DELTA COUNTY PLANNING COMMISSION

Delta County Board of County Commissioner's Room
560 Dodge St., Delta, CO 81416
Wednesday, March 9, 2022 @ 5:30 p.m.

Tom Kay, Chair
Tate Locke, Vice-Chair
Carl Holm, Director

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Instructions for Public Participation via Zoom:
The public can join the meeting remotely by registering in advance of the meeting at:
https://us02web.zoom.us/meeting/register/tZUsd-qprDIoG9R-tqe6-Mwj0Dd64-_Xbmm4
After registering, you will receive a confirmation email containing information about joining the meeting.

REGULAR AGENDA

5:30 P.M. – **CALL TO ORDER**

ROLL CALL

DISTRICT 1	DISTRICT 2	DISTRICT 3
Cindy Watson	Layne Brones	Jacob Gray
Steve Schrock	Tate Locke, Vice Chair	Tom Kay, Chair
Steve Shea	Hardy Hutto	Kate Darlington
Michelle Roberts, Associate	Vacant, Associate	David Marek, Associate

A. PUBLIC COMMENTS

This is time set aside for the public to comment on matters not on the agenda. The Chair may set a time limit for speakers.

B. AGENDA ADDITIONS, DELETIONS, AND CORRECTIONS

The Planning Commission Secretary will announce if there are any changes to the agenda that arose after posting of the agenda.

C. SCHEDULED ITEMS

1. **Meeting Minutes**
   a. February 23, 2022

   RECOMMENDATION: Approve the action minutes as presented

CERTIFICATION OF POSTING
On March 2, 2022 at 3:00 PM, Kim Henderson did post the above AGENDA as public notice of the March 9, 2022 meeting. The official notice is placed on the front entrance of the Delta County Courthouse located at 501 Palmer, Delta, Colorado and a courtesy copy is sent to the Delta County website at www.deltacounty.com.

2. PLN22-002/Black Hills Energy

Consider a Limited Use Permit for three (3) Temporary Staging sites relative to a gas pipeline project from Collbran to Reed Junction (Phase A), including grading and storage of materials:
Site #1; U Road/Highway 65, 2.25 miles north of Cedaredge (Parcel 319305300046/Mingus/A-20 Zone)
Site #2; SW 11th Ave/Happy Hollow Road, 0.75 miles west of Cedaredge (Parcel 319330300037/Malmgren/A-20 Zone)
Site #3; North Road/Harts Basin Road, adjacent to the Town of Eckert (Parcel 323905100001/Grand Headwaters/A-35 Zone)
RECOMMENDATION: Staff recommends that the Planning Commission recommend that the Board of County Commissioners:

a. Find that PLN22-002/Black Hills Energy complies with the Land Use Code for Limited Use Permits; and
b. Approve PLN22-002A, Limited Use Permit for temporary outdoor storage facilities located on the north side of U Road west of Highway 65 (23253 U Road), approximately 2.25 miles north of Cedaredge (Parcel 319305300046/Mingus/A-20 Zone).
c. Approve PLN22-002B, Limited Use Permit for temporary outdoor storage facilities located on the north side of SW 11th Avenue east of Happy Hollow Road (16408 Happy Hollow Road), approximately 0.75 miles west of Cedaredge (Parcel 319330300037/Malmgren/A-20 Zone).
d. Approve PLN22-002C, Limited Use Permit for temporary outdoor storage facilities located on the north side of North Road where it intersects with Harts Basin Road, adjacent to the Town of Eckert (Parcel 323905100001/ Grand Headwaters/A-35 Zone).
e. Consider approval subject to conditions recommended by staff.

D. COMMISSIONER COMMENTS, REQUESTS AND REFERRALS

This is time set aside for the Commission to comment, request, or refer a matter that is not on the agenda for future consideration.

E. DEPARTMENT REPORT

This is time set aside for the Director to report on matters affecting the Department.

ADJOURNMENT

Next Meeting: Wednesday, March 23, 2022 at 5:30 pm, Delta County Administration Building, 560 Dodge St, Delta, CO

CERTIFICATION OF POSTING

On March 2, 2022 at 3:00 PM, Kim Henderson did post the above AGENDA as public notice of the March 9, 2022 meeting. The official notice is placed on the front entrance of the Delta County Courthouse located at 501 Palmer, Delta, Colorado and a courtesy copy is sent to the Delta County website at www.deltacounty.com.

DELTA COUNTY
PLANNING & COMMUNITY DEVELOPMENT

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DELTA COUNTY PLANNING COMMISSION MEETING MINUTES
DELTA COUNTY BOARD OF COUNTY COMMISSIONER'S ROOM
560 DODGE ST., DELTA, CO 81416
February 23, 2022

Chair Tom Kay called the meeting to order at 5:30 p.m. in the Delta County Board of County Commissioner's Meeting Room.

ROLL CALL

Planning Commission Members in Attendance:
Tom Kay
Steve Schrock
Cindy Watson
David Marek (Associate)
Michelle Roberts (Associate)
Hardy Hutto
Kate Darlington

Absent Members:
Tate Locke
Steve Shea
Jacob Gray
Layne Brones

With member(s) absent from District 1, Michelle Roberts is a voting member.

Staff in Attendance:
Delta County Community Development & Natural Resource Director, Carl Holm
Delta County Community Development Planner I, Kate Kelly
Delta County Community Development Planner I, Angie Kemp
Delta County Planning & Community Development Administrative Assistant, Kim Henderson
Delta County Administrator, Robbie LeValley

PUBLIC COMMENT
None

AGENDA ADDITIONS, DELETION, AND CORRECTIONS
None

SCHEDULED ITEMS

Item #1: Meeting Minutes
a. February 9, 2022
RECOMMENDATION: Approve the action minutes as presented

Motion: Michelle Roberts moved to approve the action minutes as presented.
Second: Cindy Watson seconded the motion.

Action: Motion carried unanimously

5:32pm Commissioner Jacob Gray joined the meeting via Zoom.

Commissioner Hardy Hutto has recused himself from discussion and voting on the PLN21-001/Miller (Alliance Ready Mix) application.

Item #2: PLN21-001/Miller (Alliance Ready Mix)
Continued from October 27, 2021. Consider a Conditional Use Permit (CUP) to operate a Mobile Concrete Batch Plant in the A-5 zone.
RECOMMENDATION: Recommend that the Board of County Commissioners:
a. Find that PLN21-001 complies with the Land Use Code; and
b. Approve PLN21-001, a Conditional Use Permit for a Mobile Concrete Batch Plat at 19337 F Road, Delta (Parcel:345522300015), subject to conditions.

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Motion: Steve Schrock moved to recommend that the BoCC approve PLN21-001 with staff recommendations plus the following findings and conditions:

- Findings
  a. The parcel is not prime Ag land
  b. Industrial uses exist across F Road at 1900 Road
- Conditions:
  a. The Conditional Use Permit be renewed/re-evaluated in 4 years
  b. The applicant provides a Road Maintenance Bond in the amount of $10,000 for F Rd to 1900 Rd to D Rd to Hwy 50 for 5 years and pay 50% of any road impacts that would be caused on that route within the 5-year time period.

Second: Jacob Gray seconded the motion.

Amendment: Through discussion the motion was amended for a bond in the amount of $20,000

Action: Ayes: Kate Darlington, Steve Schrock, Jacob Gray
Nays: Michelle Roberts, Cindy Watson
Absent: Tate Locke, Layne Brones, Steve Shea
Hardy Hutto recused himself from voting due to a potential conflict of interest.

Chair Kay inquired about what happens in a tie vote. Director Holm advised that a tie vote is essentially a "no vote", meaning no recommendation. Under Robert's Rules the Chair can either break a tie or create a tie. Director Holm recommended that when there is a tie vote that the Commission either try to find a solution (motion) that can get a majority vote, or continue the matter until there is a full Commission present to try to break the tie (if possible) in order to forward a recommendation to the Board of County Commissioners.

Substitute Motion: Kate Darlington moved to amend the original motion by adding a condition requiring the applicant to prepare a Level 3 Traffic Study that can inform the bond amount.

Second: Cindy Watson seconded the motion.

Action: Ayes: Kate Darlington, Steve Schrock, Cindy Watson, Jacob Gray
Nays: Michelle Roberts
Absent: Tate Locke, Layne Brones, Steve Shea
Chair Tom Kay did not vote
Hardy Hutto recused himself from voting due to a potential conflict of interest.
Action carried 4-1

Item #3: PLN21-039/TDS Telecommunication
Continued from February 9, 2002. Consider options for a Conditional Use Permit to install a 60-foot-tall wireless facility in the County Right-of-Way adjacent to 38590 Stucker Mesa Road (Parcel: 3443-023-00-055).
RECOMMENDATIONS: Recommend that the Board of County Commissioners:

a. Table the Stucker Mesa portion of the application (PLN21-039) to pursue Administrative Review of the DMEA co-location design; and
b. Consider draft Resolution for PLN21-039.

Motion: Kate Darlington moved to approve the Resolution for PLN21-039 as presented by staff.

Second: Cindy Watson seconded the motion.

Action: Motion carried unanimously

COMMISSIONER COMMENTS, REQUESTS AND REFERRALS
None

DEPARTMENT REPORT
None

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ADJOURNMENT

The next meeting will be held on March 9, 2022 at 5:30pm in the Delta County Administration Building, Delta, CO.

Meeting adjourned at 8:31 p.m.

Respectfully submitted by:
Administrative Assistant, Kim Henderson

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STAFF REPORT

Delta County Planning Commission

Delta County Administrative Building
560 Dodge Street, Delta, CO 81416

Wednesday, March 9, 2021 @ 5:30 p.m.

PLN22-002/Black Hills Energy

Consider a Limited Use Permit for three (3) Temporary Staging sites relative to a gas pipeline project from Collbran to Reed Junction (Phase A), including grading and storage of materials:

- ***Site #1*; U Rd/Highway 65, 2.25 miles north of Cedaredge (Parcel 319305300046/Mingus/A-20 Zone)**
- ***Site #2*; SW 11th Ave/Happy Hollow Rd, 0.75 miles west of Cedaredge (Parcel 319330300037/Malmgren/A-20 Zone)**
- ***Site #3;* North Rd/Harts Basin Rd, adjacent to the Town of Eckert (Parcel 323905100001/Grand Headwaters/A-35 Zone)**

RECOMMENDATION:
Staff recommends that the Planning Commission recommend that the Board of County Commissioners:

a. Find that PLN22-002/Black Hills Energy complies with the Land Use Code for Limited Use Permits; and
b. Approve PLN22-002, Limited Use Permit for temporary outdoor storage facilities located on the north side of U Road west of Highway 65 (23253 U Road), approximately 2.25 miles north of Cedaredge (Parcel 319305300046/Mingus/A-20 Zone).
c. Approve PLN22-002, Limited Use Permit for temporary outdoor storage facilities located on the north side of SW 11th Avenue east of Happy Hollow Road (16408 Happy Hollow Road), approximately 0.75 miles west of Cedaredge (Parcel 319330300037/Malmgren/A-20 Zone).

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d. Approve PLN22-002, Limited Use Permit for temporary outdoor storage facilities located on the north side of North Road where it intersects with Harts Basin Road, adjacent to the Town of Eckert (Parcel 323905100001/ Grand Headwaters/A-35 Zone).
e. Consider approval subject to conditions recommended by staff.

SUMMARY:

Rocky Mountain Natural Gas LLC (dba Black Hills Energy) has provided plans for replacing gas pipeline from Collbran to Reed Junction (Phase A). They have entered into agreements with three (3) property owners along the route to use as staging areas during construction:

1) Site #1; Parcel 319305300046/Mingus (23253 U Road);
2) Site #2; Parcel 319330300037/Malmgren (16408 Happy Hollow Road); and
3) Site #3; Parcel 323905100001/Grand Headwaters (North Road).

Each staging area will require 1 to 2 weeks of construction to grade the areas and prepare the staging areas for materials. The pipeline project is anticipated to begin April 2022 and conclude between April and October of 2024.

Two of the properties have been zoned Agricultural 20 acres (A-20) per the Land Use Code (Sites #1 and #2). The third property off of Harts Basin Rd is zoned Agricultural 35 acres (A-35). Staff determined that this use would fall under the Retail Medium Industrial land use classification due to the operation (at least for a short period of time). As such, it is subject to a land use permit as a Limited Use (public notice required).

Limited Use is subject to Administrative Review. However, initial work on the U Road site created a disturbance where neighbors filed multiple complaints. The other two sites have not received complaints, but work was not started at those locations. The Director is referring these permits to public hearing review by the Planning Commission as well as the Board of County Commissioners.

Utilities and access are subject to County Right-of-Way permits. Utility and access work occurring in rights-of-way are not subject to a land use permit, so Black Hills has been working on these permits separately. Access has been completed and approved by County Road & Bridge. Staff questioned truck routes through neighborhoods/towns.

The amount of grading and proximity to waterways (e.g., Happy Hollow Creek) requires Stormwater permits from the State Department of Public Health and Environment (CDPHE). Black Hills has obtained the necessary approvals/permits for this work pending determination on the land use permits.

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DISCUSSION:

BACKGROUND

On December 14, 2021, staff started receiving complaints about work occurring at the corner of U Road and State Highway 65. County Code Compliance Officer investigated and found Black Hills Energy preparing the site using a new access from U Road.

Based on initial communication with the foreman on-site, it was determined that work commenced prior to having proper permits in place (land use, stormwater) so a Stop Work Order was issued. Black Hills management responded immediately with providing information about the on-site work.

Upon further investigation, it was determined that Black Hills Energy received approval from County Road & Bridge for this access as well as an access for a second property off SW 11th near Happy Hollow Road. However, Staff determined that this use would fall under the Retail Medium Industrial land use classification due to the operation, and having some more intensive work at the beginning of the project. As such, it is subject to a land use permit as a Limited Use (public notice required).

Staff met with the applicants as part of a pre-application conference on January 13, 2022. Black Hills provided details about the larger pipeline project as well as the on-site specific conditions for three staging sites:

Site #1: 23253 U Road, Cedaredge

Parcel 319305300046/Mingus

This is a 14-acre parcel located at the northwest corner of U Road and State Highway 65. There is an existing residence with a permitted access from U Road (23253 U Road). CDOT issued a temporary permit for limited access from Hwy 65 for construction in 2017, which has concluded, but aerial photography indicated that access was still being taken along the Highway (CDOT issue). Staff confirmed with CDOT that the access was in fact for temporary access for construction and the access was supposed to be closed and removed back in 2004 when the temporary permit expired (11/01/2004). CDOT also confirmed that no access would be allowed from Highway 65 for this project and that access off U Road (County Road) would be required. Resorts are located across U Road to the south and across Highway 65 to the east. A CDOT maintenance facility is located north of the property. Residential/Ag uses exist to the west.

Temporary staging (outdoor storage) for equipment and materials would take place on about 2.50-acres of a 14-acre parcel. The property has frontage on Highway 65, but no access would occur along the highway. A new access off of U Road was approved by County Road & Bridge and initial grading work commenced prior to obtaining permits.

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There would be a 6-foot chain link fence to secure materials as well as the visual aspect. Silt fencing around the site would be used to help mitigate dust. A stormwater permit (Permit COR415142) has been issued by CDPHE. The staging area for this location will be restored, including removal of the chain link fence, when the project has been completed.

Site #2: 16408 Happy Hollow Road, Cedaredge
Parcel 319330300037/Malmgren
This is a 13.23-acre parcel located at the northeast corner of Happy Hollow Road and SW 11th Avenue. The property is surrounded by Residential/Ag uses, including Stoney Mesa Winery located south and west off the property (across Happy Hollow Road).

An existing residence takes access from Happy Hollow Road, north of SW 11th Ave (16408 Happy Hollow Road). A new access off of SW 11th Ave was approved by County Road & Bridge, but no other work has commenced at this site.

Black Hills would be using (leasing) about 1.2-acres as a staging area for equipment and materials. In addition, they intend to place a temporary office trailer at this location. Access for this site would be off of SW 11th Ave. The staging area for this site will be left as is as the property owner intends to use the area for personal storage (contractor equipment).

There would be a 6-foot chain link fence to secure materials as well as the visual aspect. Silt fencing around the site would be used to help mitigate dust. A stormwater permit (Permit COR415142) has been issued by CDPHE. The staging area for this location will be restored, including removal of the chain link fence, when the project has been completed.

Site #3: Corner of North Road and Harts Basin Rd., Eckert
Parcel #323905100001/Grand Headwaters
This is a 1,395-acre parcel located generally north of North Road north/east of Orchard City (Eckert). Harts Basin Road runs through the property, and the property is entirely in Agriculture. Larger agricultural properties within the Town of Orchard City (Eckert) are located immediately across North Road to the south, and to the west. Fruitgrowers Reservoir is located a short distance east of the staging site.

Black Hills would be using (leasing) about 1.684-acres as a staging area for equipment and materials. This would be located on a portion of the site that is not irrigated/farmed, generally north of North Road and east of Harts Basin Road.

There would be a 6-foot chain link fence to secure materials as well as the visual aspect. Silt fencing around the site would be used to help mitigate dust. A stormwater permit (Permit COR415142) has been issued by CDPHE. The

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staging area for this location will be restored, including removal of the chain link fence, when the project has been completed.

At the pre-application conference staff primarily discussed/questioned site improvements (stormwater) as well as truck routes with the applicants. Staff also investigated if the permit was temporary with restoration, or if the owner intended to continue some sort of use of the area Black Hills was leasing. An Application Packet (all three sites) for all three sites was completed February 22, 2022. This packet includes plans for the larger pipeline as well as each staging site (**Attached**).

LAND USE CODE
Chapters 3-6 of the LUC establish standards to assess with this type of development application. Issues to consider for this type of use include parking, noise, dust, runoff/drainage, traffic, geology, water, and Ag lands.

Parking: Chapter 4, Section 3.B Table 4.a, ***Parking Ratio Guidelines and Surfacing Standards***; Rural Medium Industry requires one (1) parking space for every 1,000 square feet of gross floor area (sf., GFA).

Noise: Chapter 4, Section 7.C, ***Noise***, any noise that is generated by development shall not exceed the thresholds set out in C.R.S. 25-12-103, ***Maximum Permissible Noise Levels***.

Dust: Chapter 4, Section 7.F, ***Dust Control***, requires all industrial or extraction uses to submit a Dust Control Plan. Said Plan shall include all available practical methods that are technologically feasible and economically reasonable and that will reduce, prevent, and control fugitive dust into the atmosphere, minimizing impacts to livestock, crops, and public health. Said methods shall include but not be limited to use of water for abating dust.

Runoff/Drainage: Chapter 4, Section 7.B, ***Stormwater Management, Grading, Erosion, and Sediment Control***, all Site Plans shall be accompanied by a Stormwater Management Plan, sealed by a Professional Engineer that certifies compliance with the requirements of subsection (1) Section 7.B. Drainage reports shall be in compliance with Chapter 4, Sections 7.B, ***Stormwater Management, Grading, Erosion, and Sediment Control,*** and any other applicable state or federal standards for grading, erosion, and sediment control.

Traffic/Access: A Truck Routing Plan is required for the use of heavy trucks as they may be disruptive to nearby property owners and could potentially cause damage to County Roads. The Truck Routing Plan needs to address the type of vehicles that will be used for this operation, the frequency of both arrivals and departures, approximate hours of truck traffic, and any hazardous materials/ hazmat being transported.

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Geology: A Geologic and Soils report for this development to assess soil suitability and site characteristics pursuant to Chapter 8, Section 2 of the Land Use Code.

Domestic Water: Projects are required to provide proof of adequate water supply for the proposed use.

Agriculture: Aerial imagery shows Agricultural uses on or adjacent to one or more of the staging sites.

STAFF ANALYSIS
Land Use Application documents prepared by the applicant addresses a number of factors in the section titled Design Features (Pages 6-10, **Attached**). Staff has reviewed all documents submitted by the applicant and finds that they are sufficient. All required fees have been paid for this application.

Land Use Application (Attached)

Wind/Dust
Dust will be a potential pollutant risk, among others, on all portions of the project with disturbed soils and on the road used to access the project. Wind erosion and dust control CMs help to keep soil particulates from entering the air as a result of land disturbing construction activities. A water truck would be used for dust suppression in addition to other control measures (CMs).

Cultural Resources
All federal, state, and local environmental laws, orders, and regulations will be followed by RMNG and its contractors. Prior to construction and future heavy maintenance activities, all construction personnel will be instructed on the protection of cultural and paleontological resources with reference to relevant laws and penalties, and the need to cease work in the location if cultural resource items are discovered. This training will take place at the Pre-Construction Meeting prior to ground disturbance.

Geologic Hazards
Large rocks and boulders will be displaced during construction. The contractor has extensive experience in similar terrain and will use safe excavation practices for rock fall and removal mitigation. If allowed by landowner, large rocks and boulders may be placed strategically for erosion control.

Hazardous Materials
Any waste generated as a result of the project will be properly disposed in a permitted facility. Solid waste generated during construction and periodic maintenance periods will be minimal. All hazardous materials will be handled in accordance with applicable local, state, and federal hazardous material statutes and regulations.

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Noise
All work will be conducted Monday-Saturday from 7AM to 6:30PM to avoid nose impacts. Construction vehicles and equipment will be maintained in proper operating condition and will be equipped with manufacturer's standard noise control devices of better (mufflers, engine enclosures, etc.). Improperly functioning equipment will be removed from the construction site until the issue is corrected.

Traffic/Circulation
Staff contacted the Town of Cedaredge and Orchard City to consult re Truck/Haul Routes. RMNG confirmed that the truck/haul routes would not impact the Towns (Orchard City and Cedaredge) and that all traffic would be routed along County Roads and Highway 65.

Vegetation/Land Use
No active Irrigated/Ag land disrupted. Vegetation will be brush-hogged on the private landowner section of the project prior to construction. Vegetation material removed from the right-of-way will be properly disposed of. A certified weed-free and native seed mix will be used to establish vegetation after construction is complete.

Fire Control
Welding will be conducted during the installation process, RMNG understands the nature of the existing drought conditions that have been occurring in Colorado and have created a fire control plan for this project. A water truck will be kept on site to wet down the area prior to welding and in the event of a fire.

Water & Soil Health/Reclamation
The project will remain in interim reclamation until disturbed areas have been reclaimed with uniform cover of at least 70% of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed. Stormwater compliance inspections will be performed by 3rd party contractor at required intervals until final stabilization is reached.

Wildlife
To ensure compliance with the Migratory Bird Treaty Act, RMNG will incorporate Colorado Parks and Wildlife (CPW), and the US Fish and Wildlife Service (USFWS) guidelines for raptor protection if construction occurs during the breeding season. Buffer zones and seasonal restrictions may be required if an active raptor nest is found within the project areas.

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Stormwater Management Plan (SWMP) (Attached)

CDPHE issued Permit #COR415142 to authorize the discharge from the facility identified as Collbran to Reed Junction to the waters of the State of Colorado, including, but not limited to, Youngs Creek and the Gunnison River. The SWMP is for the 250-acres of disturbed area along the pipeline. Procedures identified in this plan apply to Black Hills Energy and the contractor(s) it employs to perform construction and/or maintenance for the project. Measures in this plan pertain to the entire project area, which is defined as all temporary and permanent rights-of-way (ROW), temporary use areas, access roads, and staging areas located within Delta County.

The SWMP describes procedures to minimize the potential for erosion, sedimentation, or the discharge of pollutants, by the use of proper construction techniques and the adoption of appropriate control measures. These control measures would be implemented and maintained during all active construction activities and maintained until the terms and conditions of the associated stormwater permit have been fulfilled.

The SWMP, in its entirety, will be retained for a period of three (3) years after final stabilization has been achieved, all associated permit terms have been fulfilled, and a Notice of Termination has been submitted to the State.

OTHER AGENCIES INVOLVED:

Planning Staff sent a Public Notice to Adjoining Property Owners (within a 200-foot radius from each Parcel), as well as residents that have requested to be informed, for this application, including the applicant. Staff contacted the Towns of Cedaredge and Orchard City directly to ask for input on Haul Routes near/through their jurisdiction.

Planning has not received any additional feedback from any adjoining property owners or others that requested notice.

Prepared by: Carl P. Holm, AICP, Director
970.874.2110
Cholm@deltacounty.com
February 25, 2022

Attachment(s):

- Recommended Conditions of Approval
- Land Use Application (dated January 5, 2022)
  - Stormwater Management Plan
- Haul Route maps

Conditions of Approval
Black Hills Energy (PLN22-002)
PC, March 9, 2022

1. Approval is for three temporary staging sites:
   a. Site #1; Parcel 319305300046/Mingus (23253 U Road). Temporary staging (outdoor storage) for equipment and materials on about 2.50-acres of a 14-acre parcel.
   b. Site #2; Parcel 319330300037/Malmgren (16408 Happy Hollow Road). Temporary staging (outdoor storage) for equipment, materials and constriction office (trailer) on about 1.2 acres of this 13+-acre parcel.
   c. Site #3; Parcel 323905100001/Grand Headwaters (North Road). Temporary staging (outdoor storage) for equipment and materials on about 1.684 acres of this 1,395-acre parcel.

   Staging areas will be restored when the project has been completed. The staging area for Site #2 will remain for the property owner to use the area for personal storage (contractor equipment).

2. Development and Operation of the Temporary Staging Sites (#1-#3) shall be in accordance with approved plans and supplemental documentation to the satisfaction of the Director of Community Development and Natural Resources, including but not limited to:
   a. Land Use Application (dated January 5, 2022)
   b. Stormwater management plan (dated November 20, 2021) and associated General Permit (#COR415142)
   c. Haul Route Maps
   d. Development Plans

   Any significant modification shall require an amendment to be considered by the Planning Commission and Board of County Commissioners.

3. Prior to beginning any construction activity, the applicant shall submit a final Construction Traffic Plan for review and approval by the Director of Planning. Said Plan shall include/reflect:
   a. Truck route during construction
   b. Truck speeds in the project vicinity

4. Prior to beginning any construction activity, the applicant shall provide to the County a "Road Inspection & Repair Bond" in an amount of $100,000. Said bond shall be held by the County as a financial guarantee for any damage to County roads until the County has inspected and accepted the road conditions following completion of the pipeline construction (Phase A).

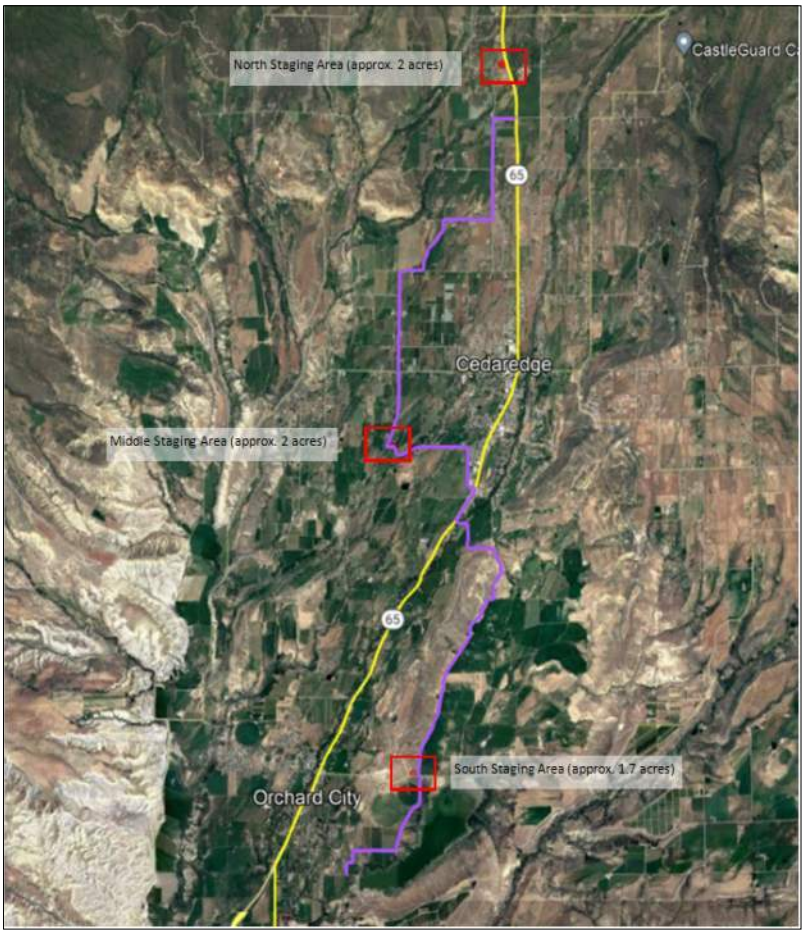
5. Prior to beginning operations, the applicant shall submit a Final Plan for how water will be provided for domestic purposes (office) and dust control for review and approval by the Director of Planning.

6. There shall be no permanent lighting. Emergency service at night will require bringing necessary lighting for the crews. Lighting shall be managed so as to not cast light or glare onto adjacent properties or upwards in a manner that dilutes the night sky.

7. The applicant shall be responsible to keep the site, and surrounding areas, in a neat and orderly condition at all times, including any cost to address trash generated at the Project site, or by Project employed personnel while on site, if the trash is blown or transported off site.

8. At the conclusion of the permit period, the applicant shall restore the staging areas for site #1 and Site #3 to their original condition, including removal of chain link fence. Site #2 will involve removing the chain link fence but site improvements will remain.

Reed Jct to Collbran- Phase A
8” Pipeline Replacement Project
Delta County, CO
Land Use Application



Rocky Mountain Natural Gas LLC

dba Black Hills Energy

January 5, 2022

PRINCIPLES

Rocky Mountain Natural Gas LLC
dba Black Hills Energy
7001 Mount Rushmore Road
Rapid City, SD 57702

PROJECT CONTACTS

Clifford Dick – Project Manager (970) 984-2858
Donald Green – Utility Construction Planner (970) 618-1521
Adam Clark – Right of Way Field Agent (970) 274-6215
David Gremel – Right of Way Corporate (303) 548-5451
Ally Little – Senior Environmental Professional (307) 778-2123

PROPERTY OWNER

Landowner Name:	**Parcel ID#**
Nancy Mingus	319305300046
Scott Malmgren	319330300050
Grand Headwaters	323905100001

RIGHTS OF WAY AND EASEMENTS

Temporary Use Easements have been obtained from Nancy Mingus and Scott Malmgren and the easement document for Grand Headwaters is currently being finalized between the owner and our Right of Way Department

CONTRACTORS

Construction – TBD

Environmental Services – HRL Compliance Solutions, Inc.

Geotechnical Engineering – Buckhorn Engineering

Survey – True North Colorado, LLC.

PURPOSE

The purpose of this application to request a temporary change in current land use zoning on three parcels where we have negotiated staging areas for this project. Each of these areas are expected to be utilized during construction and then restored as per the landowner requirements.

PROJECT SCOPE

Rocky Mountain Natural Gas LLC (RMNG), doing business as (dba) Black Hills Energy (BHE), is planning to conduct a maintenance replacement of an existing transmission 8-inch Pipeline. The existing line was

constructed approximately 50 years ago. Due to the aging infrastructure, RMNG plans to replace the line and relocate it away from Cedaredge to meet safety regulations and industry best management practices.

The entire 8-inch transmission pipeline project is approximately 38 miles long and starts at the Reed Junction Block Valve (38.7626, -107.9762) and terminates approximately one mile south of the Collbran Compressor Station at the My Way Ranch Reg. Station (39.2192, -107.9430). The overall project will consist of six construction phases beginning in 2022 and ending in 2027. RMNG will go out for bid separately for each respective construction Phase each preceding year.

This phase (Phase A) of the project begins within RMNG's existing ROW just north of County Road T50 in Section 8 Township 13S Range 94W and continues south along County Roads and private property to a planned new District Regulator Station at Fruit Growers Road in Orchard City in section 24 Township 14S Range 95W. Please refer to the Vicinity and Location Map in ***Appendix A***.

This phase of the proposed work will involve the installation of approximately 59,000 feet (11.17miles) of new 8**"** 0.322**"** wall thickness steel pipe, 4000 feet (0.76miles) of 6**"** Polyethylene (PE) plastic pipe and the retirement of approximately 20,200 feet of the existing 8**"** steel pipeline. Retired pipe will remain in-place buried underground to avoid additional ground disturbance. RMNG will also be replacing the Cedaredge Town Border Station and the Orchard City Town Border Station as part of this phase of the project.

During construction, the gas will continue to flow through the existing pipe. Upon completion of the reroute, the north and south ends of the new pipeline will be tied into the existing pipeline system via stopple fittings. The old line will be retired in place. RMNG will remove the existing Cedaredge Town Border Station and connect all distribution pipelines from the old outlet of that station together. Customers will not be negatively impacted by lack of flow of natural gas at any point during construction.

Since the pipeline is being rerouted into some of the County roads, there may be need to one lane or temporarily close a road during construction. A full traffic plan will be developed by the selected contractor when awarded the construction bid. All one lane and closure activities will be pre-scheduled and notices via traffic control sign boards will be posted in advance in conjunction with Delta County Road & Bridge. Any additional special conditions surrounding the road closure will be determined in with Delta County.

Work vehicles and construction equipment will access the pipeline via predetermined locations with private landowners or will be in the County ROW throughout the construction duration. All project work will remain in the staging areas or construction areas as outlined in the project alignment sheets.

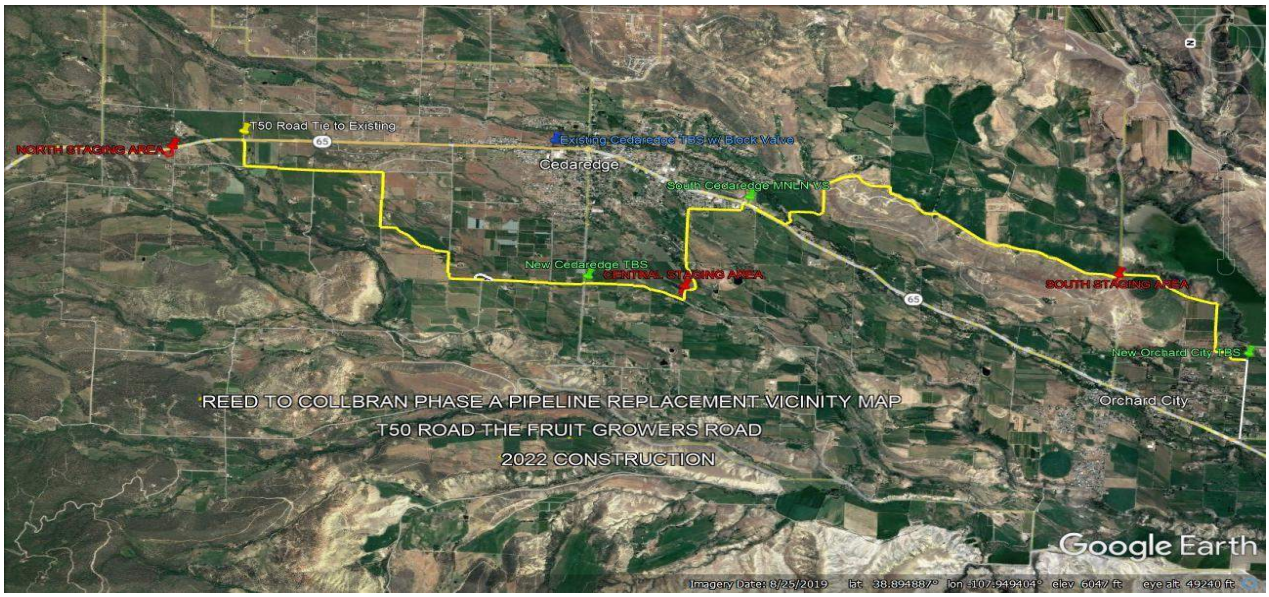


Figure 1: Reed to Collbran Phase A 8" Pipeline Replacement

Ø ***Temporary Use Areas (TUAs) for Staging Areas outside of ROW:***

- **Staging Area 1**, approximately 90,201 sq. ft. in size, will be situated on private property belonging the Nancy Mingus and is just north of the Phase A north tie in location. The location is within Section 5 Township 13S Range 94W on the northwest corner of Hwy 65 and U Road north of Cedaredge.
- **Staging Area 2.** approximately 43,565 sq. ft. in size, will be situated on private property belonging the Scott Malmgrem and is near the middle of the Phase A project. The location is within Section 30 Township 13S Range 94W near the intersection of Happy Hollow Road and 11th Avenue on the southeast side of Cedaredge.
- **Staging Area 3.** Approximately 80.005 sq. ft. in size, will be situated on private property belonging to Grand Headwaters and is closer to the southern end of the Phase A project. The location is within Section 18 Township 14S Range 94W near the intersection of North Road and Harts Basin Road.

The TUAs will be utilized for work activities such as storage of construction equipment, construction trailers, new pipe, tied-down or anchored porta-johns, miscellaneous materials and a closed-lid dumpster. The areas will also be used for safety meetings and check-in points for staff and visitors. Disturbance Areas Maps are located in ***Appendix B***.

Within the TUAs and new ROW outside the staging areas, RMNG will use selective cutting and clearing practices that preserve the maximum amount of vegetation as possible. Only the trees and vegetation crucial to accessing and constructing the pipeline will be removed. The contractor also understands that maintaining trees and shrubs and their root systems is important to preserve the natural erosion control and management on the slopes. Avian surveys will be conducted in the spring prior to construction to ensure compliance with Migratory Bird Treaty Act and other state recommendations. RMNG has worked closely with Colorado Parks and Wildlife to determine best management practices.

REPLACEMENT WORK ACTIVITIES

Proposed work activities within the designated disturbance areas will consist of:

- Installation of Control Measures (CMs) as identified in the Stormwater Management Plan (SWMP)
- Trimming and/or removing existing vegetation where necessary,
- Excavation and stockpiling of soils along new pipeline route,
- Installation of new buried pipeline,
- Filling in excavated areas,
- Cutting and retiring the existing pipeline,
- Regrading County Roads where necessary to direct road water runoff so it flows into natural drainage areas or culverts,
- Re-grading and installation of slope stabilization features, and
- Reseeding with weed-free seed mix and soil amendment approved by both Delta County and the private landowner.

*Note: Much of the above activities will with phased. Typically only ~1000' of trench is open at a time and contractors back fill as they go.

CONSTRUCTION TIMELINE

Work is expected to begin April 4th, 2022 - pending appropriate permits are approved

Anticipate ~16 to 20 weeks to complete work activities

Final schedule will be available with general contractor is selected.

Estimated Construction Equipment

Excavators, 2-3 (during construction)

Skid steer, 1 to 2 (during construction)

Bulldozer, 1 (during construction)

Stopple By-pass equipment Compaction equipment

Single axle crew vehicle, 2-3 (+/- during construction), including welders' trucks

Tandem axle dump trucks, 1-2 (+/-during construction)

Personnel on site at one time, 20 estimated (+/- during construction)

List of actual construction equipment will be finalized when general contractor is selected.

Alternative Construction Methods

1. Directional boring- RMNG will utilize directional boring to eliminate impacts to Waters of the United States (WOTUS) where possible and will also bore under some specific private landowner features, such as driveways, as agreed to in easement documents.
    - Based on experience on similar projects in rocky terrain with large boulders, there are some risks involved with these areas due to hitting impenetrable rock layers, damaging pipe or other utilities, and areas where rocks may inhibit or cause the bore head to come up above required cover depth

- If a bore was attempted and failed, open trenching would be the only way to continue and would be necessary prior to cold weather to ensure adequate supply of natural gas to homes in the area served by this pipeline.
- Future leak surveys- When a pipeline is installed via directional boring, it is typically installed at an arc. Due to the severe elevation change over a short distance, the final depth would be located underground at a depth much greater than desired to perform the required annual leak surveys.
- While there are many benefits to directional boring, the feasibility of a successful bore and the pipeline depth ultimately sometimes outweigh those positive benefits.

2. Flume waterways – RMNG has looked at several ditch crossings that are currently shown as bores on the alignment sheets.
   - Once RMNG has chosen a Contractor for this project each bore site will be evaluated with the contractor and landowner to determine whether or not it is feasible to attempt to bore these locations.
   - RMNG has had contact with the Water Commission and the Ditch Companies through our Right of Way Field Agent and have discussed and received approval to flume the ditch crossings during construction utilizing culverts and riprap so that we may trench these crossings. Should it be decided that flumes are the route we would like to take then these crossings would be completed early in April before the main water needs in May.
   - RMNG's internal Senior Environmental Professional will ensure compliance with Army Corps of Engineers in regard to temporary impacts to WOTUS.

Design Features

General

G-1: RMNG and its contractors will comply with all federal, state, and local environmental laws, orders, and regulations. This includes compliance with County Land Use provisions and agreements with the landowner. Prior to construction, all personnel will be instructed on the protection of cultural and ecological resources.

G-2: RMNG Environmental Professional will convey the areas of environmental sensitivity and/or required monitoring to the contractor.

G-3: RMNG and hired contractor will adhere to the final permit, which includes keeping all construction and future maintenance activities within the permitted right-of-way. Any deviation from the final permit may require submittal and approval of a variance request from Delta County.

Air

A-1: The existing pipeline is an older coated steel and will be replaced with a more modern fusion bond epoxy (FBE) protected steel. The new protected steel provides greater pipe coverage and a lower emission factor, thus lowering volatile organic compound fugitive emissions and greenhouse gases (GHG). This is taken into account in annual GHG reporting to the Environmental Protection Agency (EPA).

A-2: RMNG and contractor will utilize practicable methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants.

A-3: Vehicles and equipment showing excessive emission of exhaust gases due to poor engine adjustments or other inefficient operating conditions will not be operated until corrective adjustments or repairs are made.

A-4: Post seeding mulch or other approved methods will be utilized during reclamation activities to help reduce wind erosion and blowing dust. Soil stabilization will be performed as soon as possible after completion of project activities to minimize potential fugitive dust generation as re-vegetation occurs.

A-5: Contractor will turn off equipment when it is not in use.

Cultural and Paleontological Resources

C-1: Prior to construction and future heavy maintenance activities, all construction personnel will be instructed on the protection of cultural and paleontological resources with reference to relevant laws and penalties, and the need to cease work in the location if cultural resource items are discovered. This training will take place at the Pre-Construction Meeting prior to ground disturbance.

C-2: Should any previously unknown cultural, historic/prehistoric sites or artifacts, or historic property be encountered during construction, all land altering activities at that location will be immediately suspended and the discovery left intact until such time that the Environmental Professional and 3rd party archeologist can evaluate.

Geologic Hazards

GH-1: Large rocks and boulders will be displaced during construction. Contractor has extensive experience in similar terrain and will use safe excavation practices for rock fall and removal mitigation. If allowed by landowner, large rocks and boulders may be placed strategically for erosion control.

Hazardous Materials

HM-1: RMNG will comply with all applicable federal laws and regulations existing or hereafter enacted or promulgated regarding toxic substances or hazardous materials during both construction and future maintenance activities. In any event, RMNG will comply with the Toxic Substance Control Act of 1976, as amended (15 United States Code 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the ROW or on facilities authorized under this ROW grant (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 will be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, section 102b. A copy of any report required or requested by any federal agency or state government as a result of a reportable release or spill of any toxic substance will be furnished to the authorized officer concurrent with the filing of the reports to the involved federal agency or state government.

HM-2: All fuel and fluid spills within this area will be handled in accordance with appropriate state and federal spill reporting and response requirements. RMNG's contractor will notify Environmental Professional of any spills regardless of quantity so appropriate notifications can be made to the appropriate regulatory authorities/landowners and managers.

HM-3: The following hazardous materials management procedures will be used during maintenance and operation activities:

- Storage of hazardous materials, chemicals, fuels, and oils and fueling of construction equipment will not be performed within 100 feet of WOTUS.
- An effort will be made to store only enough products required to do the job.
- Materials will be stored in a neat, orderly manner, in appropriately closed containers, in secondary containment and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use of a product will be followed.
- If surplus product must be disposed of, local and state recommended methods for proper disposal will be followed.

HM-4: Any waste generated as a result of the project will be properly disposed in a permitted facility. Solid waste generated during construction and periodic maintenance periods will be minimal. All hazardous materials will be handled in accordance with applicable local, state, and federal hazardous material statutes and regulations.

Noise

N-1: Construction vehicles and equipment will be maintained in proper operating condition and will be equipped with manufacturers' standard noise control devices or better (e.g. mufflers, engine enclosures). Improperly functioning equipment will be removed from the construction site until the issue is corrected.

N-2: All work will be conducted Monday-Saturday from 7 AM to 6:30 PM to avoid noise impacts to recreating citizens and residential homes nearby during quiet hours

N-3: Required OSHA backup alarms shall be installed on all equipment and shall be operational during construction hours.

Traffic and Access Routes

T-1: No construction or heavy maintenance activities will be performed during periods when the soil is too wet to adequately support equipment and vehicles.

T-2: Contractor equipment will not be staged on Highway 65 and no traffic impacts are expected on the highway at either crossing location. However, speeds may be reduced at the T50 intersection while the bore is in progress.

T-3: RMNG' construction contractor and maintenance crews will be required to remain within authorized access ROWs. Access outside of permitted access ROWs will need to be approved by the affected landowner prior to use. Future maintenance work and inspections will also occur entirely within the ROWs unless otherwise authorized by the affected agency/landowner.

T-7: Emergency access will be allowed during any time of the year. In the event of an emergency, RMNG will notify Delta County as soon as possible. If emergency access to the pipeline is required during wet weather, or if other maintenance activities result in the removal of vegetation, or substantial vehicle impacts to existing

native vegetation, revegetation of disturbed areas will be completed as directed by the County or affected landowner. Reclamation and revegetation will be implemented, as required, as soon as practical after any emergency road access or maintenance work needed to repair the transmission line. If emergency line maintenance is required during the winter or spring months, care will be taken to minimize erosion and sedimentation to the extent practicable and effects will be mitigated after the emergency has been resolved in coordination with the affect land management agency or landowner.

