FOR GENERAL CONSTRUCTION.
- 6. CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF DUST CONTROL. CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING ALL PHASES OF SITE PREP, EARTHWORKS AND GRADING.
- 7. UNLESS A SAFE EXCAVATION/TRENCH DEPTH IS SPECIFICALLY IDENTIFIED DURING THE PRECONSTRUCTION SAFETY ASSESSMENT BY QUALIFIED PERSONNEL, WHERE PERSONNEL ENTER EXCAVATIONS 4 FEET OR MORE IN DEPTH, PROTECT THE EXCAVATION WITH A SUPPORT SYSTEM OF SLOPING, SHORING, BRACING OR BY USE OF A TRENCH BOX MEETING OSHA SAFETY STANDARD; INSPECT SHORING AND/OR BRACING SYSTEMS DAILY AND AFTER RAINSTORMS OR OTHER HAZARD-INCREASING OCCURRENCE. ALSO PROVIDE SUCH PROTECTION IN EXCAVATIONS LESS THAN 4 FEET DEEP WHERE HAZARDOUS EARTH MOVEMENT MAY BE EXPECTED.
- 8. ALL CONTRACTORS PERFORMING SUBSURFACE EARTHWORKS MUST CONTACT 811 AT LEAST 3 BUSINESS DAYS PRIOR TO EXCAVATION AND AS REQUIRED BY LAW.

TOPSOIL, CLEARING AND GRUBBING

- 9. CONTRACTOR SHALL CLEAR AND GRUB PROJECT AREA PRIOR TO PERFORMING ANY EARTHWORKS. HOLES RESULTING FROM REMOVAL OF VEGETATION SHALL BE BACKFILLED, COMPACTED AND GRADED IN ACCORDANCE WITH THIS DRAWING PACKAGE, GENERAL NOTES AND SPECIFICATIONS WHERE APPLICABLE.
- 10. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL WASTE MATERIAL INCLUDING, BUT NOT LIMITED TO VEGETATION, ROCK, DEBRIS, EXCESS SOILS, DEMOLITION MATERIALS, AND CONSTRUCTION MATERIALS. ACQUISITION OF OFF-SITE DISPOSAL AREA IS THE RESPONSIBILITY OF THE CONTRACTOR UNLESS OTHERWISE INDICATED BY CLIENT.
- 11. PERFORM ALL CLEARING, GRUBBING AND EARTHWORKS IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS, INCLUDING REQUIREMENTS FOR HANDLING, REMOVING AND DISPOSING OF CONTAMINATED SOIL, IF APPLICABLE.
- 12. NO VEGETATION OVERHANGING THE CONSTRUCTION AREA, BUT ROOTED OUTSIDE SAID AREA, SHALL BE REMOVED WITHOUT APPROVAL FROM THE CLIENT OR CONSTRUCTION MANAGER.
- 13. SHOULD THE CONTRACTOR DISCOVER THAT THE DEPTH OF TOPSOIL EXCEEDS THE DEPTH INDICATED ON THE PLANS, CONTRACTOR SHALL NOTIFY THE CLIENT AND ENGINEER IN WRITING TO DETERMINE IF ANY REVISIONS TO THE EARTHWORKS QUANTITIES AND DESIGN ARE REQUIRED. UNDER SUCH CIRCUMSTANCES THE CONTRACTOR SHALL NOT PROCEED WITH TOPSOIL REMOVAL UNTIL DIRECTED TO DO SO BY THE CLIENT OR CONSTRUCTION MANAGER.

GRADING AND COMPACTION

- 14. WHERE A GEOTECHNICAL REPORT EXISTS FOR THIS PROJECT, CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND ADHERING TO THE REQUIREMENTS OF THE REPORT. SHOULD A DISCREPANCY BETWEEN THE PROJECT SITE GEOTECHNICAL REPORT AND THESE PLANS EXIST, CONTRACTOR TO INFORM THE ENGINEER IN WRITING BEFORE PROCEEDING WITH EARTHWORKS ACTIVITIES. CONTRACTOR SHALL NOT PROCEED WITH EARTHWORKS ACTIVITIES UNTIL DIRECTED TO DO SO BY THE ENGINEER AND CLIENT.
- 15. CONTRACTOR SHALL PROPERLY DISPOSE OF EXCESS EXCAVATED MATERIAL OFF SITE UNLESS DIRECTED OTHERWISE BY THE CLIENT OR ENGINEER.
- 16. ONSITE EXCAVATED MATERIAL STORAGE SHALL BE IN THE LOCATION INDICATED BY THE CLIENT OR AS INDICATED ON THESE PLANS. CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES FOR THE SOIL STOCKPILES AS APPROPRIATE.
- 17. ANY ROCK UNEARTHED DURING EXCAVATION WITH A LONG AXIS LENGTH THAT EXCEEDS 5 INCHES AND IS NOT REQUIRED FOR SITE DEVELOPMENT, SHALL BE DISPOSED OF BY THE CONTRACTOR UNLESS INDICATED OTHERWISE BY THE CLIENT OR ENGINEER.
- 18. CONTRACTOR TO PROVIDE AND VERIFY THAT ADEQUATE COMPACTION HAS BEEN ACHIEVED PRIOR TO INDEPENDENT CONFIRMATION OF COMPACTION BY A QUALIFIED INSPECTOR. OPTIMUM MOISTURE CONTENT AND MAXIMUM COMPACTED DENSITY TO BE INDICATED IN THESE DRAWINGS OR IN THE ASSOCIATED GEOTECHNICAL REPORT. ON SPEC MATERIAL TO BE PLACED AND COMPACTED IN 6-INCH HORIZONTAL LIFTS.
- 19. COMPACTION TO BE VERIFIED BY NUCLEAR METHOD PER ASTM D-6938 OR BY AN EQUIVALENT METHOD APPROVED BY THE ENGINEER.
- 20. COMPACTION TESTING FREQUENCY FOR ROADS AND PARKING AREAS SHALL BE 1 TEST (ASTM D-6938) PER 12 FT. OF WIDTH PER 500 FT. OF LENGTH, OR FRACTION THEREOF PER 6" LIFT UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.

BOOMHOG 8-59 3 PAD  
GRADING PLAN

- 21. COMPACTION TEST FREQUENCY FOR AREAS UNDER STRUCTURAL FOUNDATIONS SHALL BE 1 TEST (ASTM D-6938) FOR EACH 1,000 FT² OR FRACTION THEREOF PER 6" LIFT, UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.
- 22. COMPACTION TEST FREQUENCY FOR DETENTION OR RETENTION POND FILL EMBANKMENTS OR ANY EMBANKMENT IMPOUNDING WATER SHALL BE A MINIMUM OF 1 TEST (ASTM D-6938) PER 2,500 FT² OR FRACTION THEREOF PER 6" LIFT UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.
- 23. COMPACTION TEST FREQUENCY FOR REMAINING AREAS (NOT INCLUDING STRUCTURAL FOUNDATIONS, ROADS AND DETENTION POND EMBANKMENTS) IN NON-HEAVY LOADING AREAS SHALL BE 1 SPOT CHECKS PER 40,000 FT² PER 6" LIFT IN FILL AREAS UNLESS INDICATED OTHERWISE IN THESE PLANS OR IN THE ASSOCIATED GEOTECHNICAL REPORT.
- 24. CONSTRUCTION MANAGER, INSPECTOR AND/OR ENGINEER MAY REQUIRE THAT MORE COMPACTION TESTS ARE NEEDED BASED ON FIELD OBSERVATIONS. THE RECOMMENDED NUMBER OF COMPACTION TESTS INDICATED IN THESE GENERAL NOTES CONSTITUTES THE MINIMUM NUMBER OF TESTS; MORE TESTS MAY BE WARRANTED BASED ON FINDINGS IN THE FIELD.
- 25. THE CONTRACTOR SHALL SCARIFY SUBGRADE 6" (MIN.) WITH A MOISTURE CONDITION AND COMPACT TO 95% MAXIMUM ACHIEVABLE DENSITY IN ACCORDANCE WITH ASTM D-698 UNLESS INDICATED OTHERWISE IN THESE PLANS.
- 26. HORIZONTAL LIFTS OF NON-GRAVEL MATERIAL TO BE COMPACTED IN 6" (MAX) LIFTS TO 95% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (-2% TO +2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698 UNLESS INDICATED OTHERWISE IN THESE PLANS. HORIZONTAL LIFTS OF GRAVEL MATERIAL TO BE COMPACTED IN 6" (MAX) LIFTS TO 90% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557 UNLESS INDICATED OTHERWISE IN THESE PLANS. SHOULD A DISCREPANCY BETWEEN THE PROJECT SITE GEOTECHNICAL REPORT AND THESE PLANS EXIST, CONTRACTOR TO INFORM THE ENGINEER IN WRITING BEFORE PROCEEDING WITH SOIL LIFT PLACEMENT AND COMPACTION.
- 27. WHERE SUFFICIENT EXCAVATION MATERIAL IS NOT AVAILABLE FOR FILL AND "BORROW MATERIAL" IS REQUIRED; BORROW MATERIAL SHALL BE OBTAINED FROM SOURCES SHOWN IN THIS DRAWING PACKAGE OR OTHER SOURCES APPROVED BY THE ENGINEER. OVERBURDEN TO BE REMOVED FROM BORROW SITE PRIOR TO OBTAINING BORROW MATERIAL. ENGINEER APPROVED BMP AND EROSION CONTROL MEASURES TO BE PROVIDED BY CONTRACTOR FOR ANY BORROW LOCATIONS.
- 28. BLASTING IS NOT PERMITTED, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER AND CLIENT.
- 29. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATION PURPOSES ONLY. 16" OF TOPSOIL HAS BEEN REMOVED FROM THE EXISTING CAD SURFACE PRIOR TO PERFORMING EARTHWORKS CALCULATIONS UNLESS NOTED OTHERWISE IN THESE PLANS. CONTRACTOR AND SUBCONTRACTOR ARE RESPONSIBLE FOR DETERMINING ALL QUANTITIES.
- 30. THE CUT AND FILL VOLUMES PROVIDED IN THIS DRAWING PACKAGE ARE LISTED AS BANK (I.E. IN-SITU) VOLUMES UNLESS INDICATED OTHERWISE. UNLESS STATED ELSEWHERE IN THIS DRAWING PACKAGE OR IN THE APPLICABLE GEOTECHNICAL REPORT, CONTRACTOR TO ASSUME A 25% VOLUMETRIC CHANGE OF EXCAVATED SOILS (BULKING/SHRINKAGE FACTOR) FOR THE PURPOSES OF EARTHWORKS TRANSPORT, STORAGE AND STOCKPILING. SOIL MATERIAL PLACED AND COMPACTED PER THE REQUIREMENTS OF THESE PLANS IS ASSUMED TO BE HAVE A 1:1 RATIO FOR EXCAVATED (BANK) TO PLACED EARTHWORKS VOLUMES; ANY OBSERVED VOLUMETRIC CHANGE IN THE SOILS (EXPANSION AND/OR SHRINKAGE) OF THE PLACED AND COMPACTED MATERIALS THAT IS NOT AT A 1:1 RATIO SHALL BE REPORTED TO THE CLIENT AND ENGINEER BY THE CONTRACTOR.
- 31. ALL STOCKPILES SHOWN IN THESE PLANS ARE ASSUMED TO HAVE 2H:1V SIDE SLOPES. MAXIMUM STOCKPILE HEIGHT IS ASSUMED TO BE 10 FT UNLESS INDICATED OTHERWISE IN THESE PLANS. CONTRACTOR SHALL NOT CREATE STOCKPILES WITH SIDE SLOPES GREATER THAN 2:1 OR HEIGHTS GREATER THAN 10 FT. WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OR UNLESS INDICATED OTHERWISE IN THESE PLANS. THE STOCKPILE FOOTPRINTS SHOWN IN THESE PLANS ARE ASSUMED TO HAVE AN EXPANSION FACTOR OF 1.25.
- 32. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IDENTIFIED SHALL BE BROUGHT TO THE INSPECTOR'S OR CONSTRUCTION MANAGER'S ATTENTION AND RECONCILED WITH THE ENGINEER PRIOR TO CONSTRUCTION.
- 33. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ALL EXISTING DISTURBED AREAS, FENCES, WALLS, SHEDS OR ANY OTHER STRUCTURES DAMAGED DURING CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER CONDITION. ANY DAMAGE TO ADJACENT PROPERTY OFF OF THE CLIENT'S PROPERTY SHALL BE REPORTED TO THE CLIENT'S REPRESENTATIVE FOR AUTHORIZATION PRIOR TO SAID REPAIRS.
- 34. ALL EARTHWORKS SHALL CONFORM TO ELEVATIONS AND GRADES DESIGNATED IN THIS DRAWING PACKAGE. ALLOWABLE TOLERANCES ARE ± 0.10 FEET OF FINISHED FINAL GRADE (FG) FOR ALL EARTHWORKS UNLESS INDICATED OTHERWISE IN THIS DRAWING PACKAGE OR BY THE ENGINEER.
- 35. CONTRACTOR TO PROVIDE BEST MANAGEMENT PRACTICES (BMP) FOR STORMWATER RUNOFF AND SEDIMENT CONTROL IN ACCORDANCE WITH STATE AND FEDERAL GOVERNMENT REQUIREMENTS. IN PARTICULAR, BMP SHALL CONFORM WITH THE FEDERAL CLEAN WATER ACT'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER REGULATIONS REQUIREMENTS. DO NOT PERFORM ANY GRADING OR GRUBBING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS, OR INTO NATURAL WATERCOURSES.
- 36. ALL PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED AND FUNCTIONAL PRIOR TO ANY OTHER EARTH DISTURBING ACTIVITY. ALL OTHER STRUCTURAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS SOON AS THE CONSTRUCTION ACTIVITIES, AROUND WHICH THEY ARE BASED, COMMENCE.

