



GARNET 21-K PAD INTERIM RECLAMATION PLAN – NON-CROPLAND

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Article I. Introduction

Location Information

This document provides site-specific information for the Garnet 21-K Pad Form 2A as the Garnet 21-K Pad OGDP. The information in this document relates specifically to the time during the construction, drilling, and completion, and production of the twenty-four (24) proposed horizontal wells on this location.

The proposed location is rangeland located North of WCR 78 between WCR 29 and WCR 31 using an existing access onto WCR 78. The Pad will be in NWSE Section 21, Township 7 North, Range 66 West zoned AG within Weld County's Near-Urban Planning Area. A 1041 WOGLA was filed as 1041WOGLA20-0093 on 2/18/2021 and approved at hearing on 4/23/2021.

The proposed Pad will be approximately 13 acres, reduced to 6 acres after interim reclamation. The working pad surface will be 9.2 acres. The Pad is on Parcel 070721000040 owned by the City of Thornton. The location is currently used for farming.

The proposed production facility equipment for the Garnet 21-K Pad will be located within the Working Pad Surface adjacent to the wells and will consist of oil tanks, water tanks, multi-use tanks, separators, meters, Instrument Air System, enclosed combustion devices (ECD), gas compressors, Gas Lift, LACT Units, Scrubbers, Sumps, Water Transfer Skid, and proposed electrical and/or solar equipment.

Phase	Duration (days)	Estimated Start Date
Construction	30	3 rd Quarter (August) 2022
Drilling	150	3 rd Quarter (September) 2022
Completion	180	1 st Quarter (February) 2023
Flowback	60	3 rd Quarter (August) 2023
Production	25 Years	4 th Quarter (October) 2023
Interim Reclamation	10	1 st Quarter (January) 2024*

**or the first favorable growing season.*

Article II. Site Specific Details

Vegetation

Location is in rangeland.
 No weeds were present at time of onsite survey.

Soils

Total area of soil disturbance in acres including accesses, pipeline/utility corridors: approximately 15.3 acres.

Soil type(s): Aquolls and Aquepts, flooded, Otero sandy loam, 1 to 3 percent slopes, and Kim loam, 1 to 3 percent slopes

Additional soil details can be found excerpted attachment also submitted as the Preliminary Drainage Report as part of the approved Local Government Permit attached to the Form 2A.

Security

A meeting with the surface owner will occur after completions but before interim reclamation to determine a fencing plan if needed. The location will be adequately secured per 603.h to restrict access by unauthorized persons in accordance with the surface owner's requests.

Article III. Mitigation Measures and Best Management Practices

1003.a. General

When wells are completed for production, all disturbed areas no longer needed will be restored and revegetated as soon as practicable.

All well sites and surface production facilities shall be maintained in accordance with Rule 603.

Equipment, Weeds, Waste, and Trash: Maintain appearance with garbage clean-up; a trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately when the trash bin is full. Operator shall keep the Surface Use Area as well as any roads or other areas used by Operator safe and in good order, including control of weeds litter and debris per Rule 606.

All E&P waste shall be handled according to the 900 Series rules.

All guy line anchors shall be brightly marked pursuant to Rule 603.j.

1003.b. Areas no Longer in Use

All disturbed areas affected by drilling or subsequent operations, except areas reasonably needed for production operations or for subsequent drilling operations to be commenced within twelve (12) months, will be reclaimed as early and as nearly as practicable to their original condition or their final land use as designated by the surface owner and will be maintained to control dust and minimize erosion. If subsidence occurs in such areas, additional topsoil will be added to the depression and the land will be re-leveled as close to its original contour as practicable.

1003.c. Compaction Alleviation.

All areas compacted by drilling and subsequent oil and gas operations which are no longer needed following completion of such operations will be cross-ripped during interim reclamation prior to seeding. Compaction alleviation operations will be undertaken when the soil moisture at the time of ripping is below thirty-five percent (35%) of field capacity. Ripping will be undertaken to a depth of eighteen (18) inches unless bed rock is encountered at a shallower depth.