Stormwater

SW-1: RMNG has created a stormwater plan for the project and received a permit from the State CDPHE Department. Please refer to ***Appendix C.***

Vegetation and Land Use

V-1: Vegetation will be brush-hogged on the private landowner section of the project prior to construction. Vegetation material removed from the right-of-way will be properly disposed of.

V-2: A certified weed-free and native seed mix will be used to establish vegetation after construction is complete.

V-3: All activities associated with the construction, operation and maintenance of the transmission line will take place within the authorized limits of the transmission line ROW and access routes. Additional access routes or cross-country travel will not be allowed outside of the authorized routes prior to review and approval by the agency authorized officer/landowner.

V-4: Some landowners along the ROW have nearby orchards that utilize both conventional and organic farming practices. The use of any herbicide or pesticides must be approved by landowners prior to use.

V-5: Please Refer to ***Appendix D Reclamation Plan***

Fire Control

FC-1: Welding will be conducted during the installation process, RMNG understands the nature of the existing drought conditions that have been occurring in Colorado and have created a fire control plan for this project. Please refer to ***Appendix E.***

FC-2: RMNG and their contractor will implement measures outlined in the Operation and Maintenance Plan and Fire Plan. These plans are universal and meant for all RMNG work in the area. Specific to this project, RMNG and contractor will follow current fire restriction guidelines from the County. RMNG and the contractor will also use welding tents to reduce spread of sparks and fire blankets as necessary. A water truck will be kept on site to wet down the area prior to welding and in the event of a fire.

Water and Soil Health

W-1: Topsoil will be stockpiled in a continuous berm on the down gradient edge of the ROW. Topsoil will be stockpiled to preserve existing organic material and replaced on top of the trench as construction is completed.

W-2: Topsoil piles stored for longer than 30 days will be immediately seeded with a County approved seed mix, pending seasonality, to provide cover to reduce erosion, provide competition for weed species, and to maintain viability of the soil fungi and microbial communities.

W-3: Once the ROW has been backfilled and compacted and before seeding begins, the soil will be prepared. Topsoil will be spread followed by the mulch. The objective is to have the top 6 inches of soil decompacted to allow for root growth and still be firm enough on the surface to allow for good seed to soil contact.

W-4: On disturbed slopes greater than 10% the soil will be imprinted, if safe and practical, to help reduce soil runoff. Imprinting can be in the form of dozer tracks or furrows perpendicular to the direction of slope.

W-5: The disturbed ROW will be seeded once construction activities are complete, pending weather and weekend delays.

W-6: Seed will be applied via hydroseeder or no-till drill-seeding. A Reclamation Plan is attached with seeding practices and recommended seed mix.

W-7: The project will remain in interim reclamation until disturbed areas have been reclaimed with a uniform cover of at least 70% of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed. Stormwater compliance inspections will be performed by 3rd party contractor at required intervals until final stabilization is reached.

Wildlife

Wi-1: To ensure compliance with the Migratory Bird Treaty Act, RMNG will incorporate Colorado Parks and Wildlife (CPW), and US Fish and Wildlife Service (USFWS) guidelines for raptor protection if construction occurs during the breeding season. Raptor nest surveys will be conducted prior to construction. If an active raptor nest is found within the project area, seasonal buffers and timing restrictions will be determined through coordination with the affected agency and will utilize guidance as outlined in CPW's Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors. Buffers will be determined according to species, existing disturbance in the area, and line of sight. If complete avoidance of a buffer is not feasible, a qualified biological monitor could be used to observe the nest during construction activities to ensure the activity does not disturb nesting activities. The biological monitor will have the authority to halt or modify construction if an activity is likely to result in nest abandonment.

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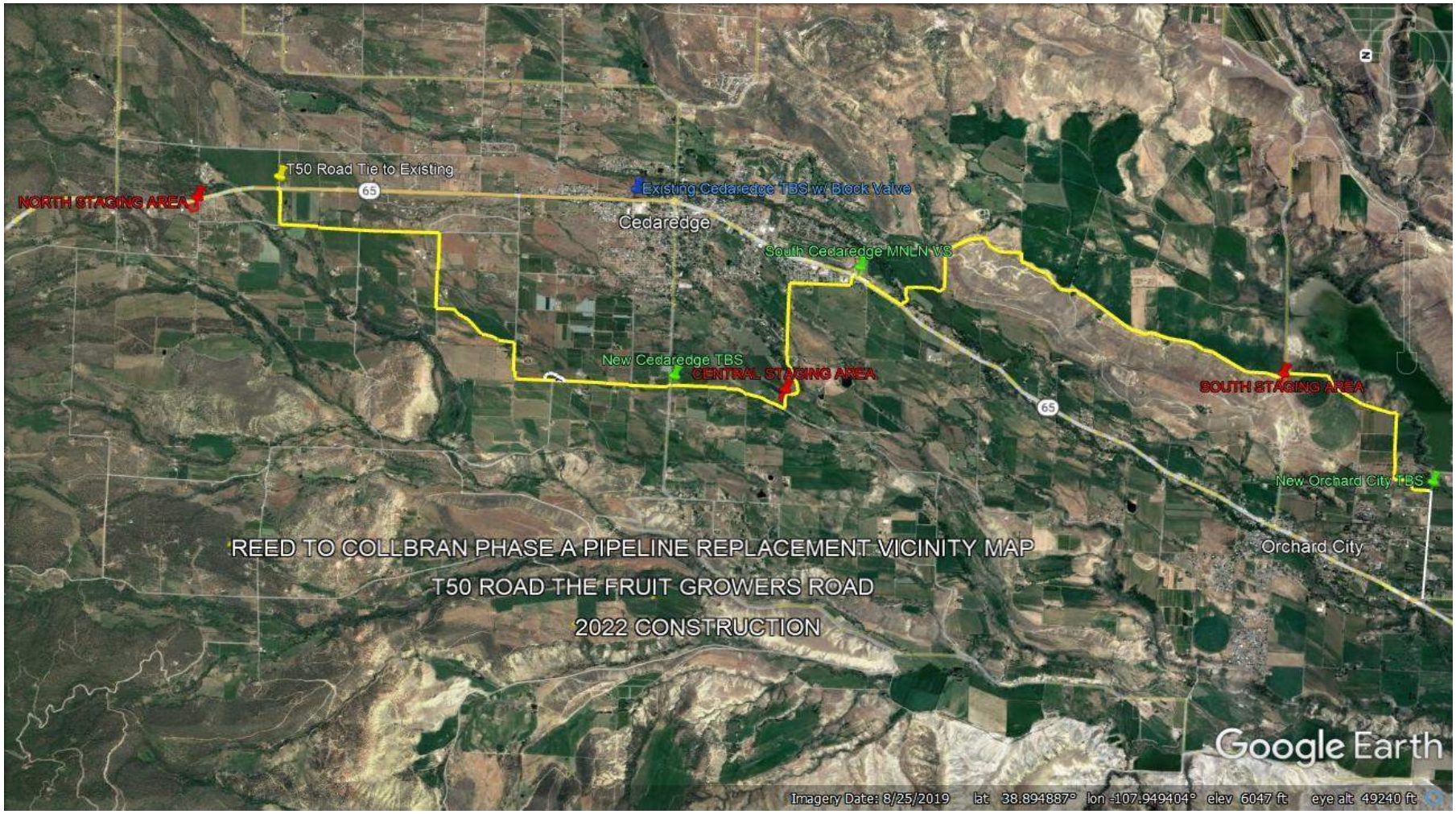
APPENDIX A



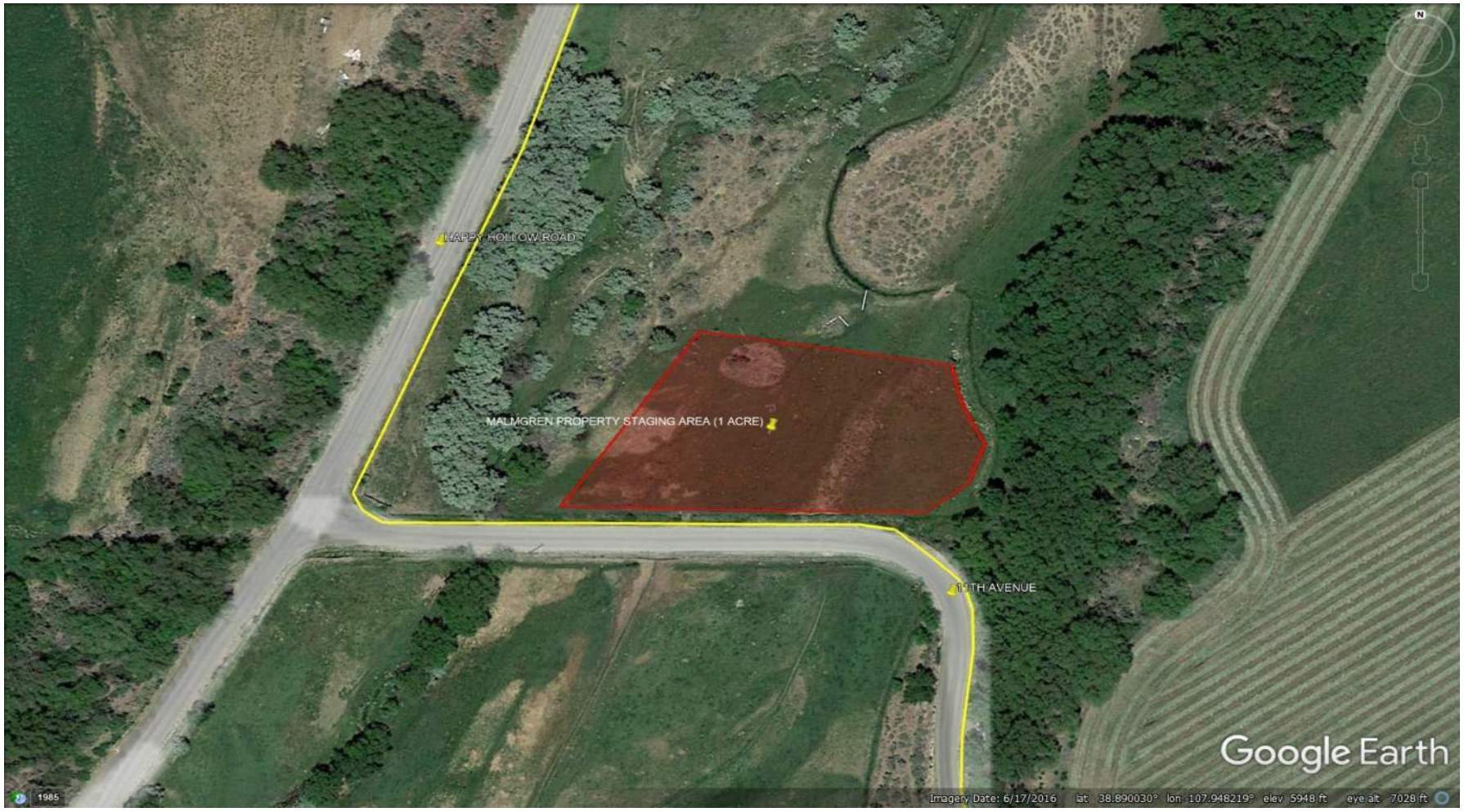
Vicinity Map Reed to Collbran Phase A

APPENDIX B – MINGUS PROPERTY STAGING AREA

MINGUS STAGING AREA - HWY 65 & U ROAD - APPROXIMATEY 2.1 ACRES

PLANNED RE-ZONE TO ALLOW FOR TEMPORARY USE OF CONSTRUCTION EQUIPMENT AND MATERIALS

APPENDIX B – MALMGREM PROPERTY STAGING AREA



MALMGREM STAGING AREA - HAPPY HOLLOW ROAD & 11TH AVENUE - APPROXIMATEY 1.0 ACRES

PLANNED RE-ZONE TO ALLOW FOR TEMPORARY USE OF CONSTRUCTION EQUIPMENT AND MATERIALS

APPENDIX B – GRAND HEADWATERS STAGING AREA

GRAND HEADWATERS STAGING AREA - HARTS BASIN ROAD & NORTH ROAD - APPROXIMATEY 1.84 ACRES

PLANNED RE-ZONE TO ALLOW FOR TEMPORARY USE OF CONSTRUCTION EQUIPMENT AND MATERIALS

COLORADO
Department of Public Health & Environment

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

Certification Number: COR415142

This Certification to Discharge specifically authorizes:

Owner Black Hills Colorado Gas, Inc. dba Black Hills Energy
Operator Black Hills Energy
to discharge stormwater from the facility identified as

Collbran to Reed Junction

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

Youngs Creek, Gunnison River

Facility Activity :	**Pipeline and Utilities (including natural gas, electricity, water and communications)**
Disturbed Acres:	**250 acres**
Facility Located at:	**Construction start at staging area- U Rd and Hwy 65, 3 miles north of Cedaredge Cedaredge CO 81413 Delta County Latitude 38.944676 Longitude -107.926513**
Specific Information (if applicable):	

Certification is issued and effective: 12/16/2021
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:
Meg Parish, Section Manager
Permits Section
Water Quality Control Division

Stormwater Management Plan

Phase A – Collbran to Reed Junction Pipeline

Delta County, Colorado

November 20, 2021

Prepared for:

Black Hills Energy
0096 Darrow Street
Glenwood Springs, CO 81601

Prepared by:

SGM
118 West 6th Street, Suite 200
Glenwood Springs, CO 81601
970.945.1004

www.sgm-inc.com

Table of Contents

List of Tables

List of Figures

Appendix

INTRODUCTION

This Stormwater Management Plan (SWMP) identifies operating procedures associated with stormwater management for Phase A of the Collbran to Reed Junction Pipeline Project (Project). These procedures comply with the requirements, set forth by Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division (Division), for controlling stormwater discharges associated with construction activity.

Prior to construction, Black Hills will acquire a Certificate to Discharge under CDPS General Permit COR-400000, for stormwater discharges associated with construction. This certification number is attached to this plan in **Appendix I.**

Procedures identified in this plan apply to Black Hills Energy and the contractor(s) it employs to perform construction and/or maintenance for the project. Measures in this plan pertain to the entire project area, which is defined as all temporary and permanent rights-of-way (ROW), temporary use areas, access roads, and staging areas located within Delta County.

This SWMP describes procedures to minimize the potential for erosion, sedimentation, or the discharge of pollutants, by the use of proper construction techniques and the adoption of appropriate control measures. These control measures would be implemented and maintained during all active construction activities and maintained until the terms and conditions of the associated stormwater permit have been fulfilled.

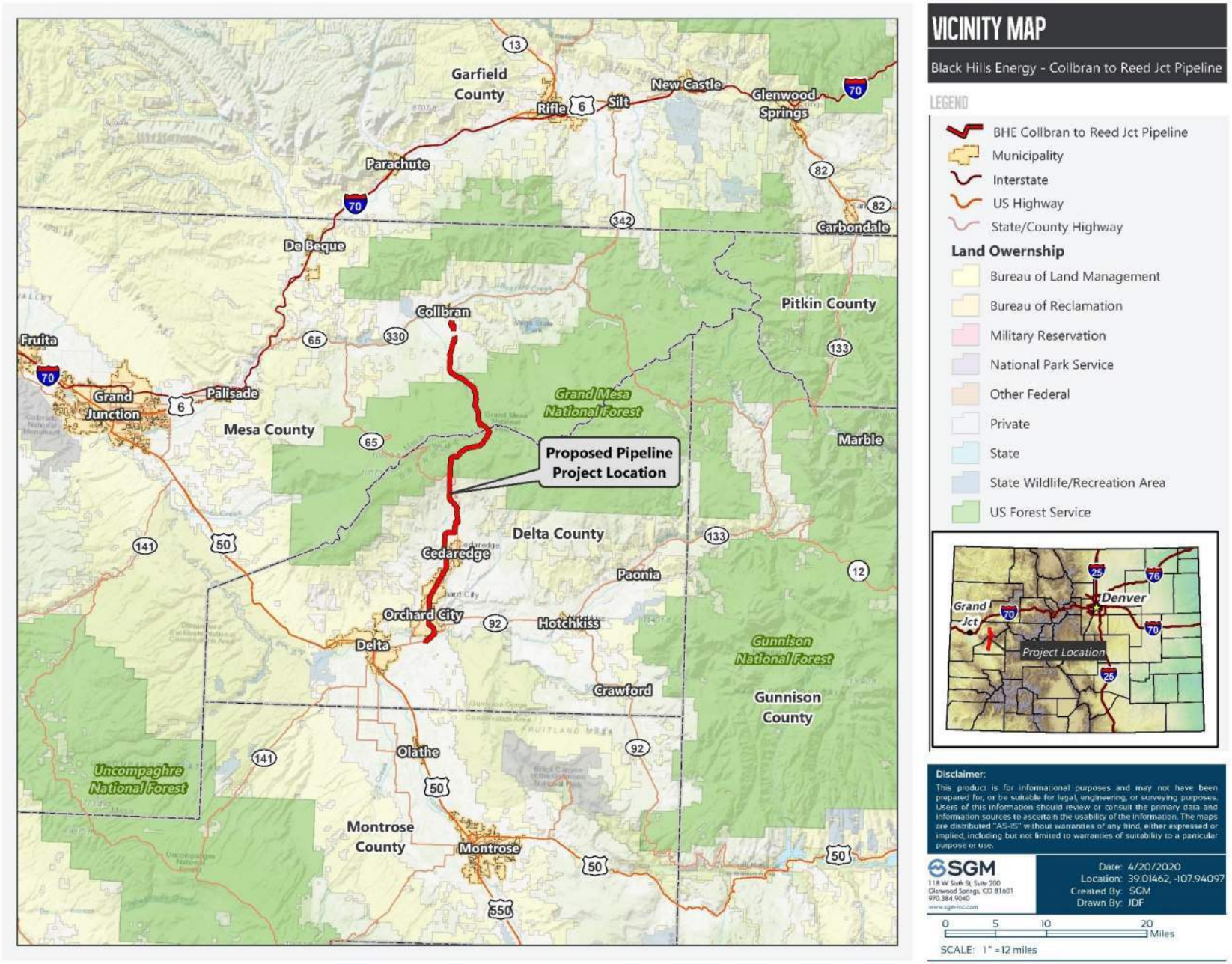
A copy of this plan is required by CDPHE, Water Quality Control Division, to be stored in the project area from the date of project initiation to the date of expiration. Upon request, the SWMP is to be provided to the Division, EPA, or any local agency affiliated with, or impacted by stormwater.

The SWMP, in its entirety, would be retained for a period of three years after final stabilization has been achieved, all associated permit terms have been fulfilled, and a Notice of Termination has been submitted to the State.

The appendices of this SWMP detail specific stormwater management within the project area. Included is the Black Hills Energy Stormwater Construction Permit, site maps, and control measure installation diagrams.

The following elements are added to ensure compliance with the COR400000 permit. The following sections are updated per Part I.C.2.a of the COR400000 permit.

Figure 1: Project Location



COVERAGE UNDER THIS PERMIT

This general permit authorizes the following types of discharge to state waters: stormwater associated with construction activity and specified non-stormwater associated with construction activity (Part I.a.1).

Summary of Authorized Discharges Part I.A.1

Stormwater Discharges:
Construction Activity
Borrow or fill sites
Dedicated asphalt or concrete batch plants
Non-Stormwater Discharges:
Uncontaminated Springs
Concrete washout water[1]
Landscape irrigation return flow
Emergency fire fighting
[1]Only to the ground, as conditions allow per the permit

Refer directly to COR400000 Permit for specific details on limitations of permit coverage, permit certification, submittal procedures, general requirements, permit expiration, and continuation of permit coverage.

EFFLUENT LIMITATIONS

This SWMP discusses the permit requirements to implement control measures that effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity. Specific control measures must meet the requirements below (Part I.B.1.a.i.):

1. **Vehicle tracking controls (VTC)** shall either be implemented to minimize vehicle tracking of sediment from disturbed areas, or the areas where vehicle tracking occurs shall meet Part I.B.1.a.i(a). The Contractor would utilize street sweepers, scraping equipment, or hand tools, to remove any potential sediment from becoming a potential source of pollution. Control measures such as rock check dams, straw bales, or straw wattles may be placed in bar ditches to serve as discharge protection for tracked soil.

   A VTC should be installed at the entry/exit points at all staging areas. The linear project will have multiple entry/exit points along the route, so street sweeping must be completed as needed during project construction when debris is tracked on to the road.
2. **Stormwater runoff** from all disturbed areas and soil storage areas for which permanent or temporary stabilization is not implemented must flow to at least one control measure to minimize sediment discharge. This may be accomplished through filtering, settling, or straining. The control measure must be selected, designed, installed, and adequately sized in accordance with good engineering, hydrologic, and pollution control practices. The control measure(s) must contain or filter flows in order to prevent the bypass of flows without treatment and must be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions.

3. **Outlets** that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless infeasible.
4. **Maintain pre-existing vegetation or equivalent control measures** for areas within 50 horizontal feet of receiving waters as defined by this permit, unless infeasible.
5. **Soil compaction** must be minimized for areas where infiltration control measures will occur or where final stabilization will be achieved through vegetative cover.
6. Unless infeasible, topsoil shall be preserved from those areas of a site that will utilize vegetative final stabilization.
7. **Minimize the amount of soil exposed** during construction activity, including the disturbance of steep slopes.

1.0 QUALIFIED STORMWATER MANAGER

Black Hills Energy has developed this SWMP and is the administrator of all aspects of stormwater management compliance. Black Hills Energy is responsible for implementing, maintaining, and revising this SWMP. Only Qualified Stormwater Managers conduct, and document required inspections, update the SWMP, and provide oversight of the installation and maintenance of control measures, as necessary.

Questions regarding the SWMP should be directed to:

Ally Little, Senior Environmental Professional
Black Hills Energy
1301 W 24th Street
Cheyenne, WY 82001
(307) 778-2123 – office
(402) 917-8557 – cell
Ally.Little@blackhillscorp.com

2.0 SPILL PREVENTION AND RESPONSE PLAN

Black Hills Energy maintains a Spill Prevention Control and Countermeasures Plan (SPCC), updated in April 2021. Black Hills Energy and their contractors implement material handling and spill prevention procedures as outlined in the SPCC Plan to further reduce potential materials contributing pollutants to runoff. Additional procedures and practices to minimize potential containments in runoff are listed below and are implemented, as practicable.

- No fuels or oils would be stored within 2,000 feet of any wetland.
- No vehicles or equipment would be fueled within 2,000 feet of any wetland.
- No vehicles or equipment would be serviced within 2,000 feet of any wetland.
- Fuels and oils would be stored in secure areas to prevent damage or vandalism.
- Fuels and oils would be stored within 110 percent capacity secondary containment.
- All containers holding fuels and oils would be labeled.
- All fuel and oil waste would be disposed of properly.
- Spill kits would be immediately available to all operations utilizing fuels and oils.
- All spills would be properly cleaned up and reported as required.

No bulk storage of fuels and oils would be allowed on any portion of the project area that does not have a SPCC Plan in place to direct proper storage and handling.

All fuel or oil spills meeting reporting requirements must be reported. This process can be initiated by calling the CDPHE Colorado Environmental Release and Incident Reporting Line at 1-877-518-5608.

Where a release of hazardous substance or oil exceeds the reportable quantity established under 40 CFR 110, 40 CFR 117, or 40 CFR 302 during a 24-hour period, the following will occur:

- The operator would notify the National Response Center at (800) 424-8802 or (202) 426-2675.
- The spill would be cleaned up according to the appropriate protocol, per government regulations and SPCC guidance.
- The SWMP Administrator would update the SWMP to address occurrences of such releases.

Other agencies, such as Delta County and Colorado Oil and Gas Conservation Commission may also need to be notified.

All spills, regardless of quantity, must be reported to:

Ally Little, Senior Environmental Professional.
(307) 778-2123 (office)
(402) 917-8557 (cell)

2.1 Other CDPS Permits

At this time, there are no other applicable CDPS permits associated with the permitted site or with the activities planned to occur on the permitted site. A CDPHE General Permit for Construction Dewatering Discharges (COG070000) discharge permit would be secured, if applicable, to dewater groundwater encountered during trenching operations. All permit terms and conditions would be followed to meet compliance with groundwater dewatering.

3.0 MATERIALS HANDLING

Control measures used at sites to minimize impacts from handling significant materials (paints and solvents, landscape materials, fertilizers or chemicals, sanitary waste, trash, equipment maintenance, or fueling procedures) that could contribute pollutants are listed below.

Material handling and spill prevention would be attained by adhering to the following:

- During construction operations, garbage and trash would be contained in steel, bear-proof containers and periodically emptied.
- While construction operations are in progress, portable toilets would be maintained on-site and the contents would be periodically emptied and disposed in accordance with applicable requirements.
- No fuels or oil would be stored within 200 feet of any wetland.
- No vehicles or equipment would be fueled within 200 feet of any wetland.
    - Exception: Pumps may be utilized immediately adjacent to waters. Pumps would be placed on a tarp with containment berms to catch any oil or fuel leaks/spills.
- No vehicles or equipment would be serviced within 200 feet of any wetland.
- Fuels and oils would be stored in secure areas to prevent damage or vandalism.
- Fuels and oils would be stored within 110 percent capacity secondary containment.
- All containers holding fuels and oils would be labeled.
- All fuel and oil waste would be disposed of properly.

- Spill kits would be immediately available to all operations utilizing fuels and oils.
- All spill kits would be properly cleaned up and reported as required.

No bulk storage of fuels and oils would be allowed on any portion of the project areas that does not have a SPCC Plan in place to direct proper storage and handling.

All fuel and oil spills meeting reporting requirements must be reported. This process can be initiated by calling the CDPHE Colorado Environmental Release and Incident Reporting Line at 1-877-518-5608.

Concrete wash out areas (if utilized) would be designated at locations where concrete is required for construction activities. Concrete washouts would be either self-contained vessels (aka eco-pans) or in excavated, lined pits, which would contain all washout material from concrete tasks.

4.0 POTENTIAL POLLUTANT SOURCES

Sources of potential pollutants associated with construction of the project area are listed below, but are not limited to the following:

- Disturbed and stored soils.
- Vehicle tracking of sediments.
- Management of contaminated soils.
- Loading and unloading operations.
- Outdoor storage activities.
- Vehicles & Equipment Operation – Fuels, hydraulic and motor oils, lubricants.
- Significant dust or particulate generating processes.
- Routine maintenance activities involving fertilizers, etc.
- On-site waste management practices.
- Concrete truck/equipment washing.
- Dedicated asphalt, concrete batch plants, and masonry mixing stations
- Non-Industrial Storage – Garbage, human waste.

These potential pollutant sources would potentially exist over the entire project area. Fuels, oils, and lubricants represent a potential risk during refilling/maintenance processes and in the event of mechanical failures. Sediment, vehicle tracking, and dust would be a potential pollutant risk on all portions of the project with disturbed soils and on the roads used to access the project. Concrete, paints, sealants, and solvents would represent a potential risk during the construction and maintenance pipeline facilities. Garbage and human waste would be present at dumpster and portable toilet locations. Herbicide applications may be made after the project is constructed and would potentially exist over the entire disturbed area.

5.0 IMPLEMENTATION OF CONTROL MEASURES

Design specifications for Stormwater Management Controls contain information on implementation of the control measure in accordance with good engineering, hydrologic, and pollution control practices. All design specifications are included as **Appendix III**. The specifications included in Appendix III contain drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements, as applicable. In addition, use agreement(s) between the permittee and the contractor of any control measures, and its specification located outside the permitted area per permit requirements will also be located in Appendix III.

Control measures must be implemented prior to stormwater leaving the permitted area and prior to discharge to a receiving water defined as Waters of the United States. This section discusses control measures likely to be used, as well as the general location of each control measure. As site conditions change during the construction process, the type of control measure used and its location may change, which will be reflected on the map, and in the inspection reports.

5.1 Structural Practices for Erosion and Sediment Control

Structural control measures likely used in the project area, with a description of each is included in **Table 1**, and non-structural control measures are included in **Table 2**. The installation diagram and required maintenance specifications for each control measure identified in this SWMP is included in **Appendix III.** Each control measures would be installed according to the proper specifications provided in these diagrams and maintained according to the maintenance schedules included with the installation diagrams. All stormwater inspections will check for proper control measure installation and maintenance.

Control measures to be implemented are described in the following sections and recommended site-specific control measure locations are presented on the map and will be updated as necessary.

Table 1. Structural Control Measures that May be Recommended and Installed in the Project Area.

Control Measure	Description
Vehicle Tracking Control (VTC)	A vehicle tracking control is a rock pad, designed to remove soil and mud from vehicles leaving the work zone and entering off-site areas, such as public roadways.
Sediment/Silt Traps (ST)	Sediment traps can be a variety of sizes and shapes, depending on the intended use. Sediment traps pool stormwater, allowing sediment to settle out. They also have an armored outlet.
Temporary Outlet Protection (TOP) and Inlet Protection (IP)	Culvert outlet protection is usually a layer of angular rocks installed on the downhill side of a culvert or sediment trap. The rocks slow stormwater flow, thereby reducing erosion, and settling out sediment. Wattles, fiber matting, and erosion control blankets are additional forms of outlet protection.
Culverts	Metal culverts are used to channel water under access roads and commonly designed by engineers.
Earth Dikes and Drainage Swales (ED/ DS)	An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location.
Check Dams (CD)	Check dams are constructed across a ditch to catch sediment and slow the velocity of water.
Sediment Control Logs	Sediment control logs are made of fibrous material and work by trapping sediment. Erosion control logs must be trenched into the ground to be effective.
Erosion Control Blankets/Rolled Erosion Control Products (RECP)	Erosion control blankets that completely cover the ground surface are placed on disturbed areas to prevent erosion from sheet flow and protect newly seeded areas.

Control Measure	Description
Bonded Fiber Matrix and Soil Stabilizers	Bonded fiber matrix and soil stabilizers are used on steep slopes where blankets will not work to promote vegetation growth and reduce erosion.
Wind Erosion/Dust Control (DC)	Wind erosion and dust control CMs help to keep soil particles from entering the air as a result of land disturbing construction activities.
Water Bars	Water bars would be constructed of soil or cobble materials and slow flows down steep slopes. Recommended water spacing is based on the slope of the area with spacing between water bars decreasing with an increasing slope. See Appendix III for details.

Structural control measures would be used to minimize sediment discharge on all gravel or earth access roads by shaping the road surface, installing culverts, and other structural control measures. Where feasible, roads would be crowned or banked to direct stormwater into bar ditches or stabilized vegetation. This would minimize the amount of stormwater which travels down the access road. Waterbars or rolling dips would be utilized to direct water off the access roads and ROWs where crowning or sloping are not feasible or would create uncontrolled discharge.

Rock or straw wattle checks would be installed in bar ditches as needed to capture sediment and slow water velocity. Culverts would be sized appropriately and installed to allow water to exit bar ditches in areas which would otherwise pond. Culverts would have inlet and outlet protection installed to minimize sediment discharge.

Discharge points (waterbars, rolling dips, culverts, bar ditches) would have rock aprons or outlet protection installed to slow discharge velocity and prevent scouring, unless this would be performed by existing vegetation and native materials. Sediment traps and rock or straw wattle checks may also be incorporated to capture sediment and slow discharge velocities.

Sediment discharge would be minimized on the ROW by installing control measures, directing accumulated water off the ROW to discharge points, and stabilizing disturbed slopes. Trenches and/or earthen berms would be installed in areas anticipating high flows. Trenches and berms would direct water to discharge points which would consist of sediment trap(s), straw bales, straw wattles, and/or rock aprons. The ROW would be shaped to direct accumulated water to these discharge points or to the trenches and berms that would carry the water to the discharge points.

Silt fence, straw bales, earthen berms, and/or straw wattles would be installed along project area boundaries where disturbed or stored soils represent a risk of discharging off of the ROW or into a sensitive resource area, such as wetlands. Straw bales, straw wattles, and/or silt fence may also be installed perpendicular to slopes to slow water velocity, retain sediment, and minimize rilling.

Additional discharge points are sites where stormwater is intentionally, or unintentionally, allowed to leave the project area. Discharge points may include the exit side of borehole locations, waterbars, rolling dips, or culverts. Down slope sides of dry, intermittent drainages, ephemeral drainages, and other natural topographic features within the project may also be discharge points. Control measures would be installed to filter sediment, while allowing collected water to discharge off project while minimizing off-ROW erosion.

Straw wattles would be installed, as needed, perpendicular to cut and fill slopes to minimize erosion and sediment discharge. Stockpiled earth would have silt fence installed around the entire stockpile if a discharge risk is present.

5.2 Non-Structural Practices for Erosion and Sediment Control

Non-structural erosion and sediment control practices would be used in conjunction with structural practices to deliver effective stormwater erosion and sediment control. **Table 2** describes non-structural control measures implemented in the project area.

Table 2. Non-Structural Control Measures that May be Recommended and Installed in the Project Area.

Control Measure	Description
Management Actions	Management actions include contractor education, planning and scheduling site activities, scheduling rapid revegetation and control measure implementation, and coordination with the SWMP inspector.
Mulching and crimping	Mulching and crimping certified weed-free straw into bare soil aids with slope stabilization and facilitates successful revegetation.
Revegetation	Revegetation includes grading, soil preparation, seeding, and occasionally mulching. Revegetation stabilizes slopes and creates a vegetative buffer strip.
Preserving Natural Vegetation	Maintain vegetation between areas of disturbance and discharge points, drainages, wetlands, surface water, and seasonal or permanent streams. Vegetative buffer strips would further minimize sediment discharge and scouring when used in conjunction with structural control measures.
Preventative Maintenance	Preventative maintenance ensures control measures are functioning properly.
Slope Roughening	Surface roughening creates small ridges in exposed soil, which follow the slope contour. Surface roughening is a temporary control measure that slows surface runoff and helps prepare the seedbed.
Spill Response Procedures	Black Hills Energy maintains a Spill Prevention Control and Countermeasure (SPCC) Plan that outlines how spills are to be managed, contained, and cleaned up.
Wind Erosion/Dust Control	A water truck would be used for dust suppression in addition to these other Control Measures listed.
Site Grading	Minimize grading of level and gently sloping terrain on site and immediately off site except where reasonable for construction equipment and fire safety to reduce size of ground disturbance.

6.0 SITE DESCRIPTION

a. Nature of construction activity:

The project involves the replacement and upgrading of buried pipelines and installation of above ground appurtenances needed to transport natural gas to Black Hills Energy's customers.

Black Hills Energy is proposing the construction of a 39.4-mile natural gas pipeline (the "Collbran to Reed Junction Pipeline" [Project]), to replace the aging 8-inch pipeline and to meet additional natural gas demands in the Gunnison River Valley. The project starts approximately 1 mile south of the Town of Collbran, in Mesa County, Colorado, at the Collbran Compressor Station. The first 0.56 miles of the pipeline were replaced in the summer of 2016, and another 0.49 miles were replaced in 2019, across Grove Creek. Approximately 26.76 miles would be on private lands, and another 12.64 miles on National Forest Service lands.

The new pipeline is assumed to be an 8-inch diameter, welded steel, buried pipeline. The existing pipeline would be capped, flooded with inert gas, and retired in place, unless it was necessary to remove sections of the pipeline to facilitate construction.

Phase A of the project is scheduled for construction in the summer of 2022 and would include approximately 11-miles of new pipeline, rerouted to the west of the Town of Cedaredge (to avoid more congested areas within the Town). Phase A generally includes a 30-foot-wide ROW, but the construction corridor varies in width from 30-feet, to less than 10-feet in some areas. The current anticipated surface disturbance associated with construction is approximately 44-acres, which includes areas needed for pipeline and materials staging, and temporary workspaces.

Construction would involve grading and excavation activities. Topsoil would be segregated prior to conducting any activities involving subsoil.

Please see the project area map **(Figure 1** and **Appendix II)** for a legal description (i.e., Section, Township and Range) of the project area.

b. Sequence for Major Construction Activities and planned implementation of control measures for each phase:

1. **Pre-Construction Civil Surveys** - Surveys would be performed before construction activities commence to identify the centerline of the pipeline and the boundaries of the approved workspace. Flagged or painted lath would be set along the centerline and at the edges of the work limits at intervals required to maintain line of sight. All Temporary Work Spaces (TWS) would be marked in a similar fashion and all four corners of each TWS would be marked by flagged or painted lath. Black Hills Energy inspectors would be responsible for verifying that the limits of authorized construction work areas are staked prior to construction.

2. **Install Pre-Construction Control Measures** – Control measures would be installed prior to construction to protect sensitive resources and/or to minimize off-ROW deposits of earth, rocks, vegetation, construction debris, or sediment. Pre-construction control measures would also be installed along the downslope side of the perimeter of TWS and staging areas to delineate the allowed work area.

3. **ROW Clearing -** After vegetation is mowed or cut (as necessary), the construction workspace would be graded to allow safe and efficient operation of construction equipment and vehicles, and to provide space for the storage of subsoil and topsoil. Construction activity and ground disturbance would be limited to approved, staked areas. ROW clearing may be phased for this project instead of clearing all at once.

All topsoil, up to a depth of 6 inches (if present), would be removed from the trench lines and working side of the workspaces. Some of the project occurs on previously disturbed or surfaced areas, and in these areas topsoil salvage would not occur. Topsoil would be stockpiled separate from subsoil and would not be used to pad the trenches or construct trench breakers. Dry drainages or washes that cross the construction workspace would not be blocked with topsoil or subsoil piles. Topsoil and subsoil would be placed outside of the ordinary high-water marks of drainages. Gaps would be left at regular intervals in the windrowed topsoil and subsoil to avoid ponding and excess diversion of natural runoff during storm events.

Fugitive dust would be generated during construction. This would be minimized by wetting down the soils with potable water if necessary, minimizing traffic and limiting speeds in disturbed areas, and compacting or wetting stockpiles, where appropriate.

4. **Trenching and Backfilling** - For the pipeline, an open trench approximately 3 feet wide and 5 feet deep would be dug using a trackhoe. Excavated material would be sidecast for backfilling after pipeline installation; larger rocks would be sifted out and not used to backfill around pipeline. The depth to the top of the pipeline would not be less than 3 feet. Topsoil will be segregated and replaced back on top to aid with reclamation.

   Access would be provided for landowners to move vehicles, equipment, and livestock across the pipeline trenches where necessary. Black Hills Energy will contact landowners and provide adequate crossing facilities as needed.

   No blasting is expected. Crews would utilize rock-saws or hydraulic hammers to excavate where rock formations are encountered during construction.

5. **Pipeline Installation** - Pipe joints would be strung along the trench and welded together. When necessary, pipe would be bent to accommodate horizontal and vertical changes in direction. Pipe joints would be lined up end-to-end, clamped into position, and welded in accordance with applicable regulations and standards currently required for oil pipelines. All welds would be inspected using non-destructive radiographic inspection methods and visually inspected by a qualified inspector. A specialized contractor would be employed to perform this work. Any defects discovered during such inspections would be repaired or replaced as required under the applicable regulations and standards.

   To help prevent corrosion, the pipe would be externally coated with fusion bonded epoxy coating prior to delivery. After welding, field joints would be coated with a tape wrap, shrinkable sleeve wrap, or field-applied two-part epoxy. Before the pipe is lowered into the trench, the pipeline coating would be visually inspected and tested with an electronic detector and any faults or scratches discovered through the inspection would be repaired.

6. **Lowering-in and Padding Pipeline** - Before the pipe section is lowered into the trench, an inspection would be conducted to verify that the pipe is properly fitted, the depth of the trench is correct to provide for minimum cover requirements, and the trench bottom is free of rocks and other debris that could damage the external pipe coating. Dewatering may be necessary where water has accumulated in the trench. Pipe sections would be simultaneously lifted in position over the trench and lowered in place. Sifted soil fines from the excavated subsoils would provide rock-free pipeline padding and bedding. Sandbags may be used to pad the bottom of the trench instead of, or in combination with, padding with soil fines. In rocky areas, padding material or a rock shield would be used to protect the pipe.

7. **Backfilling Pipeline Trenches** - Backfilling would begin after a section of pipe has been successfully placed in the trench. Backfilling would be conducted using an excavator, bulldozer

or other suitable equipment. Backfilling the trench would generally use the subsoil previously excavated from the trench except in rocky areas where imported, appropriate fill material may be needed. Backfill would be graded and compacted (where necessary for ground stability) by tamping or walking with a wheeled or tracked vehicle. Compaction would be performed until there are no voids in the trench. Any excavated materials or materials unfit for backfill would either be utilized elsewhere, shallowly mounded on the trench (to help avoid trenchline settling issues), or properly disposed of in conformance with applicable laws and regulations.

8. **Installation of Temporary and Permanent Control Measures** – Control measures would be installed, in addition to those installed during pre-construction. These control measures would include appropriately sized culverts, rock checks in the bar ditches, water bars or blankets on the ROW, sediment traps, and rock aprons to dissipate the water's energy where discharged from the access road or ROW.

9. **Clean Up and Restoration** – Cleanup and restoration would occur after the pipeline is installed and backfill activities are completed. Cleanup of the surface along the construction workspace and any TWS would include removing construction debris and final grading of disturbed areas to specified contours. Erosion control measures would be installed, and seeding would be performed in accordance with BLM and State requirements.

   Black Hills would employ drill or broadcast seed methods to ensure proper seed placement. Drill seeding is preferred and would be used wherever soil characteristics and slope allow effective operation of a rangeland seed drill. Drill seeding would be performed perpendicular to the slope; seed would be placed in direct contact with the soil at an average depth of 0.5 inches, covered with soil, and firmed to eliminate air pockets around the seeds.

   Broadcast seeding would be employed in areas where drill seeding is unsafe or physically impossible. Seed would be applied uniformly over disturbed areas with manually operated cyclone-bucket spreaders, mechanical spreaders, blowers, or by another accepatable method. Broadcast application rates would be twice that of drill rates. The seed would be uniformly raked, chained, dragged, or cultipacked to incorporate seed to a sufficient seeding depth, if possible. Seeding may be deferred to a later time, to enter appropriate seeding timeframes. Seeding requirements and/or recommendations are based on each specific landowner request and may be included in a Surface Use Agreement.

   All driveways, access roads, cattle guards, fences, and artificial and natural livestock and wildlife water sources affected by construction activities would be returned to conditions substantially similar to those existing prior to construction.

10. **On-going Maintenance** – Structural and non-structural control measures associated with pads would continue to be inspected and repaired as necessary until final restoration requirements have been fulfilled.

Control measures would be installed and/or maintained through all phases of construction outlined in **Section 7** above.

c. Estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities.

Construction of this phase of the pipeline project will disturb approximately 44-acres; the length and width of temporary use areas and ROW with varies throughout the project. The project would have less than 5 areas with permanent above ground appurtenances for valve sets, pig launchers and receivers, and block

valves. These permanent surface disturbance areas would be surfaced with gravel and road-base and fenced with appropriate signage and would be maintained vegetation-free for safety and to minimize fire risks. Total long-term surface disturbance associated with these sites would be 44-acres.

d. A summary of any existing data that describe the soil or existing potential for soil erosion

Soil types and their erodibility potential for soils found in the project area are listed in **Table 3**.

Table 3. Soil Types and Extent in Project Area

Soil Type Name	Map Unit Symbol	Erosion Potential	Total Acres	Percent of Disturbance
Agua Fria stony loam, 3 to 12 percent slopes	3	Low to Moderate	9.4	21.4%
Agua Fria clay loam, 1 to 6 percent slopes	5	Low to Moderate	7.8	17.7%
Apishapa silty clay loam, 0 to 5 percent slopes	6	Low to Moderate	0.9	2.0%
Avalon loam, 3 to 6 percent slopes	10	Low to Moderate	2.6	5.8%
Billings silty clay loam, 3 to 6 percent slopes	15	Low to Moderate	1.6	3.7%
Fluvaquents, flooded	35	Low to Moderate	1.4	3.2%
Limon silty clay loam, 3 to 6 percent slopes	51	Low to Moderate	0.4	0.8%
Mesa loam, 0 to 3 percent slopes	53	Low to Moderate	0.9	2.0%
Mesa loam, 3 to 6 percent slopes	54	Low to Moderate	5.1	11.6%
Mesa-Utaline stony loams, 3 to 12 percent slopes	55	Moderate	10.6	24.0%
Utaline-Torriorthents complex	80	Moderate	3.0	6.8%
Total Project Disturbance Area			**~44**	100%

All soils listed above indicate they would have a low to moderate susceptibility to wind and water erosion, based on Soil Erosion K Factors and the Wind Erodibility Index. **Table 3** includes detailed information about soils, including erosion potential for the specific soil type at each location. Soil information can be found online from the Web Soil Survey (WSS): http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. The WSS is operated by the United States Department of Agriculture Natural Resources Conservation Service.

e. A description of the percent of existing vegetative ground cover relative to the entire site and the method for determining the percentage

Disturbance within the project area would occur between 6,700 and 8,200 feet in elevation. The project area contains rolling terrain, dominated by agricultural production (irrigated hay fields, orchards, and pastures).

The project area encompasses several intermittent and perennial drainages. These drainages are bordered by willow, shrub, riparian, sagebrush, irrigated agriculture, and a variety of grasses.

The vegetation located within and adjacent to the project area is comprised primarily nonnative vegetive cover, associated with rural agricultural operations. The project is also primarily located within previously disturbed terrain associated with road construction, pasturelands, orchards, and irrigated hay fields. Specific vegetative communities found in the project area are listed in **Table 4**.