- 37. IMPORTED FILL TO MEET ASTM D-1241 SPECIFICATION FOR TYPE I, GRADE B MATERIAL AS FOLLOWS UNLESS INDICATED OTHERWISE IN THIS DRAWING PACKAGE:
  - A. 100% SOIL MATERIAL FINER THAN 2-INCH SIEVE.
  - B. 75% - 95% SOIL MATERIALS FINER THAN 1-INCH SIEVE.
  - C. 40% - 75% SOIL MATERIALS FINER THAN NO. 3/8 SIEVE.
  - D. 30% - 60% SOIL MATERIALS FINER THAN NO. 4 SIEVE.
  - E. 20% - 45% SOIL MATERIALS FINER THAN NO. 10 SIEVE.
  - F. 15% - 30% SOIL MATERIALS FINER THAN NO. 40 SIEVE.
  - G. 5% - 15% SOIL MATERIALS FINER THAN NO. 200 SIEVE.
  - H. MAXIMUM LIQUID LIMIT OF 25.
  - I. PLASTICITY INDEX (PI) 6 (MAX).
  - J. MAXIMUM EXPANSIVE POTENTIAL 0.5%.
- 38. THE SPOT CUT/FILL VALUES SHOWN ON THESE DRAWINGS (WHEN APPLICABLE) ARE FOR PROPOSED GROUND VS. SCRAPED (I.E. TOPSOIL REMOVED) GROUND (E.G. +0.7 MEANS THAT THE PROPOSED GROUND IS 0.7 FT ABOVE THE SCRAPED GROUND).
- 39. THE PREFERRED LOCATION(S) FOR PLACEMENT OF HEAVY LOADS ARE IN AREAS OF CUT. IF ANY HEAVY LOADS (E.G. MLVTS, MINION TANKS, ETC.) ARE INTENDED TO BE PLACED ON THE PAD IN FILL AREAS, THE LOAD(S) MUST BE PLACED A MINIMUM OF 30 LINEAR FEET FROM THE EDGE OF THE PAD. THIS REQUIREMENT IS TO PROVIDE ADEQUATE SPACING TO PROTECT AGAINST SLOPE STABILITY ISSUES AND TO PROVIDE SAFE WORKING CONDITIONS IN ACCORDANCE WITH ENGINEERING BEST PRACTICES. CONTRACTOR SHALL CONTACT ASCENT GEOMATICS SOLUTIONS ENGINEERING DEPARTMENT SHOULD A DISCREPANCY BETWEEN THIS REQUIREMENT AND THESE PLANS BE IDENTIFIED AND/OR IF THE CONTRACTOR SEEKS CLARIFICATION ON WHAT CONSTITUTES "HEAVY LOADS".
- 40. HORIZONTAL LIFTS OF FILL SOIL MATERIAL (NON-GRAVELS) DIRECTLY BENEATH AND WITHIN 5.0 FT OF THE WATER TANK TO BE COMPACTED IN 6" (MAX) LIFTS TO 95% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (-2% TO +2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557; A MINIMUM OF THREE (3) COMPACTION TESTS PER 6" LIFT (COMPACTED THICKNESS) SHALL BE PERFORMED FOR THE FILL AREAS DIRECTLY BENEATH AND WITHIN 5.0 FT OF THE WATER TANK TO CONFIRM THAT THE REQUIRED COMPACTION HAS BEEN ACHIEVED.

FINAL GRADE AND ACCEPTANCE

- 41. FINAL GRADE TO MAINTAIN POSITIVE (I.E. OFFSITE) DRAINAGE ACROSS THE ENTIRE PROJECT SITE UNLESS SPECIFICALLY INDICATED OTHERWISE IN THIS DRAWING PACKAGE.
- 42. SETTLEMENT OR WASHING THAT OCCURS IN GRADED OR BACKFILLED AREAS PRIOR TO ACCEPTANCE OF THE WORK SHALL BE REPAIRED AND GRADES REESTABLISHED TO THE REQUIRED ELEVATIONS AND SLOPES AT NO ADDITIONAL CHARGE TO CLIENT.
- 43. FINAL SUBGRADE (AS APPLICABLE) TO BE PROOF ROLLED BY A TRUCK WITH A REAR AXLE LOAD OF APPROXIMATE 16,000 LBS./AXLE AND ACCEPTED BY THE INSPECTOR OR CONSTRUCTION MANAGER PRIOR TO FINAL ACCEPTANCE OF SUBGRADE AND PLACEMENT OF GRAVEL TOP LAYER. REMOVE AND REPLACE ANY SOFT MATERIAL WHICH EXHIBITS PERMANENT SUBGRADE DEFORMATION EXCEEDING 0.5".

SITE COORDINATES NOTES

- 44. SITE COORDINATES AND DESIGN ARE GRID VALUES BASED ON THE COLORADO STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983, NORTH ZONE, U.S. SURVEY FOOT.
- 45. AZIMUTHS SHOWN ARE GRID AZIMUTHS. DISTANCES SHOWN ARE GRID DISTANCE.

- 46. CONTRACTOR TO FIELD VERIFY LOCAL BENCHMARKS /MONUMENTS BEFORE STARTING CONSTRUCTION. CONTRACTOR MAY BE REQUIRED TO RECTIFY TRUE COORDINATES TO MATCH THE NORTHINGS AND EASTINGS SHOWN IN THIS PLAN SET. ANY CONFLICTS WITH LOCAL COORDINATES SHALL BE DISCUSSED WITH FIELD ENGINEER.

GEOTECHNICAL REPORT

- 47. ALL GRADING AND EARTHWORKS TASKS TO BE IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL ENGINEERING REPORT TITLED "SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT, BOOMHOG PAD" BY INBERG-MILLER ENGINEERS DATED SEPTEMBER 9, 2022.

TITLE REPORT

- 48. ASCENT GEOMATICS SOLUTIONS WAS NOT PROVIDED A TITLE REPORT FOR THIS SITE. ALL RECORDED DOCUMENTS REFERENCED ON THESE PLANS WERE DOWNLOADED FROM RESEARCH VIA THE WELD COUNTY CLERK AND RECORDER. ASCENT GEOMATICS SOLUTIONS MAKES NO GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, TO THE COMPLETENESS OF ENCUMBRANCES TO THE SUBJECT PROPERTY.

PROJECT SPECIFIC NOTES

- 49. PAD TO BE CAPPED WITH CDOT CLASS 5 AGGREGATE BASE COURSE (ABC) UNLESS INDICATED OTHERWISE IN THESE PLANS OR BY THE CLIENT. ABC TO BE COMPACTED IN 6" (MAX) LIFTS TO 95% MAXIMUM DENSITY (MINIMUM) AT OPTIMUM MOISTURE CONTENT (-2% TO +2%) TO ACHIEVE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698 UNLESS INDICATED OTHERWISE IN THESE PLANS.



ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128

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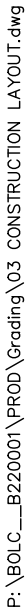


BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80002  
720.644.6997

GENERAL NOTES  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	DESCRIPTION	BY	DATE	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22	KH	12/08/22


DRAWING DATE:	12/08/22
DRAFTED BY:	SG
SHEET NO.	02 OF 20



DISCLAIMER:  
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PROPERTY OWNERSHIP OR OTHER PROPERTY INTERESTS. PARCEL  
LINES, IF DEPICTED HAVE NOT BEEN FIELD VERIFIED AND MAY BE  
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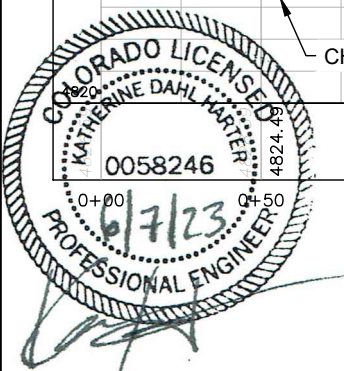
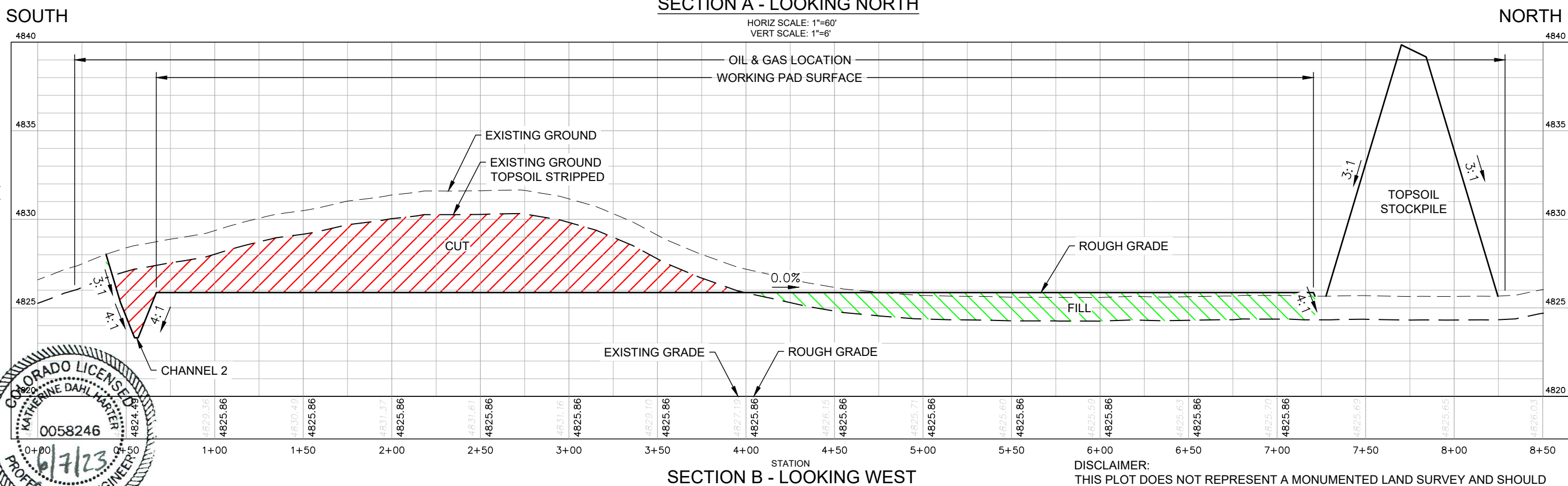
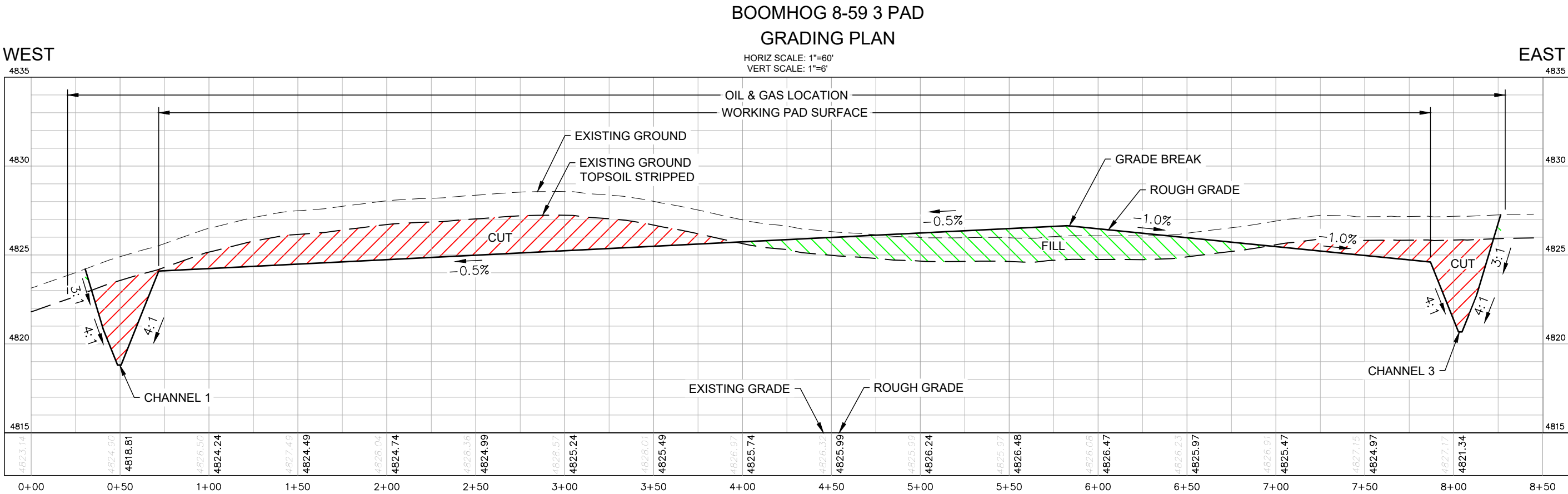
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12/08/22