1003.d. Drilling pit closure

Location is closed loop. No pits on location, so no pit closure will be needed.

1003.e. Restoration and revegetation

All segregated soil horizons removed from crop lands will be replaced to their original relative positions and contour and will be tilled adequately to re-establish a proper seedbed and treated as needed for erosion control and invasive species prevention. Any perennial forage crops that were present before disturbance will be re-established.

Operator will be responsible for segregating the topsoil, backfilling, re-compacting any backfill, reseeding, and re-contouring the surface of any disturbed area so as not to interfere with Owner's operations and will reclaim such area to be returned to preexisting conditions as best as possible with control of all weeds.

Any areas reclaimed that will not be returned to farming operations will be planted with the recommended Weld County seed mix.

1003.f. Weed control

During drilling, production, and reclamation operations, all disturbed areas shall be kept as free of all undesirable plant species designated to be noxious weeds as practicable. Operator or contractor will conduct daily visual inspections for weeds.

Interim Reclamation Completion Notice

Bayswater will submit a Form 4 Sundry Notice describe reclamation procedures, associated mitigation measures, changes to final land use, and the total cover of live perennial vegetation to evaluate the success of interim reclamation.

Article IV. Site Specific Interim Reclamation Best Management Practices (BMPs)

- Restore the land surface as nearly as practicable to its original condition or final use as designated by the surface owner.
- Commence Interim reclamation within three (3) months of completion of drilling and subsequent operations.
- Re-establish existing vegetation and topography that were present before disturbance.
- Remove road base pad material that was imported for the drilling and completion phase where a greater footprint was necessary.
- Re-contoured to natural grade as indicated in the grading plan, native topsoil previously segregated during pad construction will be spread over the reclaim areas(s) and compaction will be alleviated utilizing machinery equipped with agronomic rippers.
- Remove segregated soil horizons from crop lands and replace to their original relative positions.
- Conduct grading in a manner that promotes proper drainage by limiting stormwater velocity and inhibiting water from pooling in low spots.
- Further de-compact the reclaim areas with a minimum of two passes with the agronomic rippers at perpendicular directions, which will promote healthy and deep root development.
- Stage additional segregated topsoil around the pad area in low angle berms as indicated in the Reclamation Layout portion of the Site Grading Plan.

- Seed the berm areas to protect the topsoil for erosion and degradation. Additional seedbed preparation will be accomplished by discing the reclaim areas to promote infiltration of stormwater.
- Seed all reclaimed areas utilizing a seed mix that is agreed upon by the landowner and/or tenant farmer.
- Seed using a drill seeder equipped to sow seeds at a specific rate and depth to best suit the site-specific seed mix that is selected.
- Apply straw mulch and crimp into the topsoil to stabilize the soil, reduce sediment runoff, and promote moisture retention which will help with germination.
- If possible, seed within an ideal seeding window, after September 30th for late fall dormant seeding (preferred) and from spring thaw to June 1, for spring seeding.
- If reclamation is completed outside of the ideal seeding season, possibly add a cover crop the seed mix to provide quick vegetation establishment and more immediate ground cover and protection.
- Should initial seeding be unsuccessful, have a topsoil assessment conducted by an independent third-party contractor to identify soil characteristics. Based on the findings of the topsoil assessment, utilize amendments to help balance nutrient levels and establish desirable vegetation.
- Inspect the location for noxious and undesirable weeds. If necessary, implement an integrated weed management plan to eradicate problematic species. The integrated weed management plan would consist of frequent monitoring, mowing, and application of a broad leaf weed killed.
- Conduct surface owner meeting after completions but before interim reclamation to determine a fencing plan if needed.