Based on visual estimates, the estimated average ground cover for the project is between 80 and 95 percent.

Vegetation type and ground cover percentage is documented with photographs, vegetation plots, and/or visual monitoring prior to construction for each site.

Table 4. Vegetation Types and Acres

Vegetation Community Type	Total Acres	Percent of Disturbance
Deciduous Forest	0.01	0.03%
Developed, Low Intensity	6.3	14.32%
Developed, Medium Intensity	0.33	0.75%
Developed, Open Space	18.01	40.93%
Evergreen Forest	1.82	4.13%
Hay/Pasture	15.05	34.21%
Shrub/Scrub	2.04	4.63%
Woody Wetlands	0.44	0.99%
Total Project Disturbance Area	**~44**	**100%**

Noxious Weeds

No formal noxious weed inventory has occurred at this time. As the project area occurs along roadsides and in previously disturbed areas, noxious weeds are not uncommon. Common weed species include whitetop (*Lepidium draba*), Canada thistle (*Cirsium arvense*), chicory (*Cichorium intybus*), cheatgrass (*Anisantha tectorum*), and Russian knapweed (*Rhaponticum* [*Acroptilon*] *repens*). There is a high likelihood that noxious weeds will invade the disturbed construction corridor without aggressive weed control.

f. A description of any allowable non-stormwater discharges at the site, including those being discharged under a division low risk discharge guidance policy

It is anticipated that there would be allowable non-stormwater discharges associated with construction of this project. Dust abatement to the access roads and ROW may be performed by applying water with water trucks. Surplus water discharging as a result of these operations would be an allowable non-stormwater discharge.

Uncontaminated springs may be encountered during construction activities. Runoff from these springs would be passed through control measures and would be considered an allowable non-stormwater discharge.

Construction dewatering involving limited amounts of ground water would be an allowable non-stormwater discharge, under a Construction Dewatering Permit. Discharged water would be run through control measures to minimize scouring and off-ROW sediment discharge. Construction dewatering involving groundwater with limited amounts of stormwater would be discharged in accordance with a Construction Dewatering Permit as needed. Black Hills prefers to utilize CDPHE's Low Risk Discharge Policy when water quality meets all permit standards.

Potholing activities may be used to locate existing utility lines would represent an allowable non-stormwater discharge. High pressure water would be used to remove soil from buried utility lines. This water would be retrieved with the use of vacuum systems. The contents of the vacuum systems may be discharged onto subsoil located within the project area. This discharge would be protected as necessary to

prevent discharging sediment outside the project boundaries or into any drainage. Water released through control measures would be an allowable non-stormwater discharge.

Concrete washout sites would represent the last allowable non-stormwater discharge. Concrete trucks would rinse their equipment after delivering concrete. The washout would not occur on topsoil, nor would the concrete be allowed to discharge off-ROW. The washout would be run through control measures (such as captured in eco-pans or excavated and lined pits) before water is allowed to discharge.

g. A description of areas receiving discharge from the site. Including a description of the immediate source receiving the discharge.

There are numerous unnamed intermittent and ephemeral drainages located throughout the project area. There are also several perennial streams which flow through the project, as displayed on the Site Map, and discussed in **Table 5**. Some of these drainages will be avoided by boring under the drainage. These locations are displayed on the construction drawings.

Table 5. Receiving waters

Stream Crossing Type	Number of Crossings
Intermittent/ephemeral	7
Perennial	7

Receiving waters in Table 5, as well as Surface Creek, Cedar Run Gulch, and Tongue Creek flow into Gunnison River and ultimately the Colorado River. The project area does not include any municipal storm sewer systems.

h. A description of all stream crossings located within the construction site boundary.

The streams listed above are the streams with potential crossings. At previously mentioned, several stream crossings may be bored, which would reduce disturbance to the stream crossing. Each stream crossing is displayed on the Site Map found in **Appendix II**.

7.0 SITE MAP

The project area resides entirely within Delta County, Colorado. The Site Maps are included in **Appendix II** and updated as site conditions change.

Site specific maps identify:

- Construction site boundaries.
- Flow arrows that depict stormwater flow directions on-site and runoff direction.
- All areas of ground surface disturbance including areas of borrow and fill.
- Areas used for storage of soil.
- Locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt.
- Locations of all structural control measures.
- Locations of all non-structural control measures.

- Locations of springs, streams, wetlands, and other state waters, including areas that require pre-existing vegetation to be maintained within 50 feet of a receiving water, also locations determined feasible in accordance with Part I.B1.a.i(e); and
- Locations of all stream crossings located within the construction site boundary.
- Locations where alternative temporary stabilization schedules apply.

Dedicated asphalt or concrete batch plants are not anticipated to be utilized; therefore, they would not be depicted on the site-specific maps, unless utilized.

8.0 FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

In accordance with the Stormwater Management Plan, Part I.B.1.a.iii(a), the SWMP must document constraints necessitating an alternative temporary stabilization schedule. An alternative stabilization schedule with locations identified where the alternative schedule is applicable on the map.

Part I.B.1.aiii(a) states: "*Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Temporary stabilization methods may include, but are not limited to, tarps, soil tackifier, and hydroseed. The permittee may exceed the 14-day schedule when either the function of the specific area of the site requires it to remain disturbed or physical characteristics of the terrain and climate prevent stabilization.*"

If construction of the project develops constraints necessitating the alternative schedule, the alternate stabilization schedule, and all locations where the alternative schedule is applicable will be documented on the inspection report and on the site map.

8.1 Final Stabilization and Long-Term Stormwater Maintenance

Final stabilization of the project would be considered during all phases of construction. All things being equal, choices made during construction would favor those options that would enhance the final stabilization process. During clearing and grading activities, the minimum amount of soil and vegetation would be disturbed as possible. In particular, the removal of mature brush and trees would be limited to only those that must absolutely be removed to provide a safe and effective working area. The minimum amount of stream bank features would be disturbed when crossing perennial or intermittent streams. Rocks, logs, and other vegetative debris would be placed on the edge of the disturbance to be used as erosion control during final restoration. Vegetation may be shredded or mulched.

Topsoil would be removed and segregated. The amount of topsoil removed would be based on individual landowner requirements. In general, the entire topsoil layer would be removed and protected. After a pipeline is installed and contours are restored, topsoil would be redistributed over the entire disturbed ROW in a uniform manner. Compacted topsoil would be scarified to a depth of 3 to 4 inches to produce a viable seedbed.

All disturbed sites would be seeded with the landowner approved seed mixes. Seeding would only occur when soil conditions are conducive and would not occur during muddy or snow-covered conditions. All seed used would be certified weed-free.

Where possible, seed would be incorporated into the soil with the use of a no-till or agricultural drill. In areas unable to be seeded with a drill, seed would be broadcast with manually operated cyclone-bucket spreaders, mechanical spreaders, or blowers. Broadcasted seed would be incorporated into the soil with a

rake, harrow, cultipacker, or chain. Broadcast seed rates would be double that of the drill rates. All seed tags would be collected for future reference.

Crimped mulch, tackified mulch, or erosion control matting would be installed as needed to areas subject to erosion. Permanent waterbars and rock aprons would be installed to direct water off the ROW or across the ROW as needed. Rocks, logs, and vegetative debris removed during clearing would be scattered across the ROW to provide additional erosion protection.

Final stabilization is reached when all ground disturbing activities have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

Long-term stormwater management would be the responsibility of Black Hills Energy. The Stormwater Inspector would conduct regular inspections of control measures and note areas of erosion or poor vegetation return. Maintenance would be performed by Black Hills Energy or contractors it employs.

9.0 INSPECTION REPORTS

Qualified Stormwater Inspector(s) are responsible for performing inspections of all control measures. Inspectors would also monitor the restoration process on all disturbed land within the project and identify additional control measures, seed, and stabilizer requirements. Inspectors would be responsible for completing inspection reports to properly document the implementation of the SWMP.

9.1 Minimum Inspection Schedule

The minimum inspection schedule applies to those sites under active construction, which includes the period from when the ground is initially disturbed to when construction activity is completed and includes the preparation of areas that would be revegetated for interim reclamation. The first site inspection must be conducted within in seven calendar days of the commencement of construction activities on site, in accordance with one of the following minimum frequencies:

- At least one inspection every 7 calendar days.
- At least one inspection every 14 calendar days, PLUS post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion.
    - Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.

Inspections may be conducted on either the 7-day or 14-day schedule and may switch between these schedules as appropriate for the site. The inspection schedule must be noted on the inspection reports.

When site conditions make the required schedule impractical, Black Hills Energy may petition the division to grant an alternate schedule. The alternative inspection schedule may not be implemented prior to written approval by the division and incorporation into the plan.

9.2 Reduced Inspection Frequency

9.2.1 Post-Storm Event Inspections at Temporarily Idle Sites

Temporarily Idle Sites are those where there are no construction activities occurring following a storm event. At such sites, post-storm event inspections must be conducted prior to restarting construction activities at the site, but no later than 72 hours following the storm event and the delay noted in the inspection report. Routine inspections still must be conducted at least every 14-calendar days.

9.2.2 Completed Sites

Once construction is completed and the site has been prepared for final stabilization (including completion of appropriate soil preparation, amendments, and stabilization practices, the site (or portion of a site) is considered a "Completed Site" for purposes of the stormwater permit. A Completed Site qualifies for a reduced inspection schedule, as the potential for pollution is reduced if the site has been adequately prepared and/or seeded. However, because slopes and other disturbed areas are not vegetated, erosion in these areas still occurs, which requires maintenance activities such as re-grading and seeding of problem areas. As such, inspections must continue in order to address these situations.

For a Completed Site, a thorough inspection of the site stormwater management system is required at least once every 30 days, and post-storm event inspections are not required. This SMWP and map for the site must be amended to indicate those areas that would be inspected at the reduced frequency. Post-storm event inspections are not required.

This reduced inspection schedule is allowed if all the following criteria are met:

- All construction activities resulting in ground disturbance are complete.
- All activities required for final stabilization, in accordance with the plan, have been completed, except for application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts.
- The plan has been amended to locate those areas to be inspected on a reduced schedule.

9.2.3 Winter Conditions Inspections Exclusion

Inspections are not required at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period and melting conditions do not exist. This temporary exclusion is applicable only during the period where melting conditions do not exist and applies to the routine 14-day and monthly inspections, as well as the post-storm event inspections. Inspection records must document the following information when this exclusion is used: dates when snow cover occurred, date when construction activities ceased, and date melting conditions began.

9.2.4 Inspection Procedures

Each stormwater inspection would be documented on a Field Inspection Report, which will include at least the minimum requirements outlined by the CDPHE. The inspection will include observations of the following areas for evidence of and/or potential for pollutants leaving the site boundaries, entering the stormwater drainage system, or discharging to state waters:

- The construction site perimeter.
- All disturbed areas.
- Designated haul routes.
- Areas used for material or waste storage that are exposed to precipitation.
- Discharge locations.
- Locations where vehicles enter and exit the site.

Inspections must include the following requirements:

- 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 non-compliance with the Construction Stormwater Permit requirements and, if necessary, implement corrective action.

9.3 Maintenance

Black Hills Energy is responsible for overseeing control measure installation and/or maintenance. Maintenance of control measures would be performed as soon as possible after discovery or notification.

Control measures that have failed due to improper control measure selection, improper installation, insufficient maintenance, or due to a significant weather event must be maintained, repaired, or replaced as soon as possible after discovery or notification. The SWMP must be updated to include any newly installed control measures.

Maintenance of silt fence, straw wattles, straw bales, rock checks, and sediment traps would be required once the control measure has reached 50% of its sediment retaining capabilities or the structural integrity of the control measure is compromised. Maintenance would involve removing the captured sediment from the control measure and returning it to the ROW and/or making the necessary repairs to correct structural problems.

Maintenance would be performed to rock aprons, crimped mulch, hydro-seed, and erosion control matting as soon as the failure of any of these control measures are allowing erosion channels to form. Maintenance of rock aprons would involve removing the eroded channel and rearranging the rock or adding additional rock to prevent future failures. Maintenance of crimped mulch, hydro-seed, and erosion control matting would consist of removing the eroded channel, reseeding the damaged area, then, reapplying mulch, hydro-mulch, or erosion control matting.

Additional control measure specific maintenance procedures are outlined in the control measure typical drawings included as Appendix III.

9.3.1 Corrective Actions

The adequacy of control measures at each site must be assessed. All necessary steps must be made to minimize or prevent the discharge of pollutants, until a control measure is implemented and made operational and/or an inadequate control measure is replaced or corrected and returned to effective operating condition. If it is infeasible to install or repair a control measure immediately after discovery, the following must be documented and kept on record in accordance with the recordkeeping requirements in Part II.

- Describe why it is infeasible to initiate the installation or repair immediately; and
- Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible

Inadequate Control Measure:

Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measures that is not implemented to operate in accordance with its design.

9.3.2 Inspection Report

A Field Inspection Report will be completed during each site inspection. The completed inspection reports will be maintained in **Appendix IV** of this SWMP. At a minimum, the following items will be documented as part of the site inspection report:

- The inspection date.
- Name(s) and title(s) of personnel making the inspection.
- Weather conditions at the time of inspection.
- Phase of construction at the time of inspection.
- Estimated acreage of disturbance at the time of inspection.
- Location(s) of discharges of sediment or other pollutants from the site.
- Location(s) of control measures that need to be maintained.
- Location(s) and identification of inadequate control measures.
- Location(s) and identification of additional control measures needed that were not in place at the time of the minimum inspection schedule.
- Location(s) of control measures that failed to operate as designed or proved inadequate for a particular location.
- After adequate corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report will contain the following statement:

  > "I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

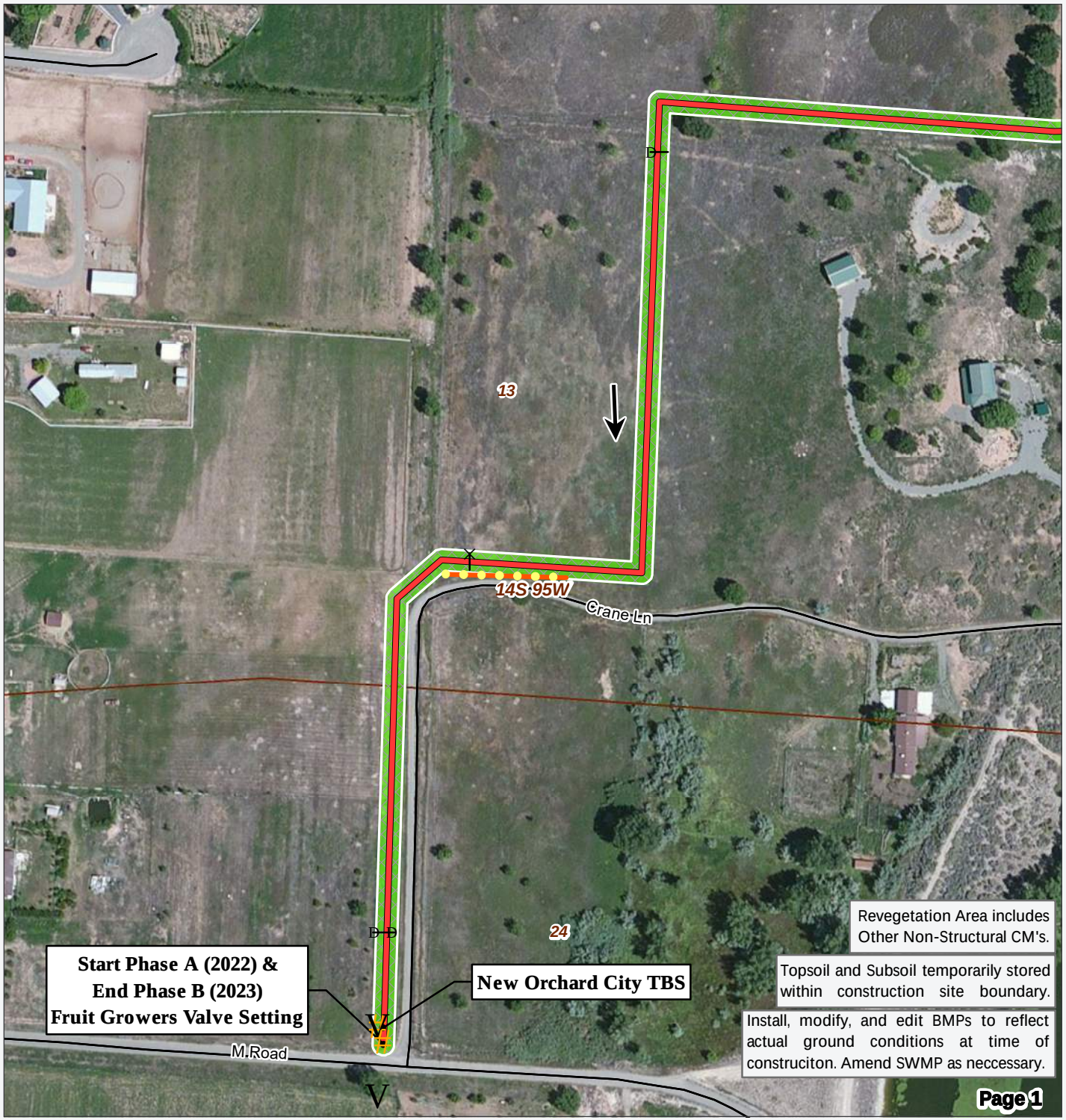
9.3.3 Other Required Noncompliance Notifications

The permit outlines four specific noncompliance circumstances that shall be reported within a 24- hour period from the time of permittee awareness. Please refer to these circumstances in Part II.L of the permit.

The selected stormwater inspector maintains a complete and updated copy of the SWMP based on field conditions. Required inspections are also stored on Black Hills Energy's FileNet database.

APPENDIX I. STORMWATER CONSTRUCTION PERMIT

APPENDIX II. SITE MAPS



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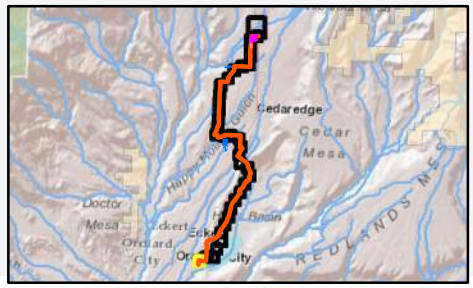
PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

LEGEND

- 8" Pipeline
- Township/Range/Section
- Ditch/Canal
- Stream
- Road
- Highway
- Flow Direction
- Construction Site Boundary & Area of Disturbance
- Revegetation Area
- Temporary Staging Area
- Culvert - Contractor to add outlet protection (Pre-construction)
- Wattles (not to scale)
- Wetland
- Point of Interest
- Water Bar - See Plan for Spacing



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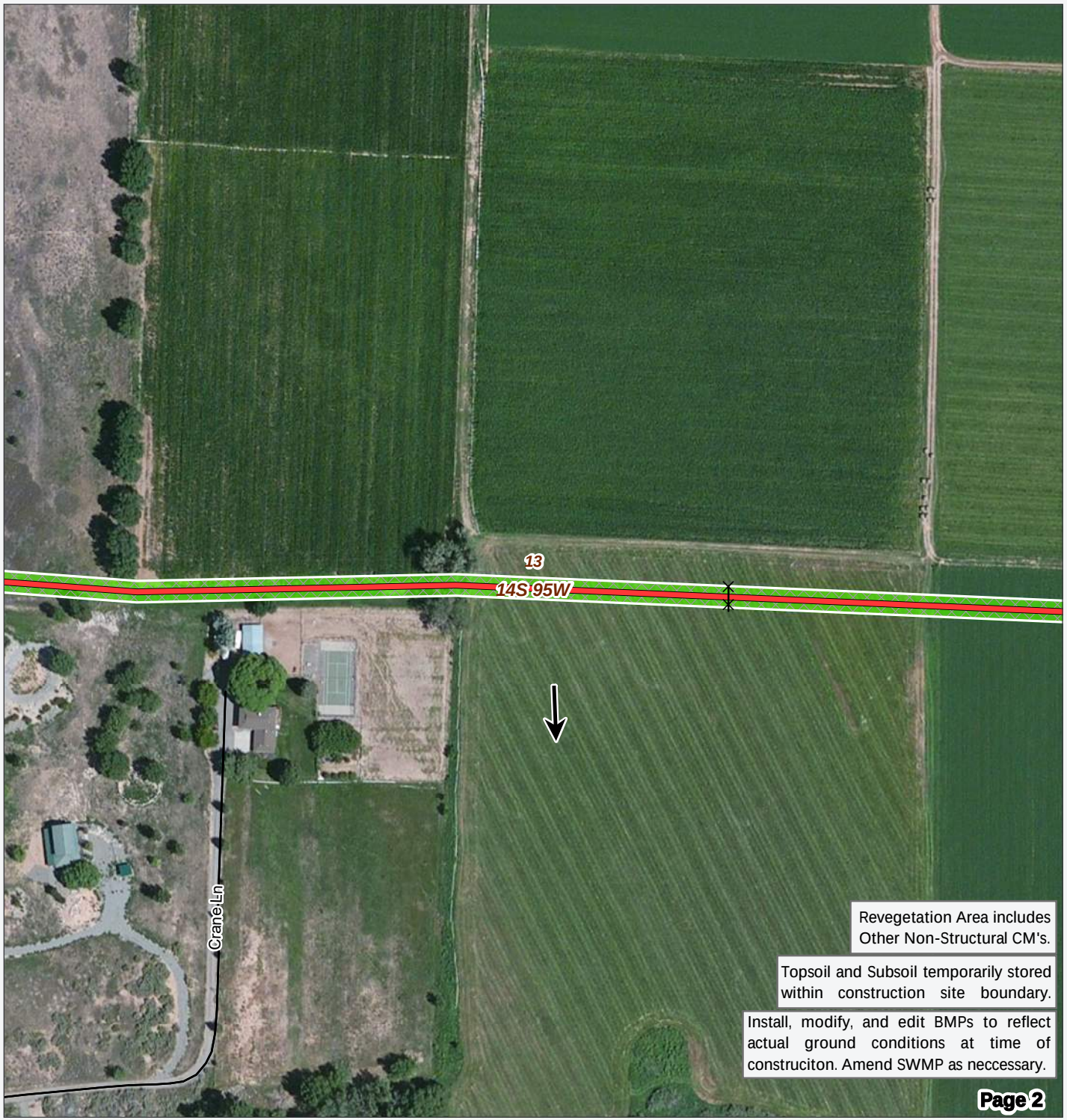

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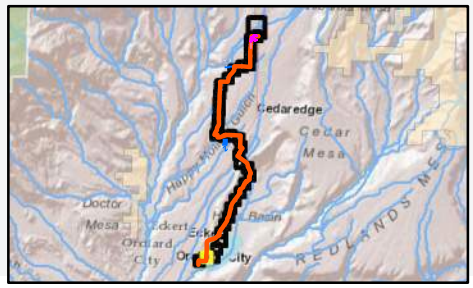

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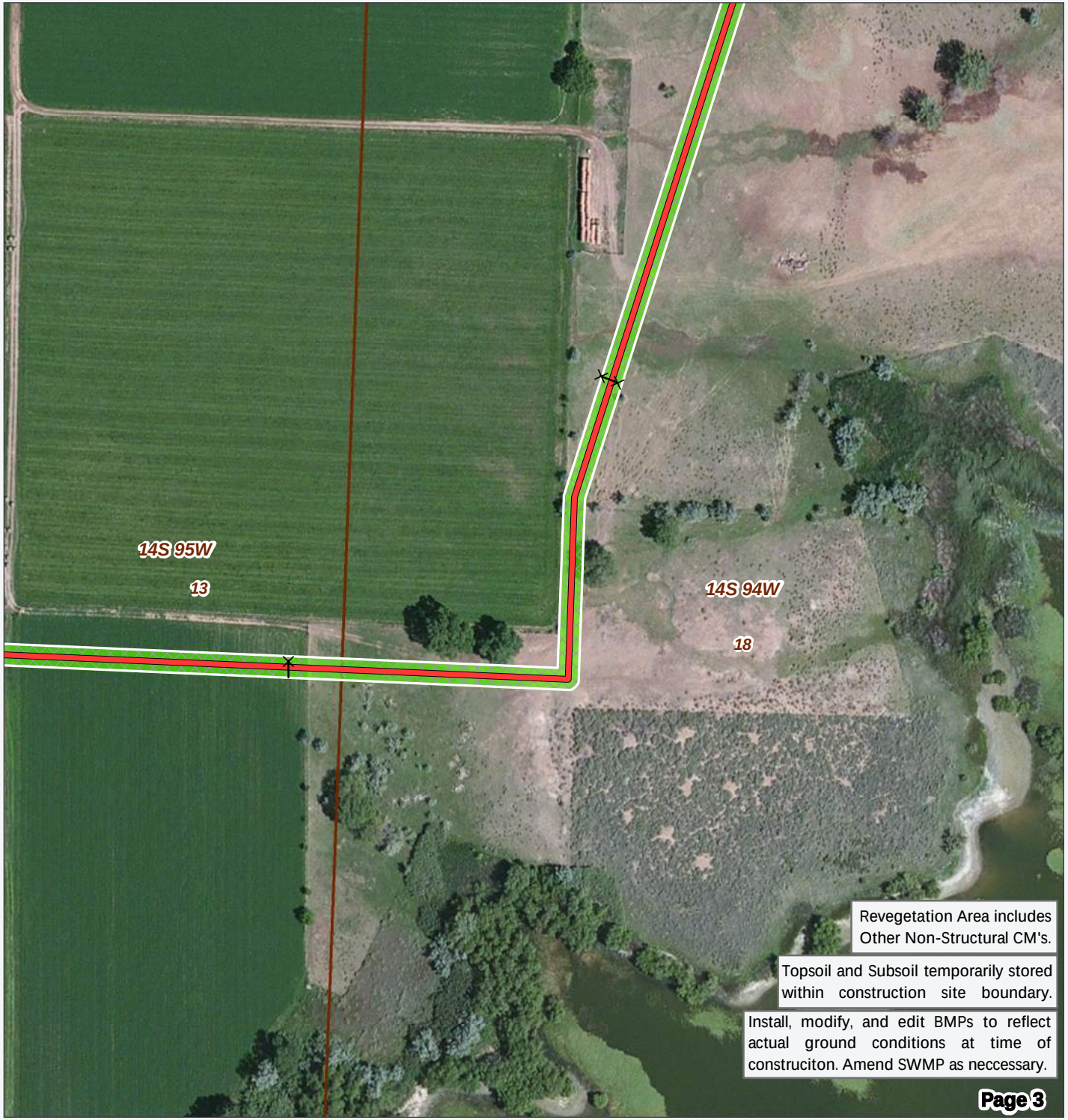

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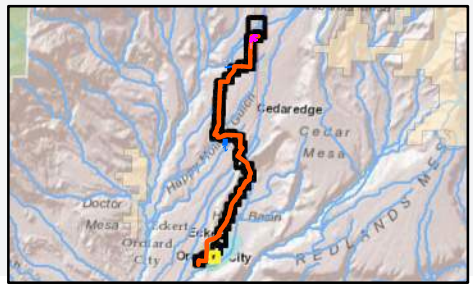

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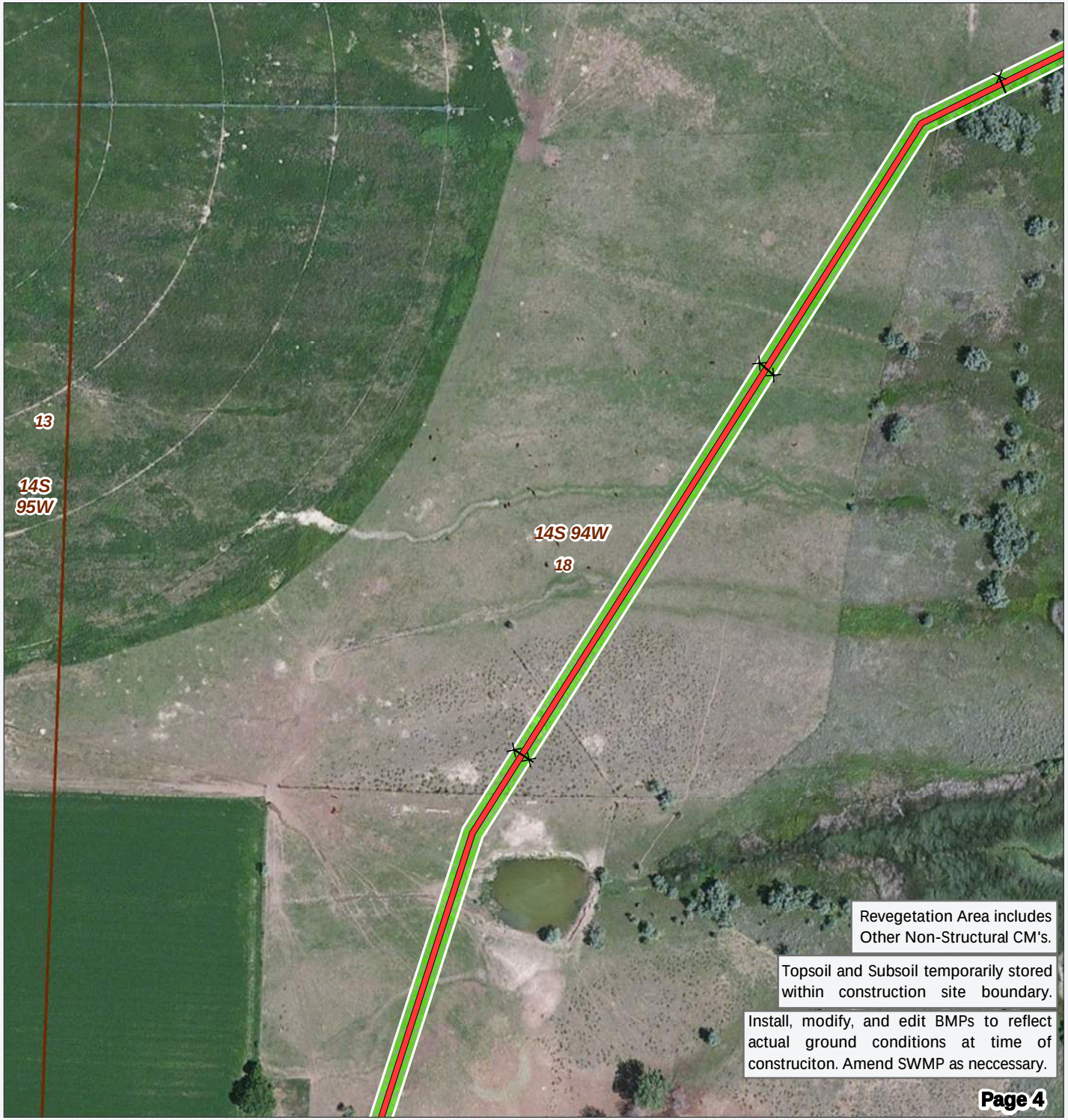

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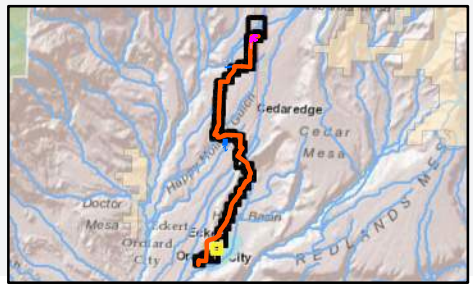

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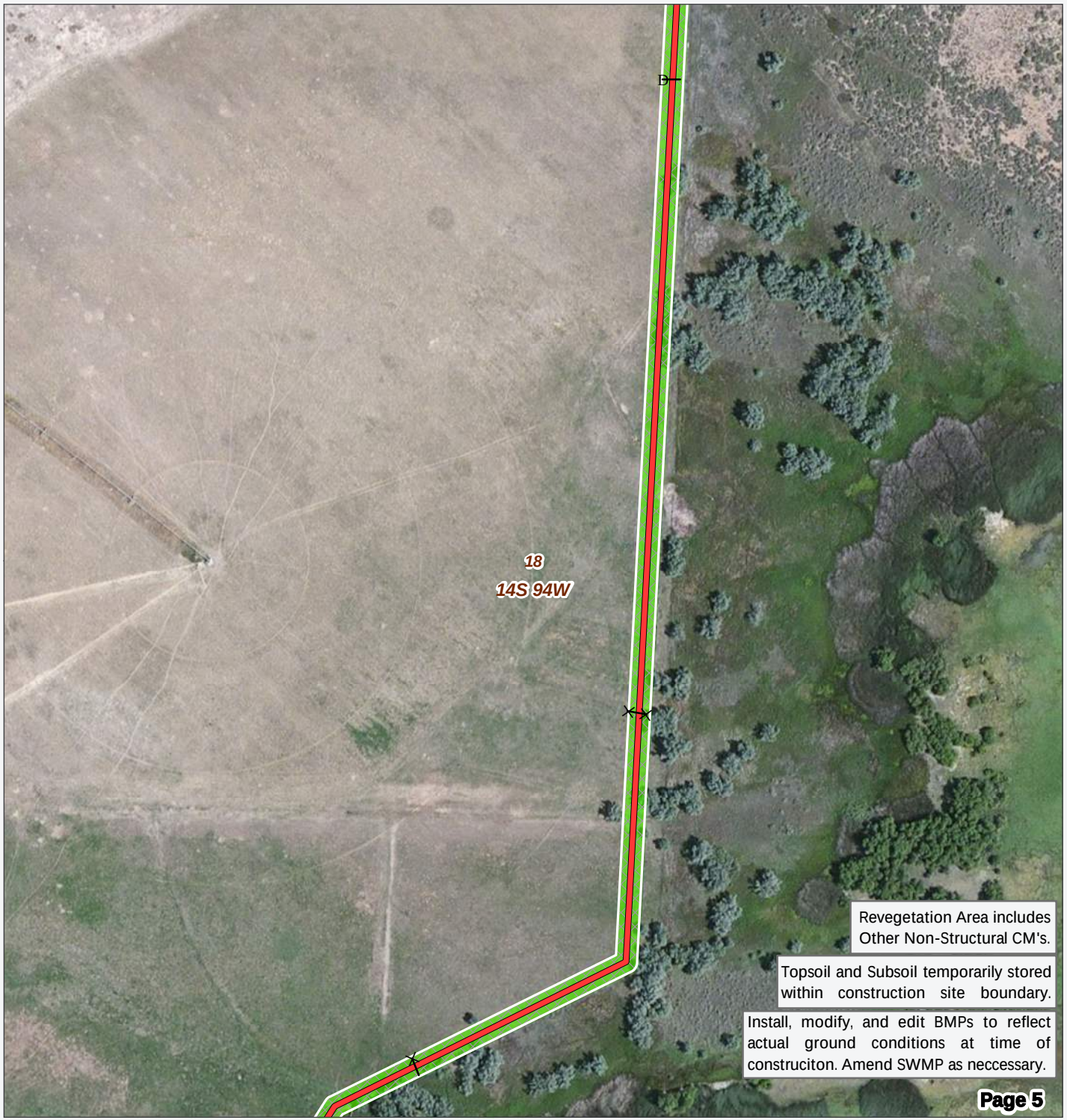

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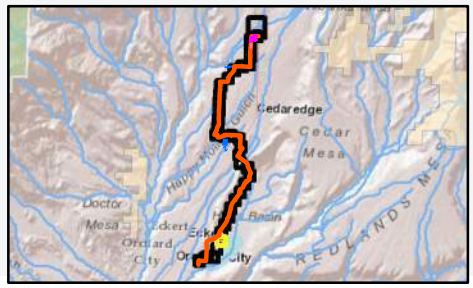

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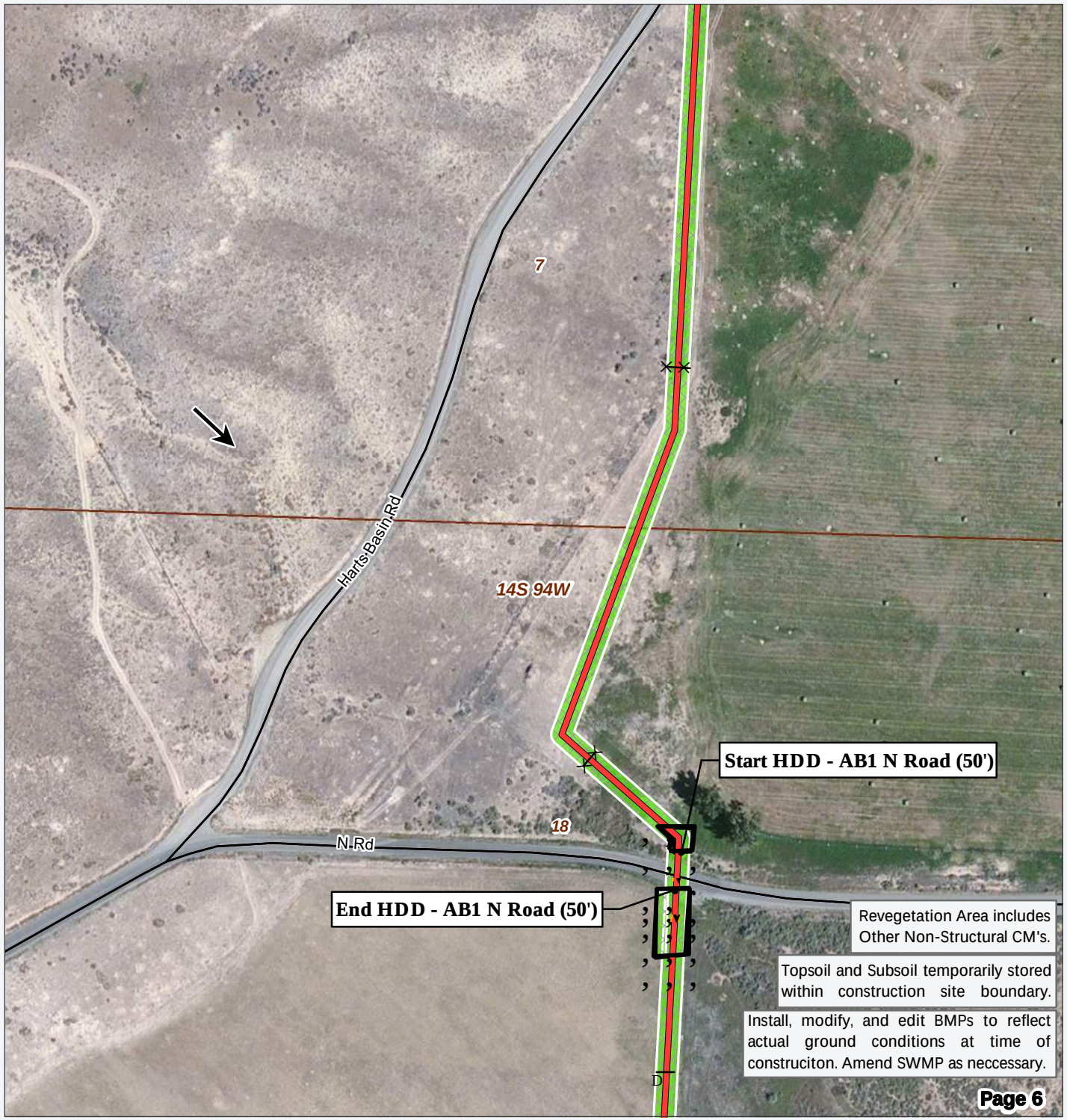

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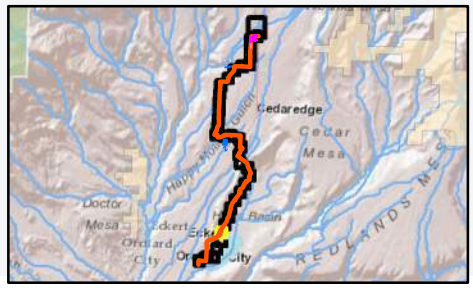

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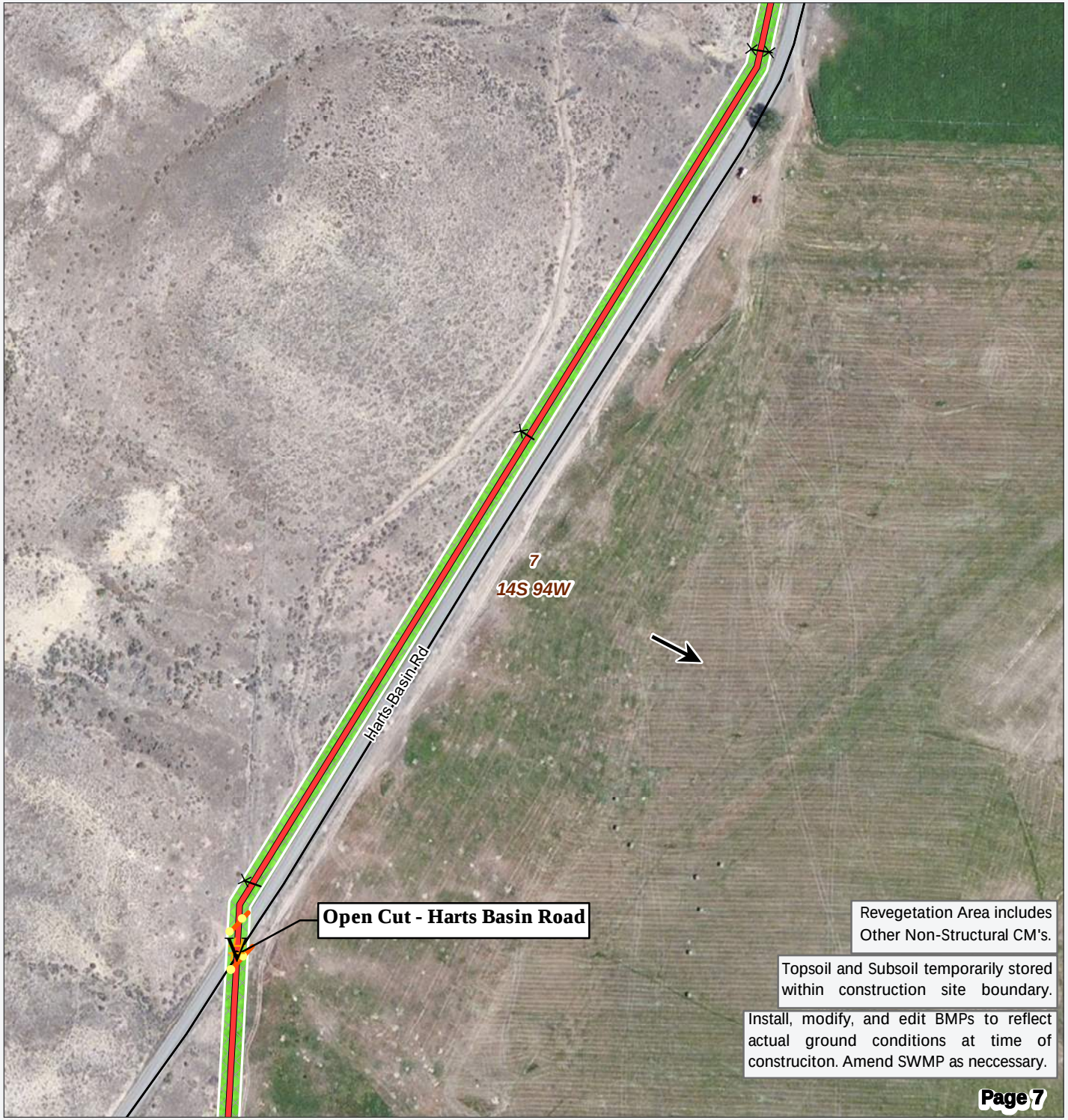

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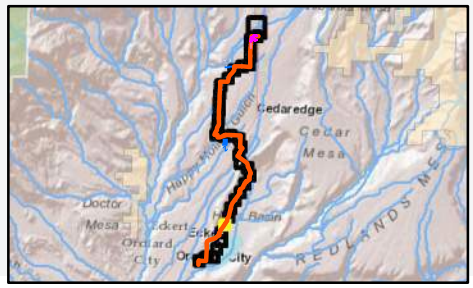

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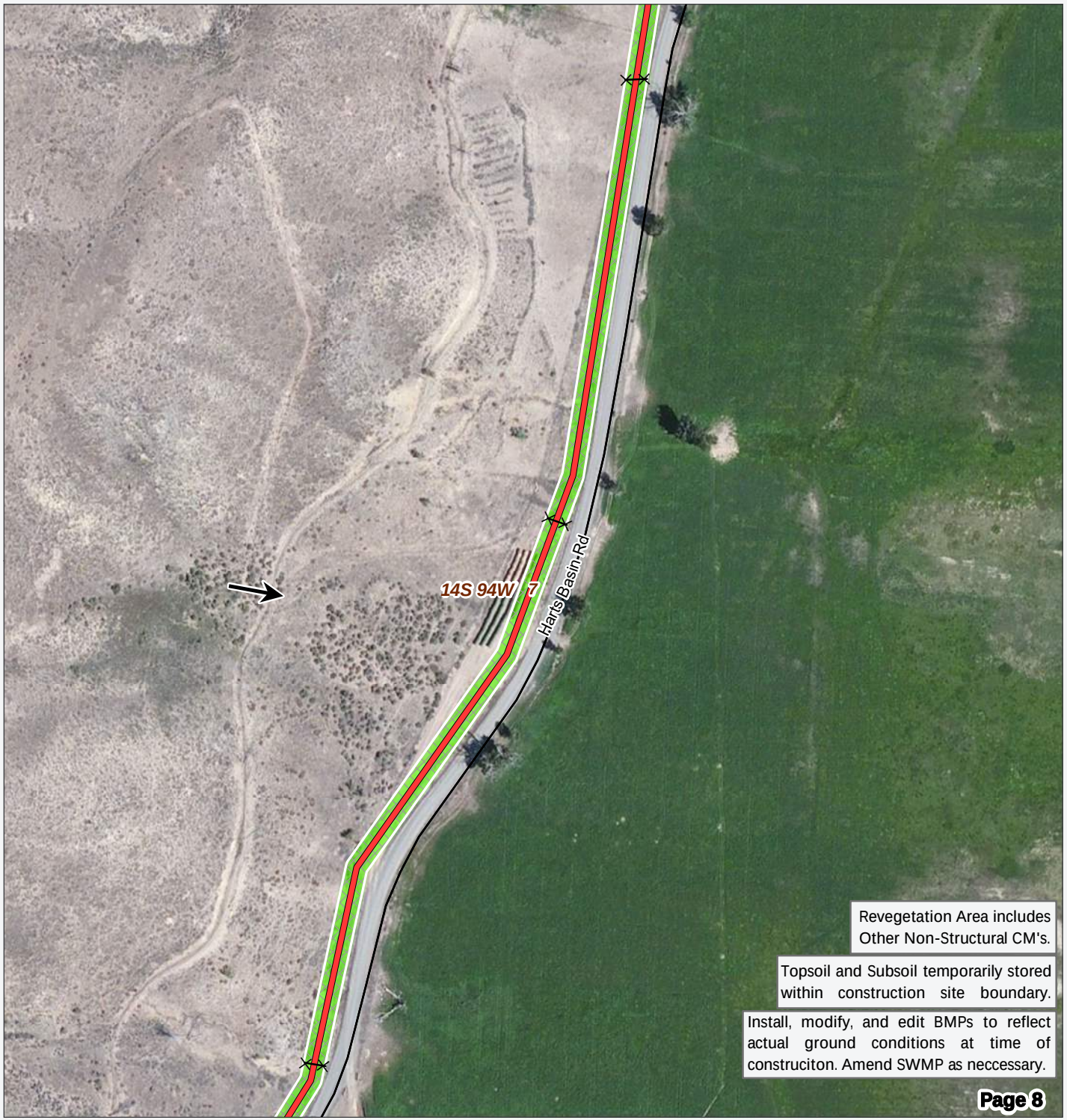

Revegetation Area includes Other Non-Structural CM's.