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03 OF 20



P:\BOLC\_B220001\PROD\Grading\04 CROSS SECTIONS.dwg



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WESTMINSTER, CO 80031  
(303) 928-7128

PREPARED FOR:

BISON  
IV OPERATING

BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME:  
CROSS SECTIONS  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	REVISION DESCRIPTION	BY	DATE	DATE	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22	12/08/22	12/08/22

DRAWING DATE:  
12/08/22

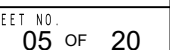
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SG

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04 OF 20

## GRADING PLAN

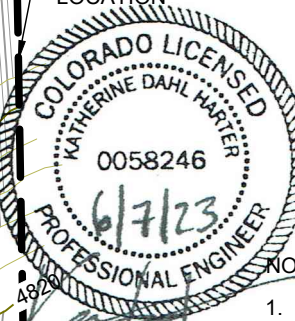
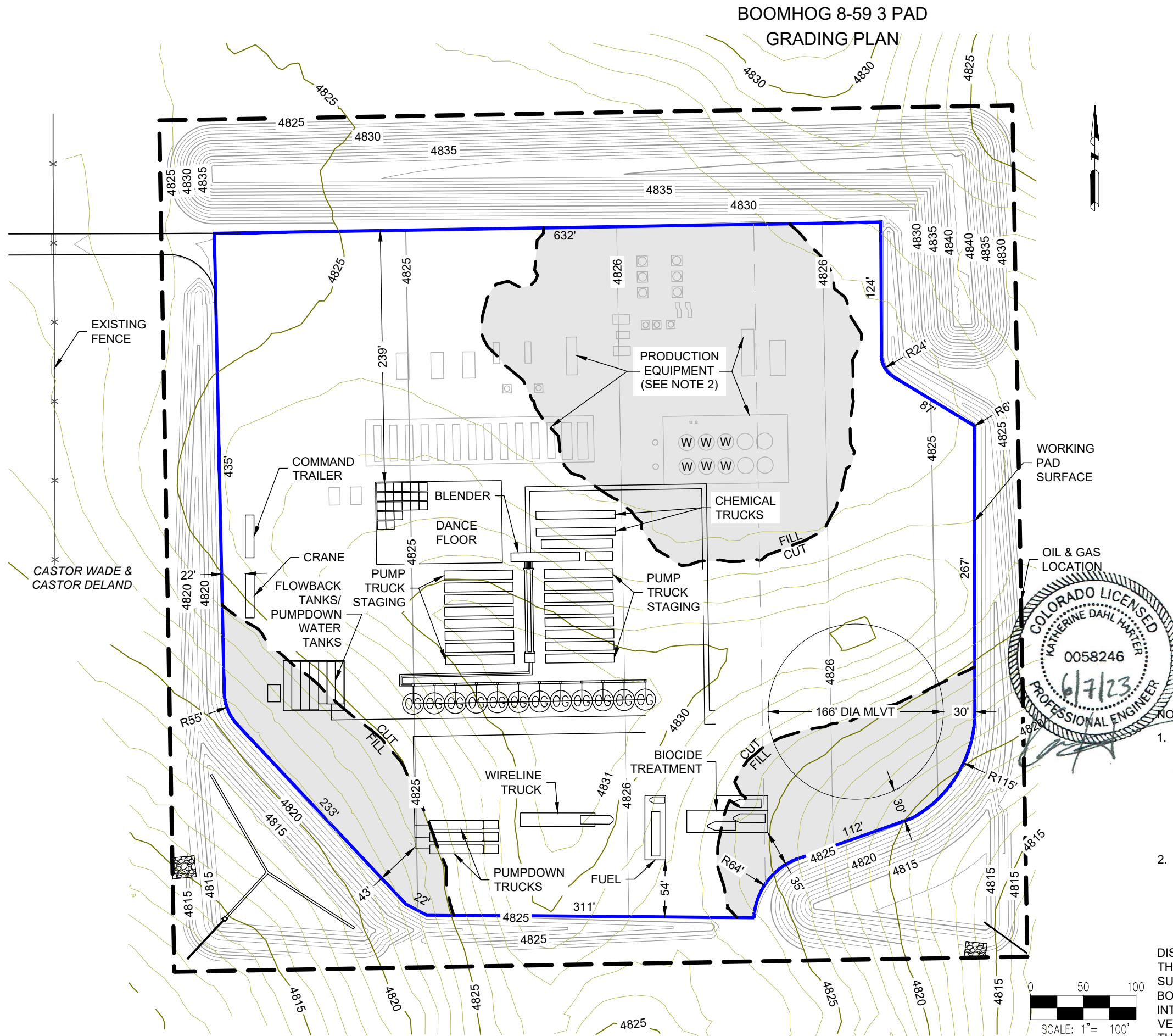


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2. TO FACILITATE SIMULTANEOUS OPERATIONS, FACILITY CONSTRUCTION SHALL BEGIN ONCE PAD CONSTRUCTION IS COMPLETE. FACILITY CONSTRUCTION MAY BE ONGOING DURING DRILLING, COMPLETIONS AND FLOWBACK OPERATIONS.

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BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

**COMPLETIONS LAYOUT**  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

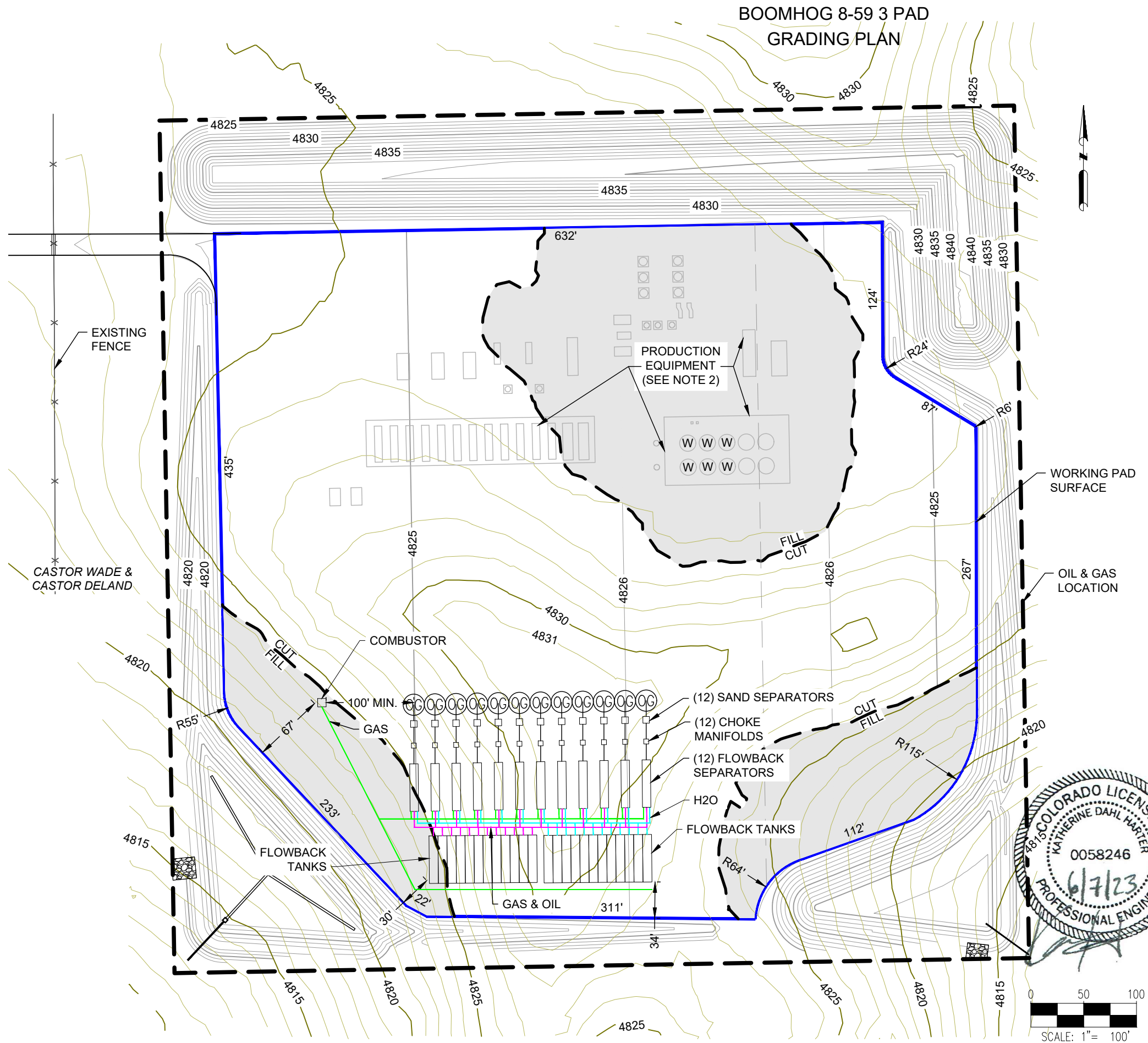
REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23

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12/08/22

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SG

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06 OF 20

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518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

**SHEET NAME:**  
**FLOWBACK LAYOUT**  
**SURFACE LOCATION**  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	REVISION DESCRIPTION	BY	DATE
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1	ISSUED FOR CONSTRUCTION	AS	5/23/23

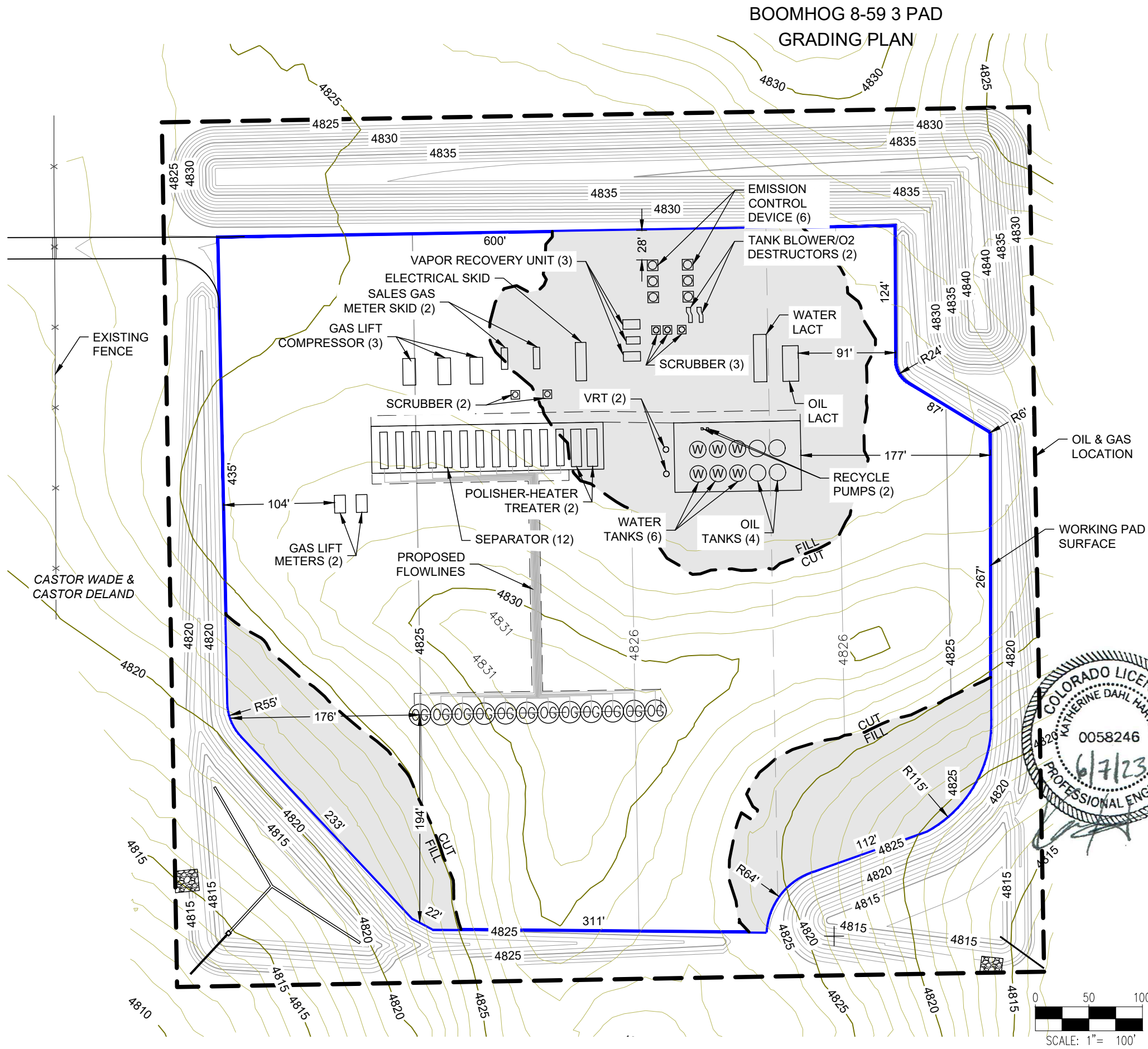
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NOTES:

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DENVER, CO 80202  
720.644.6997

PRODUCTION LAYOUT  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23

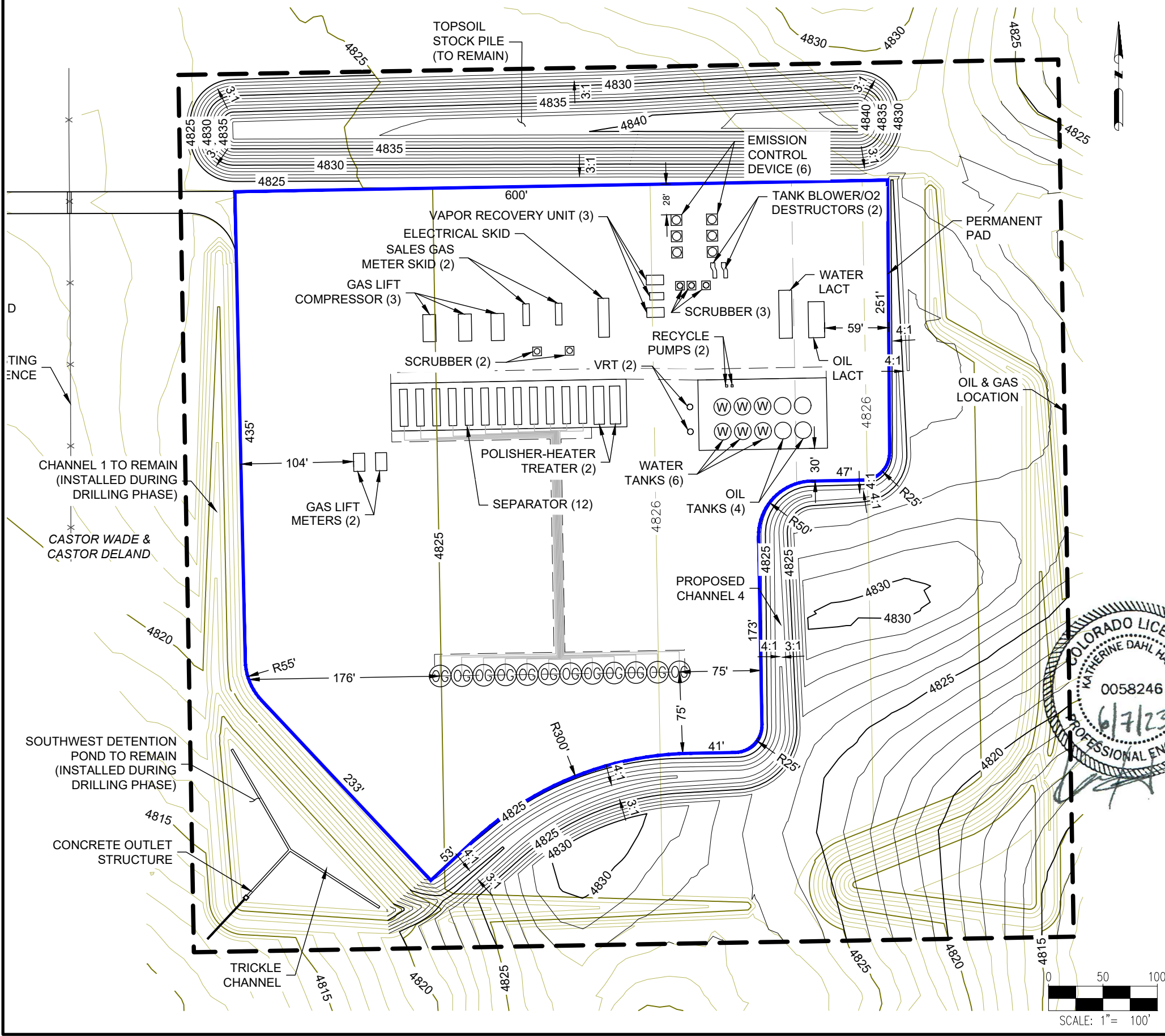
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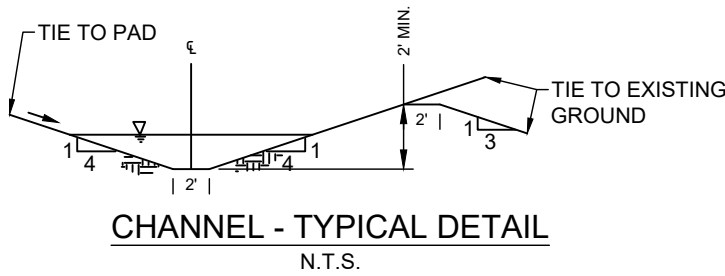
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BOOMHOG 8-59 3 PAD  
GRADING PLAN



SITE QUANTITIES

TOTAL CUT FOR SITE	8,753	CY
TOTAL FILL FOR SITE	8,199	CY
NET EXCESS MATERIAL	554	CY
RECLAIMED AREA	4.4	ACRES
PERMANENT DISTURBANCE AREA	10.6	ACRES
OIL & GAS LOCATION AREA	15.0	ACRES



NOTES:  
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720.644.6997

SHEET NAME:  
INTERIM RECLAMATION LAYOUT  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

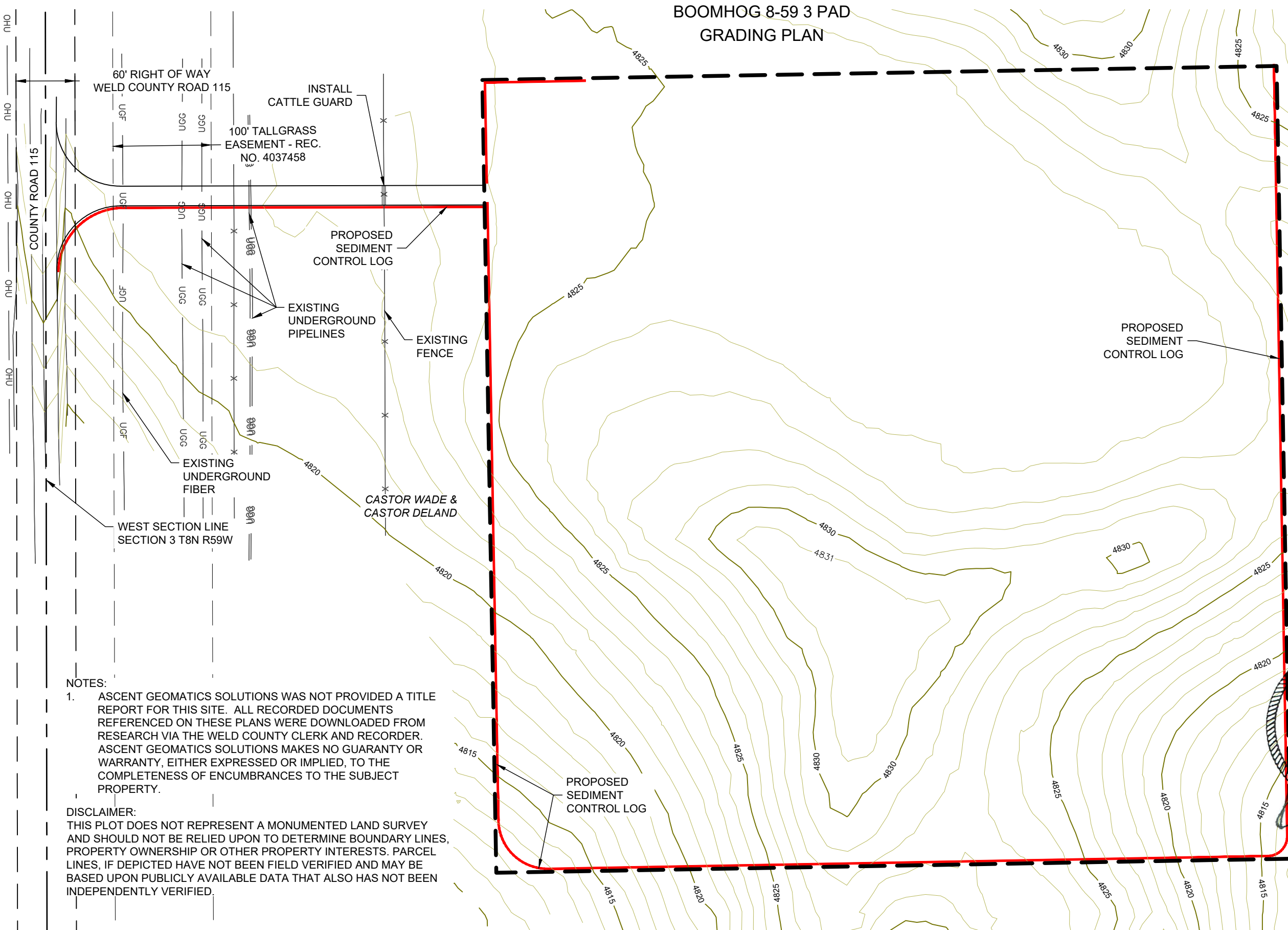
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0	ISSUED FOR CONSTRUCTION	SG	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23

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P:\BOLC\_B220001\PROD\Grading\10 EROSION CONTROL PLAN - INITIAL.dwg



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ASCENT GEOMATICS SOLUTIONS  
8620 WOLF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128

PREPARED FOR:

BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

REV.	REVISION DESCRIPTION	BY	DATE	SHEET NAME:	
				EROSION CONTROL PLAN - INITIAL	SURFACE LOCATION
0	ISSUED FOR CONSTRUCTION	SG	12/08/22	NW 1/4 SW 1/4 SECTION 3 TOWNSHIP 8 N, RANGE 59 W 6TH P.M. WELD COUNTY, CO	

DRAWING DATE: 12/08/22

DRAFTED BY: SG

SHEET NO. 10 OF 20



CHANNEL - TYPICAL DETAIL  
N.T.S.



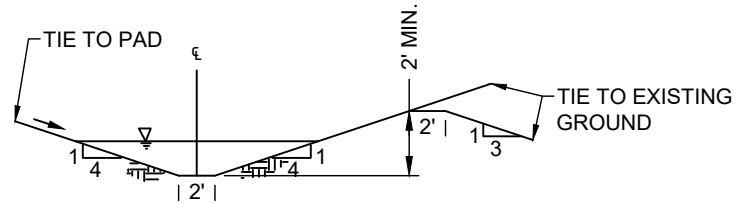
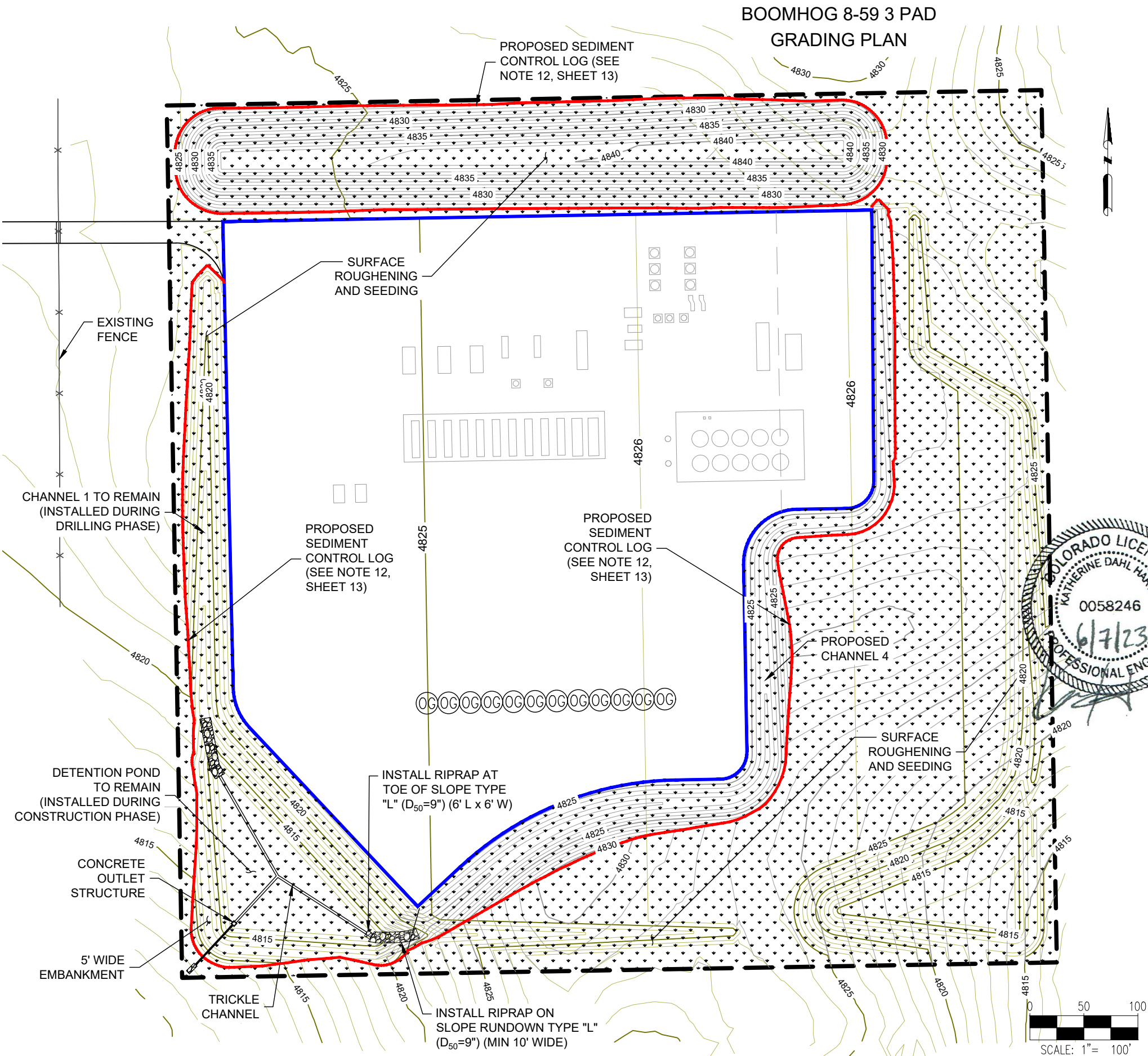
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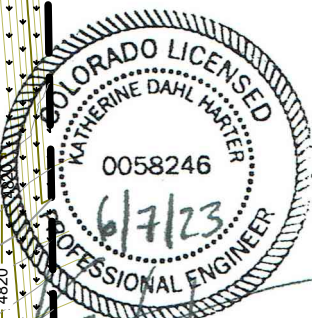
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SHEET NO. 11 OF 20			
REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22