Article V. Exhibits/References/Appendices

Excerpts from Preliminary Drainage Report from **Local/Fed Final Permit Decision**
Interim Reclamation Sheet from **Layout Drawing**
List of Weld County Recommended Seed Mixes

APPENDIX G – GEOTECHNICAL SOIL REPORT / SOILS MAP

Geotechnical Engineering Report

Bayswater Garnet Site ■ Weld County, Colorado

July 15, 2020 ■ Terracon Project No. 21205028



calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description	Approximate Depth to Bottom of Stratum
1	Sand	Silty sand, light brown, loose, trace gravel	About 4 to 5½ feet below existing site grades.
2	Clayey Sand	Clayey sand with varying amounts of silt, tan to light brown to brown, very loose to loose	About 8½ to 16½ feet below existing site grades.
3	Lean Clay	Lean clay with varying amounts of sand, tan to light brown to dark brown with white tints, soft to stiff	About 9 feet below existing site grades.
4	Bedrock	Weathered claystone bedrock, orange brown to tan to gray brown and gray, weathered to firm, trace FeOx	Encountered in most of the borings performed to the maximum depth of exploration of about 20 feet.

As noted in **General Comments**, this characterization is based upon widely spaced exploration points across the site and variations are likely.

Hydrologic Soil Group

The hydrologic soil group for the proposed Bayswater Garnet site is based on the saturated hydraulic conductivity of the least transmissive layer, depth to water impermeable layer (if any), and the depth to water table in accordance with Chapter 7 of the 2007 United States Department of Agriculture "Part 630 Hydrology National Engineering Handbook" and based on subsurface conditions encountered at the site and laboratory test results. The least transmissive layer was identified from our exploratory borings and used to approximate the saturated hydraulic conductivity by interpolated from typical soil parameters. Based on the soil/bedrock properties encountered at the site and as described on the exploration logs and results, it is our professional opinion that the **Hydrologic Soil Group is C**. Subsurface explorations at this site were extended to a maximum depth of 20½ feet.

Groundwater Conditions

The boreholes were observed while drilling for the presence and level of groundwater. In addition, delayed water levels were also obtained in some borings. Delayed groundwater measurements were not obtained in Boring No. 4 due to its location in the drive area and needing to be backfilled after

Responsive ■ Resourceful ■ Reliable





Hydrologic Soil Group—Weld County, Colorado, Southern Part
 (Garnet 21-K Production Phase Offsite Basin)

MAP LEGEND		MAP INFORMATION
<p>Area of Interest (AOI)</p> <p> Area of Interest (AOI)</p> <p>Soils</p> <p>Soil Rating Polygons</p> <p> A</p> <p> A/D</p> <p> B</p> <p> B/D</p> <p> C</p> <p> C/D</p> <p> D</p> <p> Not rated or not available</p> <p>Soil Rating Lines</p> <p> A</p> <p> A/D</p> <p> B</p> <p> B/D</p> <p> C</p> <p> C/D</p> <p> D</p> <p> Not rated or not available</p> <p>Soil Rating Points</p> <p> A</p> <p> A/D</p> <p> B</p> <p> B/D</p>	<p> C</p> <p> C/D</p> <p> D</p> <p> Not rated or not available</p> <p>Water Features</p> <p> Streams and Canals</p> <p>Transportation</p> <p> Rails</p> <p> Interstate Highways</p> <p> US Routes</p> <p> Major Roads</p> <p> Local Roads</p> <p>Background</p> <p> Aerial Photography</p>	<p>The soil surveys that comprise your AOI were mapped at 1:24,000.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Warning: Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p> </div> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Weld County, Colorado, Southern Part Survey Area Data: Version 19, Jun 5, 2020</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Jul 19, 2018—Aug 10, 2018</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
4	Aquolls and Aquepts, flooded	D	1.1	20.0%
51	Otero sandy loam, 1 to 3 percent slopes	A	4.4	80.0%
Totals for Area of Interest			5.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