Topsoil and Subsoil temporarily stored within construction site boundary.

Install, modify, and edit BMPs to reflect actual ground conditions at time of construciton. Amend SWMP as neccessary.

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PROJECT COMPONENTS

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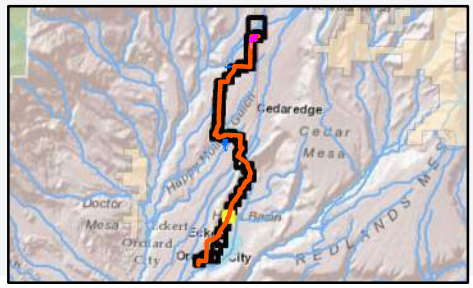

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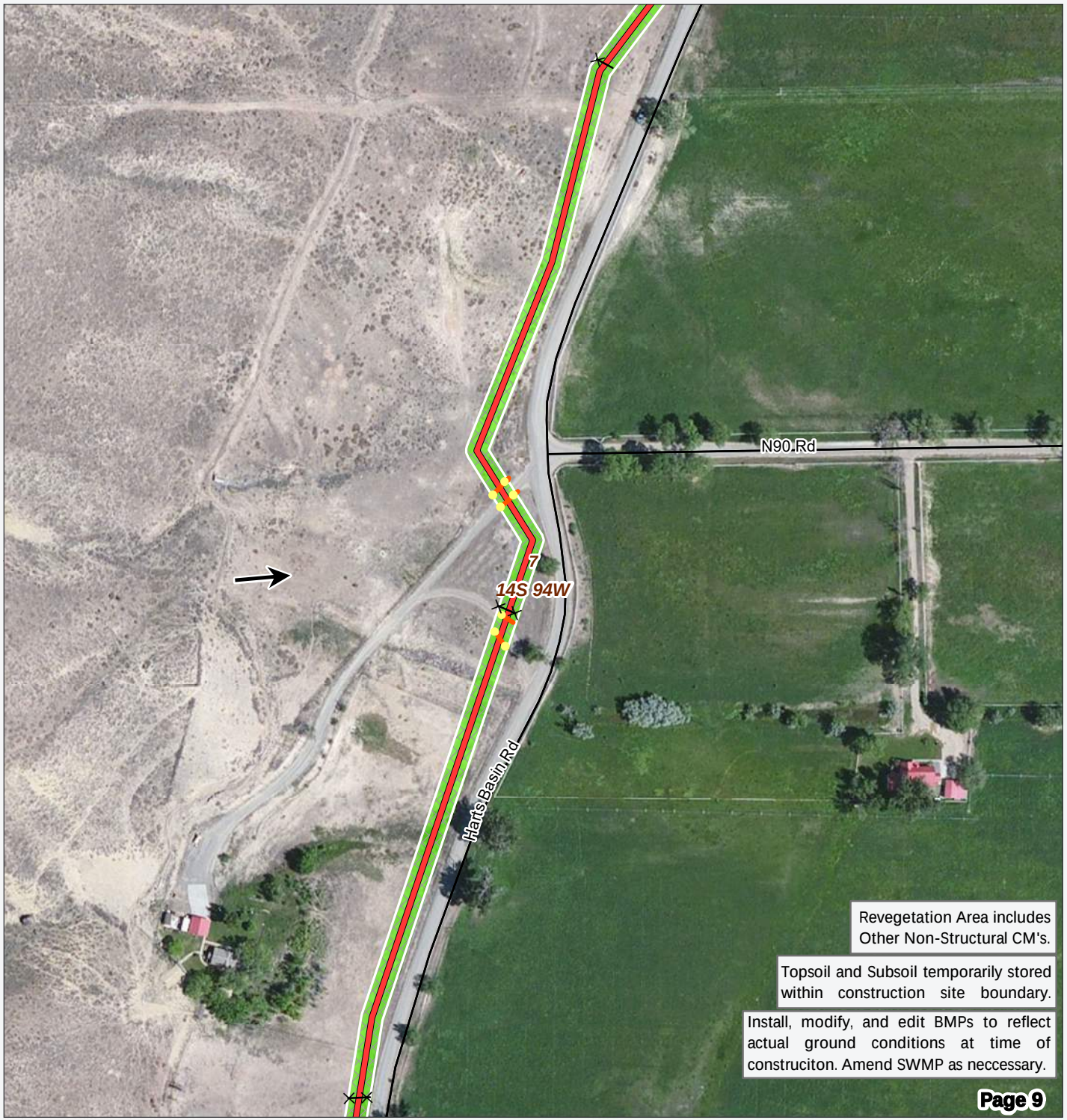

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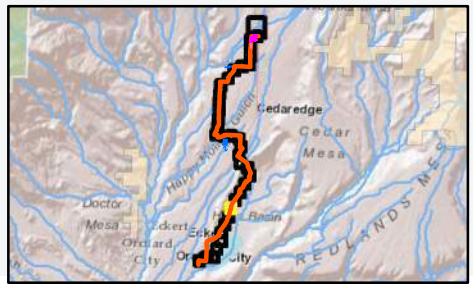

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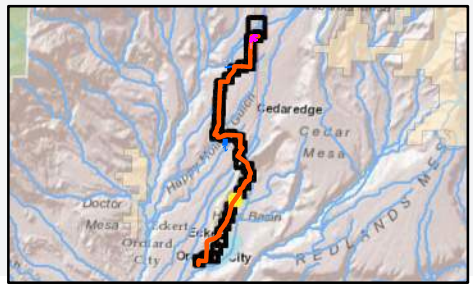

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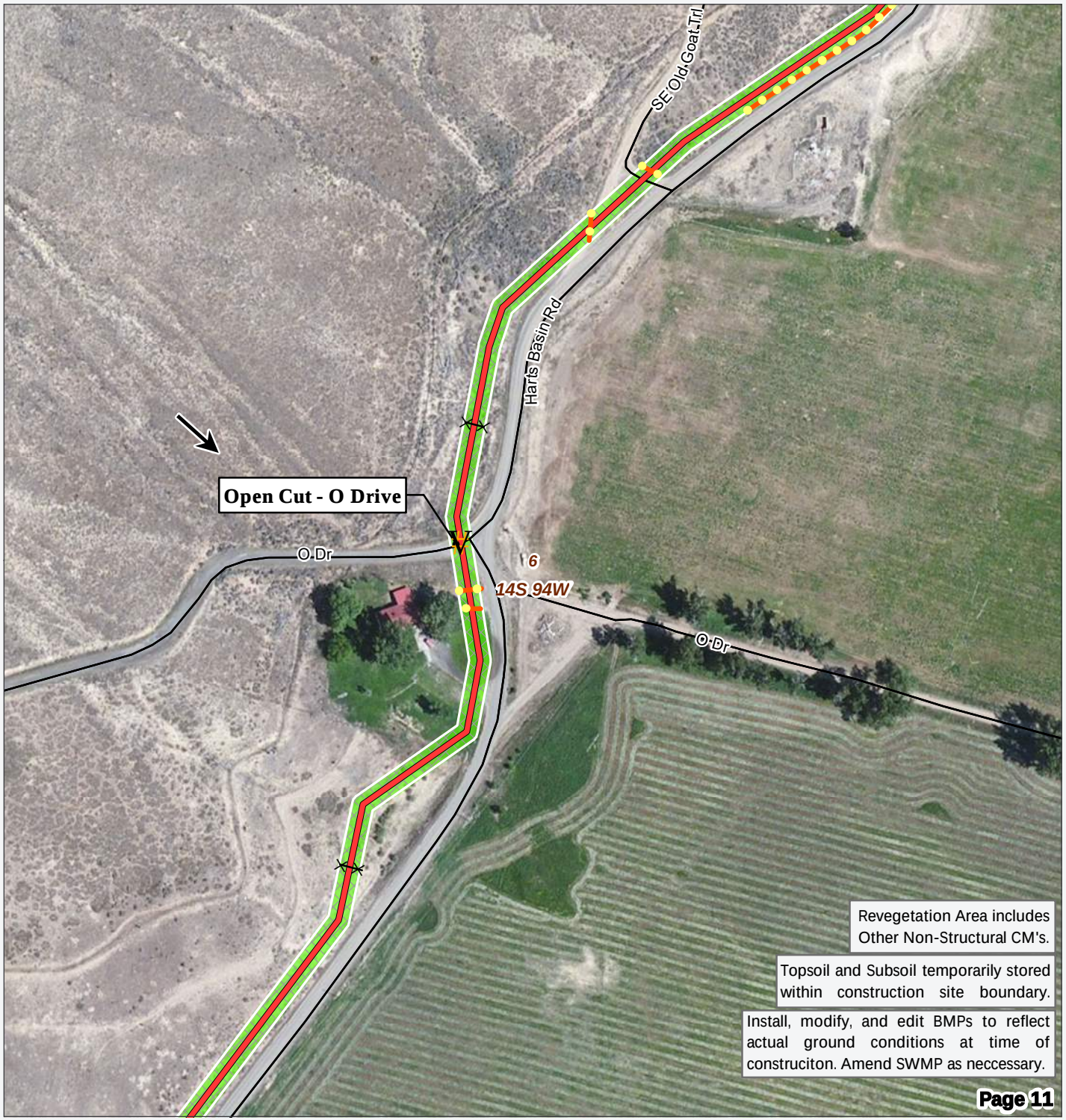

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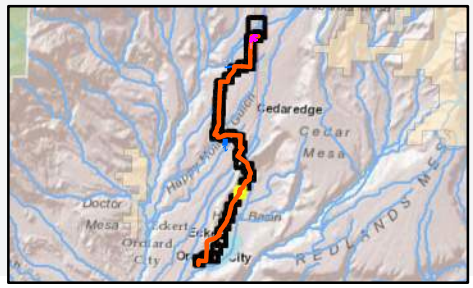

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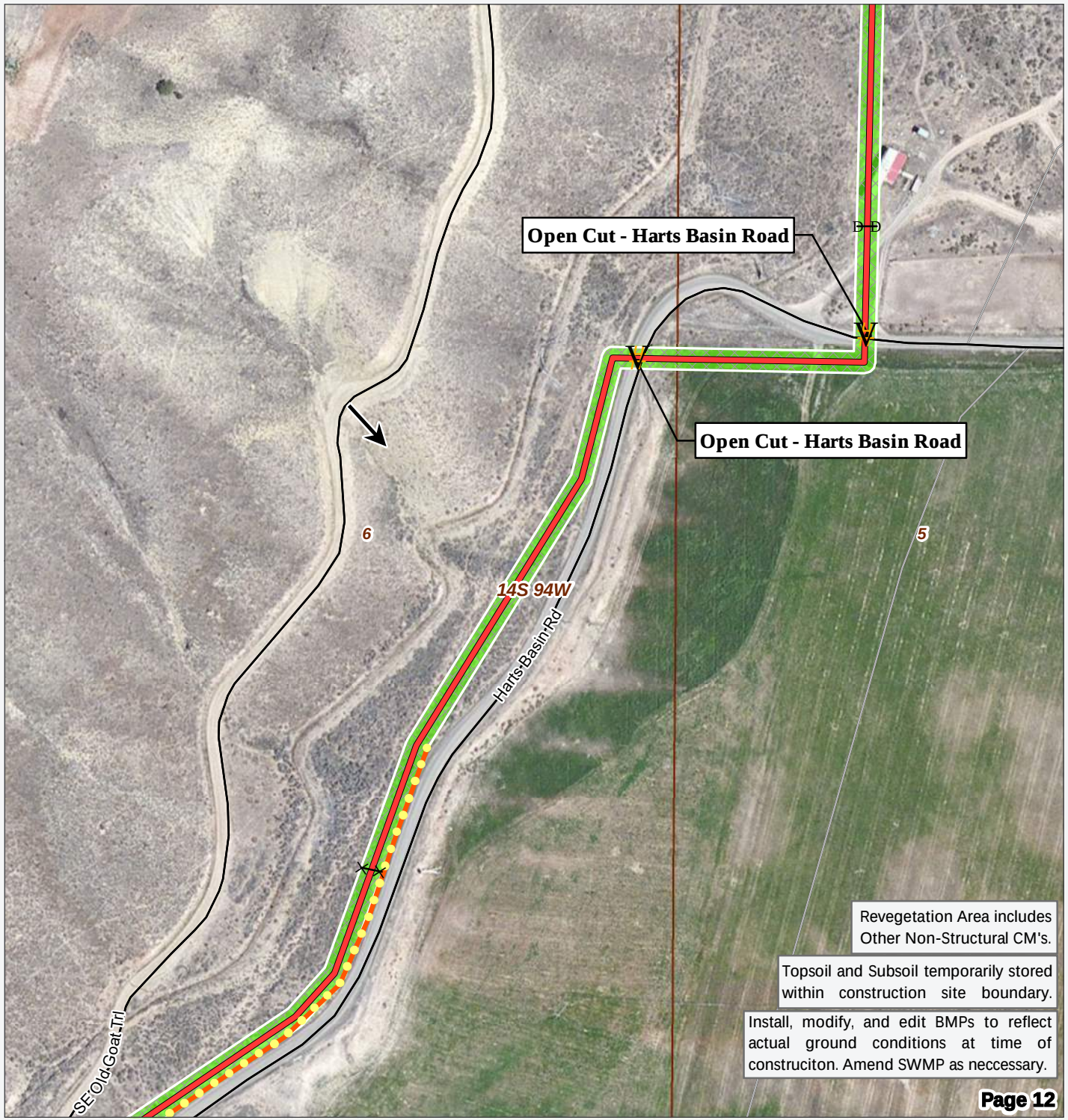
Date: 11/10/2021
Location: 38.9463, -107.9259
Created By: SGM
Drawn By: ANW

0 100 200 400 Feet

SCALE: 1 " = 200 feet



Document Path: D:\Temp\BlackHills\BlackHillsMXD_Reroute_09282021.mxd

PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

LEGEND

- 8" Pipeline
- Township/Range/Section
- Ditch/Canal
- Stream
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- Highway
- Flow Direction
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- Temporary Staging Area
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- Wetland
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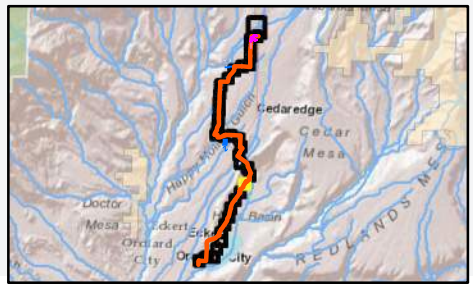

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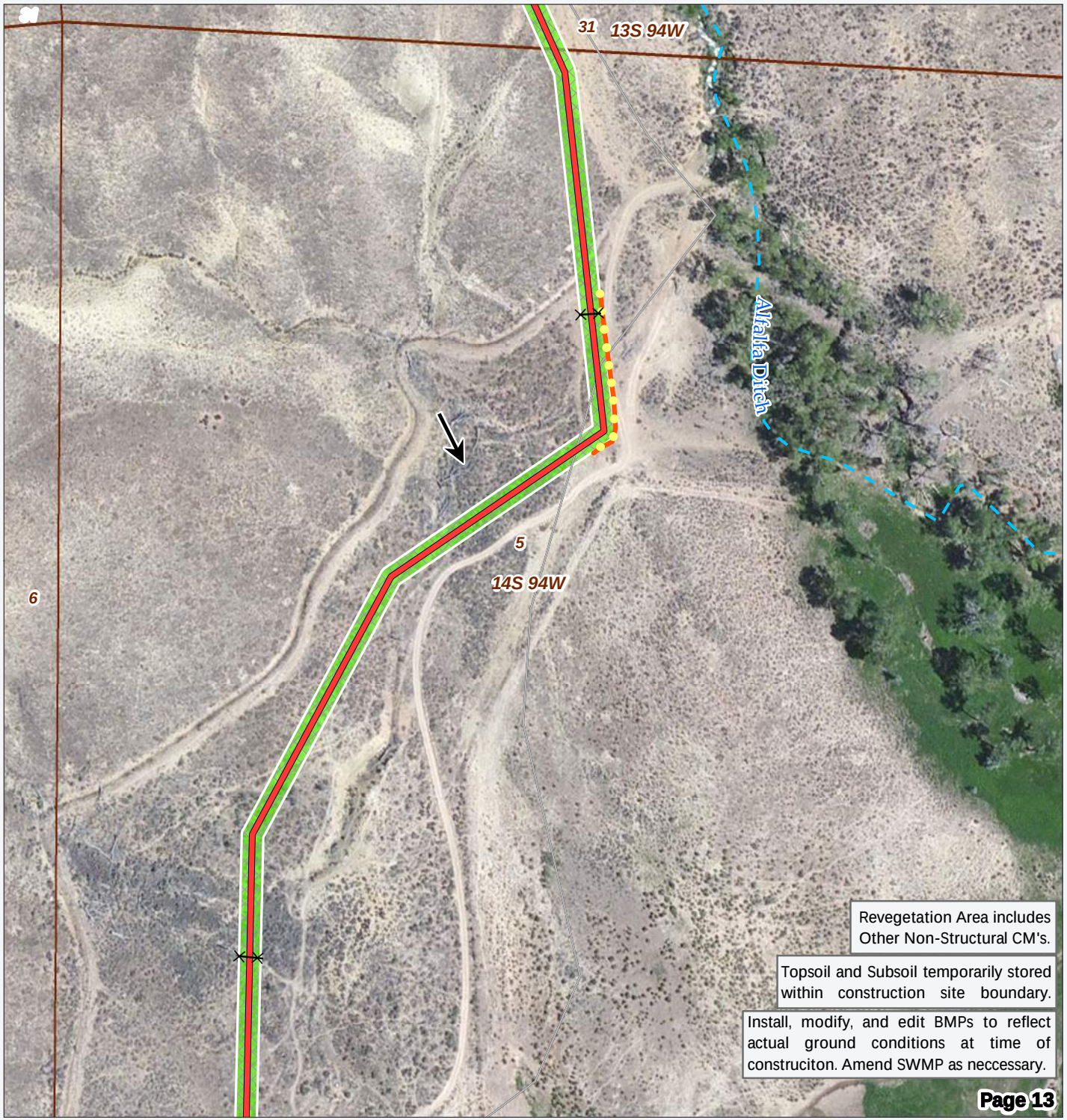

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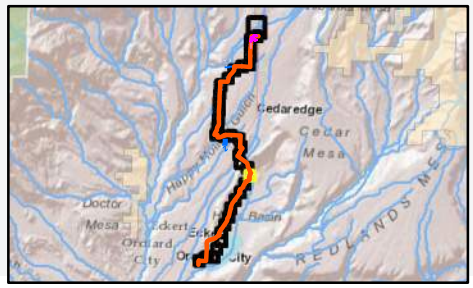

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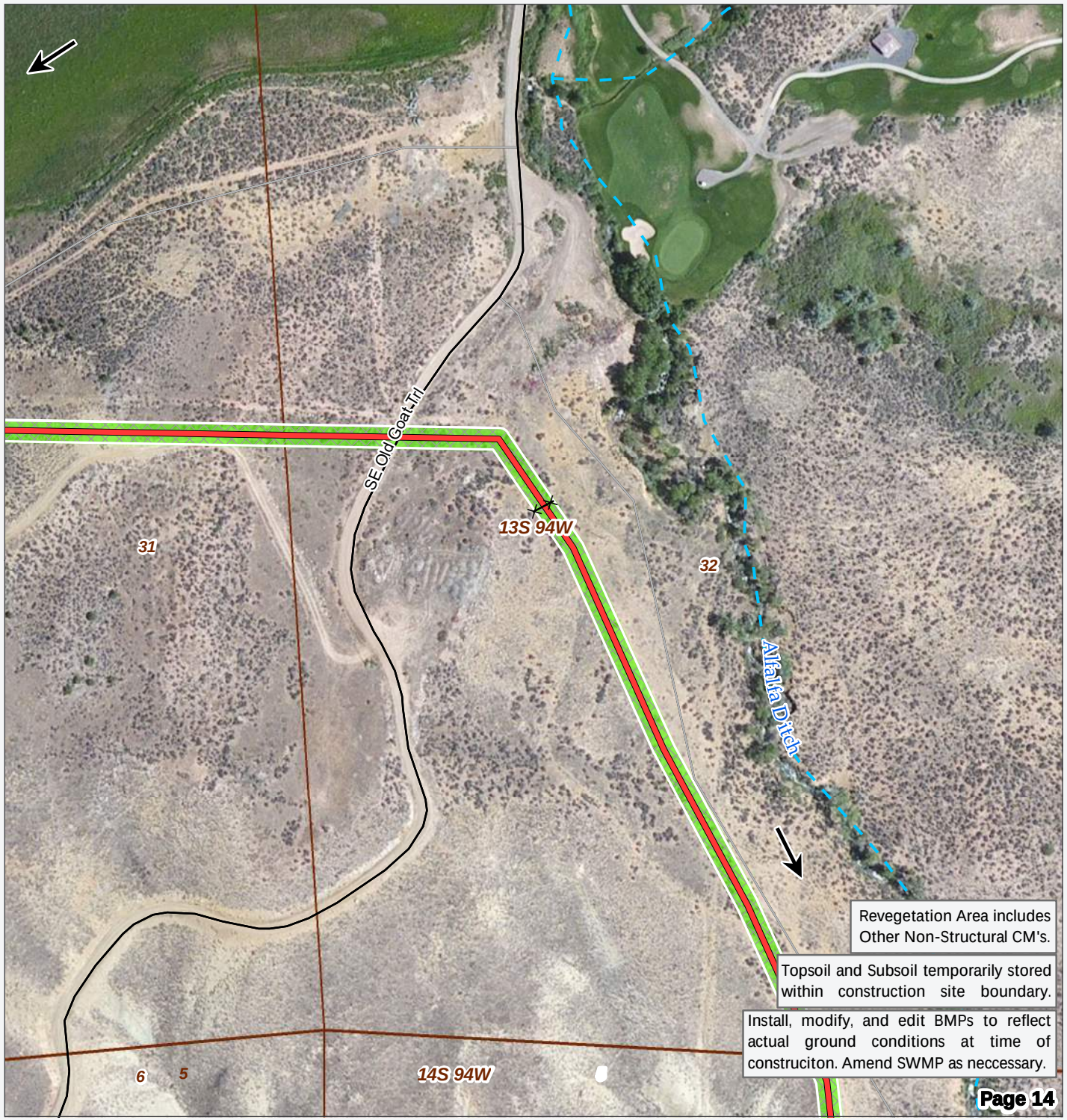

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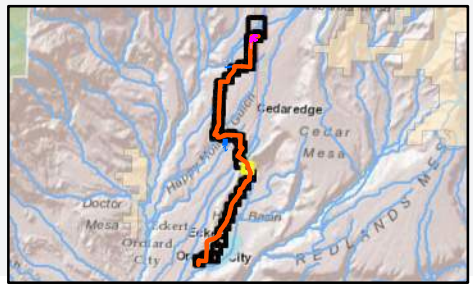

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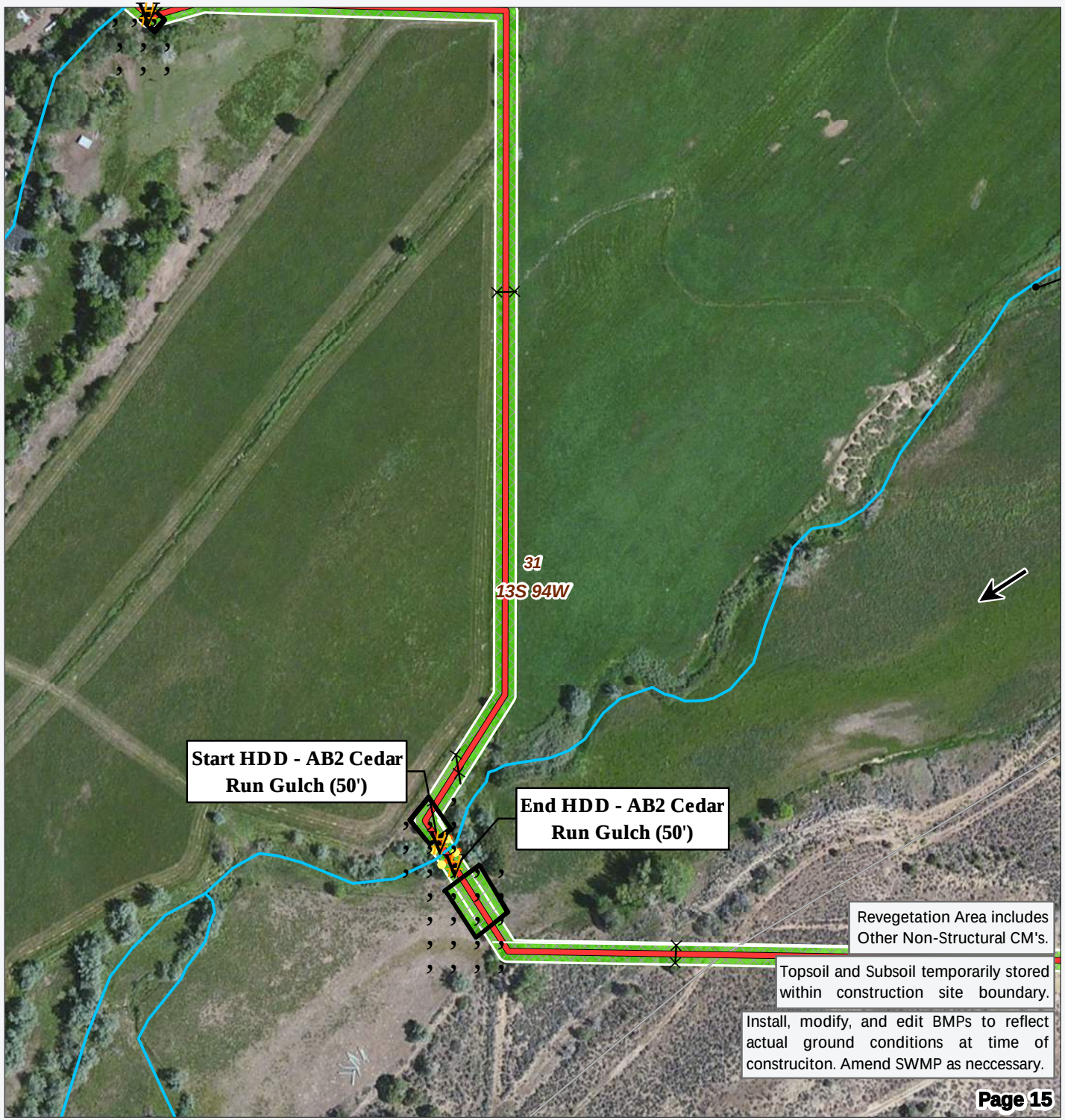
Surface Creek (75')



Page 15

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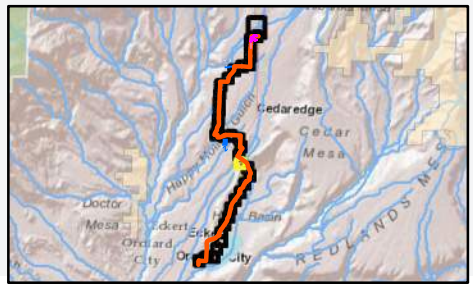

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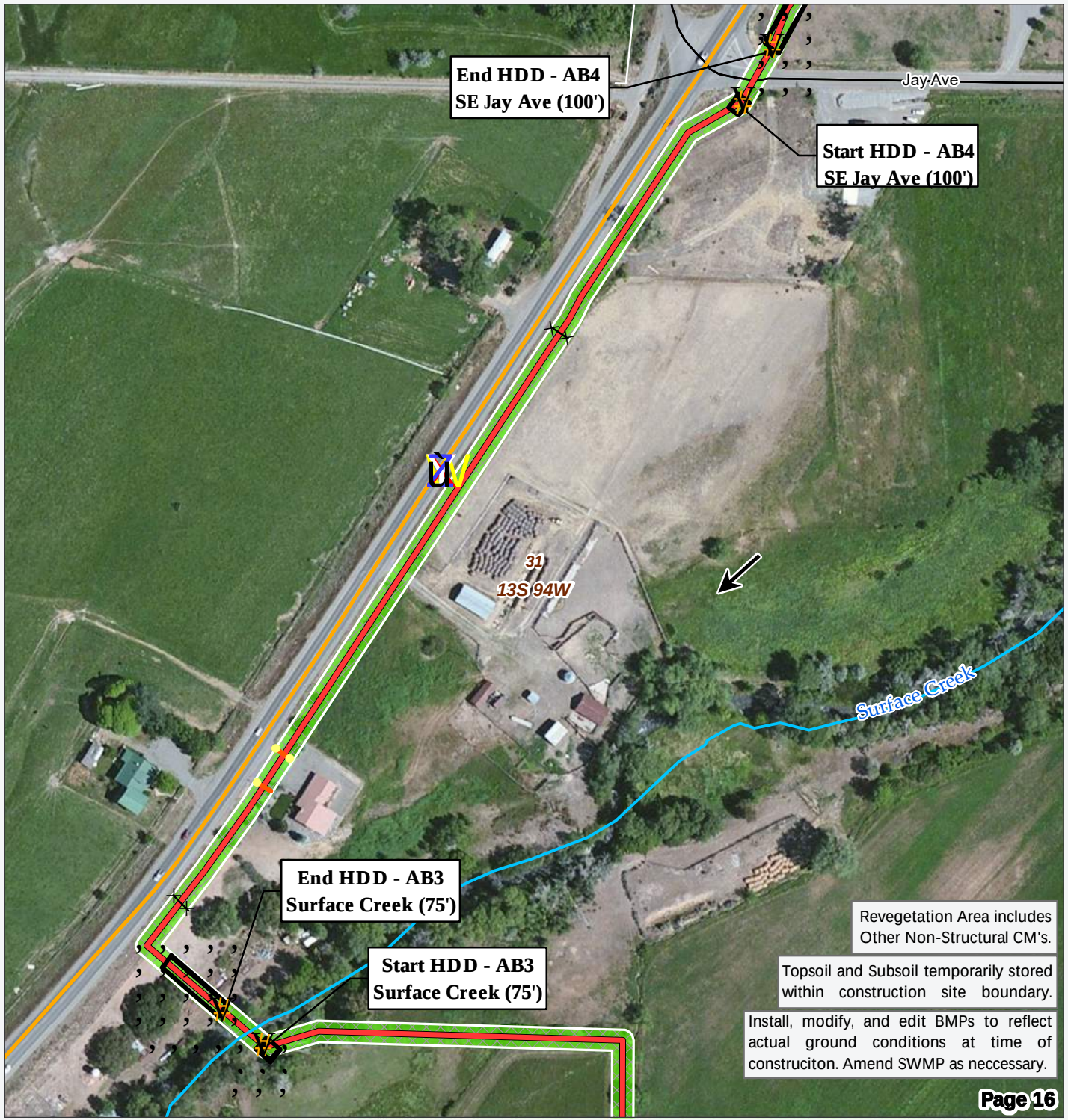

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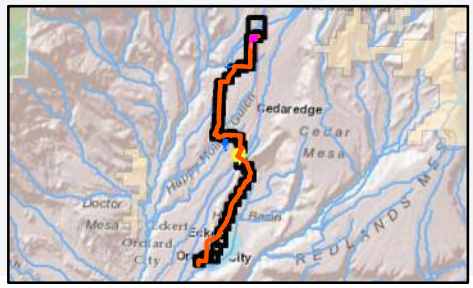

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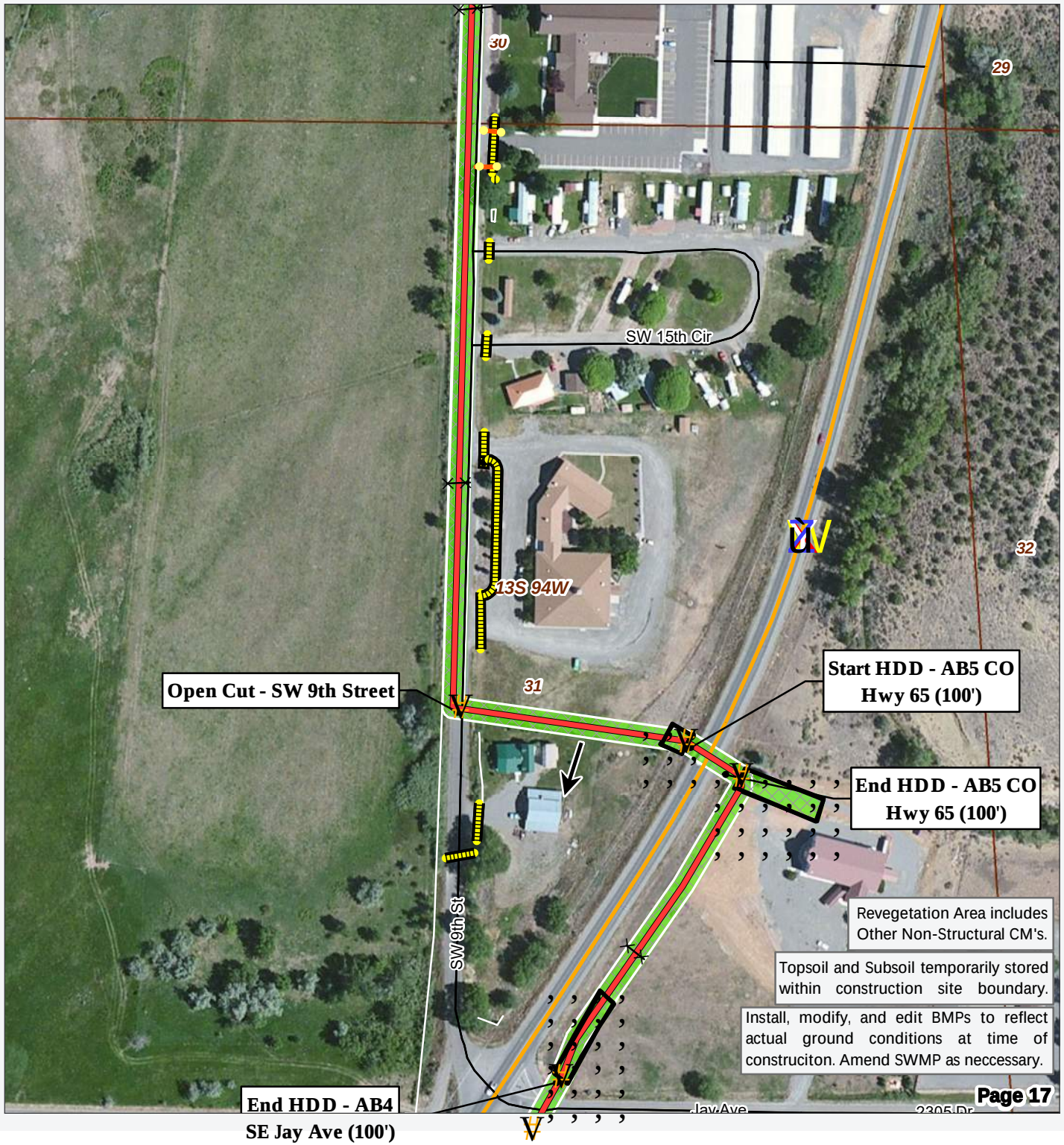

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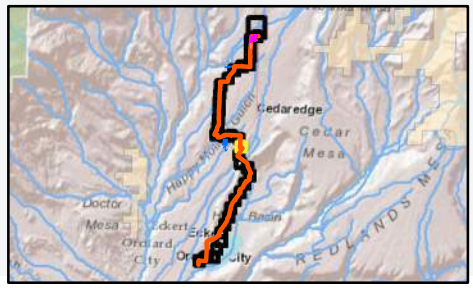

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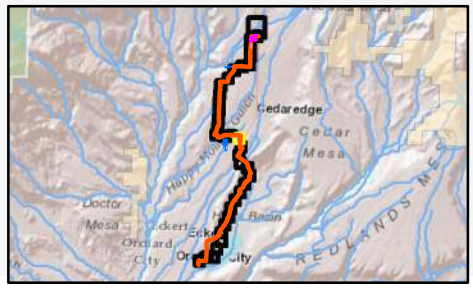

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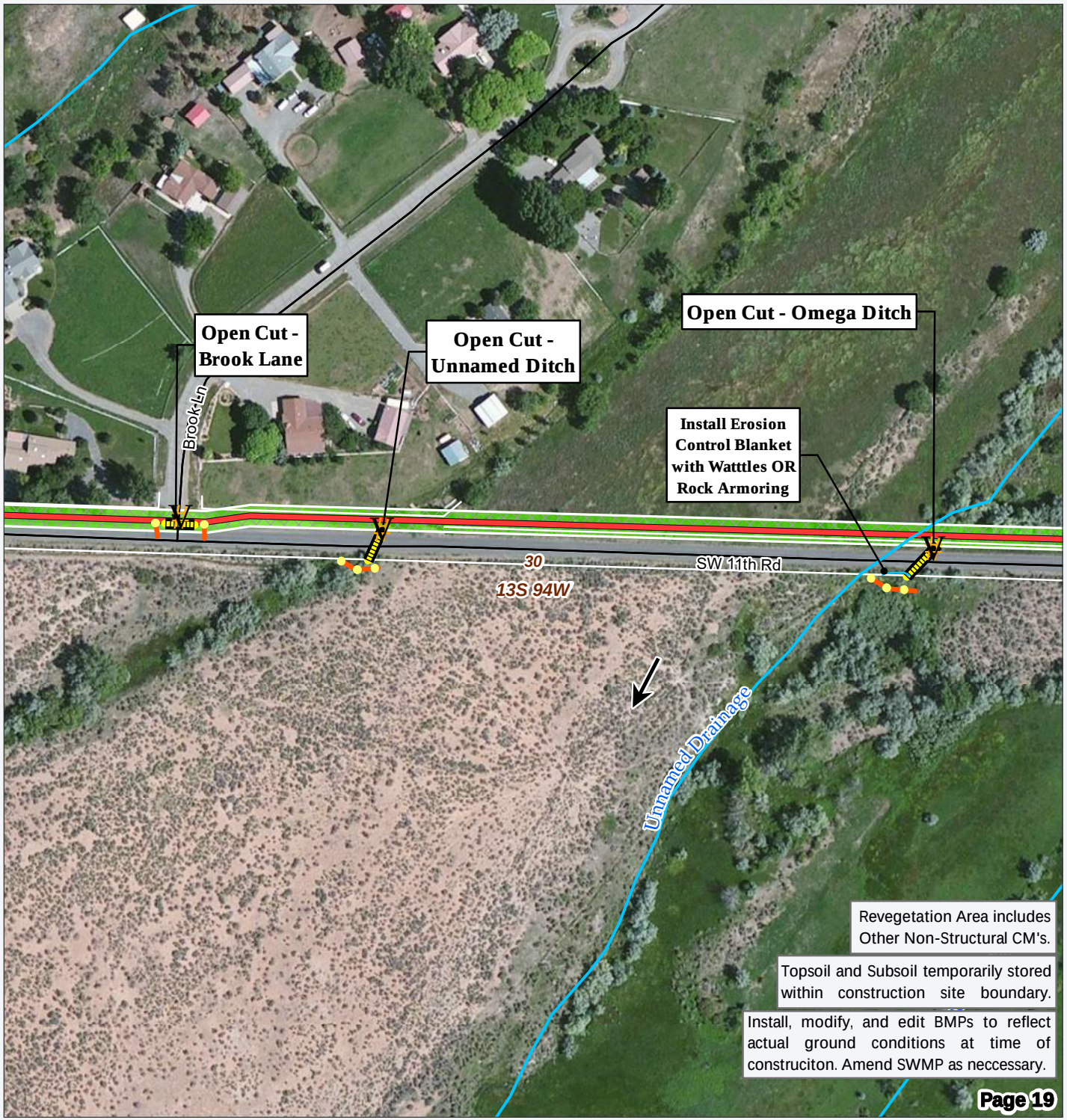

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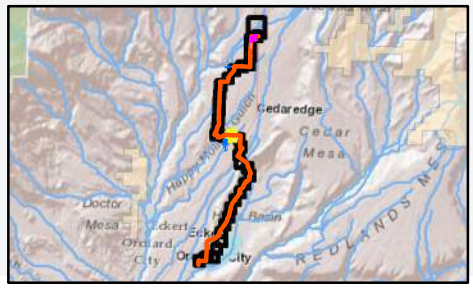

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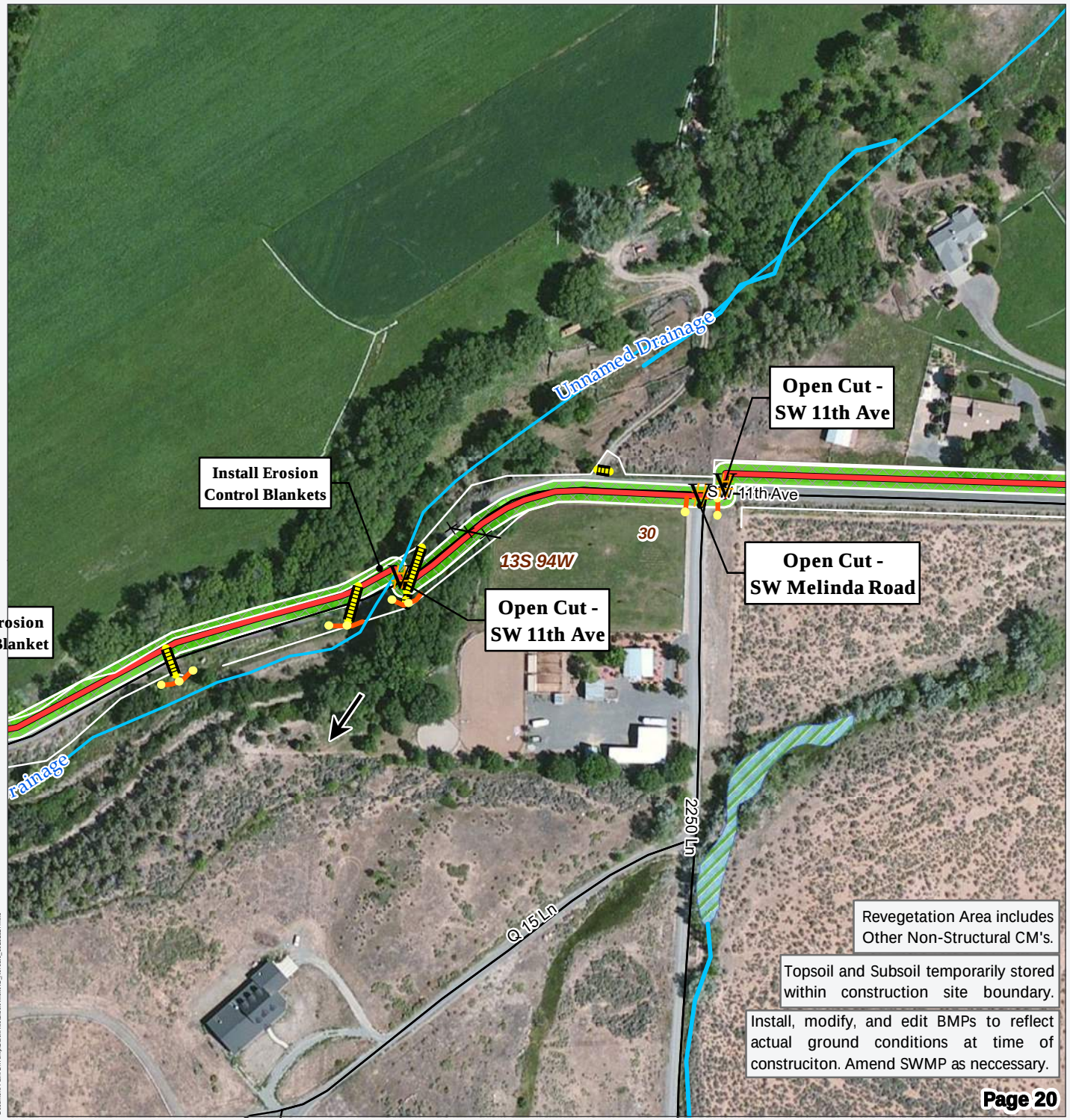