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**CHANNEL - TYPICAL DETAIL**  
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ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128

PREPARED FOR:



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME:

EROSION CONTROL PLAN - FINAL

SURFACE LOCATION

NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	REVISION DESCRIPTION	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23

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BOOMHOG 8-59 3 PAD  
GRADING PLAN



ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128

PREPARED FOR:



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME:  
EROSION CONTROL NOTES  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	DESCRIPTION	BY	DATE	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22	KH	12/08/22

REV.	DESCRIPTION	BY	DATE	BY	DATE
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DRAWING DATE:  
12/08/22

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SG

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13 OF 20

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES

- ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM WELD COUNTY PUBLIC WORKS.
- CLEARING, GRUBBING, AND TOPSOIL STRIPPED SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THE E&S PLAN.
- AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY WELD COUNTY PUBLIC WORKS.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
- SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- ALL SEDIMENT REMOVED FROM BMPS SHALL BE PLACED WITHIN THE RIGHT-OF-WAY EXCEPT IN WETLAND AREAS OR AS OTHERWISE DESCRIBED IN THE PLAN DRAWINGS.

- AREAS WHICH ARE TO BE TOP SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
- E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
- UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
- IF EARTH DISTURBANCE ACTIVITIES ARE TO CEASE FOR MORE THAN 4 DAYS, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS. ACCESS AREAS THAT CONTINUE TO BE DISTURBED WILL BE STABILIZED ONCE ACTIVITY IS COMPLETE.
- AT STREAM CROSSINGS, 50' BUFFER AREAS SHOULD BE MAINTAINED. ON BUFFERS, CLEARING, SOD DISTURBANCES, EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.
- MULCH WITH NETTING OR EROSION CONTROL MATS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER AND WITHIN 100' OF SPECIAL PROTECTION WATERS OR 50' OF SURFACE WATERS.
- THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.



The diagram illustrates two cross-sectional views of a channel bed. The left view, labeled 'GRASS-LINED', shows a channel bed with a layer of grass roots and stems on top of a hatched fabric layer. The right view, labeled 'WITH ROCK CENTER', shows a channel bed with a central layer of rocks on top of a hatched fabric layer. A label 'FILTER FABRIC' points to the hatched layer in the rock-lined view. A dimension line indicates a '6" - 9" KEY IN FABRIC' where the rock layer is embedded into the fabric.

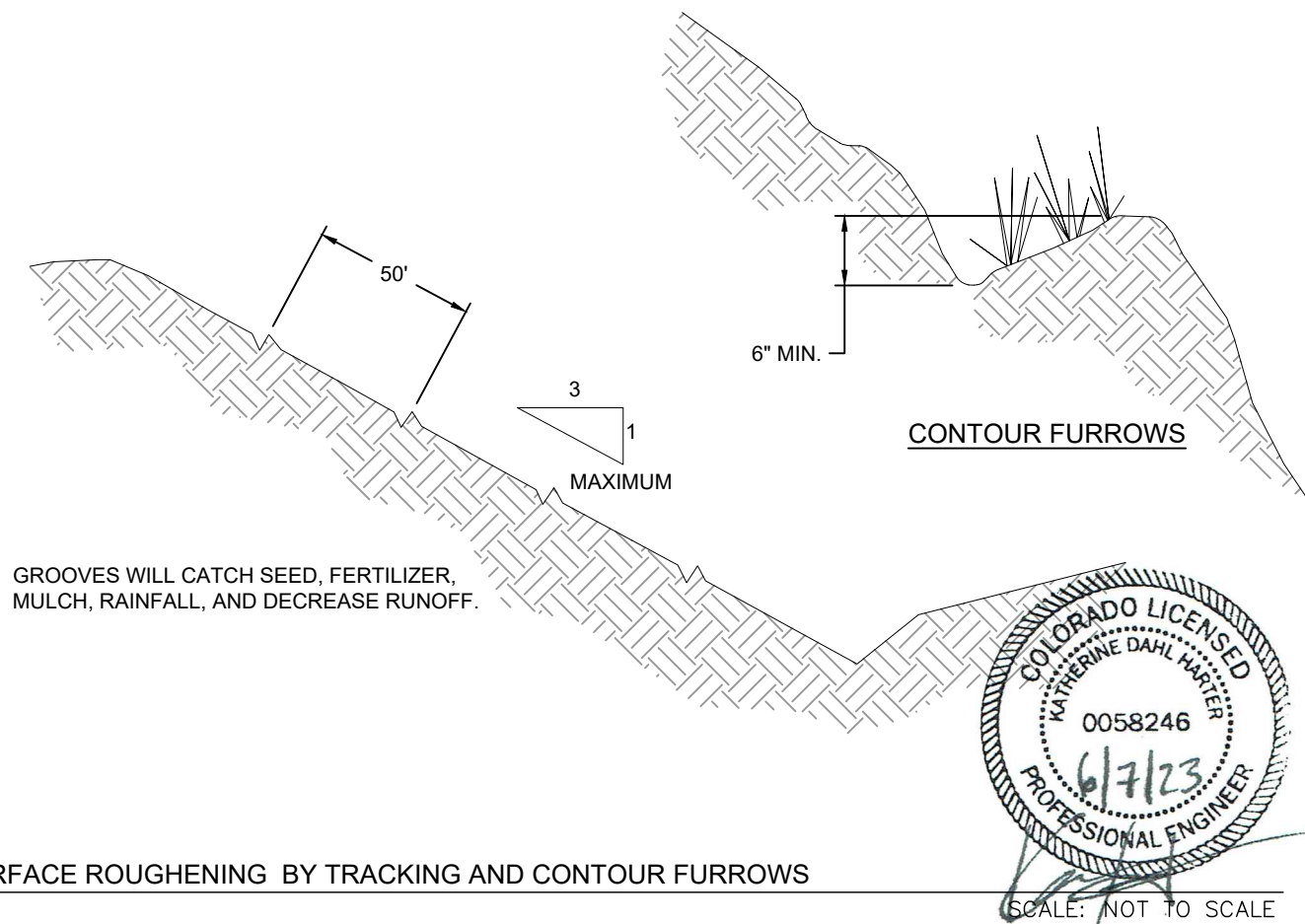
A cross-sectional diagram of a channel. The channel bed is composed of a layer of filter fabric, indicated by a wavy line and labeled "FILTER FABRIC". Above the filter fabric is a layer of vegetation, represented by grass-like symbols. The channel walls are also covered in vegetation. A line labeled "DESIGN DEPTH" points to the top of the vegetation on the left side. A note on the left states: "OVERCUT CHANNEL 2" TO ALLOW BULKING DURING SEEDBED PREPARATION AND GROWTH OF VEGETATION." The bottom of the channel is a depression filled with rocks, labeled "WITH ROCK CENTER FOR BASE FLOW".

SCALE: NOT TO SCALE

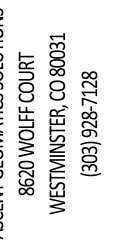


Diagram illustrating the process of creating grooves in the soil using a bulldozer. The bulldozer is shown moving across the soil, creating a series of parallel grooves. The text on the left reads: "G WITH MACHINERY UP AND DOWN", "PE PROVIDES GROOVES THAT WILL", "EED, RAINFALL, AND REDUCE". The word "TRACKING" is written at the bottom right.

TRACKING WITH MACHINERY UP AND DOWN THE SLOPE PROVIDES GROOVES THAT WILL CATCH SEED, RAINFALL, AND REDUCE RUNOFF.



SCALE: NOT TO SCALE



**BISON**  
IV OPERATING

BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME :  
EROSION CONTROL DETAILS  
SUFACE | LOCATION

NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

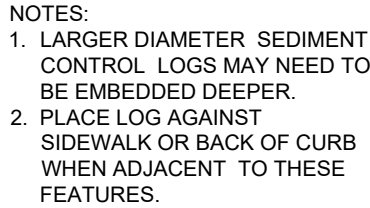
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DRAWING DATE:  
12/08/22

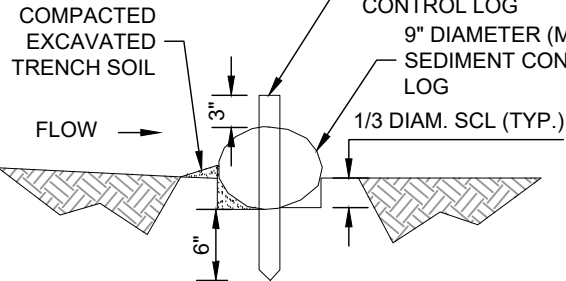
DRAFTED BY:  
SG

SHEET NO. 14 OF 20

# BOOMHOG 8-59 3 PAD GRADING PLAN

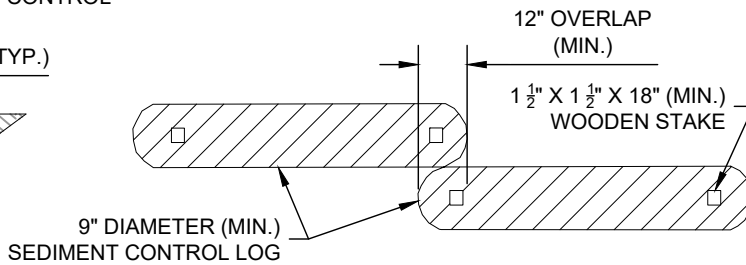


## TRENCHED SEDIMENT CONTROL LOG



## SECTION A

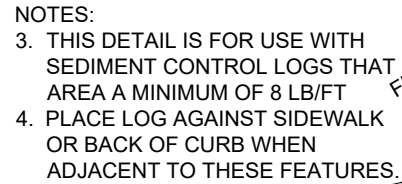
## TRENCHED SEDIMENT CONTROL LOG



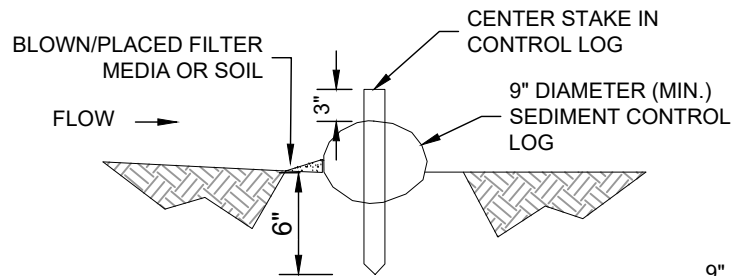
## LOG JOINTS

## TRENCHED SEDIMENT CONTROL LOG

SCALE: NOT TO SCALE

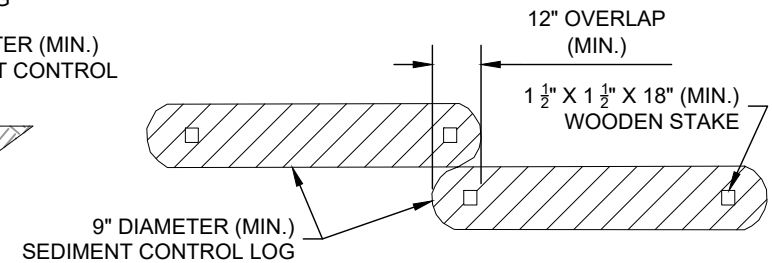


COMPOST SEDIMENT CONTROL LOG  
(WEIGHTED)



