Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000
Brighton, CO 80601-8204
PHONE 720.523.6800
FAX 720.523.6998

CONDITIONAL USE PERMIT

Application submittals must include all documents on this checklist as well as this page. Please use the reference guide (pgs. 3-4) included in this packet for more information on each submittal item.

All applications shall be submitted electronically to epermitcenter@adcogov.org. If the submittal is too large to email as an attachment, the application may be sent as an unlocked OneDrive link. Alternatively, the application may be delivered on a flash drive to the One-Stop Customer Service Center. All documents should be combined in a single PDF. Once a complete application has been received, fees will be invoiced and payable online at https://permits.adcogov.org/CitizenAccess/.

- [x] 1. Development Application Form (pg. 5)
- [x] 2. Application Fees (see pg. 2)
- [x] 3. Written Explanation of the Project
- [x] 4. Site Plan Showing Proposed Development
- [x] 5. Proof of Ownership (warranty deed or title policy)
- [x] 6. Proof of Water and Sewer Services
- [x] 7. Proof of Utilities (e.g. electric, gas)
- [x] 8. Legal Description
- [x] 9. Certificate of Taxes Paid
- [x] 10. Certificate of Notice to Mineral Estate Owners/and Lessees(pg. 7)
- [x] 11. Certificate of Surface Development (pg. 8-10)

Supplemental Items (if applicable) *Contact County staff for supplemental forms

- [x] 1. Traffic Impact Study
- [x] 2. Neighborhood Meeting Summary
- [ ] 3. Solid waste transfer station*
- [ ] 4. Solid waste composting facility*
- [ ] 5. Scrap tire recycling facility*
- [ ] 6. Inert fill*

Application Fees	Amount	Due
Conditional Use Permit	$1,100 ($400 per additional residential request/ $600 per additional non-residential)	After complete application received
Adams County Health Dept.	$360 (Level 3) For Solid Waste Use Only	After 1st Staff Review is Completed

Conditional Use-Guide to Development Application Submittal

The submittal documents for all Land Use/Development Applications are listed below. Detailed explanations of the submittal documents are also provided.

All development application submittals shall comprise of one (1) electronic copy (emailed or delivered on a USB). **Application submittals that do not conform to these guidelines shall not be accepted.**

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3. Written Explanation:

- A clear and concise, yet thorough, description of the proposal. Please include, if applicable, timeframe, purpose of project, and improvements that will be made to the site.

4. Site Plan:

- A detailed drawing of existing and proposed improvements.
- Including:
  - Streets, roads, and intersections
  - Driveways, access points, and parking areas
  - Existing and proposed structures, wells, and septic systems,
  - Easements, utility lines, and no build or hazardous areas
  - Scale, north arrow, and date of preparation
- An Improvement Location Certificate or Survey may be required during the official review

5. Proof of Ownership:

- A deed may be found in the Office of the Clerk and Recorder.
- A title commitment is prepared by a professional title company.

6. Proof of Water:

- A written statement from the appropriate water district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider.
- Well permit(s) information can be obtained from the Colorado State Division of Water Resources at (303) 866-3587.

Proof of Sewer:

- A written statement from the appropriate sanitation district indicating that they will provide service to the property **OR** a copy of a current bill from the service provider.
- A written statement from Adams County Health indicating the viability of obtaining Onsite Wastewater Treatment Systems.

7. Proof of Utilities (Gas, Electric, etc):

- A written statement from the appropriate utility provider indicating that they will provide service to the property.
- Copy of a current bill from the service provider.

8. Legal Description:

- Geographical description used to locate and identify a property.
- Visit http://gisapp.adcogov.org/quicksearch/ to find the legal description for your property.