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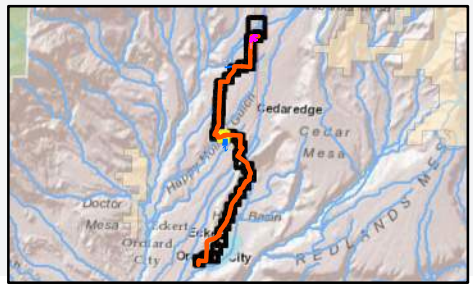

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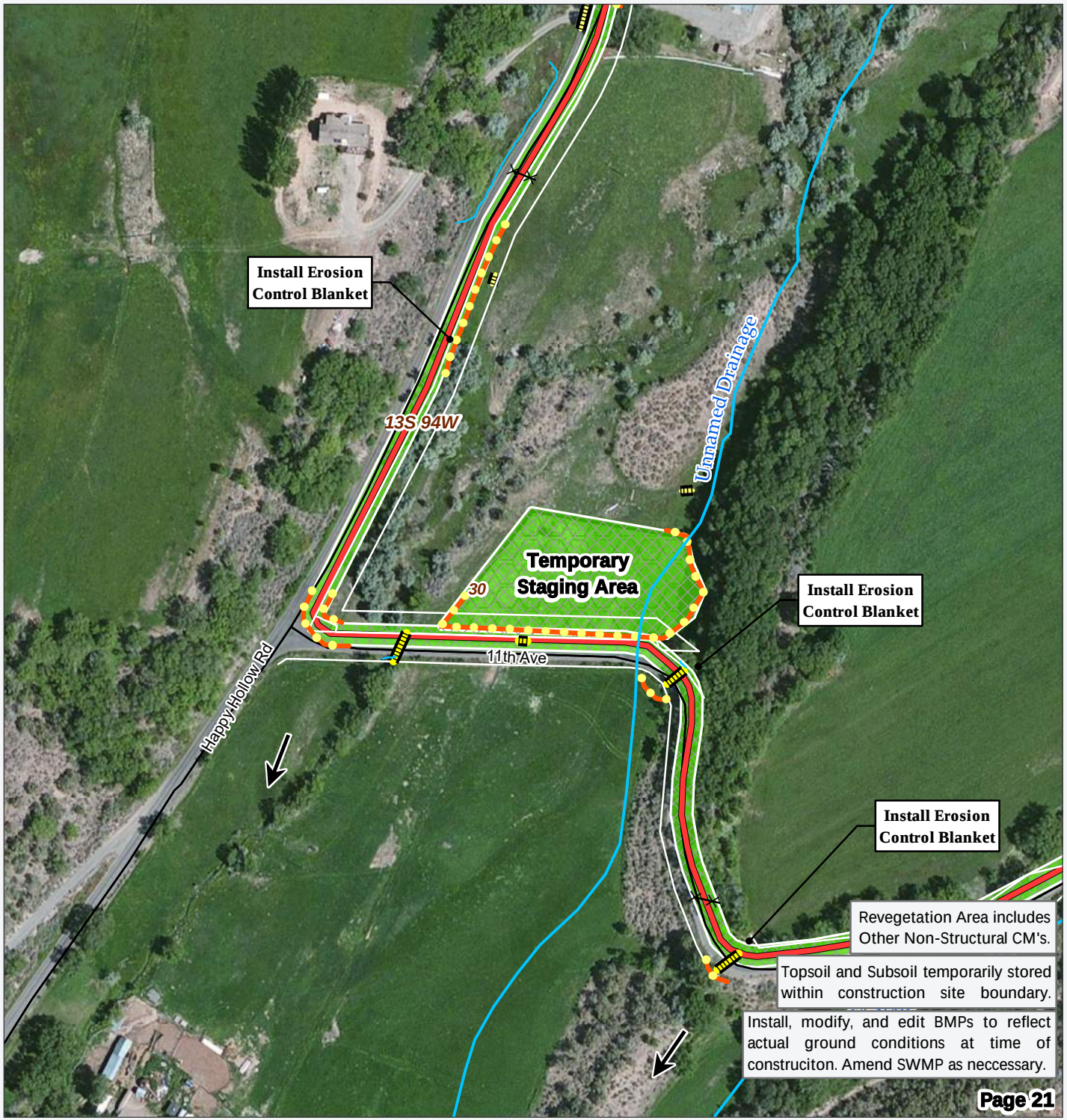

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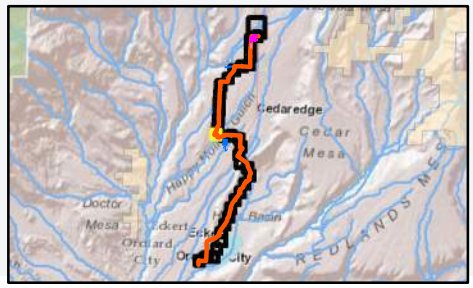

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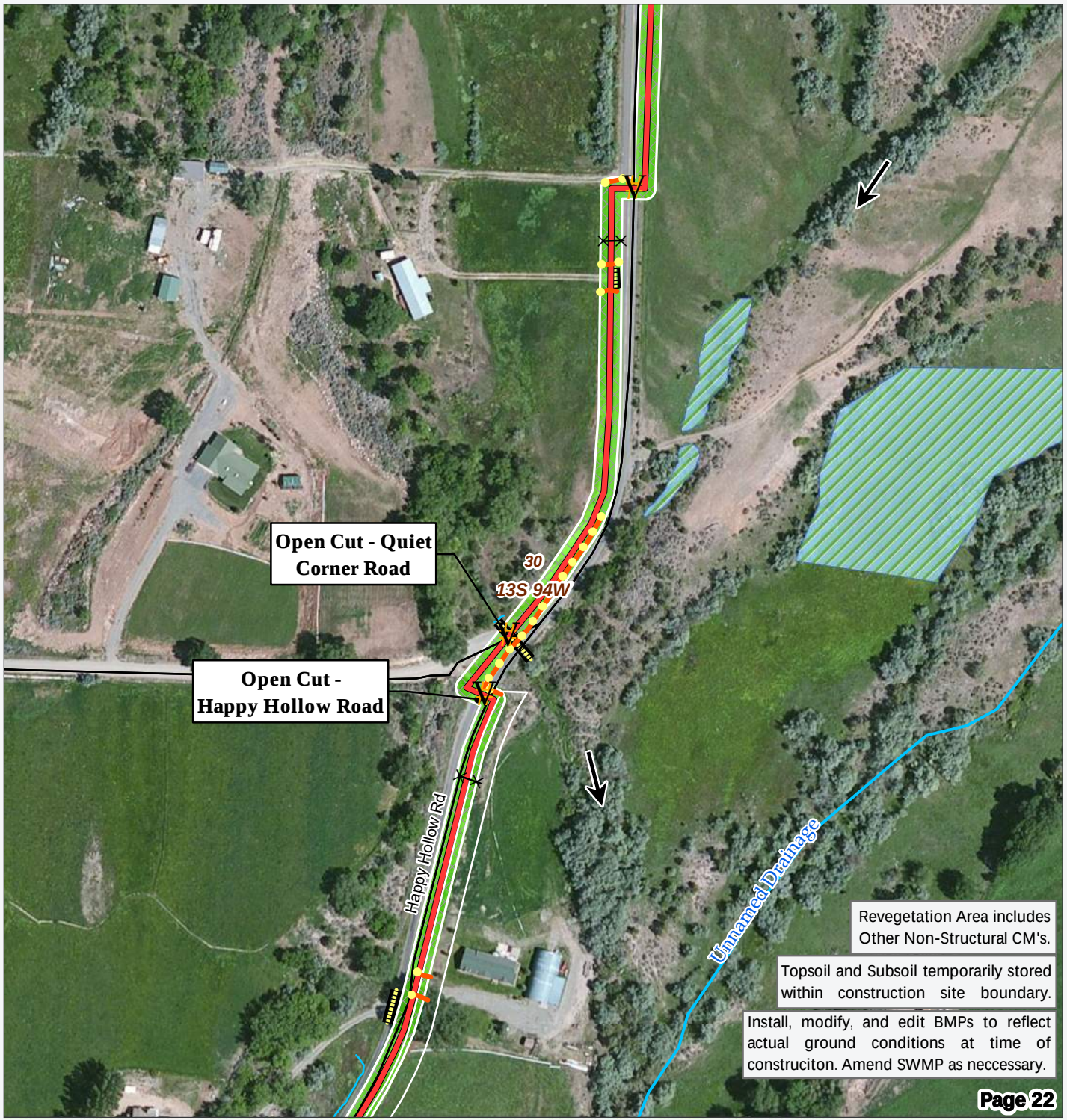

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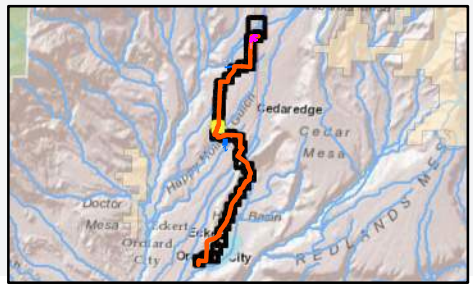

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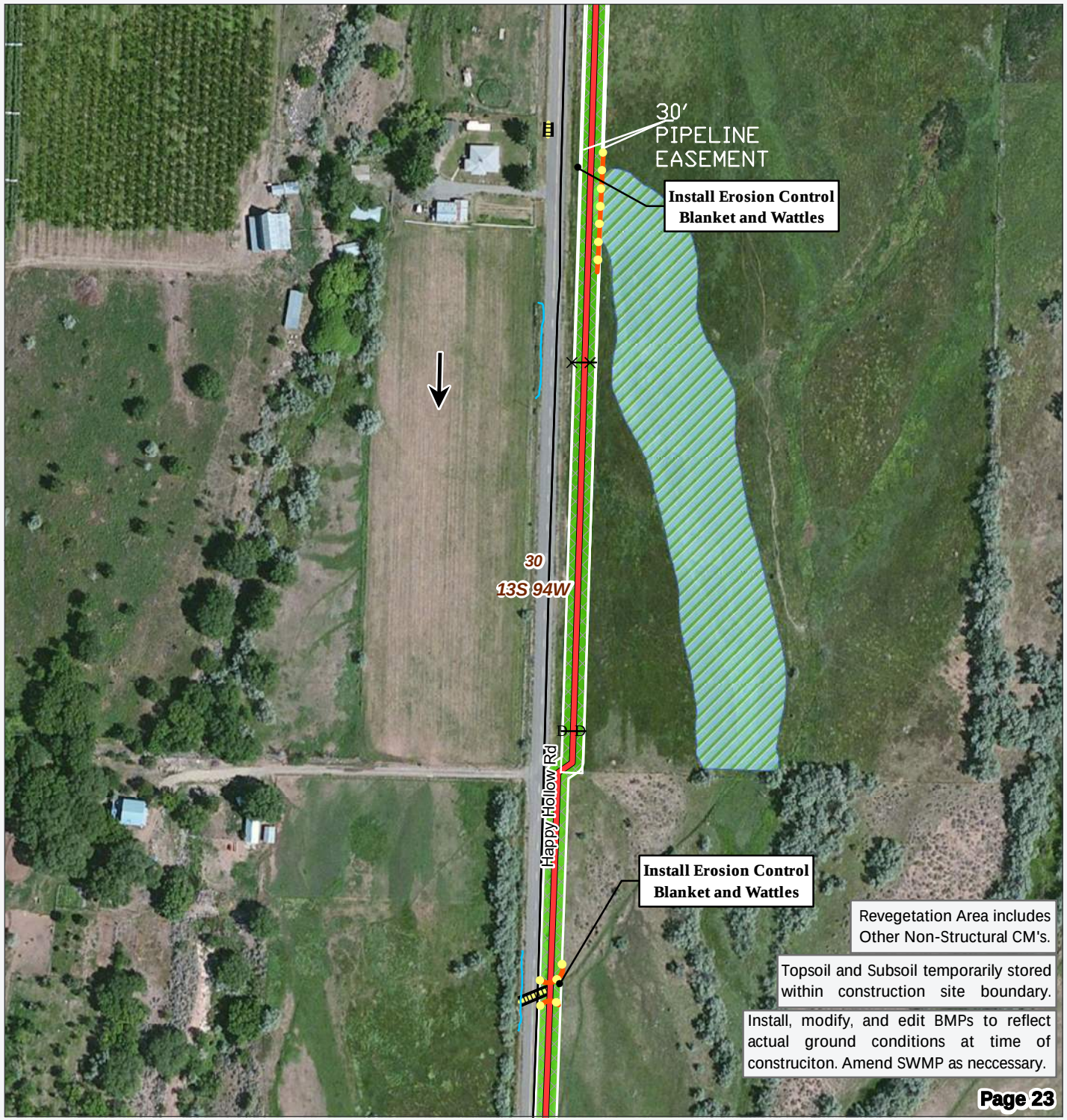

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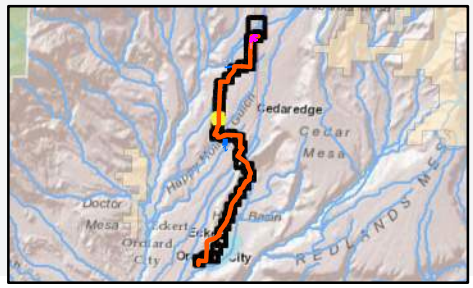

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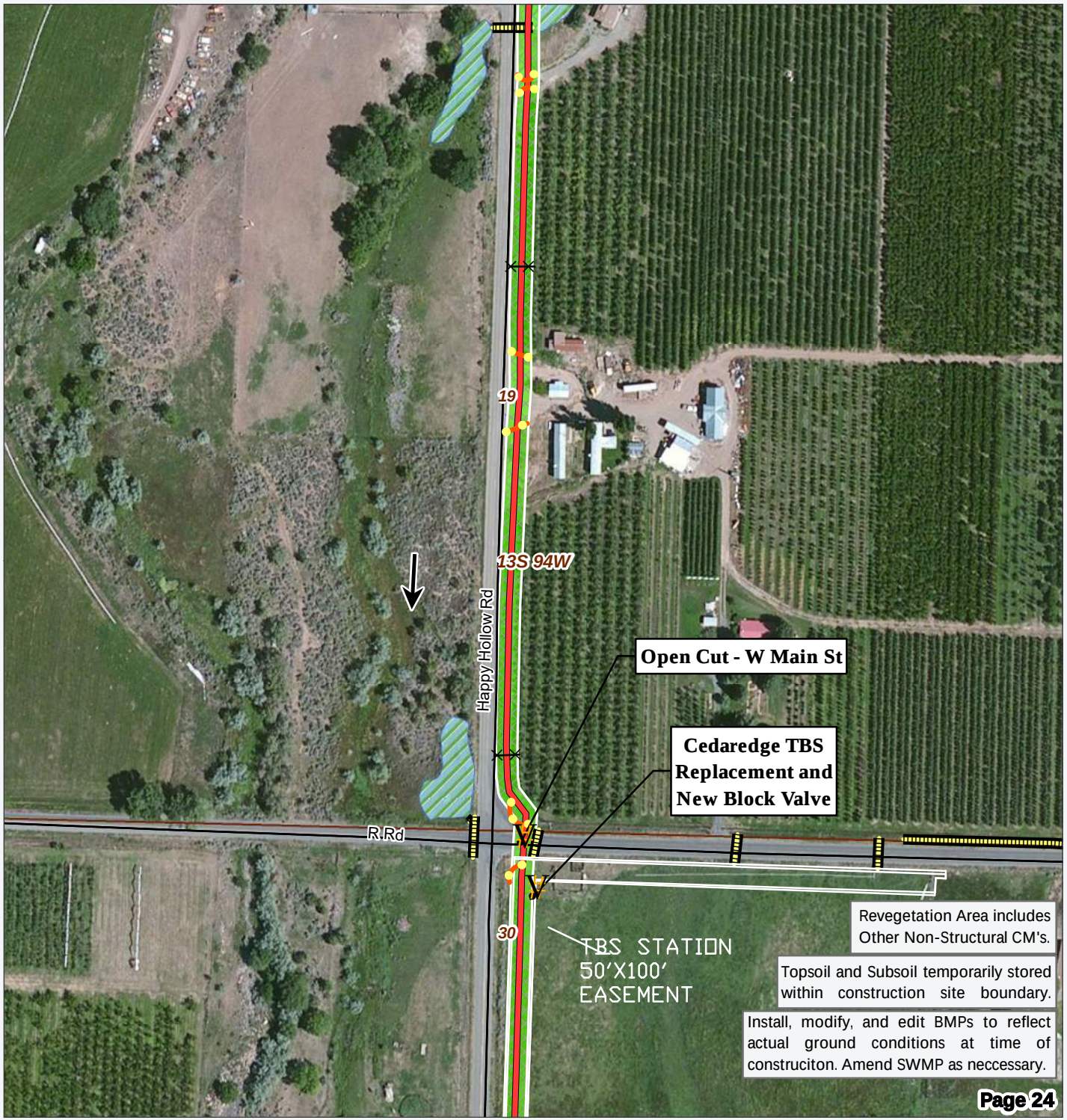

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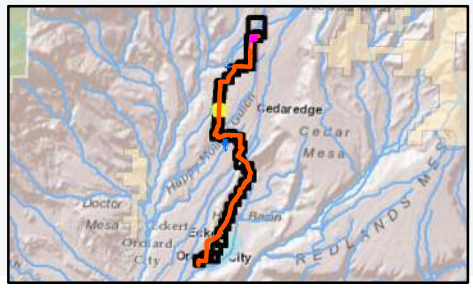

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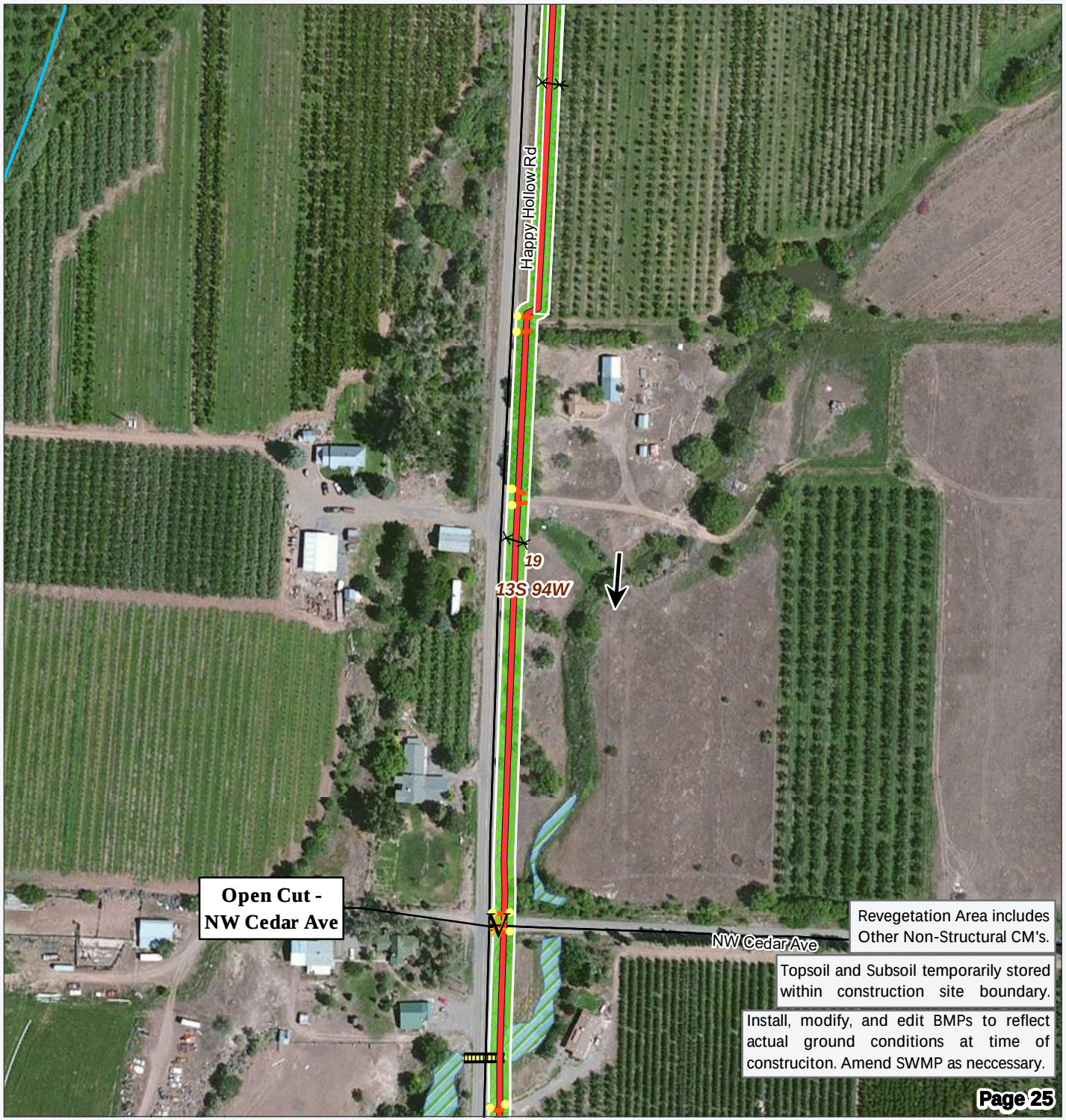

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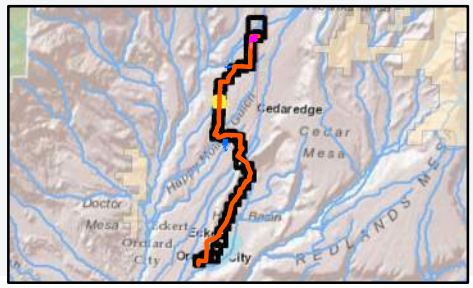

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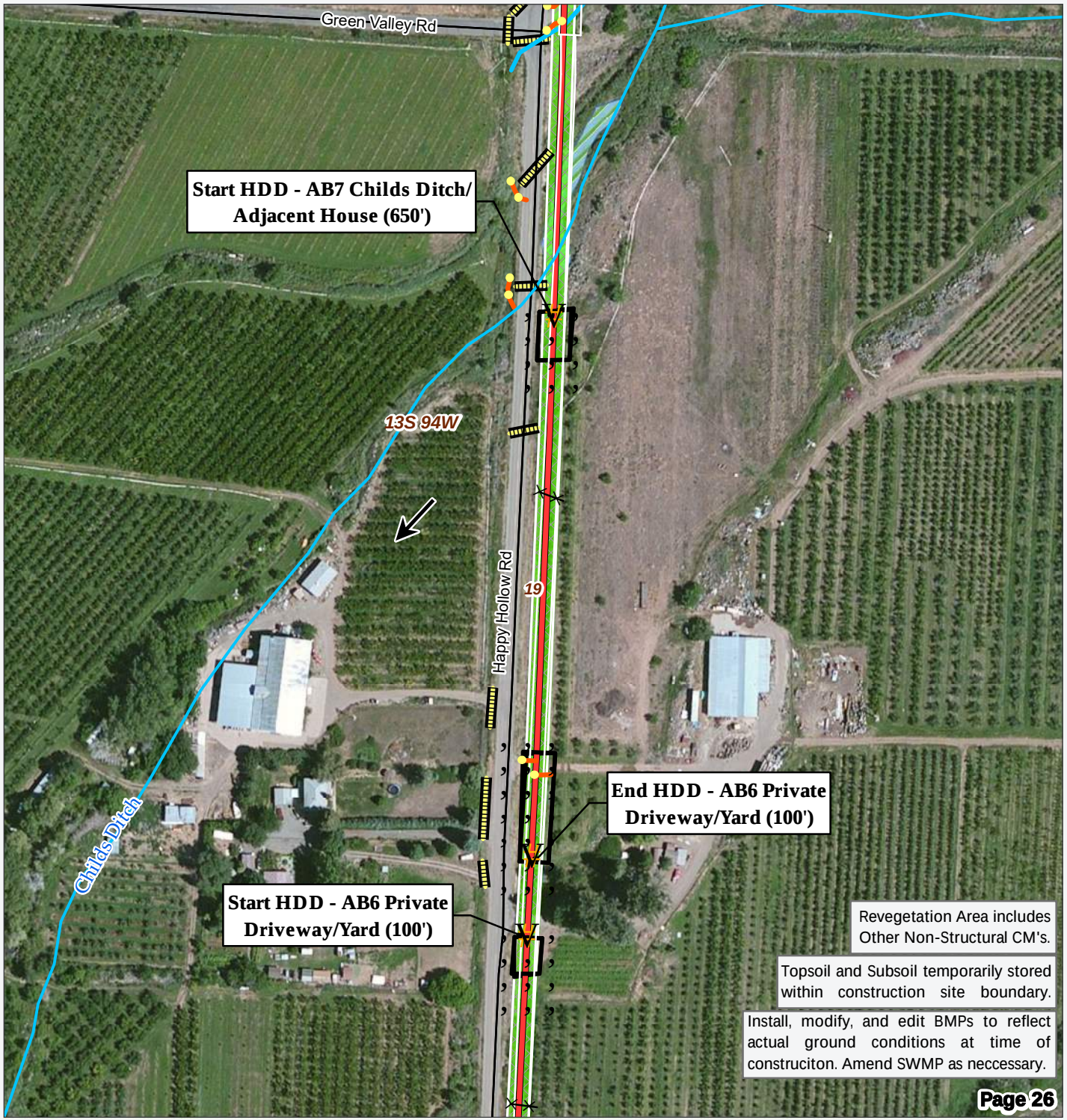

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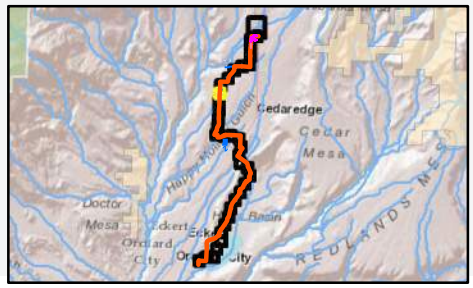
- Construction Site Boundary & Area of Disturbance
- Revegetation Area
- Temporary Staging Area
- Culvert - Contractor to add outlet protection (Pre-construction)
- Wattles (not to scale)
- Wetland
- Point of Interest
- Water Bar - See Plan for Spacing



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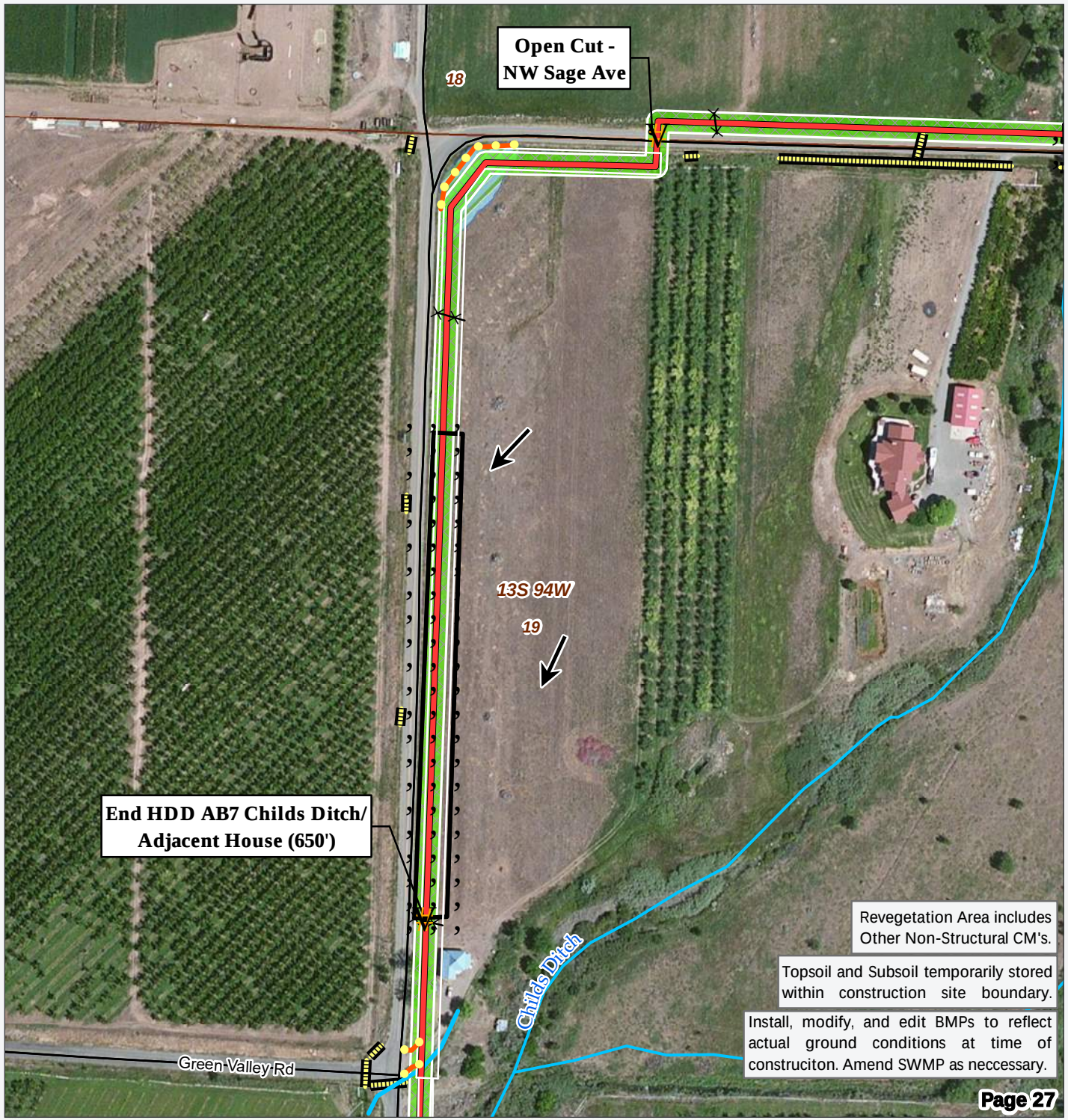
SCALE: 1 " = 200 feet



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PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

LEGEND

- 8" Pipeline
- Township/Range/Section
- Ditch/Canal
- Stream
- Road
- Highway
- Flow Direction
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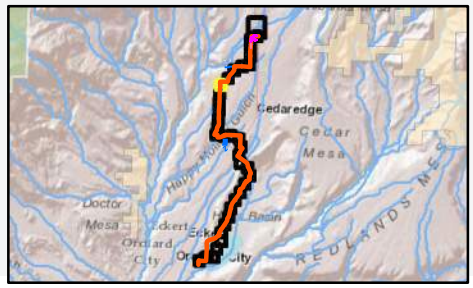

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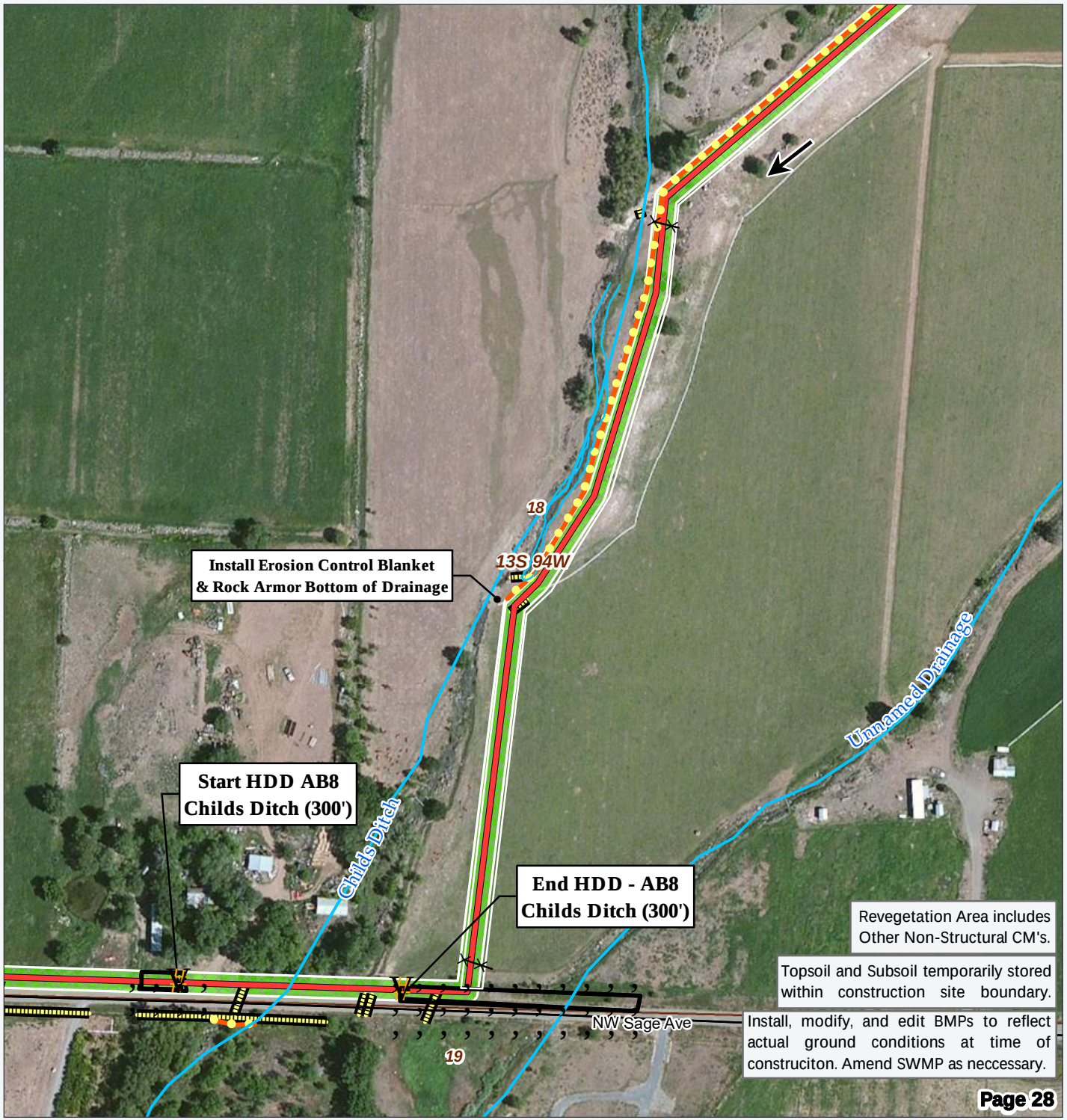

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PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

LEGEND

- 8" Pipeline
- Township/Range/Section
- Ditch/Canal
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- Road
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- Flow Direction
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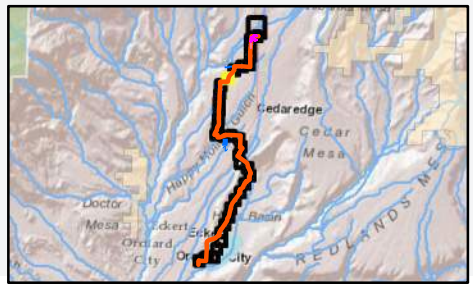
- Water Bar - See Plan for Spacing



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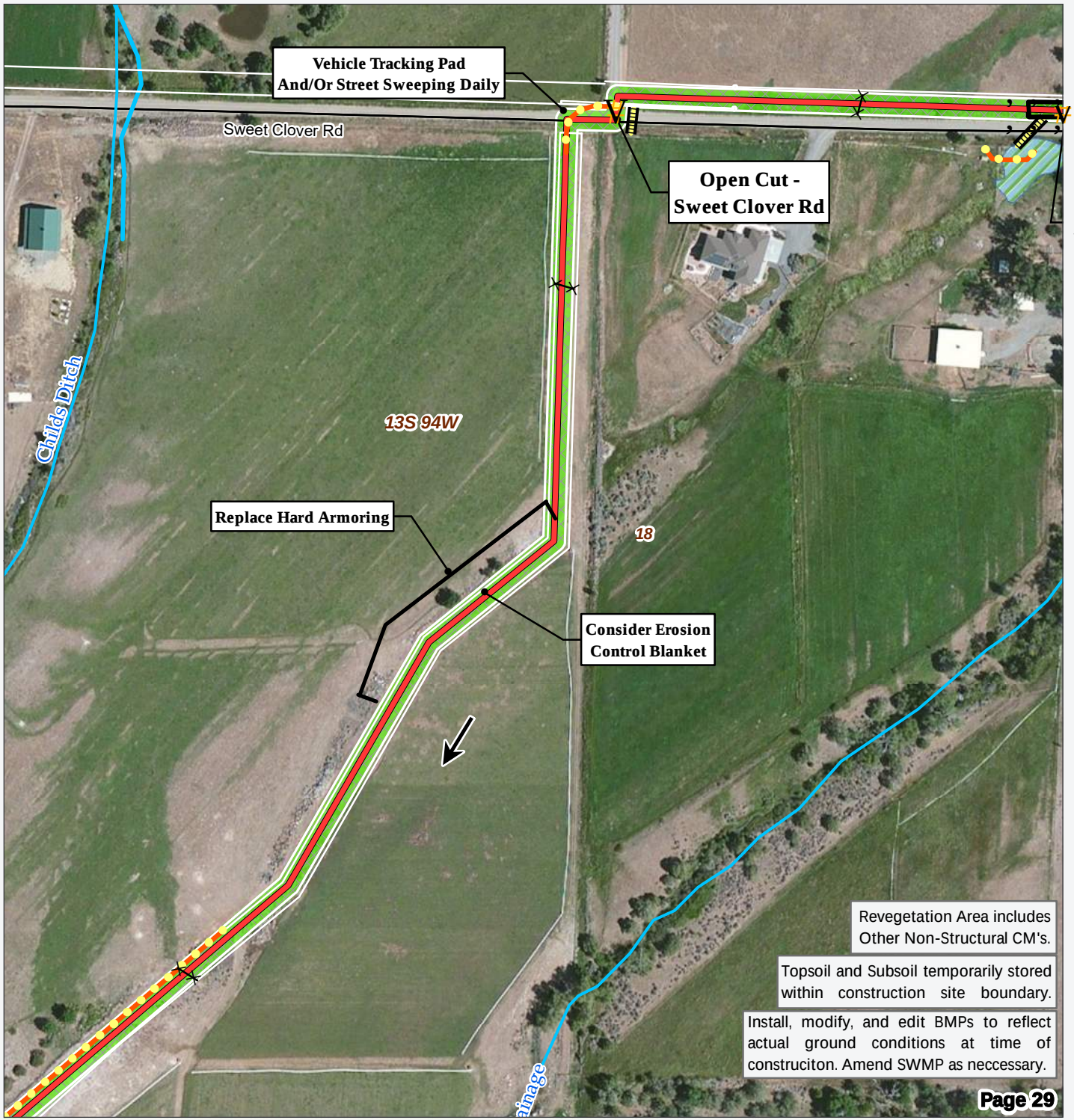

PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

LEGEND

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- Township/Range/Section
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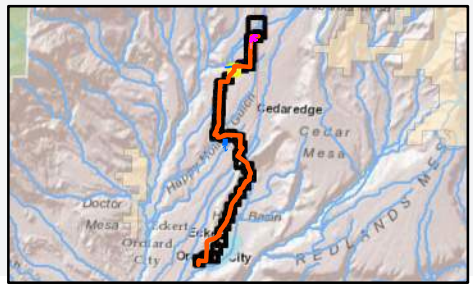

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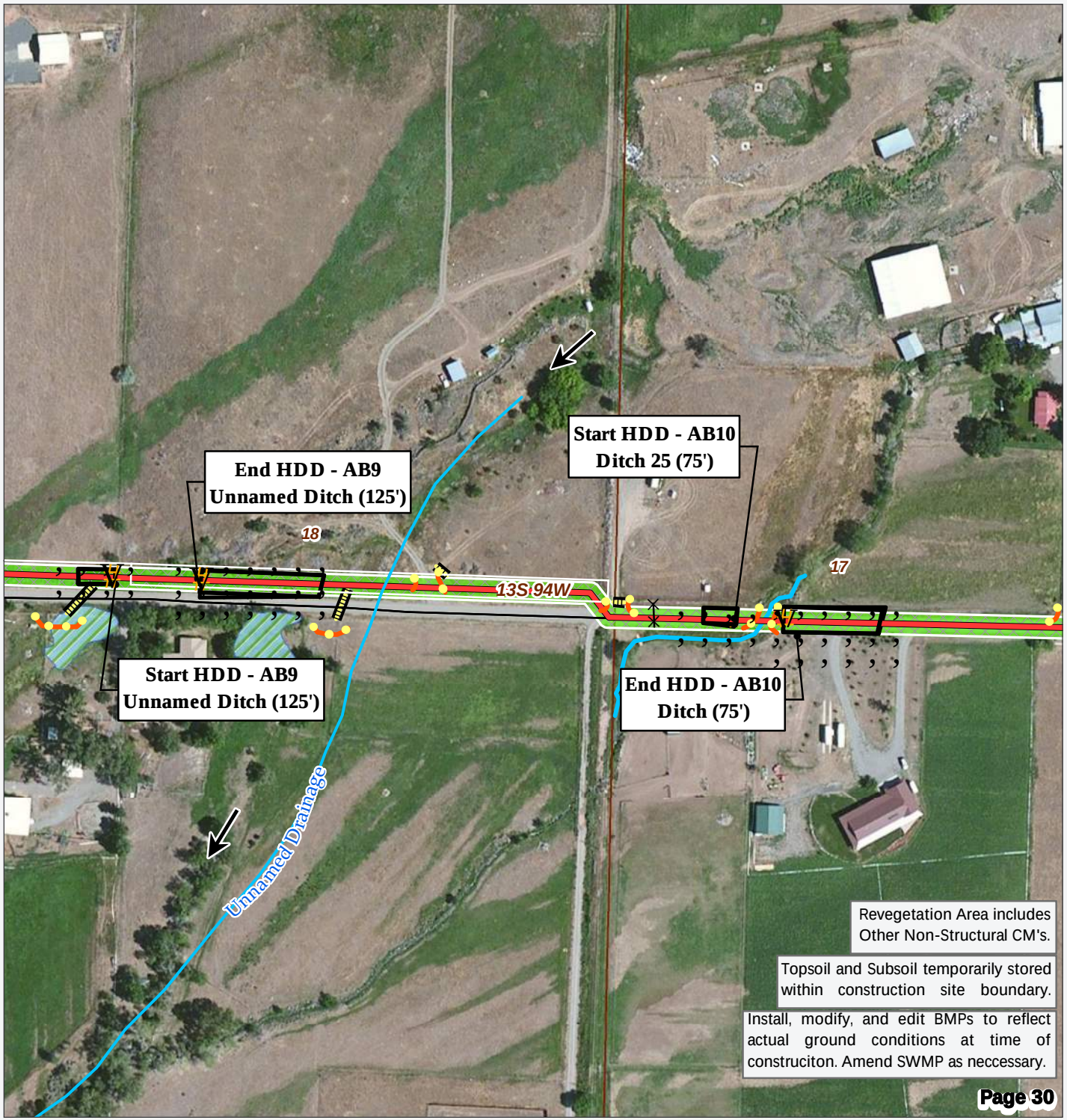

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PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

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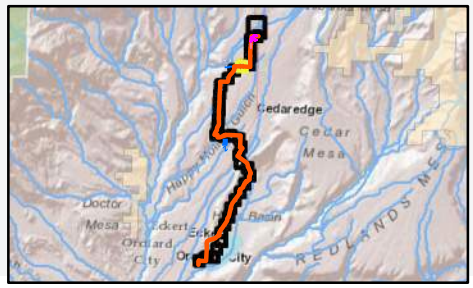

