



**Stormwater Management Plan**

**Geothermal Limitless Approach to Drilling Efficiencies (GLADE)**

**NE ¼ SE ¼, Sec 2, T3N, R66W**

**Weld County, Colorado**

**April 2024**

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## 1.0 INTRODUCTION

OXY USA Inc. (OXY) has prepared this site-specific Stormwater Management Plan (SWMP) for construction activities in Weld County, Colorado. The SWMP is intended to ensure construction activities adhere to good engineering, hydrologic, and pollution control practices, and to ensure erosion, sediment and stormwater control measures are selected, installed, implemented, and maintained to protect state waters, and minimize site erosion or degradation. This facility is a part of OXY’s Area 4 operations and is covered under CDPS Permit COR402543.

## 2.0 SITE DESCRIPTION

Operator:	OXY USA Inc.
Project / Site Name:	GLADE Well Project
Location:	Sec. 2, T3N, R66W, Weld County, Colorado
Total Area of Project:	13.00 acres
Description of Existing Vegetation:	Existing vegetation on the subject property is disturbed grassland, primary use is rangeland / pastureland.
Percentage of Existing Vegetation Cover:	Percentage of existing vegetation cover on the location is 70%.  Method for determination: National Resource Conservation Service (NRCS) soil survey data, and on-site assessment at the time of pit excavation for planning and permitting purposes.
Soil Type(s):	48 – Olney fine sandy loam, 3 to 5 slopes, HSG: B 63 – Terry fine sandy loam, 3 to 5 slopes, HSG: B
Stream Crossings:	There are not any stream crossings associated with the location.
Primary Receiving Water:	County Road 35 ditch ~935’ east of the location.
Operator ID:	66561
CDPS Permit:	COR402543
Stormwater Manager:	Lynna Scranton, HSE Director OXY USA Inc. Office: (720) 929-6317
SWMP Administrator:	Austin Lee, HSE Advisor OXY USA Inc. Office: (970) 515-1058
Emergency Contact:	Integrated Operation Center (IOC) Office: (970) 515-1500

### 3.0 PROPOSED SEQUENCE OF MAJOR ACTIVITIES

- |   |  |  |   |   |
|---|--|--|---|---|
| <input checked="" type="checkbox"/> Delineation of Disturbance Limits | <input checked="" type="checkbox"/> Access Road Construction         | <input checked="" type="checkbox"/> Perimeter /Control Measures Installation | <input checked="" type="checkbox"/> Grading, stripping, excavation, earthwork | <input checked="" type="checkbox"/> Well drilling & Completions |
| <input checked="" type="checkbox"/> Facility Construction             | <input checked="" type="checkbox"/> Pipeline & Flowline Installation | <input checked="" type="checkbox"/> Disturbance Reduction                    | <input checked="" type="checkbox"/> Interim & Final Reclamation               | <input type="checkbox"/> Return to Agriculture                  |

All construction and development 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 and Carbon Management Commission (ECMC) 304.c.15 and 1002.f Rules and requirements.

### 4.0 POTENTIAL POLLUTANT SOURCES

Potential pollution sources shall be placed within the project construction boundary, designated staging area(s), working surface, contained by general or sized secondary containment, and stormwater perimeter controls. Anticipated pollution sources which will be managed by appropriate BMP fact sheets or operational best management standard operating procedures include, but are not limited to:

- |   |   |  |
|---|---|--|
| <input checked="" type="checkbox"/> Disturbed and stored soils    | <input checked="" type="checkbox"/> Vehicle/equipment maintenance and fueling | <input type="checkbox"/> Non-industrial waste          |
| <input checked="" type="checkbox"/> Vehicle tracking of sediments | <input checked="" type="checkbox"/> Dust generating processes                 | <input checked="" type="checkbox"/> Potential Spills   |
| <input type="checkbox"/> Management of contaminated soils         | <input checked="" type="checkbox"/> Routine maintenance activities            | <input type="checkbox"/> Spill prevention and response |
| <input checked="" type="checkbox"/> Loading/unloading ops         | <input checked="" type="checkbox"/> On-site waste management                  |  |
| <input checked="" type="checkbox"/> Outdoor storage activities    | <input type="checkbox"/> Concrete truck washing                               |  |

No dedicated concrete or asphalt batch plants will be at the project location. Safety Data Sheets (SDS) for materials to be used are maintained by OXY. Pollutants shall be managed in accordance with waste regulations administered by ECMC 900 series Rules.

