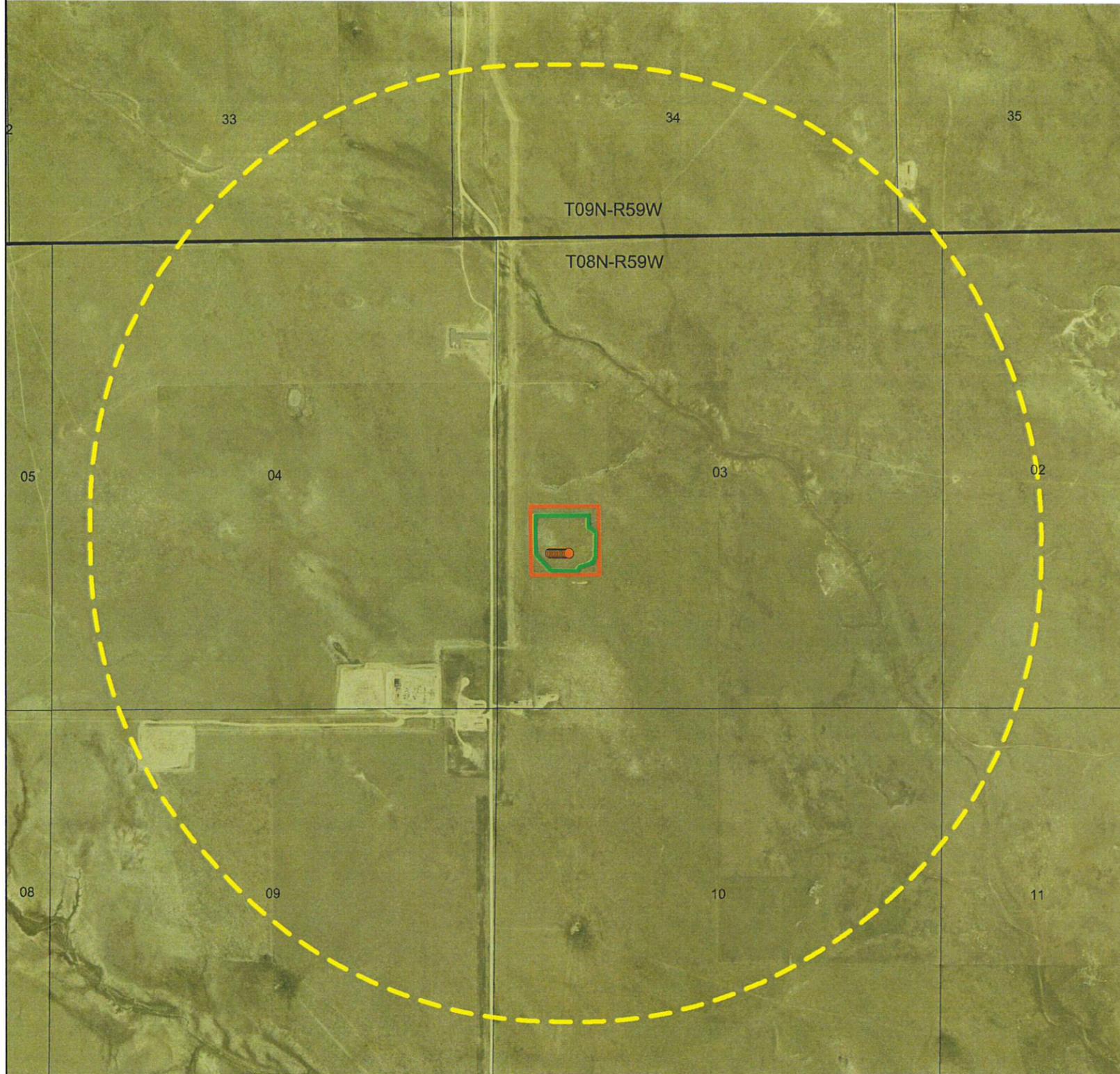


BOOMHOG 8-59 3 PAD GEOLOGIC HAZARD MAP



GEOLOGIC HAZARDS:
(AS MEASURED FROM THE PROPOSED WORKING PAD SURFACE)

COLLAPSIBLE & EXPANDABLE SOILS - DUNE & SHEET SAND DEPOSITS AND EOLIAN (WIND-BLOWN) DEPOSITS +0'

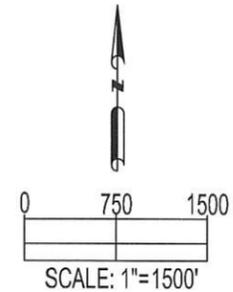
HAZARD TYPE	DISTANCE (N/A IF >5280')	SOURCE, DESCRIPTION IF <5280'
AVALANCHES	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
LANDSLIDES	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
ROCK FALLS	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
MUDFLOWS	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
UNSTABLE OR POTENTIALLY UNSTABLE SLOPES	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
SEISMIC EFFECTS	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
RADIOACTIVITY	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
GROUND SUBSIDENCE	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS
MINE EXTENT	N/A	COGCC GIS, WELD COUNTY PROPERTY PORTAL, CO GEOLOGIC SURVEY MAPS

NOTES:

1. COLLAPSIBLE AND EXPANSIVE SOILS AS MAPPED DO NOT CONSTITUTE A GEOLOGIC HAZARD. ANY AREAS OF POTENTIAL OR PREVIOUS SUBSIDENCE DUE TO COLLAPSIBLE AND EXPANSIVE SOILS WILL BE IDENTIFIED AND MAPPED AS A SUBSIDENCE GEOLOGIC HAZARD AS PROVIDED BY GEOLOGIST. EXPANSIVE AND COLLAPSIBLE SOILS ARE EXTENSIVE BEYOND MAP LIMITS. (DATA SOURCE: CGS/CLIENT)
2. PER THE COLORADO GEOLOGIC SURVEY (CGS), EG-14 COLLAPSIBLE SOILS ARE PRESENT IN THE VICINITY OF THE LOCATION. THESE SOIL TYPES ARE PRONE TO BOTH WATER EROSION AND SOIL BLOWING. BISON OPERATING, LLC WILL DEPLOY DUST MITIGATION MEASURES PROVIDED IN THE DUST MITIGATION PLAN THAT WILL MITIGATE AND MINIMIZE WIND EROSION. THE GRADING AND DRAINAGE DESIGN OF THE LOCATION, IN ADDITION TO IMPLEMENTATION OF STORMWATER CONTROLS PER BISON OPERATING, LLC'S STORMWATER MANAGEMENT PLAN, WILL MITIGATE AND MINIMIZE WATER EROSION. IN ACCORDANCE WITH BISON OPERATING, LLC'S STANDARD OPERATING PROCEDURE, AND AS OUTLINED IN THE TOPSOIL PROTECTION PLAN, A GEOTECHNICAL EXPLORATION WILL BE COMPLETED BY A GEOTECHNICAL ENGINEER PRIOR TO THE COMMENCEMENT OF PAD CONSTRUCTION CONSISTING OF MULTIPLE SOIL BORES ACROSS THE LOCATION. DURING PAD CONSTRUCTION, COLLAPSIBLE SOILS (IF PRESENT) WILL BE OVER EXCAVATED AND THROUGHOUT CONSTRUCTION ALL SOIL WILL BE MOISTURE CONDITIONED AND COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. PROPER SLOPING AND BENCHING TECHNIQUES WILL BE ADHERED TO IN ACCORDANCE WITH OSHA REGULATIONS AND STEEP EMBANKMENTS WILL BE AVOIDED. PERMANENT FACILITY EQUIPMENT WILL BE INSTALLED ON DEEP-FOUNDATION ELEMENTS CONSISTING OF HELICAL PILES. NONE OF THE IDENTIFIED SOILS WITHIN THE AREA SURROUNDING THE BOOMHOG 8-59 3 PAD ARE CONSIDERED A SIGNIFICANT HAZARD TO PUBLIC HEALTH, SAFETY, PROPERTY, OR THE ENVIRONMENT.

THE FOLLOWING SOURCES HAVE BEEN CONSULTED TO DETERMINE IF ANY HAZARDS EXIST AND TO ASCERTAIN THE BOUNDARIES OF ANY IDENTIFIED HAZARDS:

- COGCC GIS: https://cogccmap.state.co.us/cogcc_gis_online/
- Weld County Property Portal: <https://www.co.weld.co.us/maps/propertyportal/>
- Colorado Geological Survey: ON-001 -- Colorado Earthquake and Fault Map
- <https://cgsarcimage.mines.edu/ON-001/>
- ON-006-01 -- Statewide Landslide Inventory Map
- <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/index.html?id=9dd73db7fbc34139abe51599396e2648>
- ON-006-06 -- Colorado Historic Coal Mines
- <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/index.html?id=1891e3149eda44af9dc8af81c4dc58a8>
- ON-B-40M -- Radioactive Mineral Occurrences of Colorado and Bibliography
- <https://cologeosurvey.maps.arcgis.com/apps/webappviewer/index.html?id=c5381e1335284d63bfa5d4b018b3372f>
- FEMA FLOODPLAIN: <https://www.fema.gov/flood-maps/national-flood-hazard-layer>
- CLIENT PROVIDED DATA MAY ALSO BE UTILIZED BEYOND THESE SOURCES.



I certify that I am a Professional Geologist, having met the educational requirements and professional work experience required by C.R.S. § 23-41-208(b). I have reviewed information pertaining to this Oil and Gas Location and the surrounding area, and have identified no Geologic Hazards within a one mile radius.

[Signature]
SIGNATURE

[Signature]
TITLE

7/2/23
DATE

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.

 <small>8620 Wolff Court Westminster, CO 80031 (303) 978-7128 www.ascentgeomatics.com</small>	FIELD DATE: 10-13-22	DRAWING DATE: 06-22-23	SITE NAME: BOOMHOG 8-59 3 PAD SURFACE LOCATION: NW 1/4 SW 1/4 SEC. 3, T8N, R59W, 6TH P.M. WELD COUNTY, COLORADO	DATA SOURCE: AERIAL IMAGERY: NAIP 2021 GEOLOGIC HAZARDS: COUNTY GIS, COGIS, USGS GIS FLOODPLAIN: FEMA GIS DATA, FEMA FLOOD MAPS <small>PUBLICLY AVAILABLE DATA SOURCES HAVE NOT BEEN INDEPENDENTLY VERIFIED BY ASCENT.</small>	LEGEND: = PROPOSED ACCESS ROAD = SECTION LINE = TOWNSHIP LINE = PROPOSED WELL	= 5280' BUFFER FROM WPS = OIL & GAS LOCATION = WORKING PAD SURFACE	= COLLAPSIBLE & EXPANDABLE SOILS - DUNE & SHEET SAND DEPOSITS AND EOLIAN (WIND-BLOWN) DEPOSITS
	DRAWN BY: HJL	CHECKED BY: CSG					



PLAT: P: 980C...BZZ2001\VP\BOOMHOG 8-59 3 PAD 8/8/23 GEOLOGIC HAZARD MAP_230621_LAYOUT TAB: Geologic Hazard