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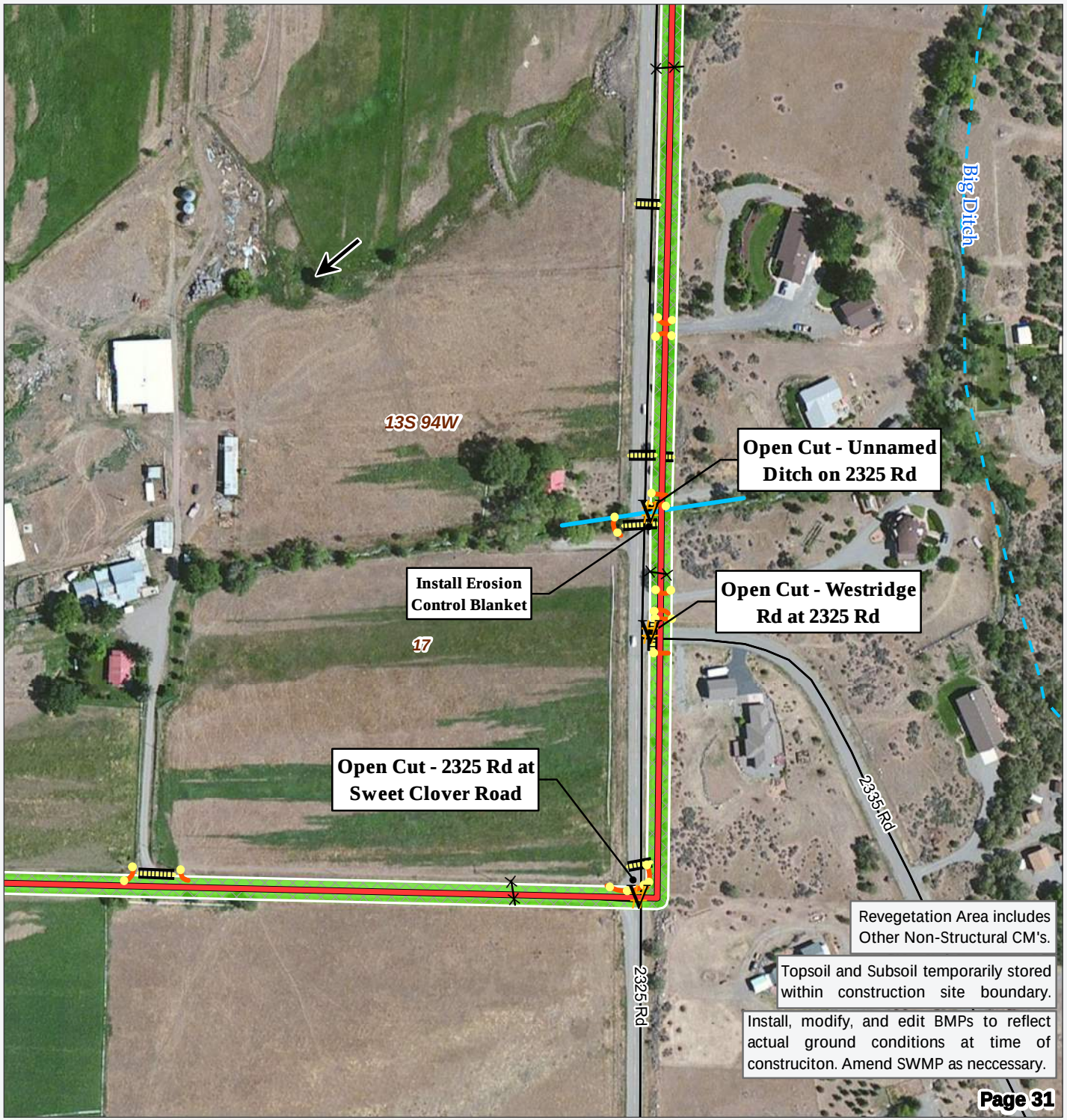

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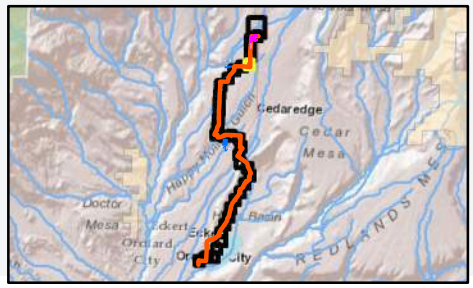

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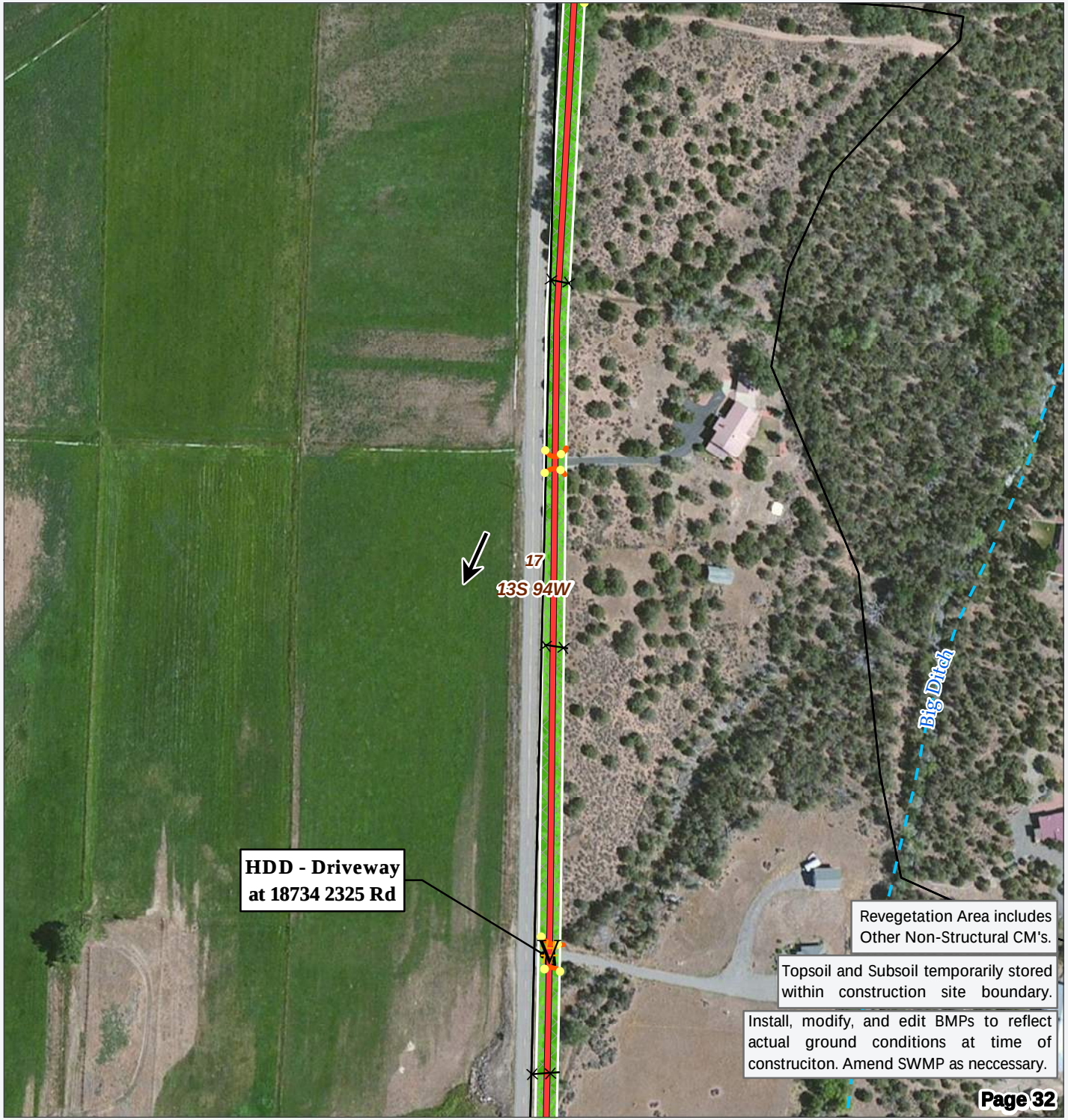

PROJECT COMPONENTS

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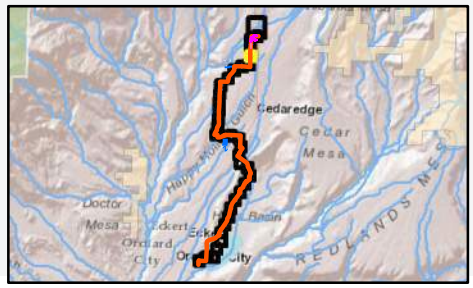

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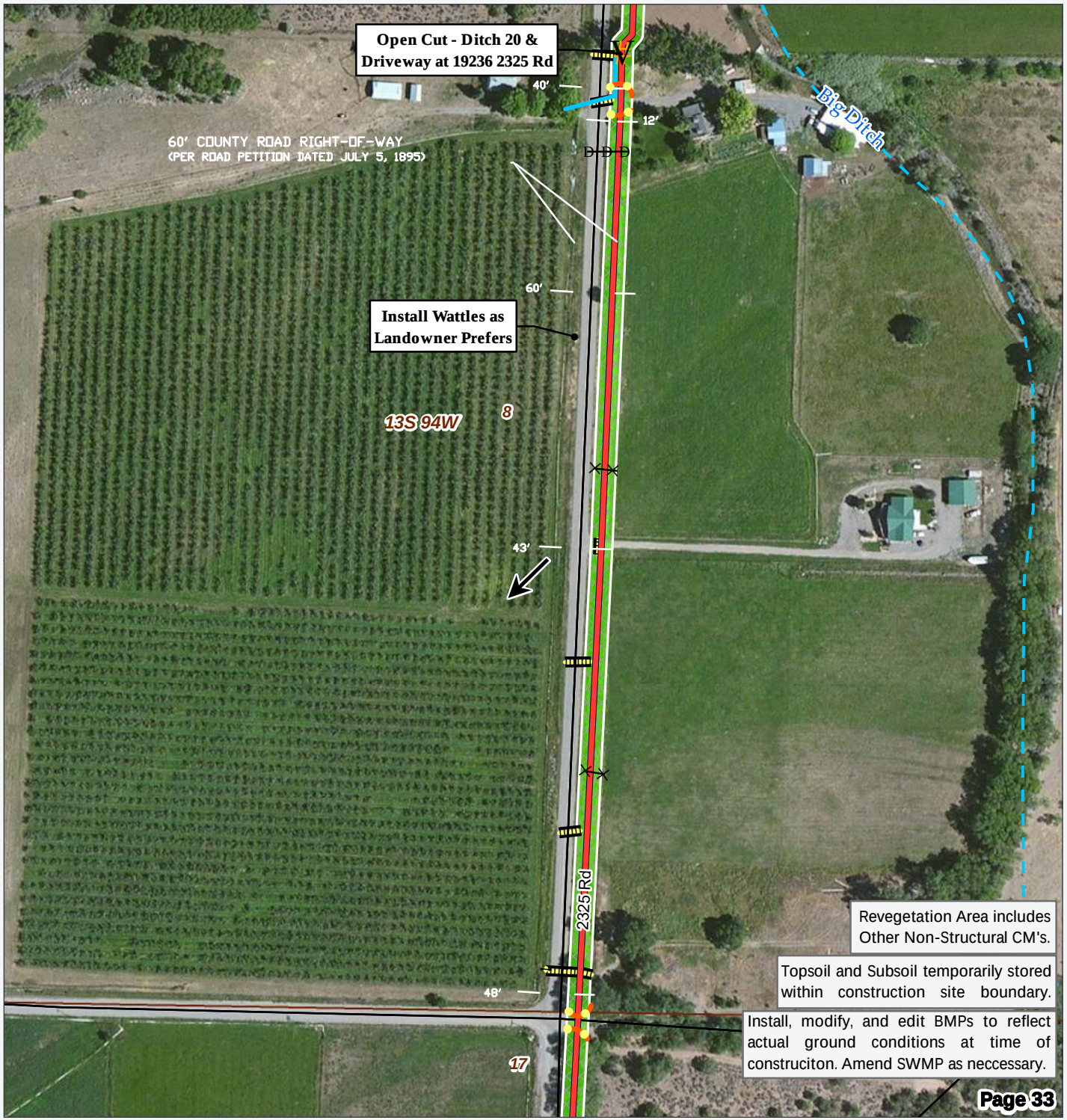

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PROJECT COMPONENTS

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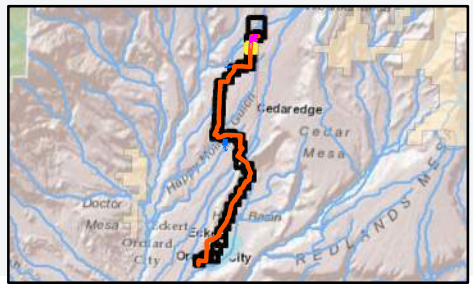

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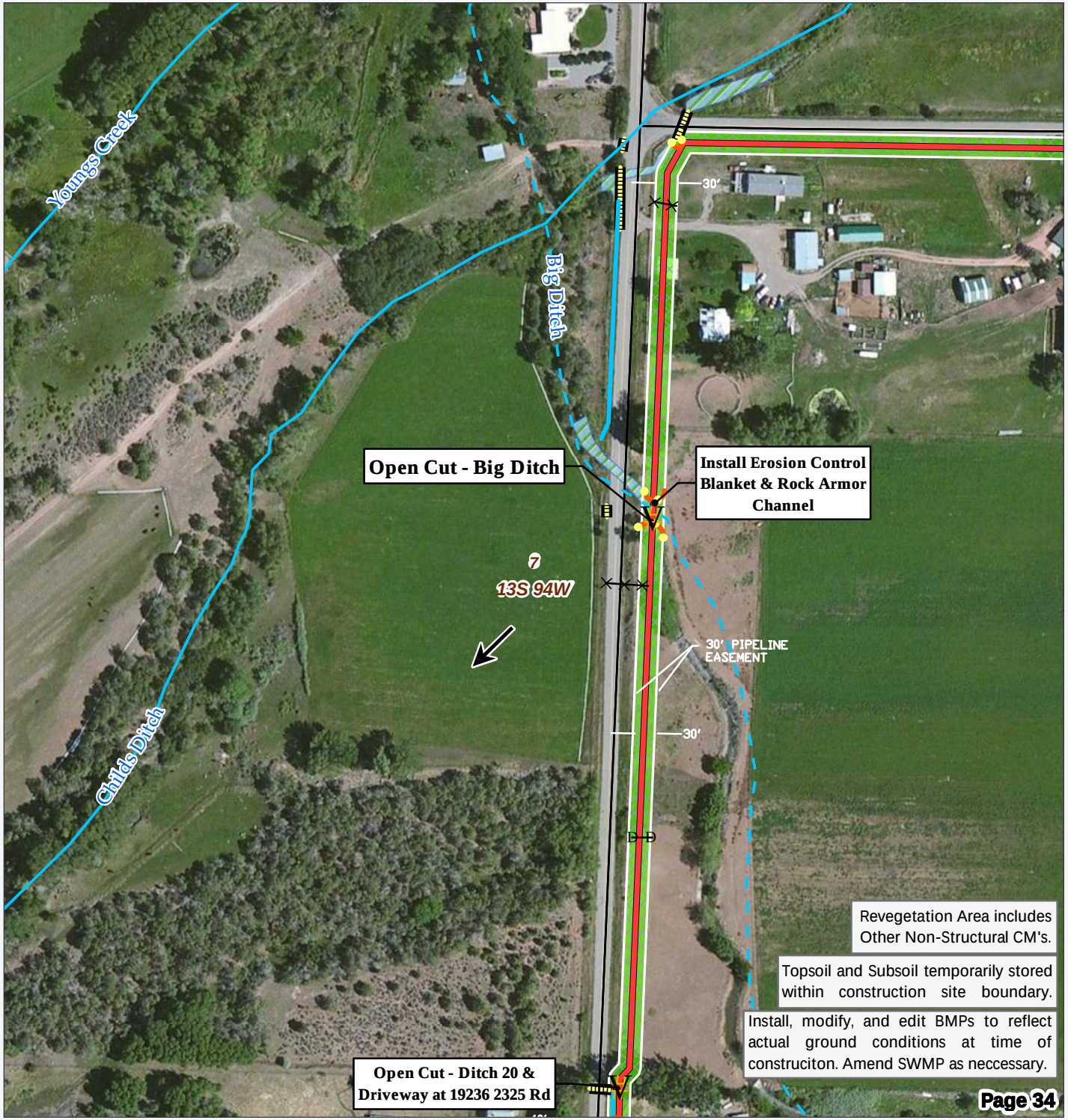

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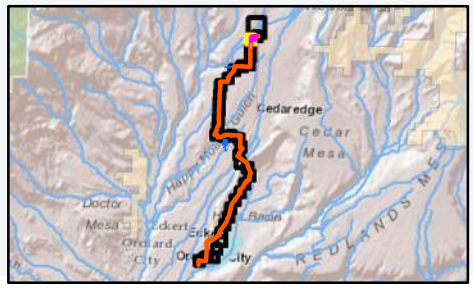

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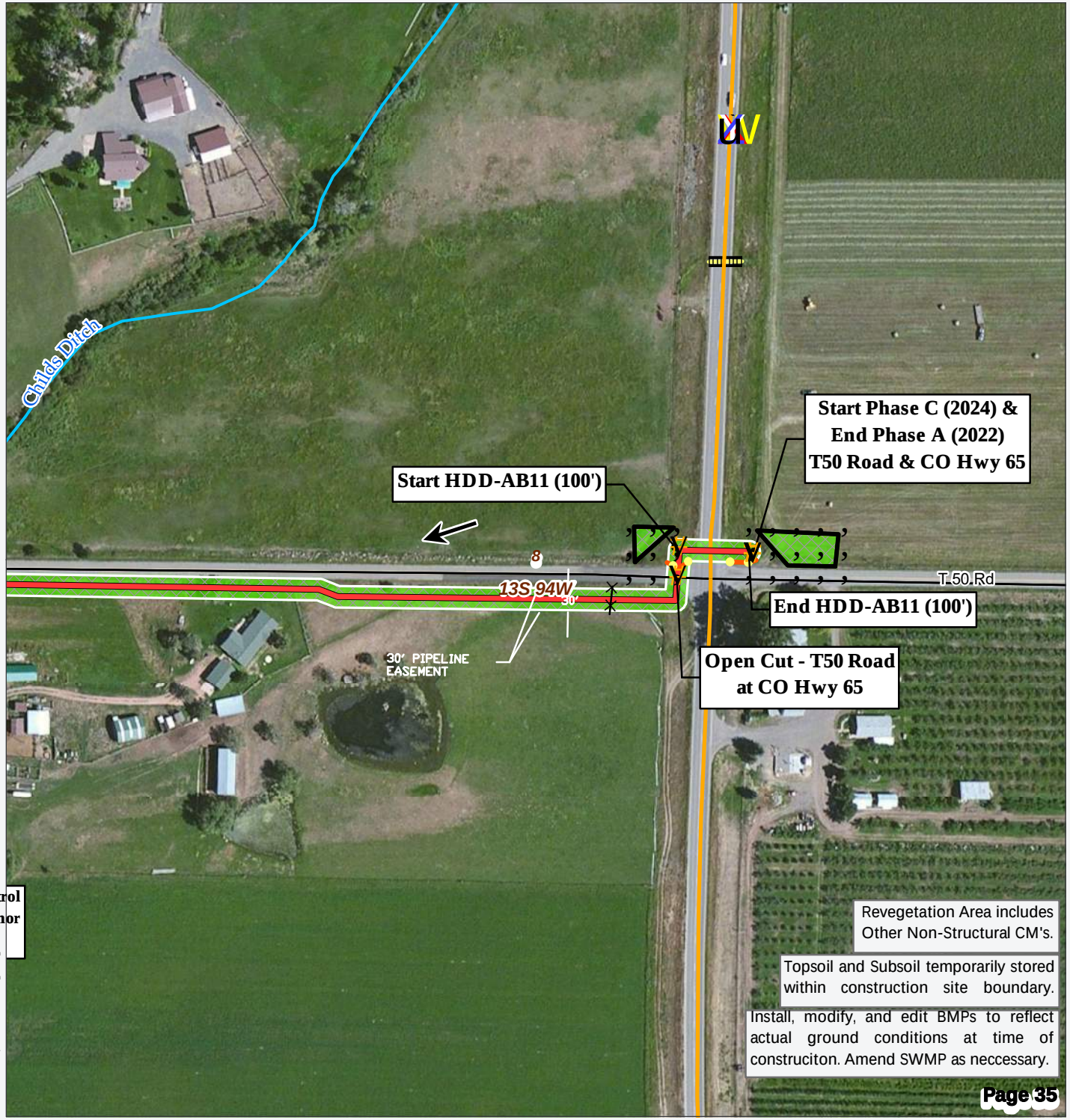

rosion Control
& Rock Armor
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PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

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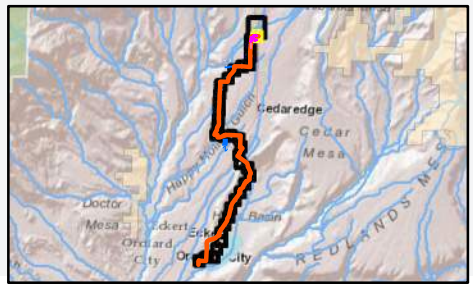

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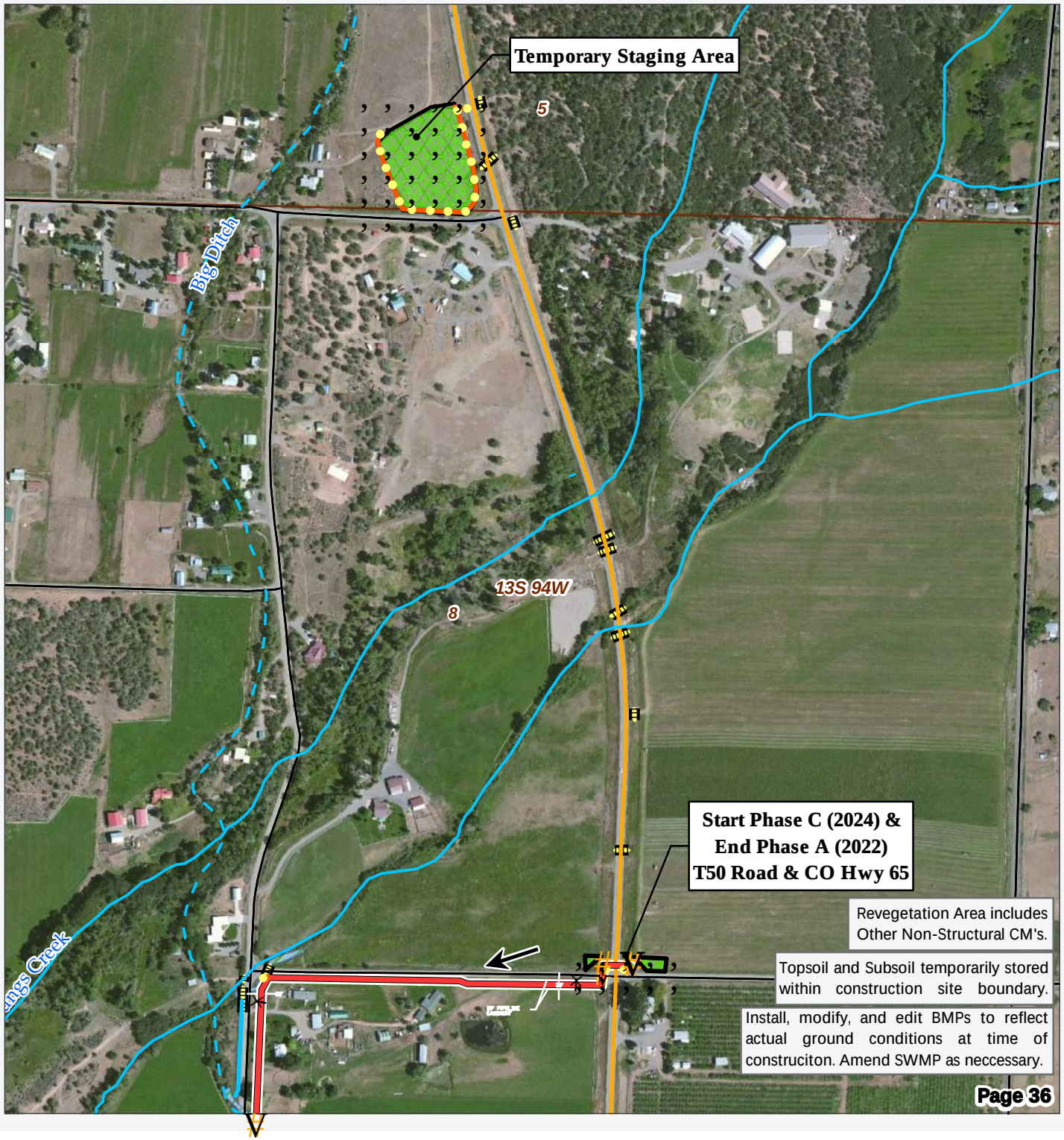

PROJECT COMPONENTS

Phase A - Collbran to Reed Junction

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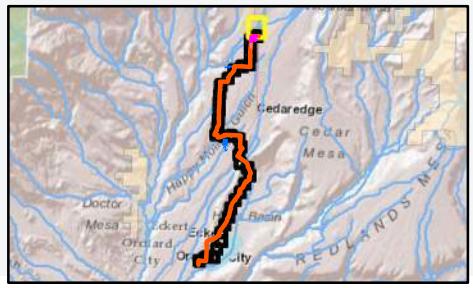

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0 250 500 1,000 Feet

SCALE: 1 " = 500 feet

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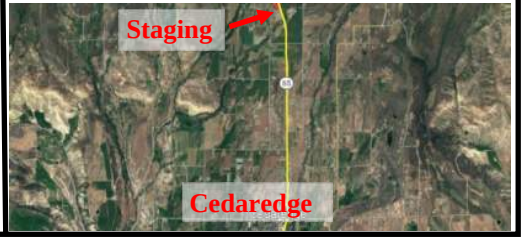
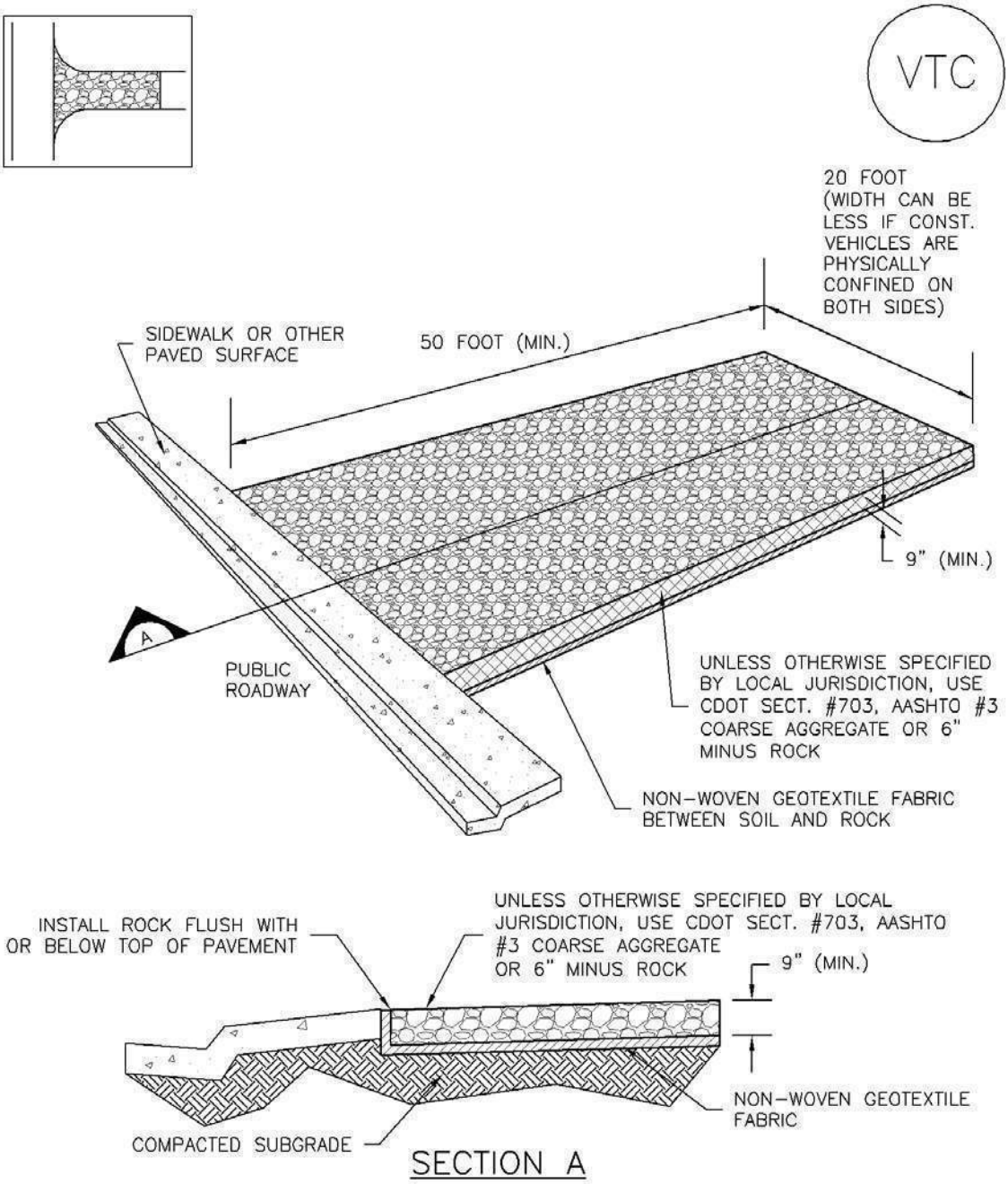
Black Hills Energy
Improving life with energy

Collbran to Reed, Phase A
North Staging Area– Addendum to SWMP

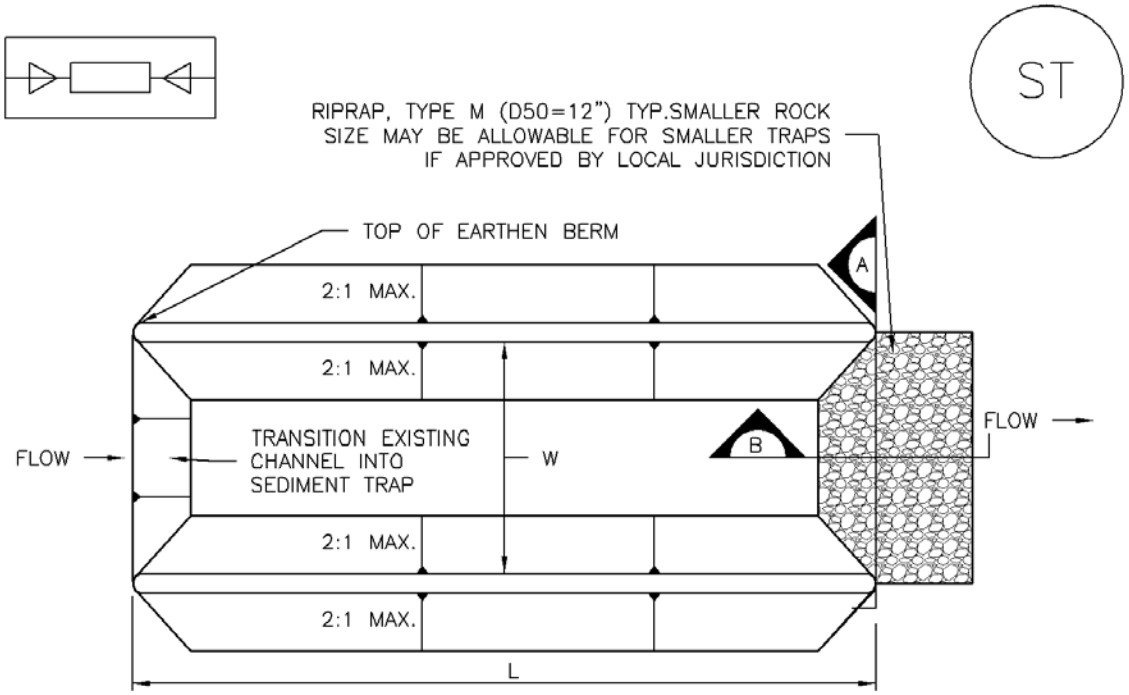
North Staging Area is being prepared by contractors in preparation for full project beginning in April 2021. Materials will be delivered to this yard prior to construction.



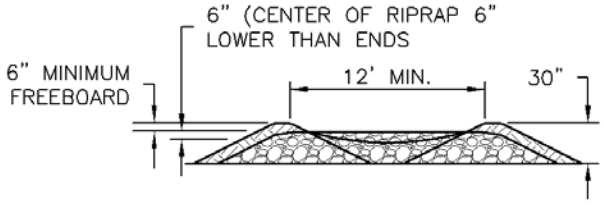
APPENDIX III. CONTROL MEASURE INSTALLATION DIAGRAMS



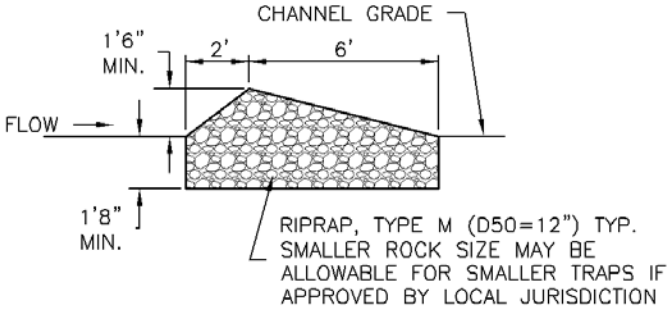
VTC-1. AGGREGATE VEHICLE TRACKING CONTROL



SEDIMENT TRAP PLAN

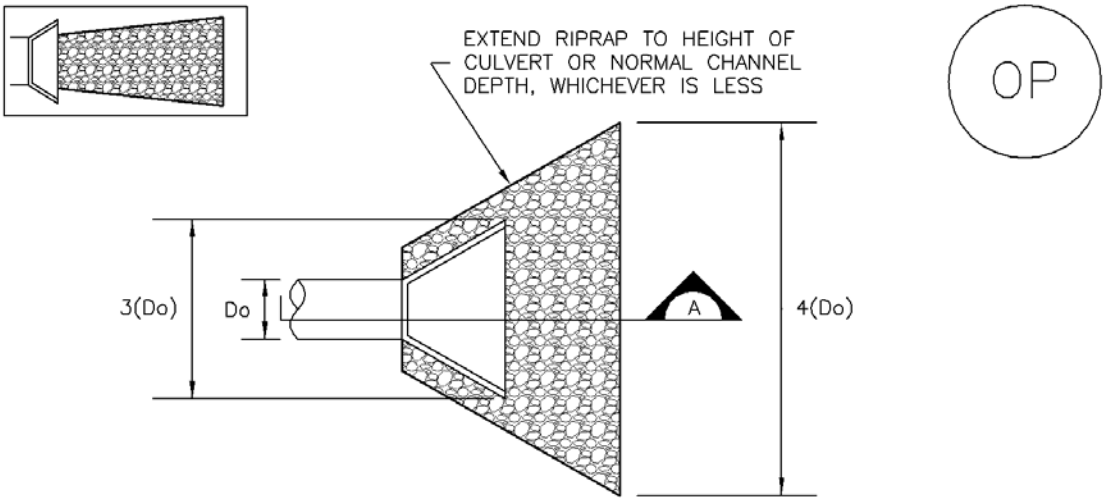


SECTION A

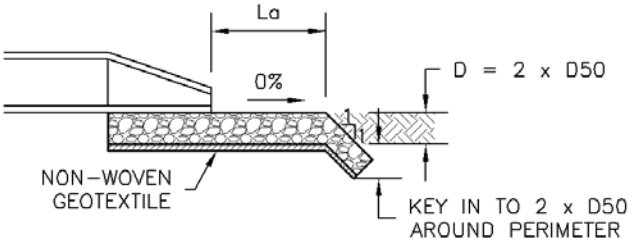


SECTION B

ST–1. SEDIMENT TRAP



TEMPORARY OUTLET PROTECTION PLAN



SECTION A

TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE			
PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, La (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5 5	5 10	4 6
12	5 10	10 13	4 6
18	10 20 30 40	10 16 23 26	6 9 12 16
24	30 40 50 60	16 26 26 30	9 9 12 16

OP-1. TEMPORARY OUTLET PROTECTION

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF OUTLET PROTECTION.
   –DIMENSIONS OF OUTLET PROTECTION.

2. DETAIL IS INTENDED FOR PIPES WITH SLOPE ≤ 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES.

3. TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND MAINTENANCE NOTES

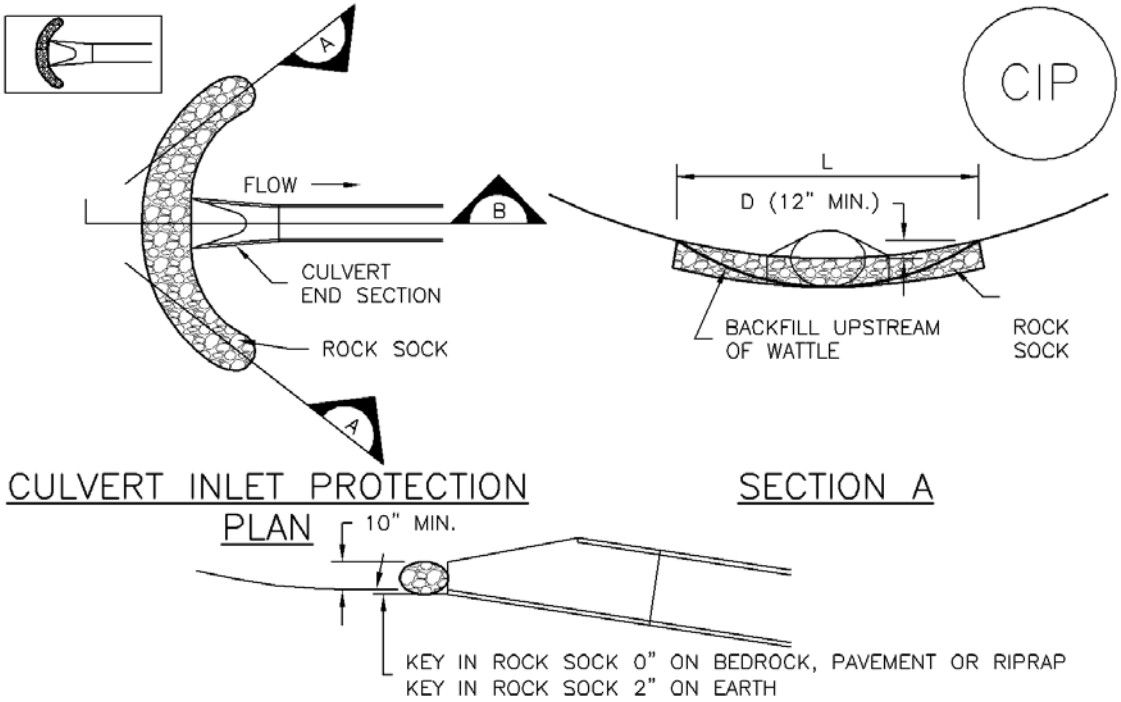
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)



CIP–1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF CULVERT INLET PROTECTION.

2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ THE HEIGHT OF THE ROCK SOCK.

5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF INLET PROTECTION.
   –TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)

2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ¼ OF THE HEIGHT FOR STRAW BALES.

5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.

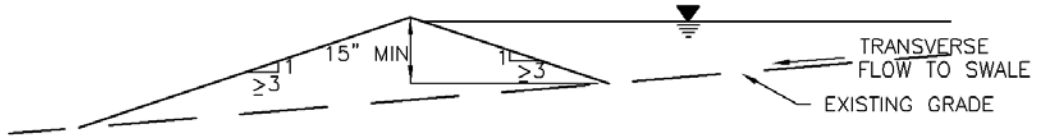
6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

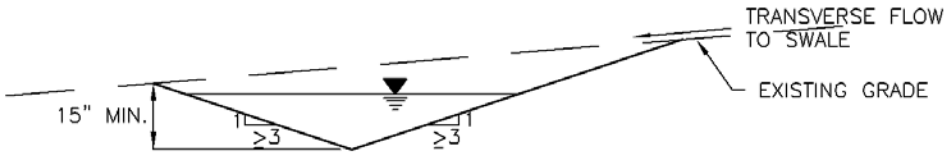
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

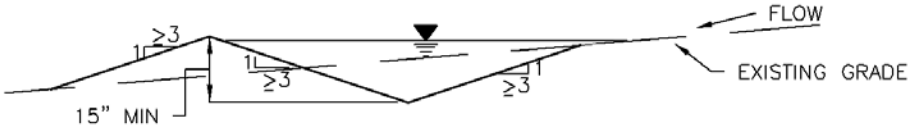
NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.



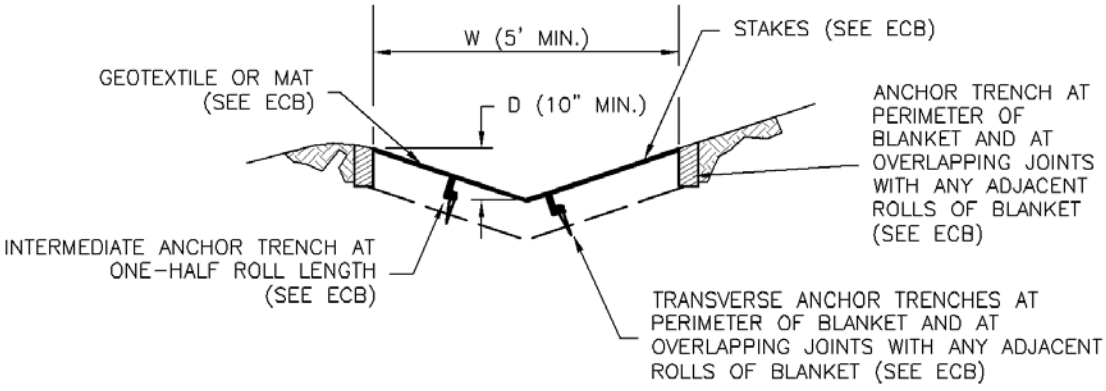
ED–1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM



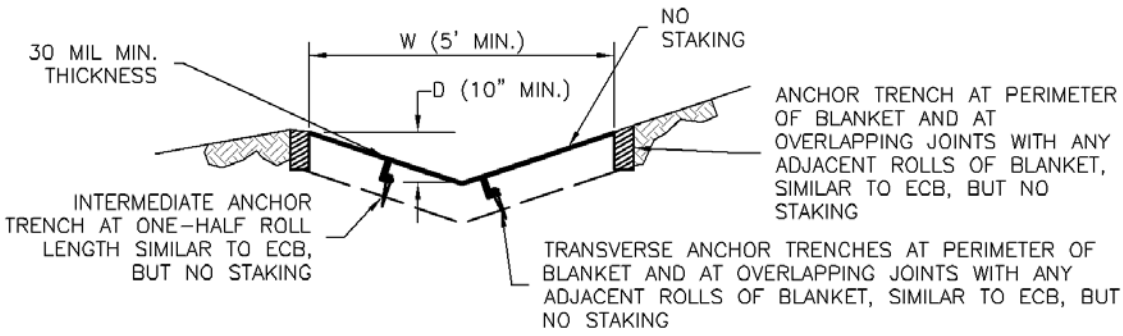
DS–1. COMPACTED UNLINED EXCAVATED SWALE



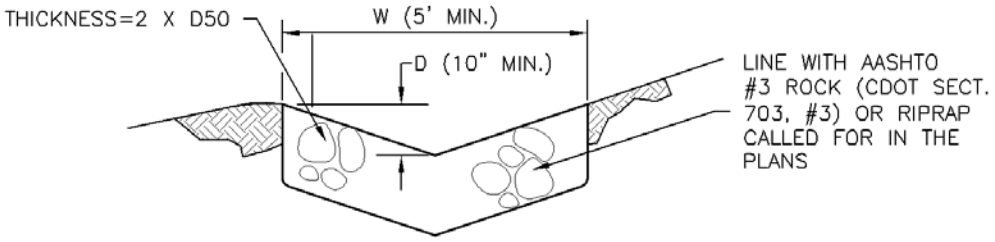
DS–2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



DS–3. ECB LINED SWALE (CUT AND FILL OR BERM)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.

3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.

4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.

5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.

6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.

7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

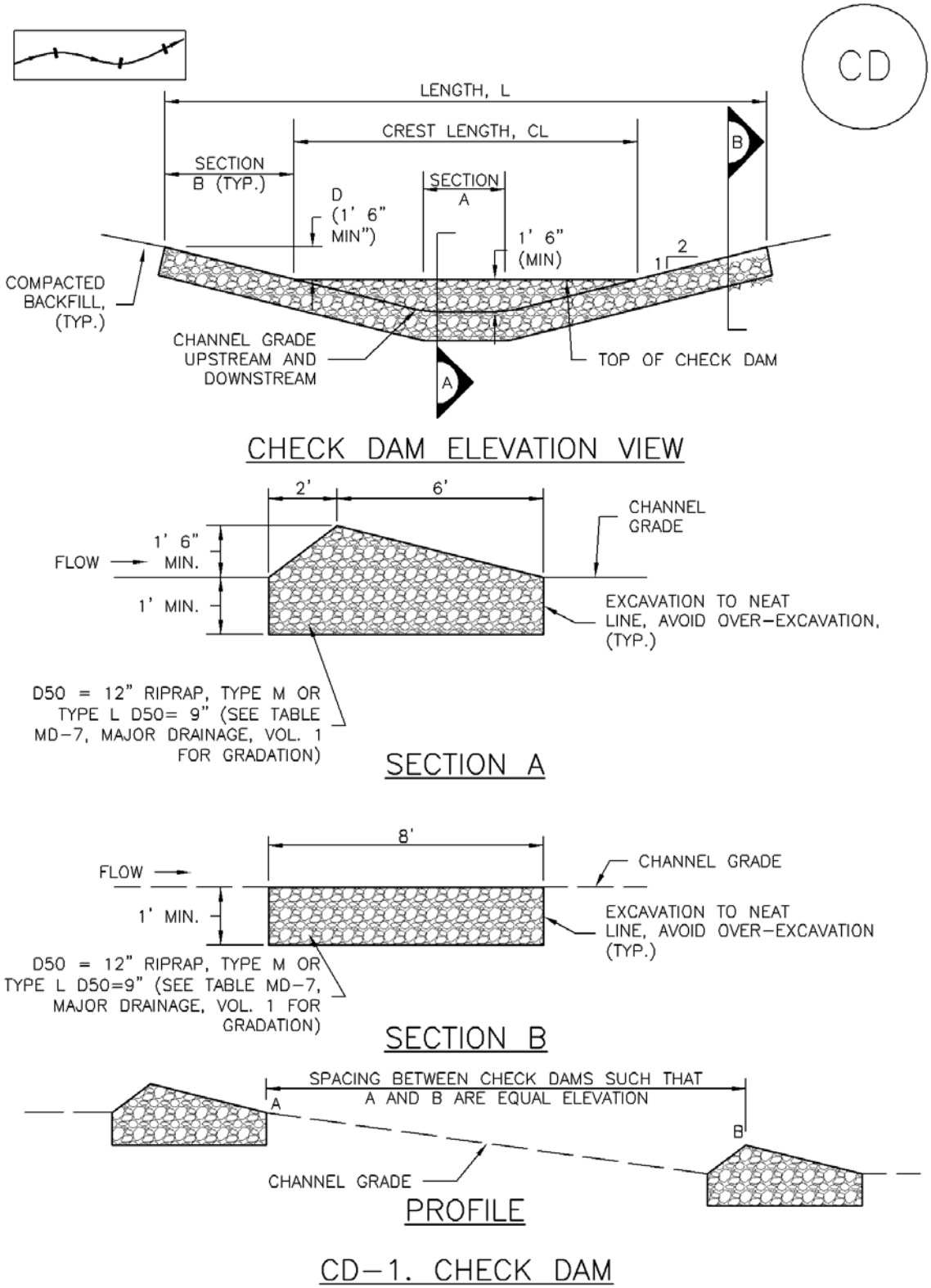
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.