## SECTION A

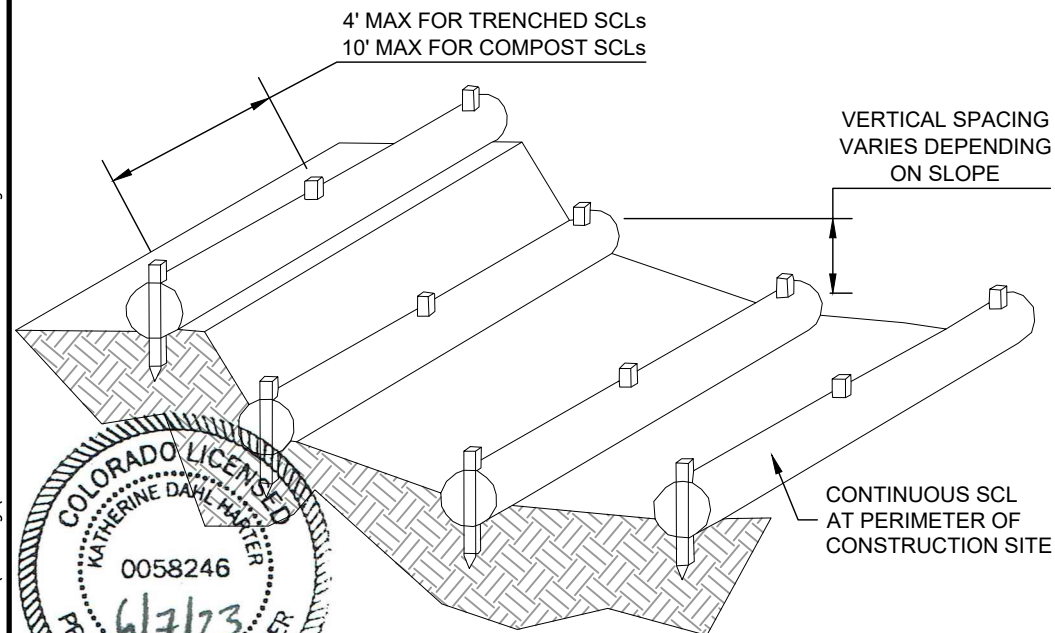
## COMPOST SEDIMENT CONTROL LOG



## LOG JOINTS

### COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

SCALE: NOT TO SCALE



## SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SCALE: NOT TO SCALE

SEDIMENT CONTROL LOG INSTALLATION NOTES:

5. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
6. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADE LAND-DISTURBING ACTIVITIES.
7. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES, AND OBVIOUS WEAR
8. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
9. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/3 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
10. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
11. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG MAINTENANCE NOTES:

12. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
13. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
14. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
15. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
16. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACES AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128

REPAIRED FOR:



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

## EROSION CONTROL DETAILS

TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	REVISION DESCRIPTION	DATE	DATE
0	ISSUED FOR CONSTRUCTION	SG 12/08/22	KH 12/08/22

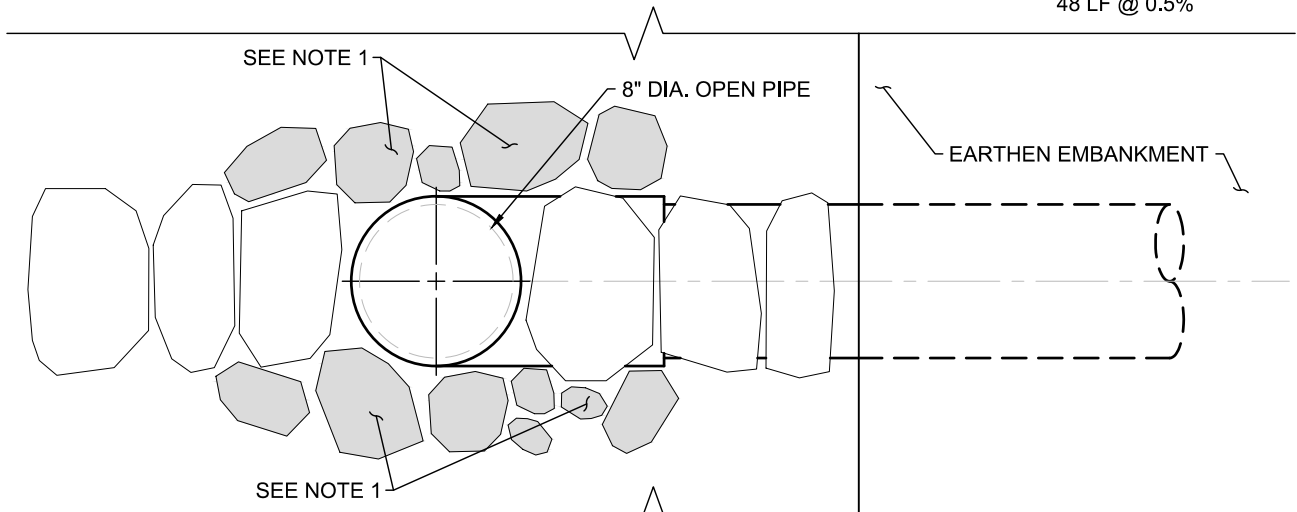
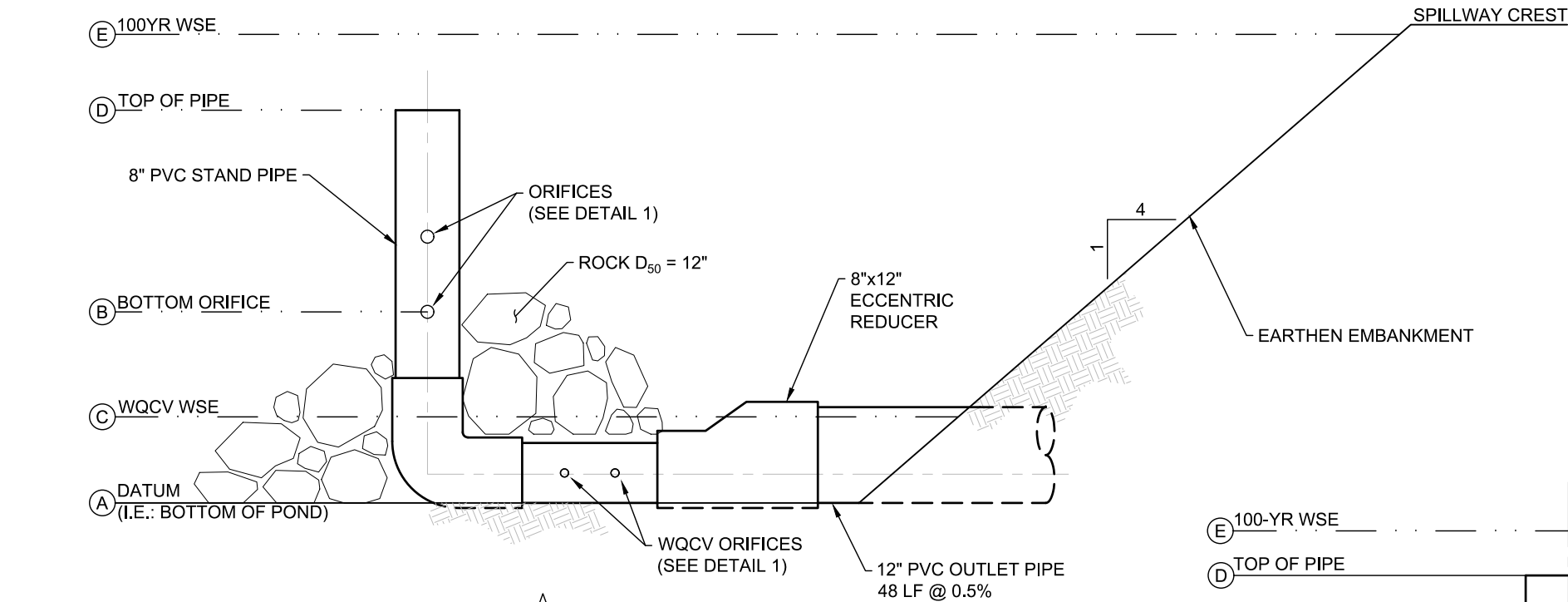
RAWING DATE:  
12/08/22

RAFTED BY:  
SG

SHEET NO.  
15 OF 20

P:\BOLC\_B220001\PROD\Grading\17 SOUTHEAST POND - SPILLWAY DETAILS.dwg

BOOMHOG 8-59 3 PAD  
GRADING PLAN



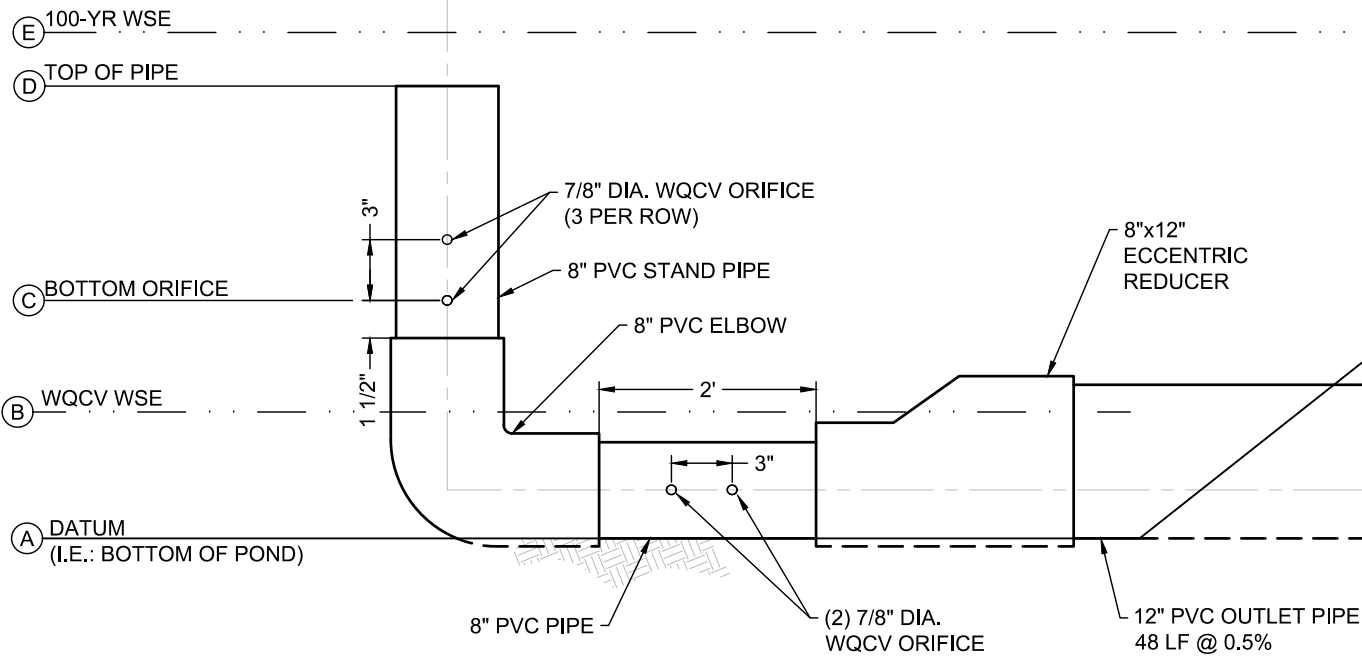
SECTION A-A

NOTES:

1. CONTRACTOR TO PLACE ROCKS AROUND THE ELBOW FITTING AND PIPE IN SUCH A WAY THAT THE VERTICAL PORTION OF THE STANDPIPE CANNOT BE MOVED FROM THE VERTICAL POSITION (I.E. CANNOT "SWAY" OR BE ROTATED). LARGE ROCKS TO BE PLACED DIRECTLY ADJACENT TO BOTH SIDES OF THE VERTICAL SEGMENT OF THE STANDPIPE. GOOD CONTACT BETWEEN ROCKS AND STANDPIPE MUST BE ACHIEVED (I.E. NO GAPS).
2. LARGE, HEAVY ROCKS TO BE PLACED DIRECTLY OVER THE CENTERLINE OF THE PIPE. THE PURPOSE OF THE ROCKS IS TO PROVIDE EXTRA WEIGHT TO PREVENT THE STANDPIPE FROM FLOATING TO THE TOP OF THE WATER SURFACE (I.E. TO NEGATE THE BUOYANCY FORCE) SHOULD THE ORIFICES BECOME OBSTRUCTED. A MINIMUM OF 219 LBS OF ROCK TO BE PLACED OVER CENTERLINE OF PIPE.
3. CONTRACTOR TO DRILL HOLES AS SHOWN IN THESE DETAILS.
4. SPILLWAY CREST ELEVATION IS PROJECTED TO SECTION. FOR ACTUAL SPILLWAY LOCATION REFER TO PLAN VIEW ON SHEET K.4.
5. PVC PIPE AND FITTINGS TO BE ASTM D3034, SDR 35.
6. JOINTS TO BE SOLVENT CEMENTED PER ASTM D2564.