9. Proof of Taxes Paid:

- All taxes on the subject property must be paid in full. Please contact the Adams County Treasurer's Office.
- Or http://adcogov.org/index.aspx?NID=812

10. Certificate of Notice to Mineral Estate Owners/ Certificate of Surface Development:

- The State of Colorado requires notification to mineral rights owners of applications for surface development (i.e. zoning, plats, etc.)
- Mineral or Surface right owners may be found in the title commitment for the subject property

- You may also search the Office of the Clerk and Recorder for any recorded deeds, easements, or other documents

SUPPLEMENTAL:

1. **Preliminary Traffic Impact Study:**
   - This shall include, but not limited to:
     - Trip generation estimates from the development,
     - Current traffic counts,
     - Projected future traffic counts to include background traffic projections and future traffic projections from the development.
     - A description of the traffic impacts that the development will have on the surrounding area.

   Final Traffic Study:
   - Shall have all of the information contained in a Preliminary Traffic Impact Study and it shall also include recommendations on how to mitigate the traffic impacts that are caused by the development. (See chapter 8 for full description of requirements).

2. **Neighborhood Meeting Summary:**
   - Please refer to Section 2-01-02 of the Adams County Development Standards and Regulations for the specific requirements regarding time, location, and notice
   - A written summary shall be prepared including the materials submittal presented at the meeting, any issues identified at the meeting, and how those issues have been addressed

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DEVELOPMENT APPLICATION FORM

Application Type:

☐ Conceptual Review	☐ Preliminary PUD	☐ Temporary Use
☐ Subdivision, Preliminary	☐ Final PUD	☐ Variance
☐ Subdivision, Final	☐ Rezone	☒ Conditional Use
☐ Plat Correction/ Vacation	☐ Special Use	☐ Other: _____

PROJECT NAME: Pioneer Water Pipeline Expansion

APPLICANT

Name(s): Paul Row for Pioneer Water Pipeline, LLC Phone #: 303-968-9657

Address: 1099 18th Street, Granite Tower, Suite 1500

City, State, Zip: Denver, CO 80202

2nd Phone #: Email: paul.row@pdce.com

OWNER

Name(s): Pioneer Water Pipeline, LLC Phone #: 303-968-9657

Address: 1099 18th Street, Granite Tower, Suite 1500

City, State, Zip: Denver, CO 80202

2nd Phone #: Email: paul.row@pdce.com

TECHNICAL REPRESENTATIVE (Consultant, Engineer, Surveyor, Architect, etc.)

Name: Paul Row Phone #: 303-968-9657

Address: 1099 18th Street, Granite Tower, Suite 1500

City, State, Zip: Denver, CO 80202

2nd Phone #: Email: paul.row@pdce.com

DESCRIPTION OF SITE

Address:	Numerous
City, State, Zip:	City of Brighton and Adams County
Area (acres or square feet):	See project narrative
Tax Assessor Parcel Number	See project narrrative
Existing Zoning:	See project narrative
Existing Land Use:	See projet narrative
Proposed Land Use:	No change in land use

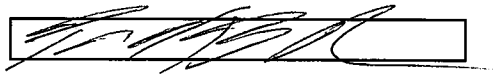
Have you attended a Conceptual Review? YES [X] NO [ ]

If Yes, please list PRE#: PRE2023-00045

I hereby certify that I am making this application as owner of the above described property or acting under the authority of the owner (attached authorization, if not owner). I am familiar with all pertinent requirements, procedures, and fees of the County. I understand that the Application Review Fee is non-refundable. All statements made on this form and additional application materials are true to the best of my knowledge and belief.

Name: Paul Row Date: 10/26/2023

Owner's Printed Name

Name: 

Owner's Signature

Pioneer Water Pipeline, LLC

Produced Water Pipeline Project
Conditional Use Permit Application

October 30, 2023

Prepared for:

4430 South Adams County Parkway
Brighton, CO 80601

Prepared by:

Pioneer Water Pipeline, LLC
1099 18th Street, Granite Tower, Suite 1500
Denver, CO 80202

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Introduction

Pioneer Water Pipeline, LLC (Pioneer), a subsidiary of PDC Energy Inc. (PDC Energy), proposes to construct, own, and operate a 6- to 12-inch diameter produced water pipeline (Project). This is an expansion of the previously approved route under RCU2020-00004, which was approved by resolution of the Board of County Commissioners on September 1, 2020 (Resolution 2020-504) and was recorded with reception number 2020000089962.