5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



CD-1. CHECK DAM

CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF CHECK DAMS.
   –CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
   –LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).

2. CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.

3. RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D50 12") OR TYPE L (D50 9").

4. RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'.

5. THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM MAINTENANCE NOTES

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

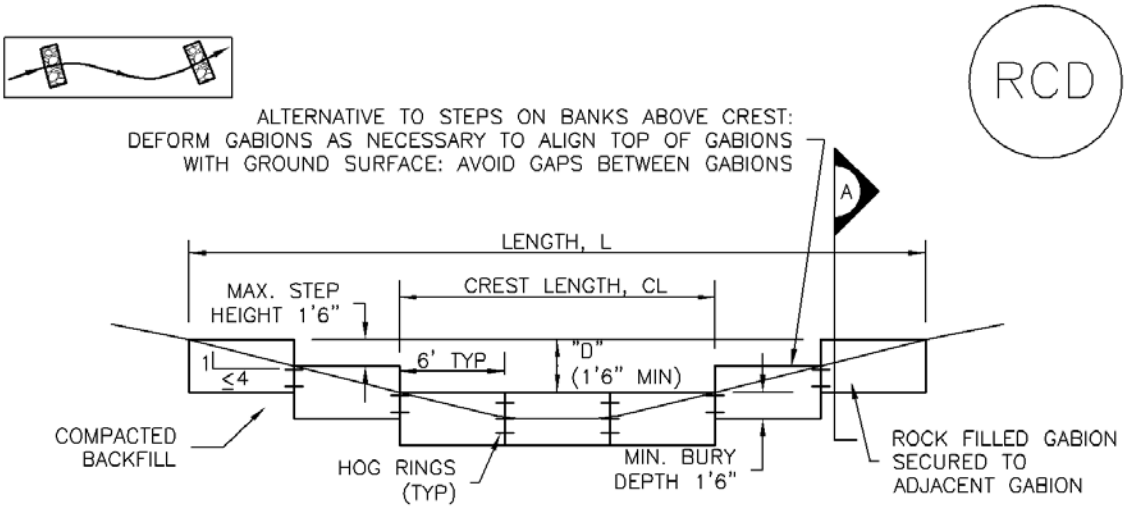
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN ½ OF THE HEIGHT OF THE CREST.

5. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

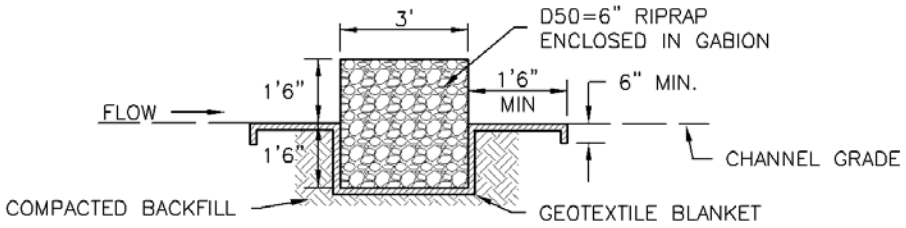
6. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



REINFORCED CHECK DAM ELEVATION VIEW



SECTION A

REINFORCED CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - –LOCATIONS OF CHECK DAMS.
   - –CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM).
   - –LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).

2. CHECK DAMS INDICATED ON THE SWMP SHALL BE INSTALLED PRIOR TO AN UPSTREAM LAND–DISTURBING ACTIVITIES.

3. REINFORCED CHECK DAMS, GABIONS SHALL HAVE GALVANIZED TWISTED WIRE NETTING WITH A MAXIMUM OPENING DIMENSION OF 4½" AND A MINIMUM WIRE THICKNESS OF 0.10". WIRE "HOG RINGS" AT 4" SPACING OR OTHER APPROVED MEANS SHALL BE USED AT ALL GABION SEAMS AND TO SECURE THE GABION TO THE ADJACENT SECTION.

4. THE CHECK DAM SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1' 6".

5. GEOTEXTILE BLANKET SHALL BE PLACED IN THE REINFORCED CHECK DAM TRENCH EXTENDING A MINIMUM OF 1' 6" ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES OF THE REINFORCED CHECK DAM.

CD–2. REINFORCED CHECK DAM

REINFORCED CHECK DAM MAINTENANCE NOTES

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF REINFORCED CHECK DAMS SHALL BE REMOVED AS NEEDED TO MAINTAIN THE EFFECTIVENESS OF BMP, TYPICALLY WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN ½ THE HEIGHT OF THE CREST.

5. REPAIR OR REPLACE REINFORCED CHECK DAMS WHEN THERE ARE SIGNS OF DAMAGE SUCH AS HOLES IN THE GABION OR UNDERCUTTING.

6. REINFORCED CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

7. WHEN REINFORCED CHECK DAMS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, AND COVERED WITH A GEOTEXTILE BLANKET, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Sediment Control Log (SCL) SC-2

Description

A sediment control log is a linear roll made of natural materials such as straw, coconut fiber, or compost. The most common type of sediment control log has straw filling and is often referred to as a "straw wattle." All sediment control logs are used as a sediment barrier to intercept sheet flow runoff from disturbed areas.

Photographs SCL-1 and SCL-2. Sediment control logs used as 1) a perimeter control around a soil stockpile; and, 2) as a "J-hook" perimeter control at the corner of a construction site.

Appropriate Uses

Sediment control logs can be used in the following applications to trap sediment:

- As perimeter control for stockpiles and the site.
- As part of inlet protection designs.
- As check dams in small drainage ditches. (Sediment control logs are not intended for use in channels with high flow velocities.)
- On disturbed slopes to shorten flow lengths (as an erosion control).
- As part of multi-layered perimeter control along a receiving water such as a stream, pond or wetland.

Sediment control logs work well in combination with other layers of erosion and sediment controls.

Design and Installation

Sediment control logs should be installed along the contour to avoid concentrating flows. The maximum allowable tributary drainage area per 100 lineal feet of sediment control log, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to sediment control logs installed along the contour. When installed for other uses, such as perimeter control, it should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the BMP.

Sediment Control Log	
Functions	
Erosion Control	Moderate
Sediment Control	Yes
Site/Material Management	No

Although sediment control logs initially allow runoff to flow through the BMP, they can quickly become a barrier and should be installed as if they are impermeable.

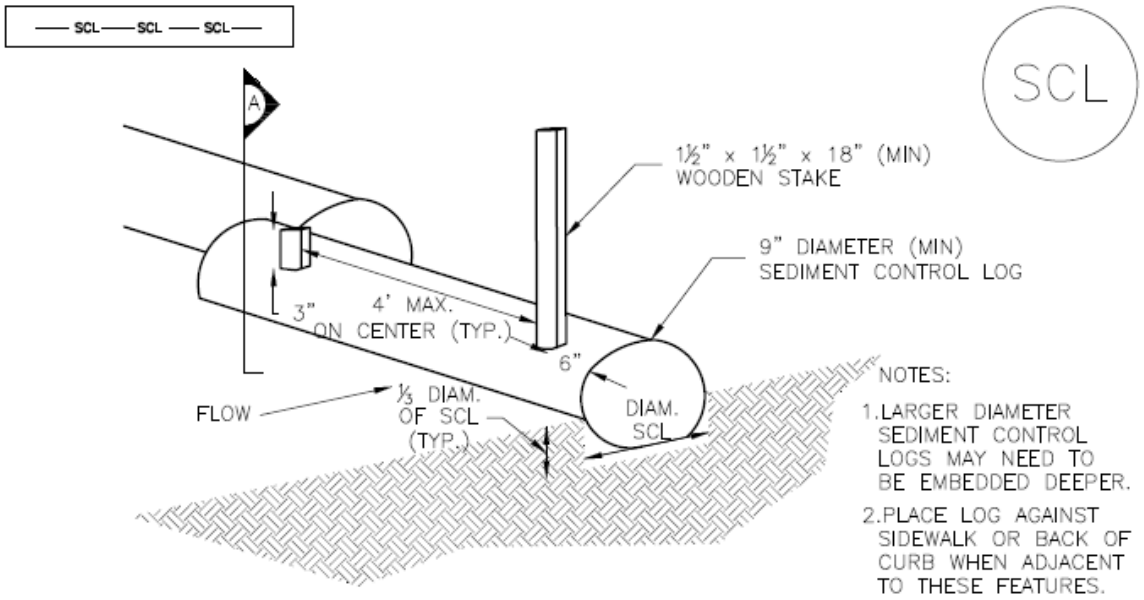
Design details and notes for sediment control logs are provided in the following details. Sediment logs must be properly installed per the detail to prevent undercutting, bypassing and displacement. When installed on slopes, sediment control logs should be installed along the contours (i.e., perpendicular to flow).

Improper installation can lead to poor performance. Be sure that sediment control logs are properly trenched (if lighter than 8 lb/foot), anchored and tightly jointed.

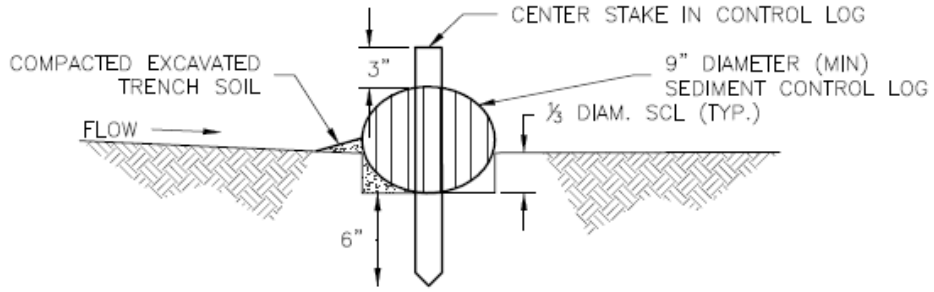
Maintenance and Removal

Be aware that sediment control logs will eventually degrade. Remove accumulated sediment before the depth is one-half the height of the sediment log and repair damage to the sediment log, typically by replacing the damaged section.

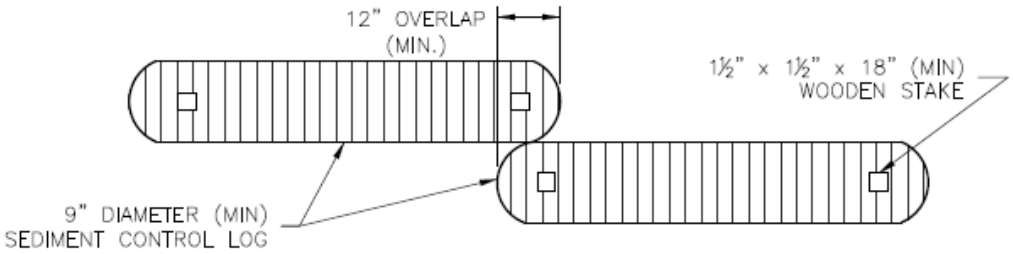
Once the upstream area is stabilized, remove and properly dispose of the logs. Areas disturbed beneath the logs may need to be seeded and mulched. Sediment control logs that are biodegradable may occasionally be left in place (e.g., when logs are used in conjunction with erosion control blankets as permanent slope breaks). However, removal of sediment control logs after final stabilization is typically appropriate when used in perimeter control, inlet protection and check dam applications. Compost from compost sediment control logs may be spread over the area and seeded as long as this does not cover newly established vegetation.



TRENCHED SEDIMENT CONTROL LOG

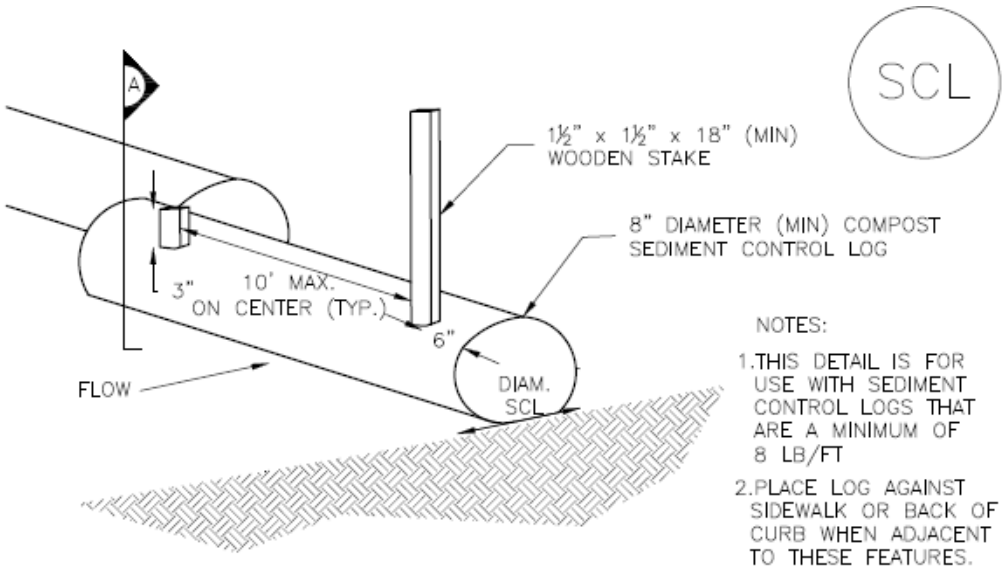


SECTION Ⓐ
TRENCHED SEDIMENT CONTROL LOG

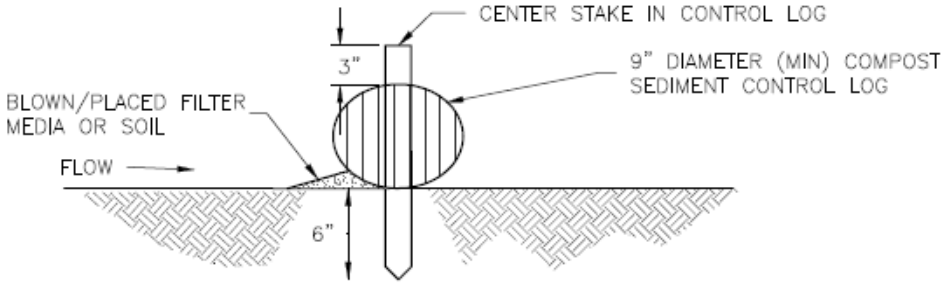


LOG JOINTS

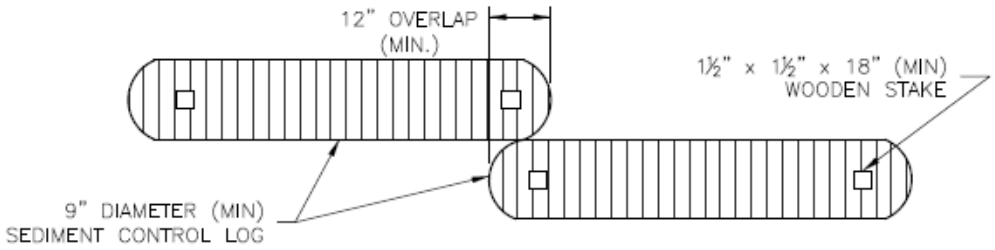
SCL–1. TRENCHED SEDIMENT CONTROL LOG



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

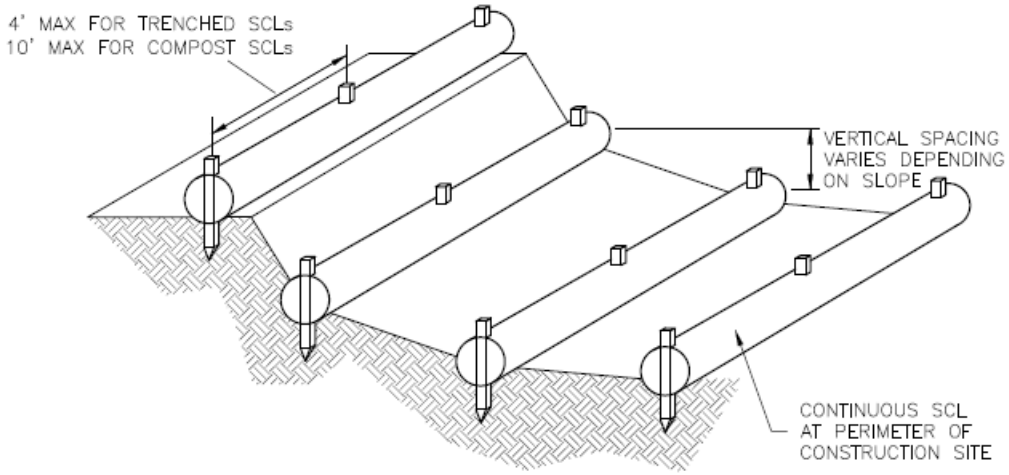


SECTION (A)
COMPOST SEDIMENT CONTROL LOG



LOG JOINTS

SCL–2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SCL–3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND–DISTURBING ACTIVITIES.

3. 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.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ 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.

6. 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.

7. 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

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. 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 ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION.COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE 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.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Rolled Erosion Control Products (RECP) EC-6

Description

Photograph RECP-1. Erosion control blanket protecting the slope from erosion and providing favorable conditions for revegetation.

Rolled Erosion Control Products (RECPs) include a variety of temporary or permanently installed manufactured products designed to control erosion and enhance vegetation establishment and survivability, particularly on slopes and in channels. For applications where natural vegetation alone will provide sufficient permanent erosion protection, temporary products such as netting, open weave textiles and a variety of erosion control blankets (ECBs) made of biodegradable natural materials (e.g., straw, coconut fiber) can be used. For applications where natural vegetation alone will not be sustainable under expected flow conditions, permanent rolled erosion control products such as turf reinforcement mats (TRMs) can be used. In particular, turf reinforcement mats are designed for discharges that exert velocities and sheer stresses that exceed the typical limits of mature natural vegetation.

Appropriate Uses

RECPs can be used to control erosion in conjunction with revegetation efforts, providing seedbed protection from wind and water erosion. These products are often used on disturbed areas on steep slopes, in areas with highly erosive soils, or as part of drainageway stabilization. In order to select the appropriate RECP for site conditions, it is important to have a general understanding of the general types of these products, their expected longevity, and general characteristics.

The Erosion Control Technology Council (ECTC 2005) characterizes rolled erosion control products according to these categories:

- **Mulch control netting**: A planar woven natural fiber or extruded geosynthetic mesh used as a temporary degradable rolled erosion control product to anchor loose fiber mulches.

- **Open weave textile**: A temporary degradable rolled erosion control product composed of processed natural or polymer yarns woven into a matrix, used to provide erosion control and facilitate vegetation establishment.

- **Erosion control blanket (ECB)**: A temporary degradable rolled erosion control product composed of processed natural or polymer fibers which are mechanically, structurally or chemically bound together to form a continuous matrix to provide erosion control and facilitate vegetation establishment. ECBs can be further differentiated into rapidly degrading single-net and double-net types or slowly degrading types.

Rolled Erosion Control Products	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	No

§ **Turf Reinforcement Mat (TRM)**: A rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness. TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

Table RECP-1. ECTC Standard Specification for Temporary Rolled Erosion Control Products
(Adapted from Erosion Control Technology Council 2005)

Product Description	Slope Applications*		Channel Applications*	Minimum Tensile Strength[1]	Expected Longevity
	Maximum Gradient	C Factor[2,5]	Max. Shear Stress[3,4,6]		
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft^2 (12 Pa)	5 lbs/ft (0.073 kN/m)	Up to 12 months
Netless Rolled Erosion Control Blankets	4:1 (H:V)	≤0.10 @ 4:1	0.5 lbs/ft^2 (24 Pa)	5 lbs/ft (0.073 kN/m)	
Single-net Erosion Control Blankets & Open Weave Textiles	3:1 (H:V)	≤0.15 @ 3:1	1.5 lbs/ft^2 (72 Pa)	50 lbs/ft (0.73 kN/m)	
Double-net Erosion Control Blankets	2:1 (H:V)	≤0.20 @ 2:1	1.75 lbs/ft^2 (84 Pa)	75 lbs/ft (1.09 kN/m)	
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft^2 (12 Pa)	25 lbs/ft (0.36 kN/m)	24 months
Erosion Control Blankets & Open Weave Textiles (slowly degrading)	1.5:1 (H:V)	≤0.25 @ 1.5:1	2.00 lbs/ft^2 (96 Pa)	100 lbs/ft (1.45 kN/m)	24 months
Erosion Control Blankets & Open Weave Textiles	1:1 (H:V)	≤0.25 @ 1:1	2.25 lbs/ft^2 (108 Pa)	125 lbs/ft (1.82 kN/m)	36 months

* C Factor and shear stress for mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material. (*See Section 5.3 of Chapter 7 Construction BMPs for more information on the C Factor*.)

[1] Minimum Average Roll Values, Machine direction using ECTC Mod. ASTM D 5035.

[2] C Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, H:V) to ratio of soil loss from unprotected (control) plot in large-scale testing.

[3] Required minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-scale testing.

[4] The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05.

[5] Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer.

[6] Per the engineer's discretion. Recommended acceptable large-scale testing protocol may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

Table RECP-2. ECTC Standard Specification for Permanent[1] Rolled Erosion Control Products
(Adapted from: Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	
TRMs with a minimum thickness of 0.25 inches (6.35 mm) per ASTM D 6525 and UV stability of 80% per ASTM D 4355 (500 hours exposure).	Maximum Gradient	Maximum Shear Stress[4,5]	Minimum Tensile Strength[2,3]
	0.5:1 (H:V)	6.0 lbs/ft^2 (288 Pa)	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	8.0 lbs/ft^2 (384 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft^2 (480 Pa)	175 lbs/ft (2.55 kN/m)

[1] For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.

[2] Minimum Average Roll Values, machine direction only for tensile strength determination using ASTM D 6818 (Supersedes Mod. ASTM D 5035 for RECPs)

[3] Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m (3,000 lb/ft) or greater.

[4] Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss) during a 30-minute flow event in large scale testing.

[5] Acceptable large-scale testing protocols may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

Design and Installation

RECPs should be installed according to manufacturer's specifications and guidelines. Regardless of the type of product used, it is important to ensure no gaps or voids exist under the material and that all corners of the material are secured using stakes and trenching. Continuous contact between the product and the soil is necessary to avoid failure. Never use metal stakes to secure temporary erosion control products. Often wooden stakes are used to anchor RECPs; however, wood stakes may present installation and maintenance challenges and generally take a long time to biodegrade. Some local jurisdictions have had favorable experiences using biodegradable stakes.

This BMP Fact Sheet provides design details for several commonly used ECB applications, including:

ECB-1 Pipe Outlet to Drainageway

ECB-2 Small Ditch or Drainageway

ECB-3 Outside of Drainageway

Staking patterns are also provided in the design details according to these factors:

§ ECB type

§ Slope or channel type

For other types of RECPs including TRMs, these design details are intended to serve as general guidelines for design and installation; however, engineers should adhere to manufacturer's installation recommendations.

Maintenance and Removal

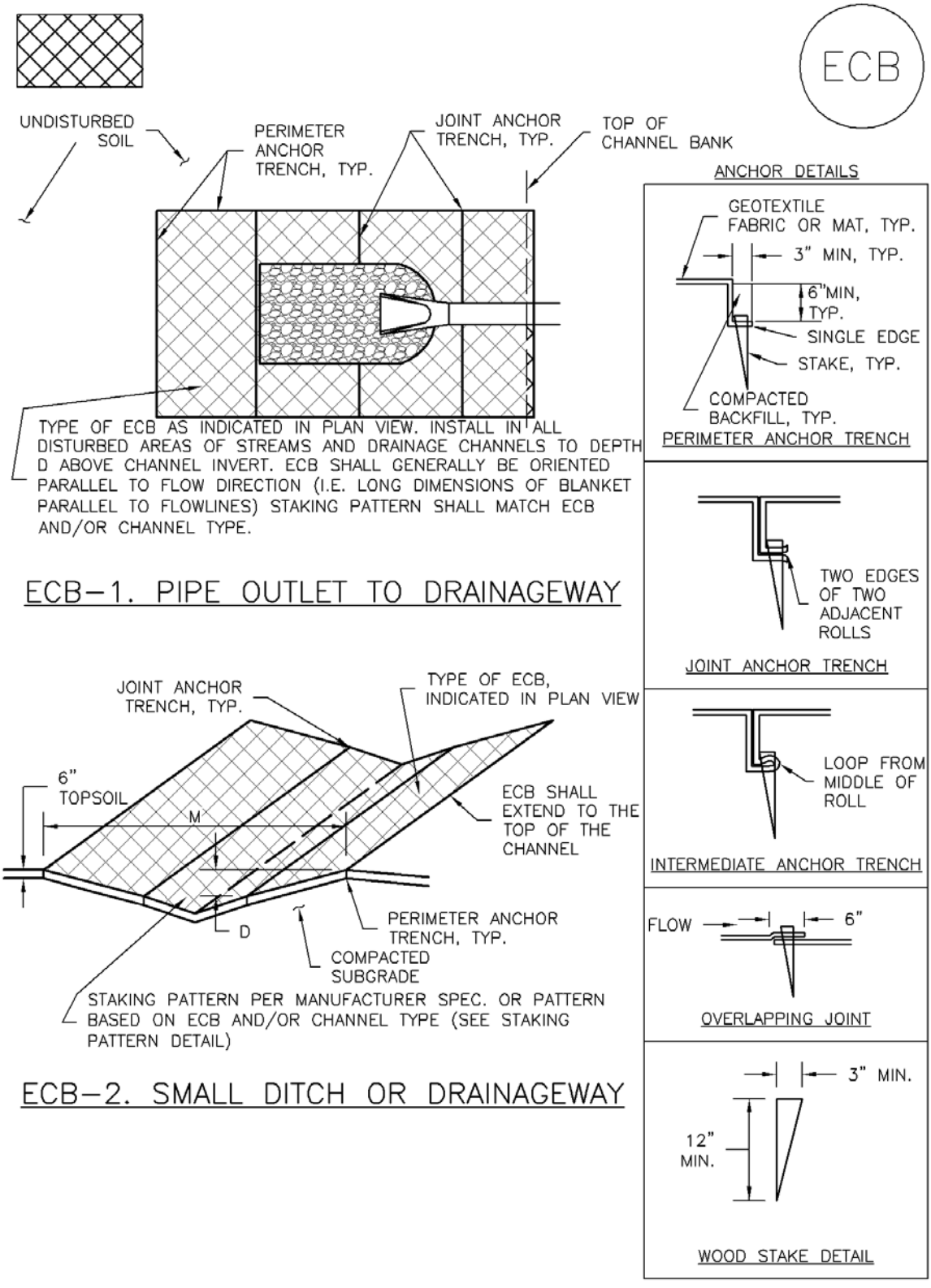
Inspection of erosion control blankets and other RECPs includes:

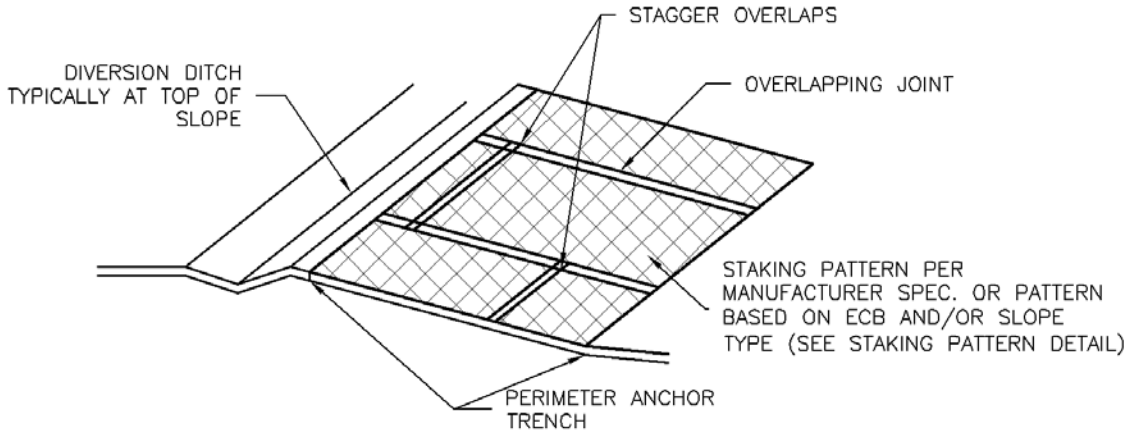
§ Check for general signs of erosion, including voids beneath the mat. If voids are apparent, fill the void with suitable soil and replace the erosion control blanket, following the appropriate staking pattern.

§ Check for damaged or loose stakes and secure loose portions of the blanket.

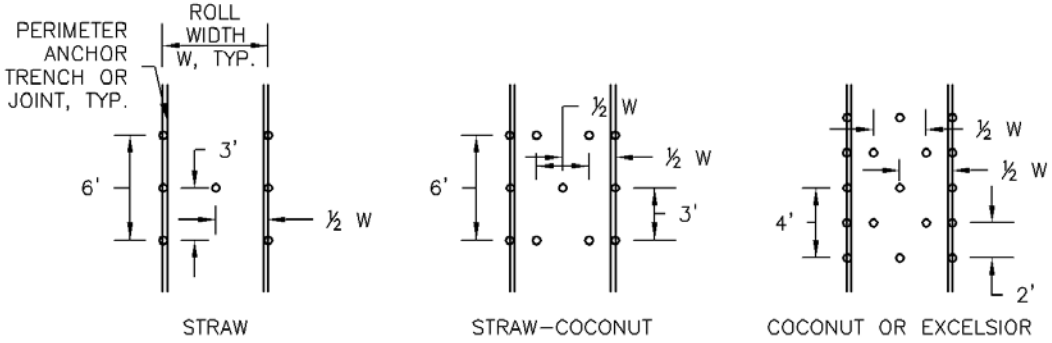
Erosion control blankets and other RECPs that are biodegradable typically do not need to be removed after construction. If they must be removed, then an alternate soil stabilization method should be installed promptly following removal.

Turf reinforcement mats, although generally resistant to biodegradation, are typically left in place as a dense vegetated cover grows in through the mat matrix. The turf reinforcement mat provides long-term stability and helps the established vegetation resist erosive forces.

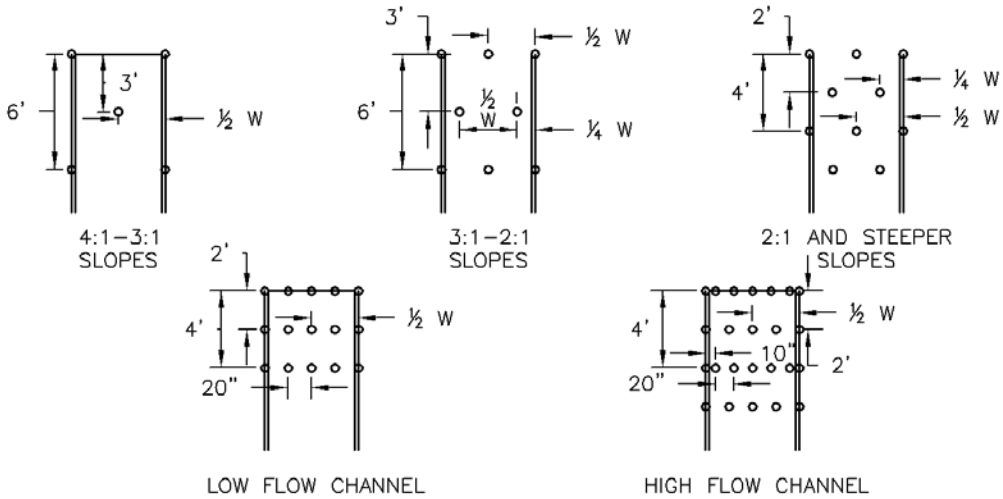

ECB
UNDISTURBED SOIL
PERIMETER ANCHOR TRENCH, TYP.
JOINT ANCHOR TRENCH, TYP.
TOP OF CHANNEL BANK
TYPE OF ECB AS INDICATED IN PLAN VIEW. INSTALL IN ALL DISTURBED AREAS OF STREAMS AND DRAINAGE CHANNELS TO DEPTH D ABOVE CHANNEL INVERT. ECB SHALL GENERALLY BE ORIENTED PARALLEL TO FLOW DIRECTION (I.E. LONG DIMENSIONS OF BLANKET PARALLEL TO FLOWLINES) STAKING PATTERN SHALL MATCH ECB AND/OR CHANNEL TYPE.
ECB–1. PIPE OUTLET TO DRAINAGEWAY
JOINT ANCHOR TRENCH, TYP.
TYPE OF ECB, INDICATED IN PLAN VIEW
6" TOPSOIL
M
ECB SHALL EXTEND TO THE TOP OF THE CHANNEL
D
PERIMETER ANCHOR TRENCH, TYP.
COMPACTED SUBGRADE
STAKING PATTERN PER MANUFACTURER SPEC. OR PATTERN BASED ON ECB AND/OR CHANNEL TYPE (SEE STAKING PATTERN DETAIL)
ECB–2. SMALL DITCH OR DRAINAGEWAY
ANCHOR DETAILS
GEOTEXTILE FABRIC OR MAT, TYP.
3" MIN, TYP.
6" MIN, TYP.
SINGLE EDGE STAKE, TYP.
COMPACTED BACKFILL, TYP.
PERIMETER ANCHOR TRENCH
TWO EDGES OF TWO ADJACENT ROLLS
JOINT ANCHOR TRENCH
LOOP FROM MIDDLE OF ROLL
INTERMEDIATE ANCHOR TRENCH
FLOW
6"
OVERLAPPING JOINT
3" MIN.
12" MIN.
WOOD STAKE DETAIL



ECB–3. OUTSIDE OF DRAINAGEWAY



STAKING PATTERNS BY ECB TYPE



STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - –LOCATION OF ECB.
   - –TYPE OF ECB (STRAW, STRAW–COCONUT, COCONUT, OR EXCELSIOR).
   - –AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.

2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.

3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.

4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.

5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.

6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE–HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.

7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.

8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB–1.

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.

10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB–1. ECB MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN	70% MAX	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. 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.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.

5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)

Wind Erosion/Dust Control (DC) EC-14

Description

Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. These BMPs include a variety of practices generally focused on either graded disturbed areas or construction roadways. For graded areas, practices such as seeding and mulching, use of soil binders, site watering, or other practices that provide prompt surface cover should be used. For construction roadways, road watering and stabilized surfaces should be considered.

Photograph DC-1. Water truck used for dust suppression. Photo courtesy of Douglas County.

Appropriate Uses

Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.

Design and Installation

The following construction BMPs can be used for dust control:

§ An irrigation/sprinkler system can be used to wet the top layer of disturbed soil to help keep dry soil particles from becoming airborne.

§ Seeding and mulching can be used to stabilize disturbed surfaces and reduce dust emissions.

§ Protecting existing vegetation can help to slow wind velocities across the ground surface, thereby limiting the likelihood of soil particles to become airborne.

§ Spray-on soil binders form a bond between soil particles keeping them grounded. Chemical treatments may require additional permitting requirements. Potential impacts to surrounding waterways and habitat must be considered prior to use.

§ Placing rock on construction roadways and entrances will help keep dust to a minimum across the construction site.

§ Wind fences can be installed on site to reduce wind speeds. Install fences perpendicular to the prevailing wind direction for maximum effectiveness.

Wind Erosion Control/ Dust Control	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	Moderate

Maintenance and Removal

When using an irrigation/sprinkler control system to aid in dust control, be careful not to overwater. Overwatering will cause construction vehicles to track mud off-site.

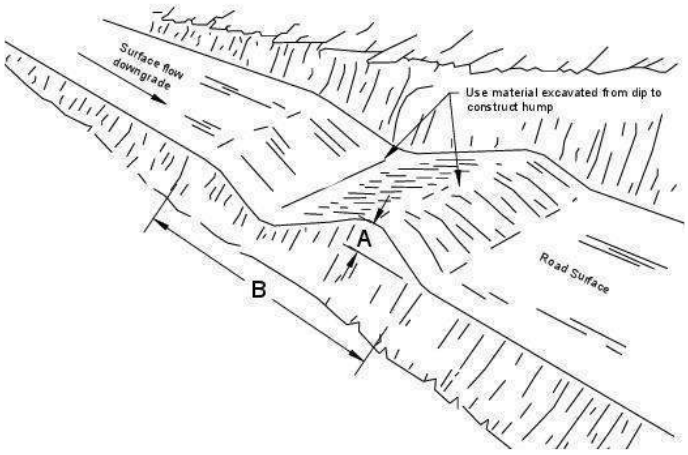
Water Bars

Purpose

A small ditch or ridge of material constructed diagonally across a road or right-of-way to divert storm water runoff from the road surface.

Suitable Uses

Clearing right-of-way and construction of access roads for power lines, pipelines, and other similar installations often requires long narrow right-of-ways/roads over sloping terrain. To prevent the formation of rills and gullies, divert runoff across the width of the right-of-way/road to undisturbed areas using water bars



Design and Installation Specifications

- Space water bars such that diverted water does not cause scouring
- Height: 8” minimum measured from the channel bottom to the ridge top.
- Side slope of channel: 2:1 maximum; 3:1 or flatter when vehicles will cross.
- Base width of ridge: 32” minimum.
- Grade and angle: Select angle that results in ditch slope less than 2%.
- Locate to discharge into stable, well-vegetated areas.
- Establish vegetation and riprap at outlet as necessary to prevent erosion/ditching.
- Establish holding ponds as necessary to prevent sediment transport into waterways and karst features.

- Compact the ridge when installed.
- Stabilize; seed; and mulch the portions that are not subject to traffic. Gravel the areas crossed by vehicles.

Table 4. Water bar spacing guidelines.

% Slope	**Spacing**
Less than 5%	125’
5-10%	100’
10-20%	75’
20-35%	50’
More than 35%	Use rock lined ditch

Maintenance Standards

- Routinely check for erosion and sedimentation, and make timely repairs as needed.

APPENDIX IV. STORMWATER INSPECTION FORMS

Stormwater Inspection Report Template

Facility Name		**Permittee**	
Date of Inspection		**Weather Conditions**	
Permit Certification #		**Disturbed Acreage**	
Phase of Construction		**Inspector Title**	
Inspector Name			

Is the above inspector a qualified stormwater manager?	**YES**	**NO**
(permittee is responsible for ensuring that the inspector is a qualified stormwater manager)	☐	☐

INSPECTION FREQUENCY

Check the box that describes the minimum inspection frequency utilized when conducting each inspection	
At least one inspection every 7 calendar days	☐
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	☐
• **This is this a post-storm event inspection. Event Date: _____**	☐
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	☐
• **Post-storm inspections at temporarily idle sites**	☐
• **Inspections at completed sites/area**	☐
• **Winter conditions exclusion**	☐

Have there been any deviations from the minimum inspection schedule?	**YES**	**NO**
If yes, describe below.	☐	☐

INSPECTION REQUIREMENTS*

i. **Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications**

ii. **Determine if there are new potential sources of pollutants**

iii. **Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges**

iv. **Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action**

*Use the attached **Control Measures Requiring Routine Maintenance** and **Inadequate Control Measures Requiring Corrective Action** forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED

Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?

	NO	YES	If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions Inadequate Control Measures Requiring Corrective Action form
Construction site perimeter	☐	☐	
All disturbed areas	☐	☐	
Designated haul routes	☐	☐	
Material and waste storage areas exposed to precipitation	☐	☐	
Locations where stormwater has the potential to discharge offsite	☐	☐	
Locations where vehicles exit the site	☐	☐	
Locations of installed control measures	☐	☐	

CONTROL MEASURES REQUIRING ROUTINE MAINTENANCE

Definition: Any control measure that is still operating in accordance with its design and the requirements of the permit, but requires maintenance to prevent a breach of the control measure. These items are not subject to the corrective action requirements as specified in Part I.B.1.c of the permit.

Are there control measures requiring maintenance?	NO	YES	
	☐	☐	If "YES" document below

Date Observed	Location	Control Measure	Maintenance Required	Date Completed

INADEQUATE CONTROL MEASURES REQUIRING CORRECTIVE ACTION

Definition: Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. This includes control measures that have not been implemented for pollutant sources. If it is infeasible to install or repair the control measure immediately after discovering the deficiency the reason must be documented and a schedule included to return the control measure to effective operating condition as possible.

	NO	YES	
Are there inadequate control measures requiring corrective action?	☐	☐	**If "YES" document below**

	NO	YES	
Are there additional control measures needed that were not in place at the time of inspection?	☐	☐	**If "YES" document below**

Date Discovered	Location	Description of Inadequate Control Measure	Description of Corrective Action	Was deficiency corrected when discovered? YES/NO if "NO" provide reason and schedule to correct	Date Corrected

REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit

a. Endangerment to Health or the Environment
Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit)

This category would primarily result from the discharge of pollutants in violation of the permit

b. Numeric Effluent Limit Violations

- **Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit)**
- **Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit)**
- **Daily maximum violations (See Part II.L.6.d of the Permit)**

Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.

Has there been an incident of noncompliance requiring 24-hour notification?	**NO**	**YES**	
	☐	☐	**If "YES" document below**

Date and Time of Incident	Location	Description of Noncompliance	Description of Corrective Action	Date and Time of 24 Hour Oral Notification	Date of 5 Day Written Notification *

***Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.**

"I verify that, to the best of my knowledge and belief, all corrective action identified during the inspection are complete, and the site is currently in compliance with the permit."

_____ _____

Name of Qualified Stormwater Manager **Title of Qualified Stormwater Manager**

_____ _____

Signature of Qualified Stormwater Manager **Date**

Notes/Comments

2022 Collbran to Reed Junction Replacement Project- Phase A

Reclamation Plan

Black Hills Environmental Contact:

Ally Little, Senior Environmental Professional

(307) 778-2123 (office)

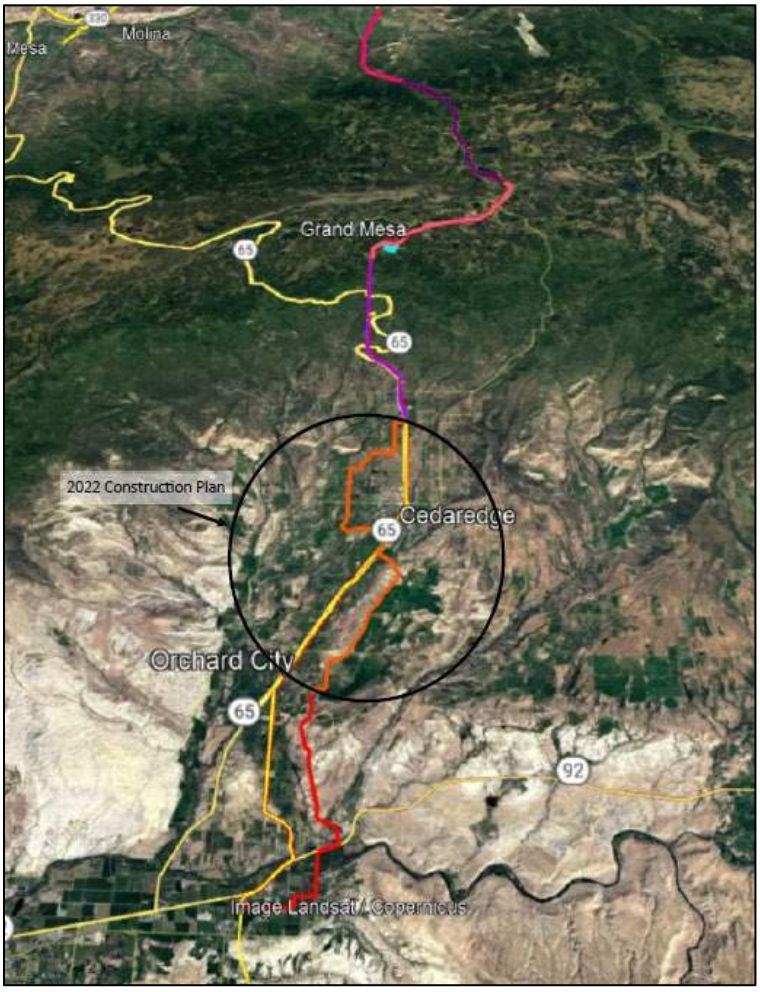
(402) 917-8557 (cell)

Ally.little@blackhillscorp.com

I. Project Overview

Rocky Mountain Natural Gas LLC (RMNG), doing business as (dba) Black Hills Energy (BHE), is planning to relocate an existing section of 8-inch natural gas pipeline that currently runs through the Town of Cedaredge. The purpose of the project is to re-route the transmission line outside of town to avoid the High Consequence Area (HCA) per safety and engineering guidelines and company best practices. This segment of pipeline includes installation of approximately 8.6 miles of transmission pipeline and an additional 0.80 miles of existing 4-inch distribution pipeline. The distribution pipeline replacement is a result of the relocated Town Border Station (TBS) from the East side of Cedaredge to the West side of Cedaredge.