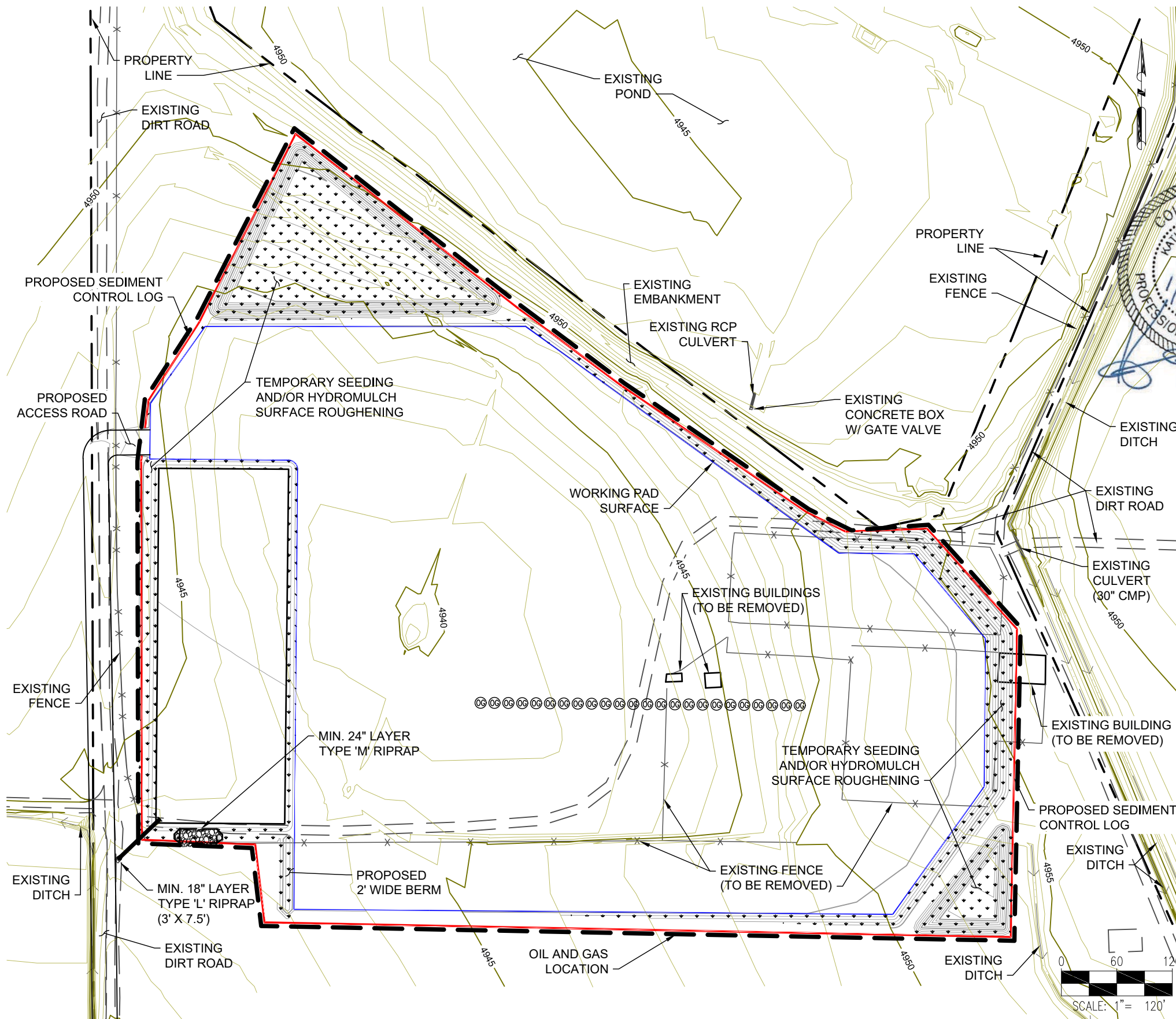
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

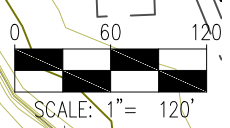
Aggregation Method: Dominant Condition

GARNET 21-K PAD GRADING PLAN



NOTES:
 1. 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.

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.