### 5.0 STORMWATER, EROSION & SEDIMENT CONTROL MEASURES / BMPS

Measures for stormwater, erosion and sediment control will be accomplished through a combination of construction techniques, structural and non-structural controls, vegetation and re-vegetation, administrative controls, and good housekeeping practices. Control measures will be implemented and adjusted with changing site conditions, as well as phases of construction. All control measures deployed throughout construction shall be identified on the site-specific stormwater management plan (grading plan), as well on as-built plans verified in the field.

A summary of stormwater control measures can be found in Appendix C of this document. A detailed description of intended structural and non-structural stormwater control measures for GLADE is as follows.

### **5.1 Structural Control Measures / BMPs**

Structural control measures are established to reduce erosion and site degradation, and to minimize or mitigate off-site sediment transport in a manner effective for development and operation of an oil and gas location. The following structural control measures will be implemented at the proposed location:

#### **5.1.1 Limits of Construction (LOC)**

- Limits of construction will be used to designate the area of intended development and areas intended for surface disturbing activities.
- The LOC will be identified prior to commencement of surface disturbing activities, on the location grading plan, and in-field with wooden survey lathe / staking to delineate the boundary.
- The LOC surrounds the entirety of the GLADE.
- LOC will remain in-place until interim reclamation activities are complete.

#### **5.1.2 Vehicle Tracking Control (VTC)**

- Vehicle tracking controls will serve as a stabilized site access point which removes sediment from vehicle tires and mitigates off-site tracking onto paved surfaces.
- VTC will be installed prior to commencement of surface disturbing activities.
- VTC will be installed at the primary access for GLADE, which is to the east of the location. The access road adjoins/intersects Weld County Road 35, approximately 0.13 miles east of the location.
- VTC will remain in place until interim reclamation activities are complete.

#### **5.1.3 Temporary Diversion Ditch and Berm (DD)**

- A diversion ditch and berm will be implemented to divert stormwater run-on & run-off throughout GLADE to a designated outlet structure(s).
- This BMP will be installed prior surface disturbing activities and will surround the entirety of the location to create continuous perimeter control.
- A berm will be installed along the northern and eastern perimeter of the location.
- Diversion ditch and berm will remain in-place until interim reclamation activities are complete.

#### **5.1.4 Temporary Spillway and Outlet (SW/O)**

- A temporary spillway and/or outlet is designed to capture sediment transported in surface runoff and slowly release flows to allow time for settling of sediment prior to discharge from the location.
- Spillway and/or outlet will be installed concurrently with the location diversion ditch and berm, and prior to commencement of surface disturbing activities.
- A temporary spillway/outlet will be installed in the northern, eastern, southern and western segments of the disturbance area ditch and berm and the northeastern portion of the location berm for GLADE.
- All spillways and outlets will remain in-place until interim reclamation activities are complete.

#### **5.1.5 Culvert (C)**

- Culverts are used to move water under a road or crossing, or to direct flow to a designated endpoint, and are sized to manage anticipated watershed and flow rates.
- A Culvert will be installed at the eastern location access point for the GLADE location. Additional culverts will be evaluated at the time of construction and installed as needed.
- Culverts will be reinforced with inlet and outlet protection to mitigate sediment transport and surface erosion.
- These BMPs will remain in place throughout the life of construction for GLADE and removed during interim reclamation.

### **5.1.6 Inlet / Outlet Protection (IP/OP)**

- Inlet / outlet protection is a permeable barrier installed around a drain or culvert to filter runoff and remove sediment.
- This BMP will be installed prior to commencement of surface disturbing activities.
- Inlet and outlet protection will be installed for all permanent culverts, temporary spillways, and temporary outlets at GLADE.
- Inlet and outlet protection will remain in place on all permanent features throughout the life of production for GLADE and removed during final reclamation.