The entire 8-inch transmission pipeline starts at the 8-inch Reed Junction – Collbran Compressor Station Transmission Pipeline at the Reed Junction Block Valve (38.7626, -107.9762) and terminates approximately one mile south of the Collbran Compressor Station at the My Way Ranch Reg. Station (39.2192, -107.9430)- approximately 38 miles. The overall project will consist of six construction phases beginning in 2022 and ending in 2027. **This Reclamation Plan will only include the Phase A 2022 construction effort which consists of a pipeline reroute to the West of the Town of Cedaredge as depicted in Figure 1 below.**



During construction, the gas will continue to flow through the existing pipe. Upon completion of the reroute, the two ends of the reroute will be tied into the existing pipeline as identified in the engineering drawing package. Customers will not be negatively impacted by lack of flow of natural gas at any point during construction.

Contractor will be required to remain within authorized access ROWs. Access outside of permitted access ROWs will need to be approved by the affected land management agency/Owner prior to use. Contractor equipment will not be staged on Highway 65 to avoid traffic impacts on the highway.

II. Reclamation – Baseline Information

a. Site Description:
The project takes place between Fruitgrowers Reservoir (south end) and approximately 2.5 miles north or Cedaredge at the intersection of Hwy 65 and T50 Road. Most construction will take place in private easements and County roads.

Climate/Precipitation/Ecological Site Description (ESD): The area is located at approximately 6,230' elevation, receives 15 inches of rain and 50 inches of snow on average per year. On average, there are 239 sunny days per year in this area. The area is classified as a semi-arid climate.

i. Surface and groundwater hydrology: The site elevation is approximately 6,230'. Surface topography is generally flat, with a slight tendency toward the southwest. The existing and new pipeline cross several natural drainages, such as Happy Hollow Gulch and Surface Creek, and many manmade irrigation ditches used to serve orchards. The project construction will include three staging areas that are not located within Waters of the United States (WOTUS).

ii. Topography/Relief Soils Description: Typical waterflow in the area is toward the southwest. North of the project site is the Grand Mesa. Creeks and drainages on this project contain water draining off the mesa toward the southwest.

b. Soil features

i. Soil stripping and stockpiling (length of time and storage configuration): Topsoil will be stripped in areas where excavation of pipelines or underground equipment is necessary. Contractor will remove pipelines and equipment, then backfill trench with subsoil and topsoil if non-contaminated. If any contaminated soil is found, contractor will import clean fill and topsoil.

ii. Soil map: The soil for this area varies immensely, as the project covers a long, linear area that varies in environment and location. The Paonia/Delta/Gunnison/Montrose County areas include an overwhelming

amount of stony loam soils and some clay loam. The area has a lot of rock both above and below ground.

iii. Viability management Soil inhibiting factors Management prescriptions/recommendations: Soil is extremely rocky. Some rock can be replaced in the trench, but general contractor will also need to haul off rock. Post-construction, the topsoil will be replaced on top. Some topsoil may need to be brought in, pending conditions.

c. Pre-Disturbance Vegetation Composition

i. Pre-disturbance photos will be taken by the contractor prior to disturbance.

ii. Vegetation coverage: Site has lush vegetation growth. Surrounding area has approximately 100% plant density, mostly mixed grasses. Some parts of the project traverse private land with less dense vegetation.

iii. Known weed infestations: No known weed infestations.

1. Proposed treatment: n/a. If treatment is ever used, it must be approved by landowners. Several areas near the project are orchards and some are certified organic with federal regulations regarding herbicide treatment.

III. **Reclamation Objectives:** The objective of interim reclamation is to restore vegetative cover and existing topography sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat, visual, and forage loss during the life of the pipeline.

The long-term objective of final reclamation is to return the land to a condition that existed prior to disturbance or to private landowner stipulations. This includes restoration of the existing contours and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

Landowners have specified their requests for the three staging areas:

North Staging Area Long Term Reclamation: Preserve existing driveway and reclaim the staging area entirely with native vegetation.

Middle Staging Area Long Term Reclamation: Landowner would like to utilize the level area as storage and has requested that Black Hills leave the staging area as-is post-construction. Contractor will NOT seed or treat this area, but all equipment, trash, and project-specific parts will be removed from the site.

South Staging Area Long Term Reclamation: Landowner has requested that Black Hills reclaim this area entirely. Specific language is proprietary and included in private landowner agreement.

IV. Reclamation Performance Standards

The following reclamation performance standards will be met:

Pipeline ROW Interim Reclamation – Includes disturbed areas along the pipeline (not staging areas). Prior to open trenching, topsoil will be stripped and stockpiled separately from subsoil. After pipeline is installed, subsoil will be replaced and compacted, then topsoil will be added and left loose/non-compacted. Seed and mulch will be planted via drill seeding. All equipment, construction debris, and parts will be removed from the site when construction is complete. The area will be monitored by a qualified stormwater inspector until at least 70% vegetation has grown back uniformly on disturbed areas.

The seed mix to be used must be approved by private landowners, but is expected to be a dryland pasture mix appropriate for this altitude. Great Basin Seed Company provides this mix, which may be used on this project pending landowner approval:

- Intermediate Wheatgrass
- Orchardgrass, Paiute
- Slender Wheatgrass
- Crested Wheatgrass, Hycrest
- Smooth Bromegrass
- Dahurian Wildrye

Final Reclamation – Includes disturbed areas where the original landform and a natural vegetative community have been restored.

Area will be monitored until 70% vegetation reestablishes on the site based on the vegetation density surrounding the compressor station. Additional seeding may be used in future years to help establish vegetation.

V. Reclamation Plan Requirements

a. Reclamation Contacts:

Primary Contact
Donald Green, Utility Construction Planner
(970) 882-4310 (office)
(970) 618-1521
donald.green@blackhillscorp.com

Environmental Contact
Ally Little, Senior Environmental Professional
Work: (307) 778-2123

Cell: (402) 917-8557
Ally.little@blackhillscorp.com

b. Construction Control Actions (actions that will be taken to minimize erosion until Reclamation can begin):
    i. Stormwater and erosion control:

Construction will be phased- a maximum of ~1000' of open trench will be left open at one time and areas will be backfilled as crews progress along the line. When construction is complete in an area, all equipment will be removed from the site. Where trenching or other work is required, Contractor will segregate and stockpile topsoil. Subsoil will be kept separately. Stockpiles that are left for more than 48 hours will have a stormwater control, like straw wattles, on the downslope side. Trenches that are left open overnight will have a stormwater control installed on the downslope side.

After all equipment and pipelines are removed, site will be seeded and mulched. Seeding will likely take place in the fall when weather conditions are favorable to growth. Area will be monitored monthly for vegetation regrowth and weeds. Additional seeding, transplanting, weed spraying (pending landowner approval), etc. may occur on site to meet reclamation requirements. Black Hills estimates that it will likely take 2+ years to achieve final stabilization.

ii. Slope stabilization

Slopes with greater than 10% slopes will have an erosion control blanket instead of mulch installed with seed. Large rocks/boulders and slash from vegetation removal will be distributed on the steeper slopes to help stabilize. All staging areas are relatively flat and will not require slope stabilization.

iii. Topsoil viability management

Proper handling and storage of topsoil is critical to successful revegetation, especially in the case of reestablishing important native plant species on disturbed areas. The topsoil contains soil microbes (bacteria, mycorrhiza, invertebrates), and seed banks of viable seed for the native plants present on the site. Many native plant species depend upon the activity of soil microbes for germination in some instances and for establishment and survival of most seedlings. The top 4 to 6 inches of soil should be stockpiled and separated to prevent mixing with other trench material. Topsoil stockpiles should be no greater than 4-inches in depth and uncompacted. Stockpiling topsoil in deep (greater than 4 inches), unstable piles for long periods (over 30 days) results in the loss or limitation of topsoil microbes and viable seed. This is especially so where soils are stockpiled more than several feet in

height and biological activity is diminished from lack of oxygen. Topsoil should be protected from erosion and weed invasion. Topsoil should be stockpiled in separate piles from other soil horizons on stable slopes and be positioned to minimize exposure to wind and water erosion. Topsoil piles stored for longer than 30 days should be immediately seeded with a dryland pasture seed mix to provide cover to reduce erosion, provide competition for weed species, and to maintain viability of the soil fungi and microbe communities. If weather conditions are not favorable for seeding, mulch or other control may be used. Using the recommended seed mixes on long-term storage piles will help maintain biological activity and provide a seed bank of viable seed. If long-term stockpiling or deep stockpiling cannot be avoided, application of mycorrhizal inoculants may be beneficial.

iv. Monitoring

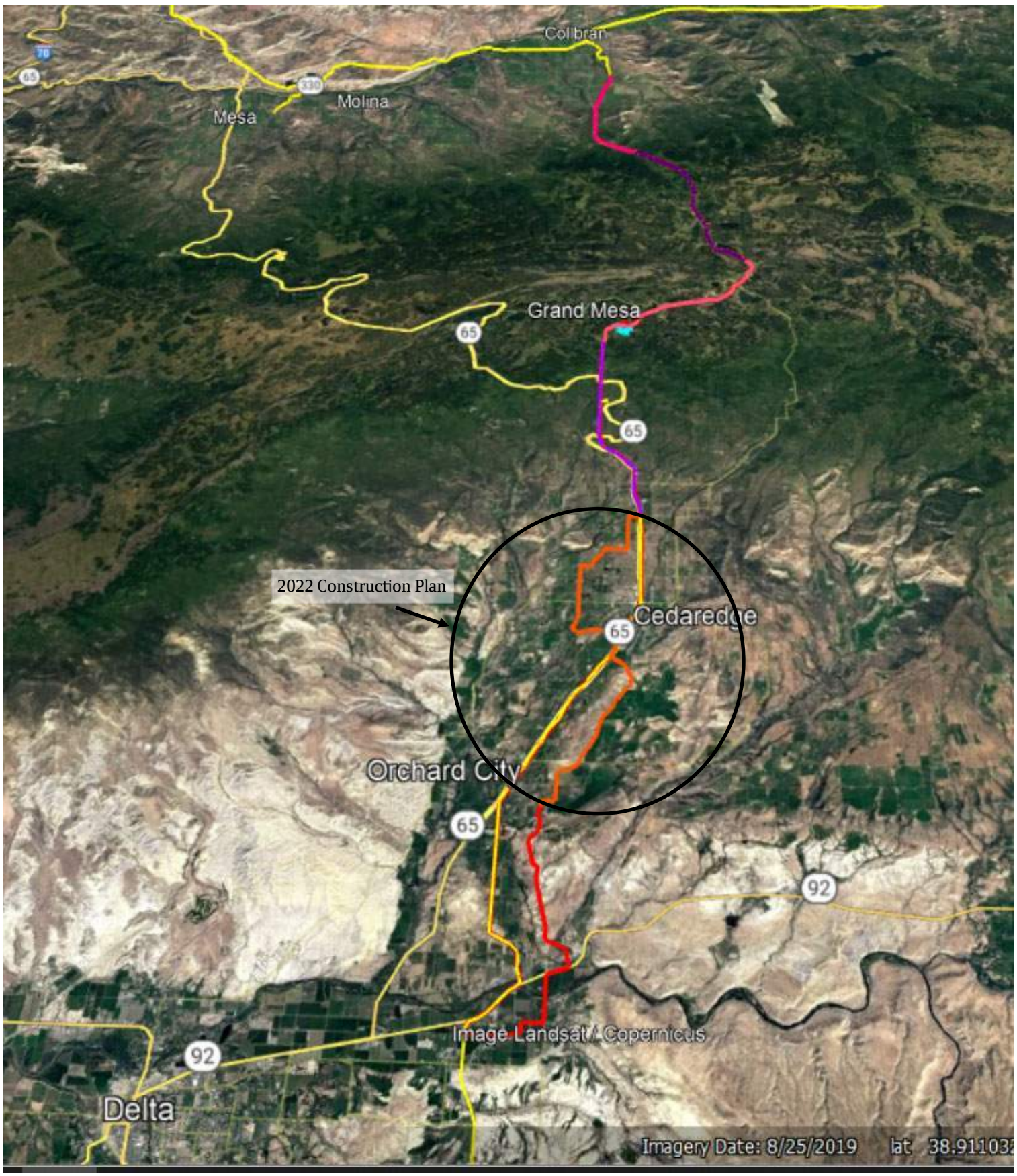
Site will be monitored monthly post-construction for site stability, erosion, vegetation density, and potential weed infestations.

c. Interim Reclamation
    i. Pipelines
        1. Pressure testing and disposal- Existing pipelines will be left buried in place. New pipeline will be hydrostatically tested; test water will be collected in large tanks and shipped to an appropriate water disposal facility permitted with CDPHE.
        2. Seeding Methods/Mix and Source- Black Hills Energy will use seed mix approved by private landowners that is appropriate for the elevation, climate, and land use. Colorado State Extension office recommended a dryland pasture mix.
        3. Erosion Control measures- Natural topography and vegetation will be used for erosion control where possible. Straw wattles or other control measures may be used depending on the amount of time trenches are left open and stockpiles remain on site.
        4. Risers (location, work areas, safety barricades)- The work will take place along highways and county roads. Fencing, signage, and other precautionary safety barricades will be used. Locations will be outlined in CDOT traffic plan.
    ii. Site Preparation for Staging Areas
        1. Equipment- Equipment and materials will be staged at one of the three established staging areas along the route.
        2. Methods- For staging areas, topsoil will be scraped, segregated, and stockpiled at the edge of the staging areas. Rock or gravel will be brought in to stabilize the site.

3. Suitable soil redistribution- North and south staging areas will have topsoil redistributed when construction is complete. Middle staging area must be left as staging area for landowner, so topsoil will be removed from the site.
4. Final recontour layout diagram- Contours will match pre-construction topography to allow for a natural drainage pattern.

iii. Establish desired self-perpetuating native plant community (Policy Section B7):
    1. Application of Topsoil & Revegetation:
        a. Seeding:
            i. Methods Schedule: Seeds will be drilled in during spring or fall during favorable weather conditions.
            ii. Seed Mix Example- use Great Basin's Dryland Pasture Mix, if approved by each landowner

See attached maps for Reclamation Plan at each staging area



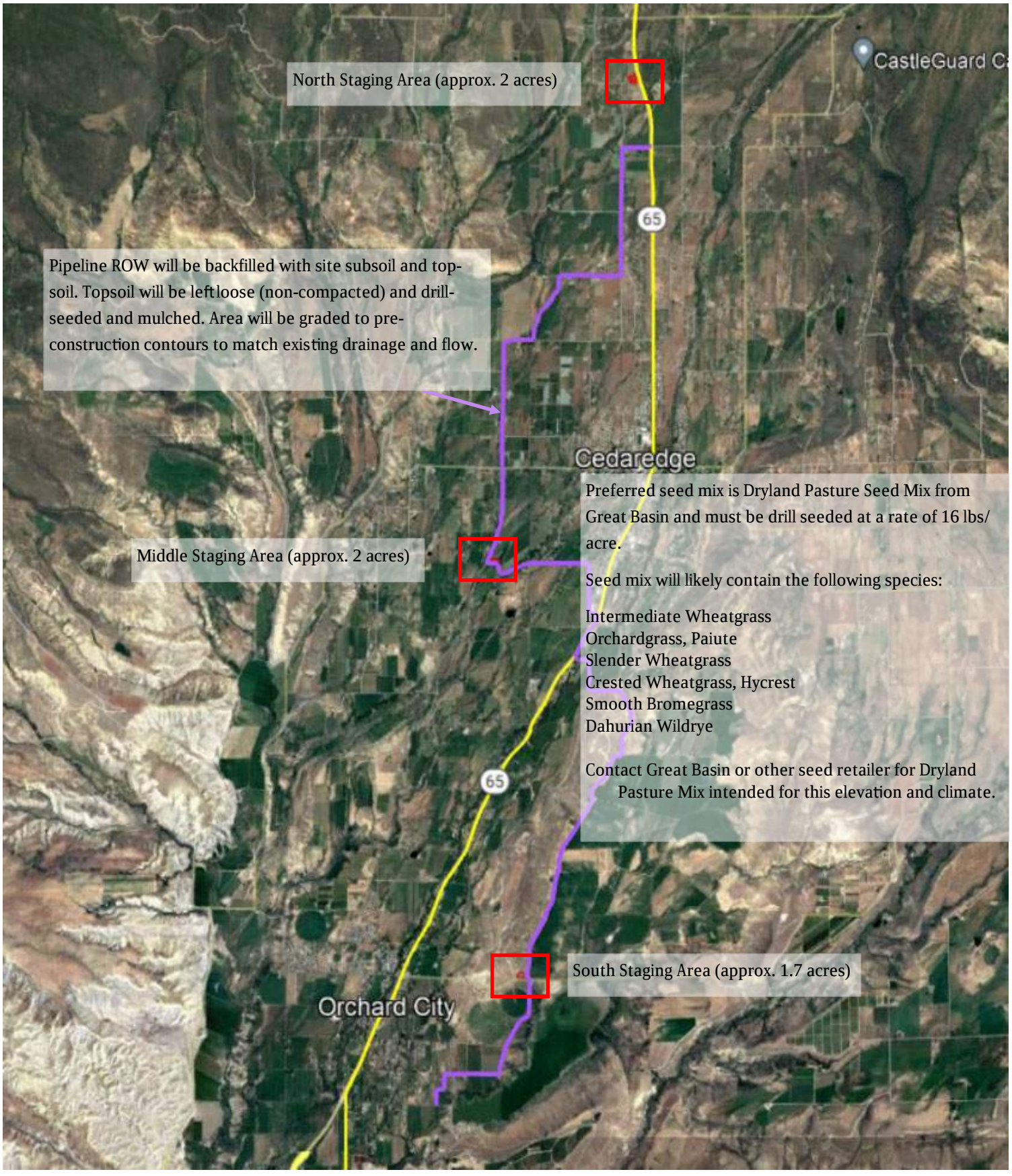
Collbran to Reed, Rocky Mountain Natural Gas Transmission System Replacement

Project will take place in 6-7 years over several phases of construction. Typical Right-of-Way width is 50' with some variances depending on private landowner agreements.

Phase A– Orange will be completed in 2022

Phase B-F will take place in 2023-2027

Purpose of project is to replace aging infrastructure to increase safety and reliability of natural gas on the western slope of Colorado.



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Collbran to Reed, Rocky Mountain Natural Gas Transmission System Replacement

Construction contractor will have access to a North, Middle, and South staging Area.

Reclamation Summary:

North Staging Area– Leave access driveway as-is, reclaim staging area with native vegetation

Middle Staging Area– Landowner requested Black Hills leave the staging area flat and unvegetated for future storage use

South Staging Area– Landowner requested that Black Hills reclaim entirely with native vegetation

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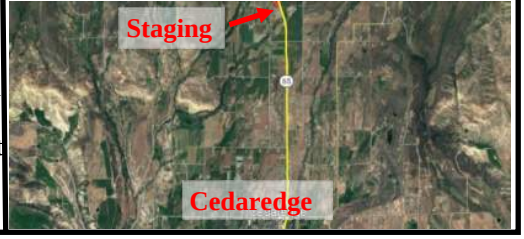
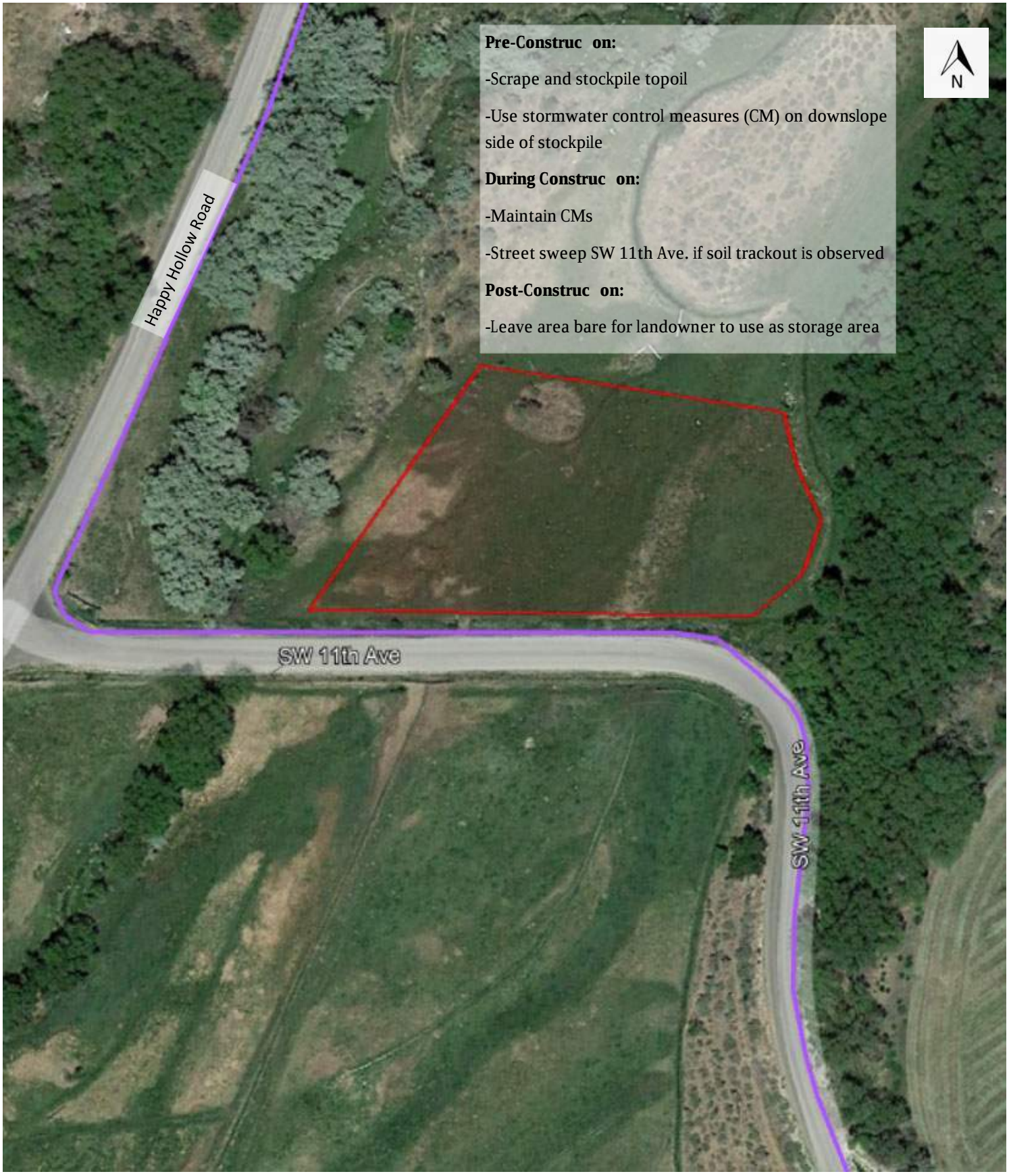
Collbran to Reed, Phase A
North Staging Area

North Staging Area topsoil was scraped and stockpiled in December 2021.
Landowner requested that gravel driveway stay there post-construction. The rest of the disturbed area must have topsoil spread back out and area should be reseeded.





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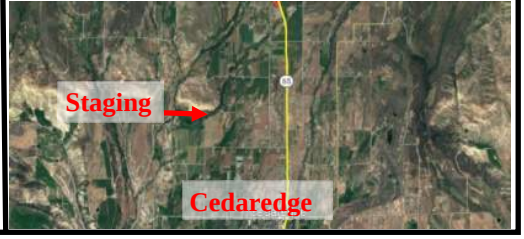
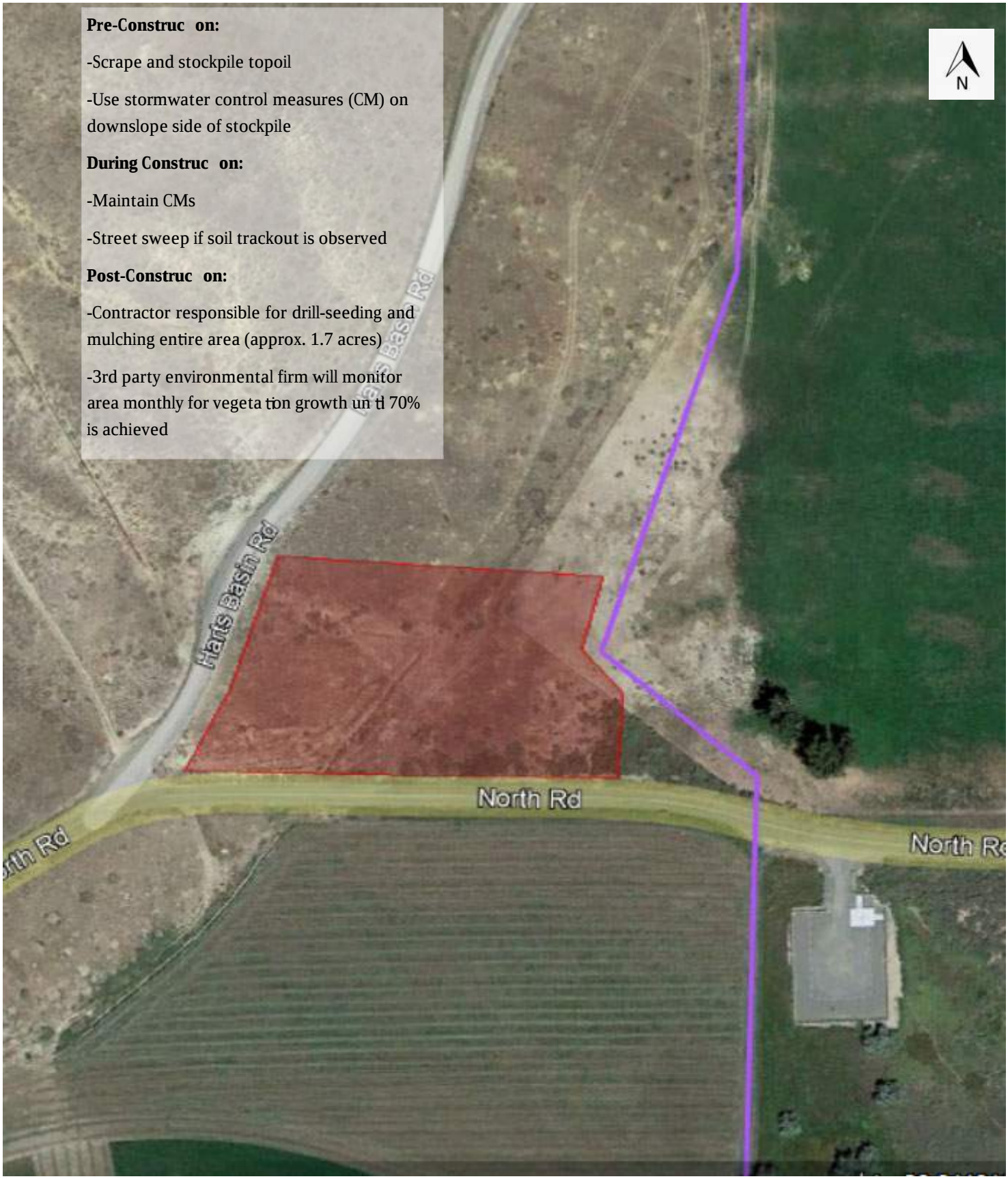
Collbran to Reed, Phase A
Middle Staging Area

The private landowner for the middle staging area would like to use this area for private storage post-construction. They have requested that Black Hills leave this area as-is once all equipment and materials have been removed.





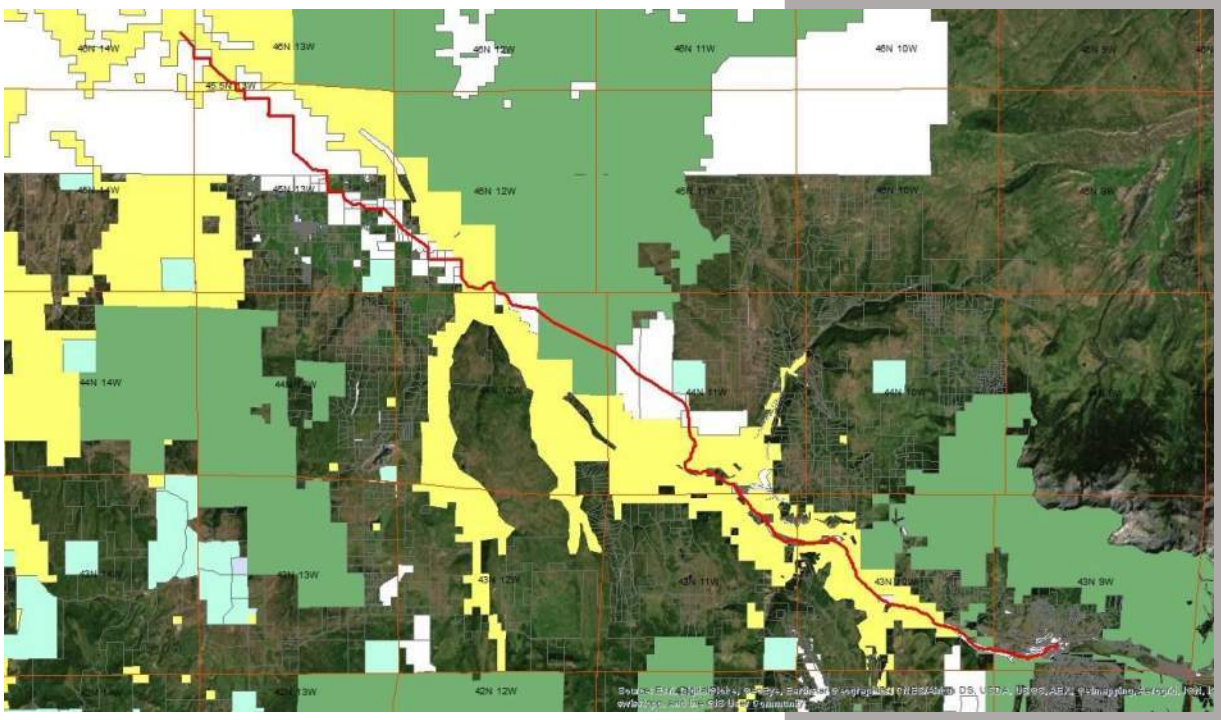
Black Hills Energy
Improving life with energy

Collbran to Reed, Phase A
South Staging Area

Grand Headwaters (private landowner) requested that entire disturbed area be fully reclaimed. Contractor will scrape and stockpile topsoil and redistribute after construction. Area will be seeded and mulched and monitored for vegetation growth.

APPENDIX E

Reed Jct to Collbran Phase A
Fire Plan



Rocky Mountain Natural Gas LLC

(dba Black Hills Energy)

January 5, 2022

Introduction

The Reed Jct to Collbran Phase A Pipeline is an existing, buried 8-inch pipeline located in Delta and Mesa Counties, Colorado. Installed in the 1950's, the 37.82-mile pipeline is located on public and private lands, as well as within CDOT and County right-of-ways (ROWs). The portions of the pipeline located on federal lands are associated with the Bureau of Land Management (BLM) and Forest Service. The primary function of this buried pipeline is to transmit natural gas received from 3rd party suppliers directly to down-valley users.

Rocky Mountain Natural Gas (RMNG), doing business as (dba) Black Hills Energy (BHE), has developed this Fire Plan (Plan) as part of the application to the BLM for a ROW renewal grant. This Plan will also be applicable to any project-specific Plan of Developments (PODs) associated with this pipeline corridor, currently submitted or to be submitted in the future to the BLM. This Plan provides guidance to operation/maintenance, construction, and field personnel on measures identified by the BLM and U.S. Forest Service (USFS) to minimize effects during any maintenance and/or construction activities associated with the operation of this pipeline. It will be the responsibility of BHE and/or its project contractors, working with designated environmental inspectors, to comply with measures identified in this Plan.

Due to the route of the existing pipeline corridor, maintenance and/or construction activities may have the potential to create fire hazards to the surrounding environmental resources, and as a result, fire protection measures have been developed and will be implemented, as applicable, to minimize such potential impacts.

Purpose

The objective of this Plan is to identify best management practices (BMPs) for preventing fires and responding to inadvertent fires that could result from the operation and maintenance of this natural gas pipeline. This Plan should be considered supplemental to the final Operation and Maintenance Plan (dated March 28, 2018), which was drafted for the pipeline's grant renewal process.

This Plan provides an implementation strategies to ensure immediate action to suppress inadvertent fires that occur during any operation and/or construction activities along this pipeline corridor and establishes protocol and lines of communication for reporting any fires that occur. This Plan also outlines the proper types and quantities of safety and fire extinguishing equipment that must be available. The Plan should also be utilized to familiarize BHE's employees, contractors, and employees of contractors with basic fire emergency planning, response, and suppression expectations and procedures in order to aid them to effectively respond in the event of a fire, thereby avoiding or minimizing injuries and/or damage to property or the environment.

This Plan is generally accepted on all federal units within the State of Colorado. As the fire season progresses, each BLM, USFS office, or County may impose closures for fire prevention reasons. BHE's operations are subject to Stage I and Stage II fire restrictions on federal lands, as described in the items below. Under Colorado law, the Delta County Sheriff's Office is responsible for responding to wildfires located on private property located outside a fire protection district, and all contractors are advised to stay in touch with local fire dispatch offices to be of service and for personal safety.

Fire Prevention and Suppression Requirements for Operations on Bureau of Land Management and National Forest Lands and County Right of Ways

1. BHE (hereafter referred to as the operator) will require its employees, contractors, and employees of contractors to do everything reasonable within their power, expertise, and assessment of human safety, both independently and upon request of the BLM, USFS, and Delta County to prevent and suppress fires resulting from transmission construction or maintenance activities on or near the lands to be occupied under this permit. In case of fire suppressed by the operator, the operator will report its occurrence to the appropriate Interagency Dispatch Center immediately. The operator is responsible for all suppression costs and resource damage for any fire resulting from its operations and practices.
2. The operator is responsible to ensure that each employee, subcontractor, or any other individual or company working in this pipeline corridor is aware of the provisions of this Plan, is familiar with the location and proper use of firefighting equipment, and conducts themselves in a fire-safe manner.
3. No material will be disposed of by burning in open fires without a written permit from the BLM, USFS or Delta County.
4. Exhaust systems of vehicles will have an acceptable muffler and will be in proper working condition. All motorized equipment and machinery will be equipped with spark arresters.
5. Vehicles will be parked only in cleared areas.
6. All smoking will be done only inside of vehicles or in areas cleared of flammable material and consistent with precautionary measures listed in Item 9 below.
7. Fuels and flammable materials may not be stored on BLM or National Forest System lands. They may be located in approved containers in a truck. For example, an approved diesel tank in the back of a truck or dolmar with chainsaw fuel. No fuel or flammable substance will be stored in any glass container.
8. A separate fire cache of tools will be required and maintained at the site of all operations. Tools must be kept sharp and handles smooth, ready for immediate use. Fire tools will not be used on the job for other purposes. When Stage I restrictions are implemented, a 300-gallon water package will be required at the site of all operations (see also Item 14 below). When no restrictions are in place, the cache will contain at a minimum:
   - One shovel per person;
   - One water filled 4 or 5 gallon backpack pump ("Indian" or equivalent); and
   - One axe or Pulaski.
9. Type ABC rated fire extinguishers are required and will be available during all operations at the following capacities:
   - One 2 pound per pick up;
   - One 5 pound for trucks over 1 ton Gross Vehicle Weight; and
   - One 10 pound per dozer, motor patrol, scraper or other earthmoving equipment.
10. During the period of April 1st thru November 30th, a fire watch person (lookout) is required at the site of all welding, blasting, propane torch use, fueling, tractor or other mechanized equipment operation, etc., unless specifically excepted in Item 15 below. This person will have no other duty than to watch for fire starts, have all required items of the fire cache immediately available, and be ready to take fire suppression actions. The fire watch person will remain on site observing for smoke or fire for a

minimum of 30 minutes after cessation of the operations that required them. The fire watch person will be in good physical condition and able to fight fires.

11. Welding is herein used to mean electric arc welding; arc or gas cutting or heating; gas welding; grinding of metal; use of any flammable gas, carbon or hydrocarbon fuel for heating or forging metal.
12. Welding operations are subject to the following additional provisions:
    - There will be no welding when winds are over 15 miles per hour; and
    - Welding will occur only in areas cleared of all flammable vegetation and materials at a minimum radius of 30 feet from the welding operation.
13. Blasting: Use of explosives is authorized, but is subject to the following additional provisions:
    - Operator must have a valid, current Explosives Permit from the State of Colorado;
    - Overnight storage of explosives is not authorized on BLM or USFS land;
    - There will be no blasting when winds over 15 mph occur; and
    - Adequate safety lookouts and traffic control will be provided to insure public safety during all blasting operations.
14. In addition, when Stage I restrictions are implemented, all fire caches including in areas of welding, blasting, and torch use operations, the fire watch and crew must have immediately available to them a water tank of not less than 300 gallon capacity with a pump capable of pumping 20 gallons per minute at 100 pound-force per square inch and not less than 100 feet of hose.
15. Additional Stage I and Stage II prohibited acts will also apply when enacted. Details and updates of restrictions, areas, and additional prohibited acts can be acquired by calling the respective Dispatch office (see attached map) or by going to the following websites:
    - Colorado Emergency Management: Fire Bans & Danger
16. Operations may be suspended if inspection by a BLM, USFS, or Delta County representative reveals noncompliance with the provisions of these fire prevention and suppression requirements.

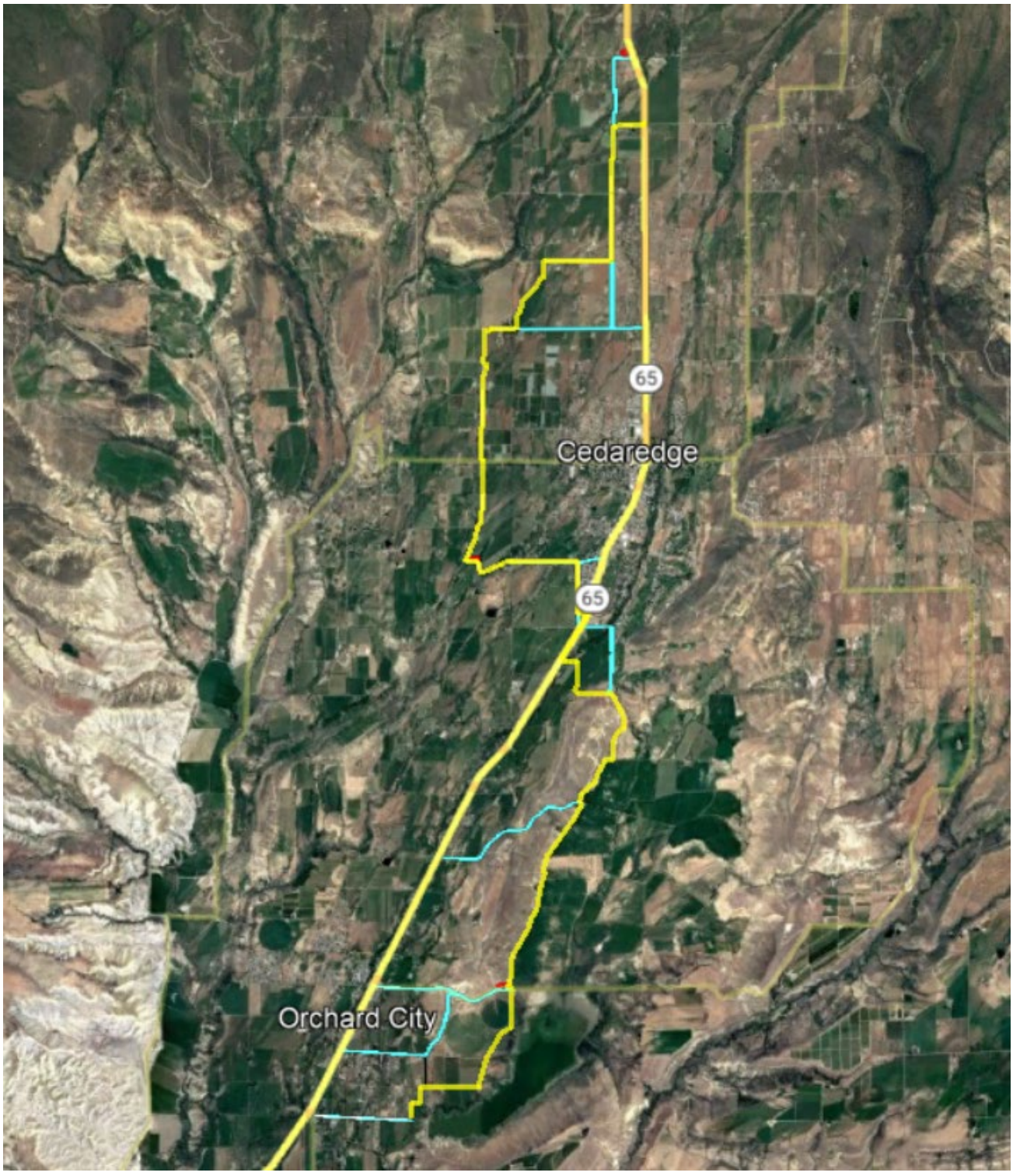
BHE Pipeline Project - Haul Routes – Overview

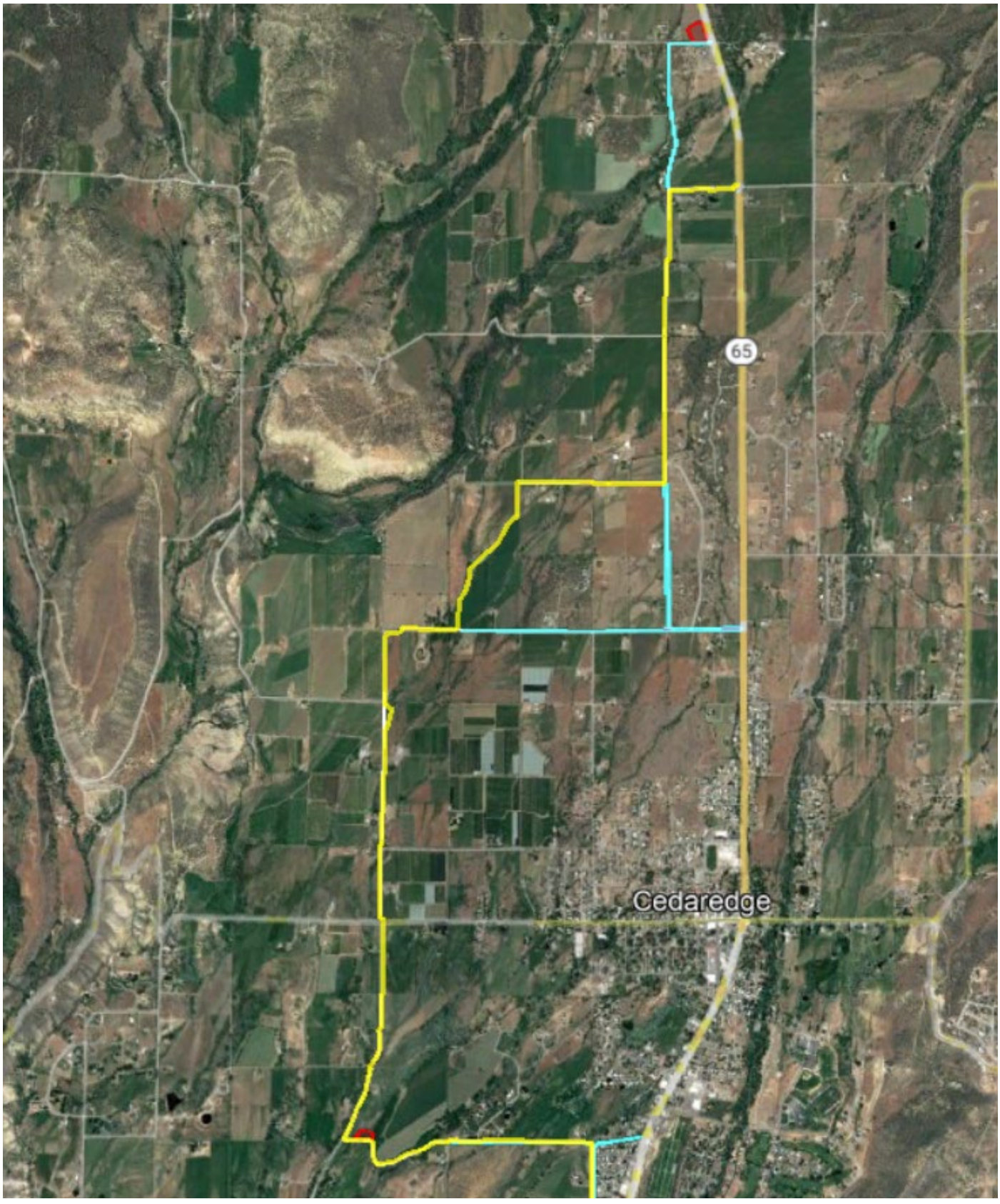
Pipeline Route – in Turquoise

Haul Routes – in Yellow

Public roads along the pipeline route will be used for access.

Haul Routes will be used to get to the pipeline route.

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BHE Pipeline Project - Haul Routes - Page 2