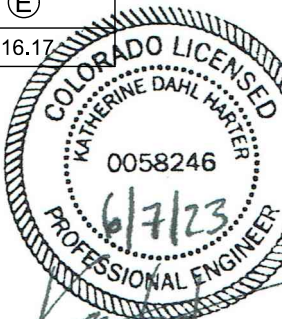
OUTLET STRUCTURE DETAIL (ELBOW BELOW GRADE)

SCALE: N.T.S.



DETAIL 1

STAND PIPE OUTLET STRUCTURE DETAIL TABLE				
BOTTOM OF POND ELEVATION (A)	BOTTOM ORIFICE ELEVATION (B)	WQCV WSE ELEVATION (C)	DRILLED CAP ELEVATION (D)	100-YR WSE (E)
4813.50	4814.70	4814.29	4815.15	4816.17



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518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME:  
STANDPIPE OUTLET STRUCTURE DETAILS  
SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

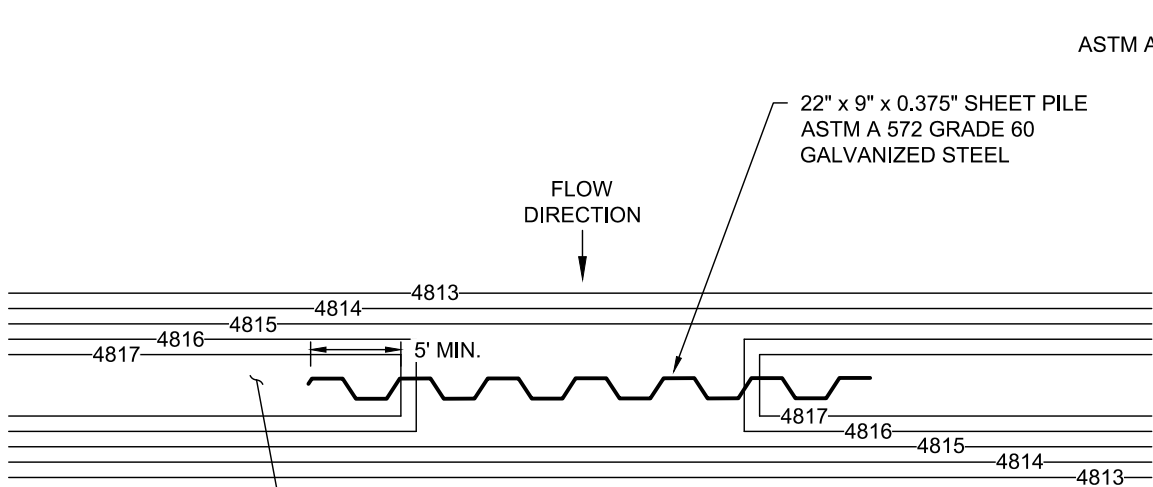
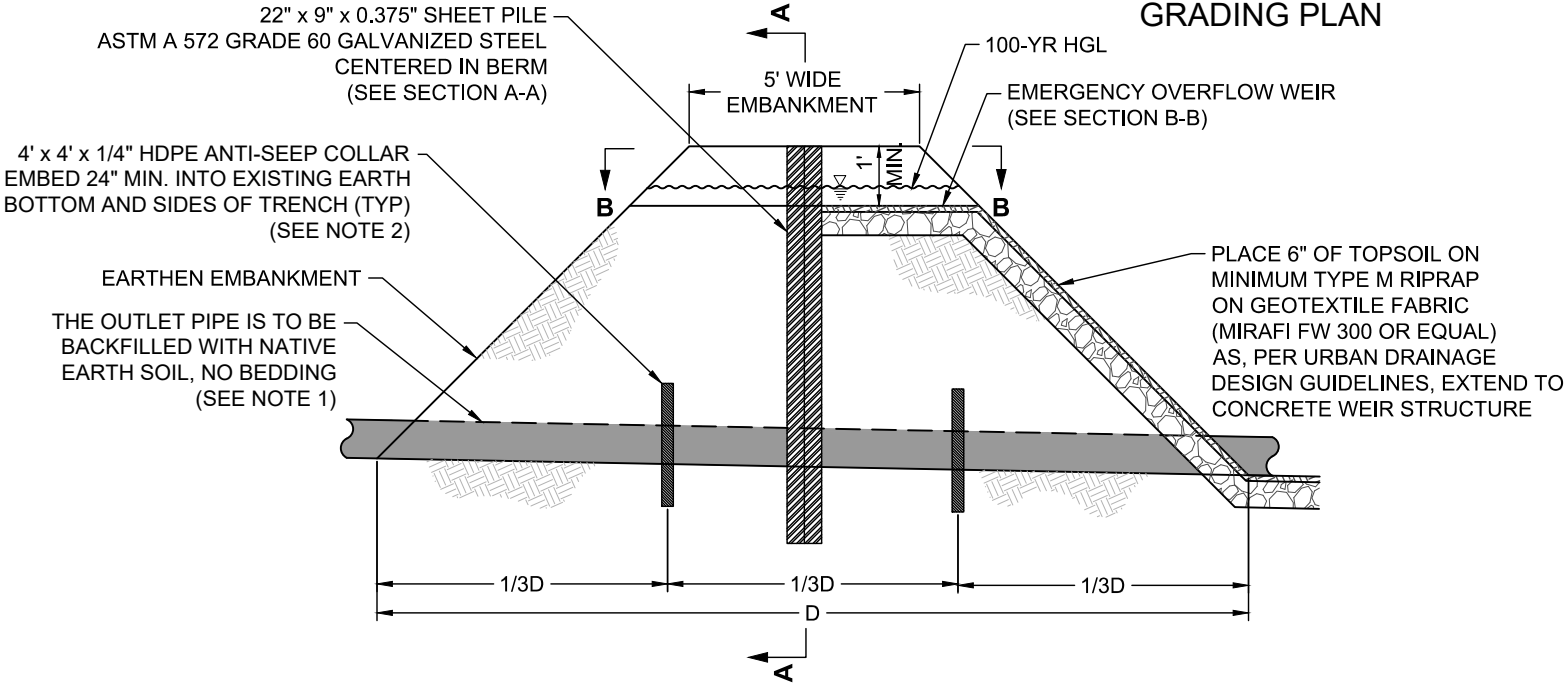
BY	DATE	REVISION	DESCRIPTION
SG	12/08/22	0	ISSUED FOR CONSTRUCTION
AS	5/23/23	1	ISSUED FOR CONSTRUCTION

DRAWING DATE:  
12/08/22  
DRAFTED BY:  
SG  
SHEET NO.  
16 OF 20



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BOOMHOG 8-59 3 PAD  
GRADING PLAN

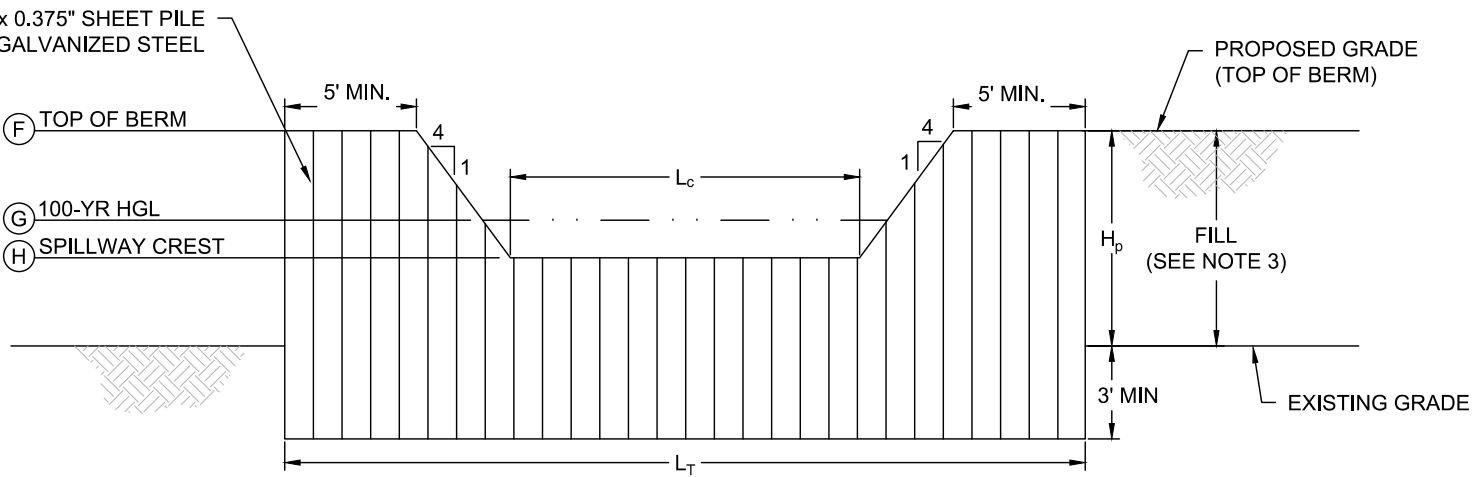


PROPOSED GRADE  
(TOP OF BERM ELEV = 4817.50')

SECTION B-B

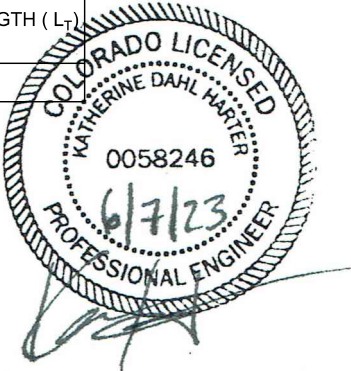
NOTES:

- PIPE IS PROJECTED TO SECTION. FOR ACTUAL PIPE LOCATION, REFER TO PLAN VIEW ON SHEET 3.
- ANTI-SEEP COLLAR IS COMMERCIALY AVAILABLE. COLLAR SPACING AND MINIMUM DIMENSIONS AS INDICATED IN THE ABOVE DETAIL.
- CONTRACTOR TO INSTALL SHEET PILES FIRST, THEN PLACE THE EMBANKMENT FILL AFTER THE SHEET PILE CUTOFF WALL HAS BEEN INSTALLED. CONTRACTOR TO ENSURE THE FILL MATERIAL AROUND THE SHEET PILE WALL HAS THE REQUIRED LEVEL OF COMPACTION IN ACCORDANCE WITH THE SPECIFICATIONS INDICATED IN THESE PLANS.



SPILLWAY DETAIL TABLE				
TOP OF BERM ELEVATION (F)	100-YR HGL (G)	SPILLWAY CREST ELEVATION (H)	CREST LENGTH (L <sub>c</sub> )	TOTAL LENGTH (L <sub>T</sub> )
4817.50	4816.70	4816.20	9'	20'

SECTION A-A



SPILLWAY / SHEET PILE CUTOFF WALL DETAIL

SCALE: N.T.S.



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WESTMINSTER, CO 80031  
(303) 928-7128

PREPARED FOR:



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

SHEET NAME:  
SOUTHEAST POND - SPILLWAY DETAILS

SURFACE LOCATION

NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

BY	DATE	REVISION
SG	12/08/22	0

REV.	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	12/08/22

DRAWING DATE:  
12/08/22

DRAFTED BY:  
SG

SHEET NO.  
17 OF 20

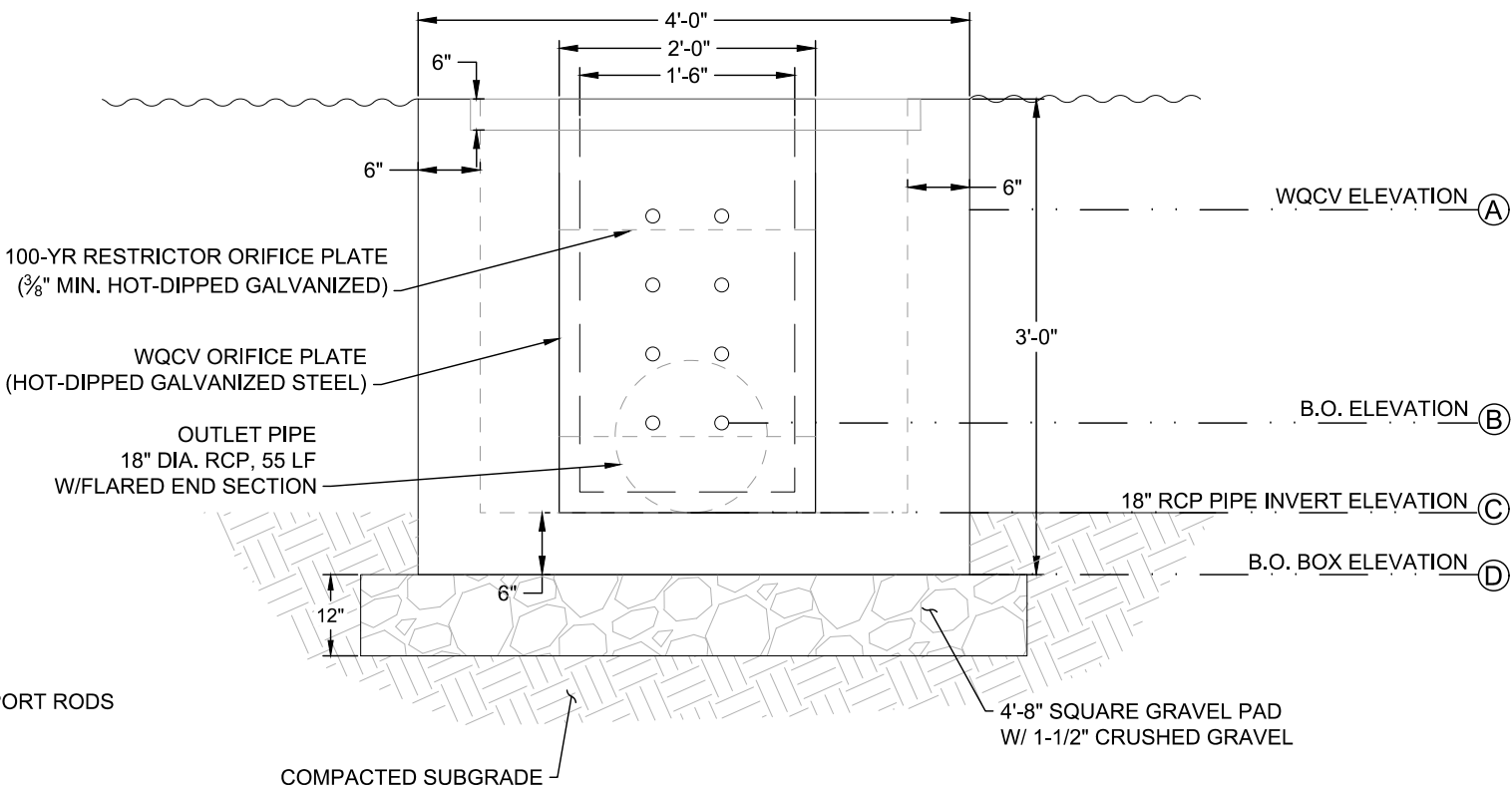
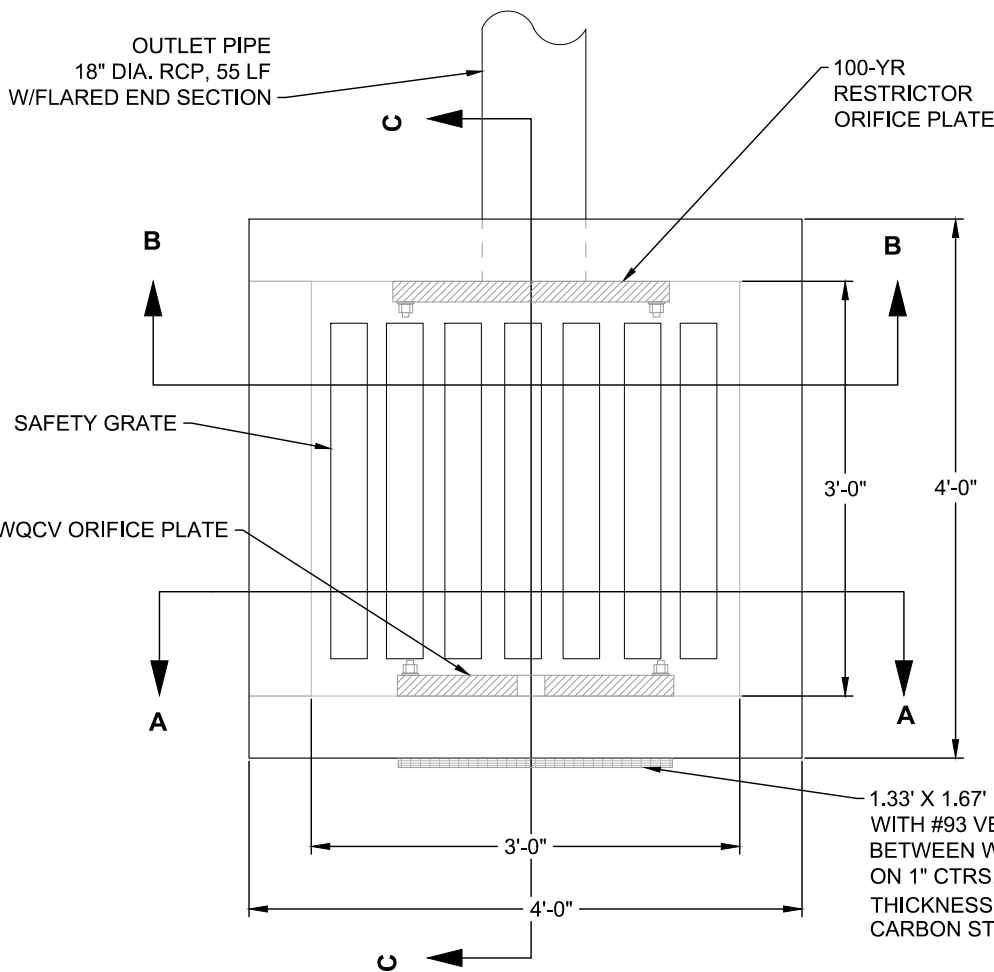
BOOMHOG 8-59 3 PAD  
GRADING PLAN



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8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997



SECTION A-A

SHEET NAME:  
CONCRETE OUTLET STRUCTURE DETAILS

SURFACE LOCATION  
NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

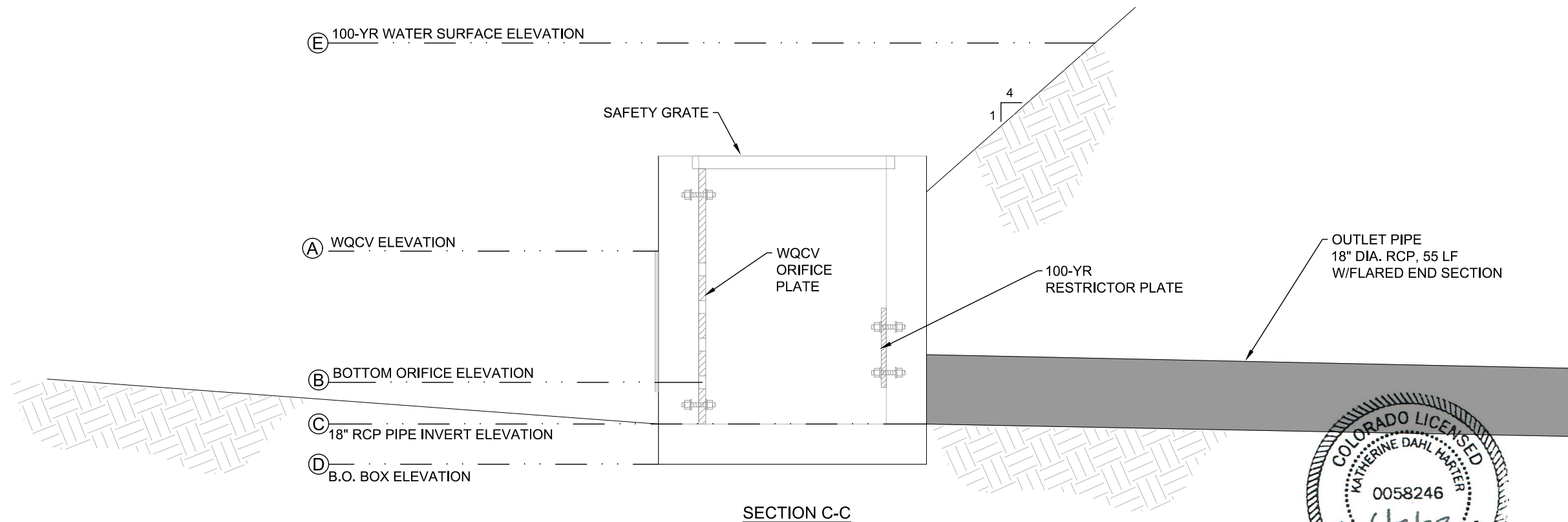
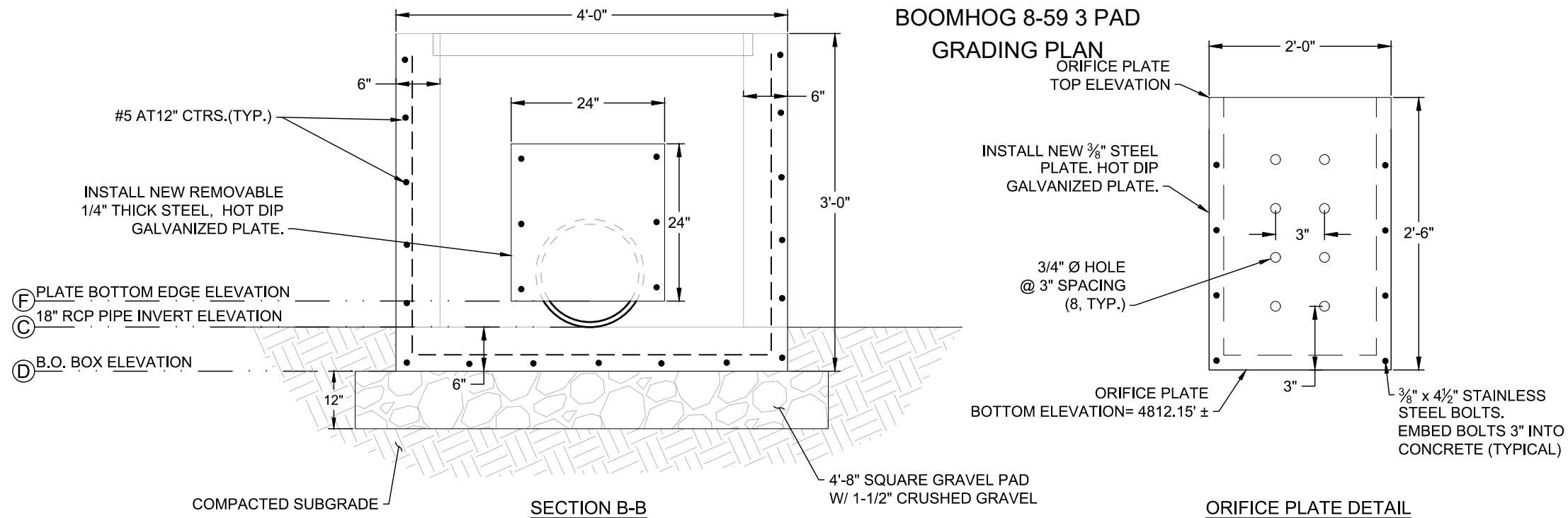
REV.	DESCRIPTION	BY	DATE	BY	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22		

DRAWING DATE:  
12/08/22

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SG

SHEET NO.  
18 OF 20

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OUTLET STRUCTURE DETAIL TABLE					
WQCV ELEVATION ⑤	BOTTOM ORIFICE ELEVATION ⑥	18" RCP INVERT ELEVATION ⑦	B.O. BOX ELEVATION ⑧	100-YR WSE ④	EDGE OF PLATE BOTTOM ELEVATION ①
4813.39	4812.40	4812.15	4811.65	4815.67	4912.76



CONCRETE OUTLET STRUCTURE DETAILS

SCALE: N.T.S.



ASCENT GEOMATICS SOLUTIONS  
8620 WOLFF COURT  
WESTMINSTER, CO 80031  
(303) 928-7128



BISON OPERATING LLC  
518 17TH STREET, SUITE 1800  
DENVER, CO 80202  
720.644.6997

CONCRETE OUTLET STRUCTURE DETAILS

SHEET NAME:

SURFACE LOCATION

NW 1/4 SW 1/4 SECTION 3  
TOWNSHIP 8 N, RANGE 59 W 6TH P.M.  
WELD COUNTY, CO

REV.	DESCRIPTION	BY	DATE	DATE	DATE
0	ISSUED FOR CONSTRUCTION	SG	12/08/22	KH	12/08/22
1	ISSUED FOR CONSTRUCTION	AS	5/23/23	KH	5/23/23

DRAWING DATE:  
12/08/22

DRAFTED BY:  
SG

SHEET NO.  
19 OF 20







**COLORADO**

**Department of Public  
Health & Environment**

**CERTIFICATION TO DISCHARGE  
UNDER  
CDPS GENERAL PERMIT COR400000  
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES**

**Certification Number: COR402915**

**This Certification to Discharge specifically authorizes:**

**Owner Bison Oil & Gas IV, LLC  
Operator Bison Oil & Gas IV, LLC  
to discharge stormwater from the facility identified as**

**Mallard Field Wide Coverage**

**To the waters of the State of Colorado, including, but not limited to:**

**Crow Creek**

**Facility Activity :** Oil and Gas Exploration and Well Pad Development

**Disturbed Acres:** 25 acres

**Facility Located at:** SW of CR 80 and CR 71 Briggsdale CO 80611  
Weld County  
Latitude 40.553453 Longitude -104.392762

**Specific Information  
(if applicable):**

**Certification is transferred, re-issued and effective: 02/16/2023  
Expiration date of general permit: 3/31/2024**

This certification under the permit requires that specific actions be performed at designated times. The certification holder is legally obligated to comply with all terms and conditions of the permit.

This certification was approved by:  
Randi Johnson-Hufford, Permits Unit 1 Manager  
Permits Section  
Water Quality Control Division