### **5.1.7 Seed & Mulch (SM)**

- Seed and mulch are utilized in disturbed areas to establish stabilization through vegetative cover.
- Seeding will take place once surface disturbing activities are complete. Topsoil stockpiles will be stabilized with seed and mulch no longer than 14-days after completion of stockpiling efforts unless weather or ground conditions are not suitable to properly create a seedbed and promote successful germination.
- Seed & mulch will be installed on all disturbed areas no longer utilized for construction, and on all topsoil stockpiles which will remain on GLADE for use during interim and final reclamation. Anticipated topsoil stockpiles will be situated along the southern and western perimeter of the location.
- Seed and mulch will be disturbed and re-applied during topsoil application and final reclamation practices.

## **5.2 Non-Structural Control Measures / BMPs**

Non-structural control measures / BMPs do not involve a structure or engineered solution. Non-structural control measures include:

### **5.2.1 Construction Phasing & Sequencing**

- Construction phasing and sequencing will be implemented at GLADE to minimize the amount of surface disturbance and exposed soils to the greatest extent practicable.

### **5.2.2 Construction Site Waste Management**

- All waste from materials imported to GLADE will be placed in containment bins, and removed for disposal/recycling at an approved, licensed facility.
- Self-contained port-o-lets will be placed on both the facility and well pad at GLADE and maintained by a licensed contractor at a frequency appropriate based on daily use.
- No waste materials will be buried or dumped on GLADE.

### **5.2.3 Protection and Preservation of Existing Vegetation**

- Pre-existing vegetation cover will only be removed where necessary for the operation of construction and development at GLADE. Trees will only be cut or trimmed to facilitate clearing, grading and safe installation of the location.
- Vegetative buffers will be preserved to the greatest extent practicable for construction and development.

### **5.2.4 Good Housekeeping**

- Good housekeeping measures will be implemented to prevent sediment, trash and toxic or hazardous substances from entering surface waters or impacting soils. Housekeeping practices include routine inspections, regular cleaning, site and equipment organization and maintenance, and appropriate chemical storage.

### 5.2.5 Materials Management

- Materials stored on GLADE will be kept away from direct traffic to prevent accidents.
- Dumpsters and trash receptacles will be enclosed and/or covered to prevent dissemination of rubbish when not in use.
- Storage areas will be swept for trash / rubbish, and cleanup coordinated by construction personnel.
- Drums and chemical storage containers will be clearly labeled, and an appropriate SDS kept on file to be made available for on-site personnel as needed.

### 5.2.6 Training and Certification

- All personnel involved with construction and stormwater activities will be adequately trained and familiarized with the applicable CDPS stormwater permit, local/State regulations, requirements for the stormwater permit, and identification of potential pollutant sources.
- Training(s) will cover information and procedures identified in this SWMP, and will be conducted prior to the start of construction, and as needed.
- Training is considered initial and ongoing for all personnel involved with construction and development at GLADE.

## 6.0 MATERIALS HANDLING AND SPILL PREVENTION

Discharges of hazardous substances or oil resulting from spills or construction operations are not authorized under the Construction General Permit or this plan. Spills and leaks will be managed by OXY personnel or their designee, and according to the OXY *Wattenberg Field, Colorado Spill Prevention, Control and Countermeasures (SPCC) Plan*. OXY personnel and designees are trained to prevent, mitigate, evaluate, and response to spills and releases. **In the event of a spill, notify the Stormwater Manager, after taking emergency and internal procedures for notification.** Depending on the nature of the spill and material involved, the Colorado Department of Public Health and Environment 24-hour spill reporting line (877-518-5608) will be contacted and/or downstream water users notified, as necessary.

## 7.0 NON-STORMWATER DISCHARGES

Sources of non-stormwater discharges include emergency fire-fighting activities or a fire hydrant, uncontaminated springs which do not originate from an area of land disturbance, and construction dewatering. In the event of construction dewatering, control measures shall be implemented and Low Risk Discharge Guidance for Uncontaminated Groundwater to Land (WQP27) shall be followed.