ASCENT
GEOMATICS SOLUTIONS

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PREPARED FOR:

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 DENVER, CO 80202
 (303) 893-2503

SHEET NAME:
 EROSION & SEDIMENT CONTROL PLAN - INTERIM

SURFACE LOCATION:
 GARNET 21-K PAD
 NW 1/4 SE 1/4 SECTION 21,
 T7N, R66W, 6TH P.M.,
 WELD COUNTY, COLORADO

REV.	DATE	DESCRIPTION	INT.
0	10/12/21	ISSUED FOR CONSTRUCTION	AMS
1	1/18/22	ISSUED FOR CONSTRUCTION	AMS

FIELD DATE:
 04-29-2020

DRAWING DATE:
 10-12-2021

DRAFTED BY:
 AMS

SHEET NO.
 11 OF 16

General Seed Mixes for Weld County

Sandy Site Mix

Sand Bluestem	(Champ, Chet)	1.00 lbs pls/acre
Sand Lovegrass	(Bend, Native, Ne27)	2.50 lbs pls/acre
Indian Ricegrass	(Nezpar, Rimrock)	3.00 lbs pls/acre
Prairie Sandreed	(Goshen)	0.75 lbs pls/acre
Green Needlegrass	(Lodorm)	1.50 lbs pls/acre
Little bluestem	(Blaze, Cimarron, Camper)	0.75 lbs pls/acre
Yellow Indiangrass	(Cheyenne, Holt, Scout)	0.50 lbs pls/acre
Switchgrass	(Blackwell, Nebraska 28)	1.50 lbs pls/acre
Sand Dropseed		<u>0.50 lbs pls/acre</u>

Total: 12.00 pounds pls/acre

Wetter Site Mix

Western wheatgrass	(Arriba, Barton, Rosana)	3.00 lbs pls/acre
Slender wheatgrass	(Pryor, San Luis)	2.00 lbs pls/acre
Alkaligrass	(Fults II, Salt on Sea)	2.50 lbs pls/acre
Streambank Wheatgrass	(Sodar)	2.50 lbs pls/acre
Switchgrass	(Nebraska 28, Blackwell)	1.75 lbs pls/acre
Green Needlegrass	(Lodorm)	0.50 lbs pls/acre
Sideoats Grama	(Butte, El Reno, Pierre)	1.00 lbs pls/acre
Perennial Ryegrass	(Calibra or Garibaldi tetraploid)	0.50 lbs pls/acre
Sand Dropseed		<u>0.25 lbs pls/acre</u>

Total: 14.00 pounds pls/acre

Areas North of County Road 68 Mix

Buffalo Grass (Texoka, Sharps Improved)	1.5 lbs pls/acre
Little Bluestem (Blaze, Cimarron, Camper)	1.5 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2 lbs pls/acre
Blue Grama (Hachital, Lovington)	3.5 lbs pls/acre
Western wheatgrass (Arriba, Barton, Rosana)	3 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	1.5 lbs pls/acre
Perennial Ryegrass (Calibra or Garibaldi tetraploid)	0.75 lbs pls/acre
Sand dropseed	<u>0.25 lbs pls/acre</u>

Total: 14.00 pounds pls/acre

Areas South of County Road 68 Mix

Western Wheatgrass (Arriba, Barton, Rosana)	2.50 lbs pls/acre
Blue Grama (Hachital, Lovington)	1.50 lbs pls/acre
Sideoats Grama (Vaughn, Butte, Niner, El Reno, Haskell)	2.25 lbs pls/acre
Smooth Brome (Lincoln, Manchar)	2.00 lbs pls/acre
Sand dropseed	0.25 lbs pls/acre
Perennial Ryegrass (Calibra or Garibaldi tetraploid)	0.75 lbs pls/acre
Slender Wheatgrass (Pryor, Revenue or San Luis)	2.50 lbs pls/acre
Alkaligrass (Fulfs II, Salt on Sea)	1.25 lbs pls/acre
Switchgrass (Nebraska 28, Blackwell)	<u>1.00 lbs pls/acre</u>

Total: 14.00 pound pls/acre