## 8.0 FINAL STABILIZATION

All soil horizons segregated for the purpose of construction shall be replaced to their original relative positions and contour for reclamation and final stabilization. Following topsoil re-distribution, the reclamation area shall be cross ripped to alleviate compaction. Soil amendments will be determined and applied as necessary, and incorporated by disking, harrowing or cultipacking during seedbed preparation.

Seed used for reclamation will be determined based on surface owner consultation, and consider soil type, land use, and adjacent reference area(s) vegetation. The approved seed mix, in combination with certified weed-free mulch, will be installed when seasonal or weather conditions are most favorable to take advantage of moisture, such as early spring or late fall, and never during windy or frozen conditions.

The Colorado Department of Health and Environment (CDPHE) defines final stabilization as, “finally stabilized means that all ground surface disturbing activities at the site have been completed, and all disturbed areas have been either built on, paved, or a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, and the vegetation cover is

capable of providing erosion control equivalent to pre-existing conditions, or equivalent permanent, physical erosion reduction methods have been employed.” Stabilized unpaved surfaces, such as gravel access roads or working surfaces, necessary for the operation of the facility or nearby facilities, also qualifies as “final stabilized”.

## **9.0 POST-CONSTRUCTION STORMWATER**

Following final stabilization, and pursuant of ECMC Rule 1002.f and ECMC Rule 1004, BMPs shall be maintained under OXY’s Post-Construction Stormwater Program, and evaluated for Tier 1 / Non-Tier 1 status as applicable and per ECMC 100 series definitions, until the facility is abandoned, and final reclamation is achieved.

## **10.0 INSPECTION AND MAINTENANCE PROCEDURES**

### **10.1 Inspections**

Inspections will be conducted to document the status of construction activities, stormwater control measure placement, maintenance needs, and effectiveness, to evaluate pollution sources, and to document reclamation / final stabilization progress. Inspections will be managed by the Stormwater Manager and SWMP Administrator and conducted by their designated representative(s). Inspection forms will document non-compliance conditions, including any release of sediment or other contaminants, additional control measures that are needed, or repair and maintenance work orders.

During construction, inspections shall be conducted every 14 days, and after a major precipitation or melt event, which has the potential to cause surface runoff.

For sites earthwork and construction is completed, but final stabilization is not achieved due to vegetative cover, inspections shall be conducted every 30 days and exclude precipitation or melt event response. Inspections will continue until all reclaimed areas have achieved a cover of 70% the pre-construction reference vegetation (i.e. final stabilization).

Findings, inspection records and site maps are documented electronically and available within 24 hours of any inspection. All inspection records are stored for a minimum of three years after the location has achieved final stabilization.

### **10.2 Maintenance**

For maintenance items discovered at active construction locations, action and documentation towards completing repairs identified at the time of inspection, shall be made within 24 hours of discovery.

Maintenance items discovered post-construction will be documented and coordinate with production personnel.

Timeline for completion of maintenance items are a priority and will depend on scope; but in all cases, shall not be completed until field conditions allow for safe access, and utility clearance has been confirmed for actions requiring ground disturbance / earthwork.

## **11.0 SUMMARY OF SITE-SPECIFIC STORMWATER, EROSION & SEDIMENT CONTROLS / BMPs FOR CONSTRUCTION, DRILLING & COMPLETIONS PHASES**

- 11.1** Stormwater will be managed during construction by a combination of site-specific erosion and sediment control measures including:
- 11.1.1** Delineation of limits of construction to establish a work space.
  - 11.1.2** A Vehicle Tracking Control (VTC) placed along the eastern portion of the access road to the location to mitigate off-site sediment migration from vehicle traffic onto Weld County Road 35, approximately 0.13 miles east of the location.
  - 11.1.3** A Temporary Diversion Ditch & Berm (DD) around the entire location to manage run-on and run-off. A berm will be installed on the northern and eastern perimeter of the location.
  - 11.1.4** Temporary Spillways and Outlet (SW/O) structures placed in the northern, eastern southern and western portions of the disturbance area ditch and the northeastern portion of the location berm, which will allow for settling of sediment from stormwater prior to discharge.
  - 11.1.5** Approximately 1 temporary Culvert (C) with inlet and outlet protection will be installed in the primary well pad access point to direct stormwater to designated discharge structures.
  - 11.1.6** Seed & Mulch (SM) to stabilize areas no longer needed for construction, as well as for topsoil stockpiles which will remain in place until interim and final reclamation.
  - 11.1.7** During active construction, daily inspections will be completed by on-site personnel. A contractor will conduct stormwater compliance inspections every 14-days and/or following a rain event which produces 0.25" of precipitation or equivalent snow melt which causes surface erosion.
  - 11.1.8** Inspections will review all control measures / BMPs implemented, their status, and whether repair or replacement is needed.
  - 11.1.9** Maintenance and repair will be completed as soon as practicable, immediately in most cases.

**APPENDIX A**

**CDPS STORMWATER GENERAL PERMIT CERTIFICATION**



**COLORADO**

Department of Public  
Health & Environment

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

Certification Number: **COR402543**

**This Certification to Discharge specifically authorizes:**

**Owner Kerr McGee Oil and Gas Onshore LP  
Operator Kerr McGee Oil and Gas Onshore LP  
to discharge stormwater from the facility identified as**

**Kerr Area 4**

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

**South Platte River**

**Facility Activity :** OilGas  
**Disturbed Acres:** 376.6 acres  
**Facility Located at:** See Map in File Greeley 80651  
Weld County  
Latitude 40.01 Longitude -104.596

**Specific Information  
(if applicable):**

**Certification is issued and effective:** 4/1/2024

**Expiration date of general permit:** 3/31/2029

This certification under the general 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 COR400000 permit.

This certification was approved by:  
Andrew Sayers-Fay Permits Section Manager  
Clean Water Program  
Water Quality Control Division



**APPENDIX B**  
**GRADING PLANS**

# GLADE LAYOUT DRAWINGS

## SITE QUANTITIES

TOTAL CUT FOR SITE	14,927	CY
TOTAL FILL FOR SITE	14,865	CY
NET EXCESS MATERIAL	62	CY
TOPSOIL (6" DEPTH)	7,576	CY
DEEP GEOTHERMAL LOCATION AREA	13.0	ACRES
WORKING PAD SURFACE AREA	6.3	ACRES
ACCESS ROAD DISTURBANCE AREA	0.7	ACRES



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

PREPARED FOR:



OXY USA INC  
1099 18TH STREET  
DENVER, CO 80202  
(720) 929-6000

SHEET NAME:

CONSTRUCTION LAYOUT  
SURFACE LOCATION  
NE 1/4 SE 1/4 SECTION 2,  
T3N, R66W, 6TH P.M.,  
WELD COUNTY, COLORADO

REV.	DESCRIPTION	BY	DATE
0	ISSUED FOR PERMIT	AS	1/19/24
1	ISSUED FOR PERMIT	AS	1/30/24

REV.	DESCRIPTION	BY	DATE
0	ISSUED FOR PERMIT	AS	1/19/24
1	ISSUED FOR PERMIT	AS	1/30/24

DRAWING DATE: 1/19/24  
DRAFTED BY: AS  
SHEET NO. 01 OF 04

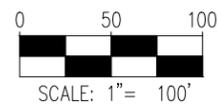
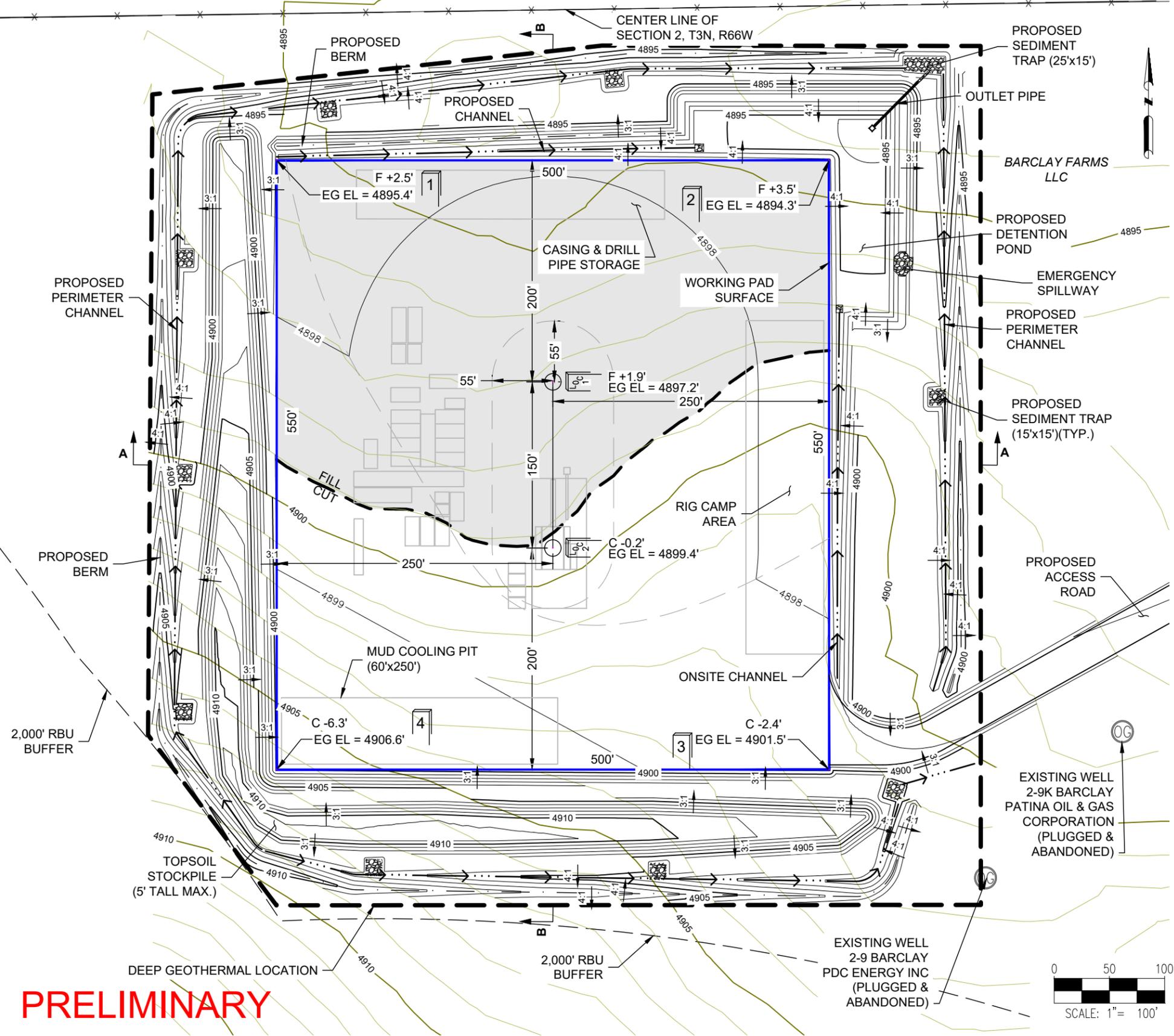
GLADE NORTH GLADE SOUTH

- LEGEND:**
- 5280 EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - 5280 PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - CENTER-SECTION LINE
  - DEEP GEOTHERMAL LOCATION AREA
  - PROPERTY LINE
  - WORKING PAD SURFACE
  - PROPOSED CHANNEL
  - PROPOSED GRADE BREAK
  - PROPOSED BERM
  - EXISTING FENCE
  - EXISTING OIL & GAS WELL
  - PROPOSED GEOTHERMAL WELL
  - DRILLING EQUIPMENT
  - EXISTING GRAVEL ROAD
  - RIP RAP

DATA SOURCE:  
DEEP GEOTHERMAL WELLS: ECMC  
EXISTING OIL & GAS WELLS: ECMC

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.



**PRELIMINARY**

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