163 wells have been connected to date via approximately 12 miles of pipeline (approved under original CUP RCU2020-00004, as well as other jurisdictions), resulting in approximately 2.3 million barrels of produced water being gathered and eliminating approximately 14,000 water trucks from the roads. Pioneer plans to connect approximately 150 additional wells under the original CUP approved routes, as well as approximately 4 additional miles of pipeline under the proposed system extension CUP. The proposed system extension CUP is located within Adams County and the City of Brighton under private landowner easements, as well as ditch company, E-470 Authority, CDOT, and UPRR agreements.

1. Conditional Use Permit and Application

The Adams County Development Application is included as part of this permit package as an attachment to the cover letter.

2. Application Fees

The application fee for the CUP permit review fee is included with this application.

3. Written Explanation of the Project

3.1. Project Overview

The proposed produced water pipeline begins on the north side of E 136th Ave., parcel 0157124000015, Section 23, Township 1 South, Range 67 West, terminating on the north side of E 136th Ave., parcel 0156920300002, Section 20, Township 1 South, Range 66 West. The proposed pipeline will connect into

the pipeline being constructed within these parcels previously approved under original CUP RCU2020-00004. The route was selected in order to connect an additional 38 wells to the original CUP approved route, is based on existing easements, and is deemed to be the most direct route which will minimize impact to landowners, minimize cost, and maximize safety during construction. The City of Brighton would review and approve the approximately 2 miles of the proposed route in Adams County. This route was reviewed during an Adams County Conceptual Review meeting (PRE2023-00045) held on July 26, 2023. The Adams County Review Team Comments are included with this application as Exhibit A. Pioneer's responses to the Review Team Comments can be found in Section IV.

There is no intention to make these lines any larger than the 12-inch nominal diameter allowed under RCU2020-00004. While some lines may be smaller, the hydraulics are still being finalized and Pioneer would ask that the option to build a 12-inch nominal diameter pipeline along the noted route be retained.

This request is only to expand the route for the incorporation of the additional pads to benefit the community. All standards as written within the approved RCU2020-00004 and the Colorado Energy & Carbon Management Commission (ECMC) applicable 1100 Series Rules will be followed just as before. There will be no change to materials, fluids, or operating pressures.

3.2. Purpose and Need

The purpose of the Project is to allow more efficient pipeline transportation of produced water from oil and gas production facilities in Adams County to NGL's existing C2 wastewater injection and disposal facility located in Weld County, thereby also significantly reducing truck traffic. Wastewater injection is a process of disposing of produced water underground into permitted geologic formations that are capable of holding fluid. NGL's existing wastewater injection and disposal facility accepts water 24 hours per day and is able to dispose of approximately 25,000 barrels (1,050,000 gallons) of water per day with the ability to expand. Pioneer estimates that oil and gas production facilities generate approximately half as much water as product, meaning that that for every two barrels of product generated at an oil and gas production facility, an operator must dispose of one barrel of produced water. Without this Project, these additional oil and gas production facilities in Adams County, that would be connected by

the proposed pipeline, would transport the produced water generated during production to the wastewater injection and disposal facility by truck (Illustration 1). As outlined in the originally approved CUP, Pioneer expects that the completed pipeline network would have the following beneficial effects over its lifetime:

- **Traffic**: Construction of the Project would remove the equivalent of 5 million truck miles and over 50,000 truckloads per year on local roads.
- **Infrastructure**: The removal of these trucks from local road means fewer repairs and longer life for the streets and highways of the community.
- **Safety**: The removal of heavy truck miles from local roads would reduce the potential for traffic accidents.
- **Air Quality**: Removal of truck traffic reduces vehicle emissions and the quantity of particulates, ozone, odors, and other air pollutants in the atmosphere.
- **Sustainability**: Completion of the 100 percent electric-powered Project would reduce carbon emissions by 21,000 metric tons per year.
- **Community Revenue**: The Project anticipates providing approximately $500,000 per year in new tax revenue to the community, directly benefitting public schools among other public services.
- **Jobs**: The Project is expected to create 100 locally sourced jobs during construction, and approximately four permanent jobs once operational.

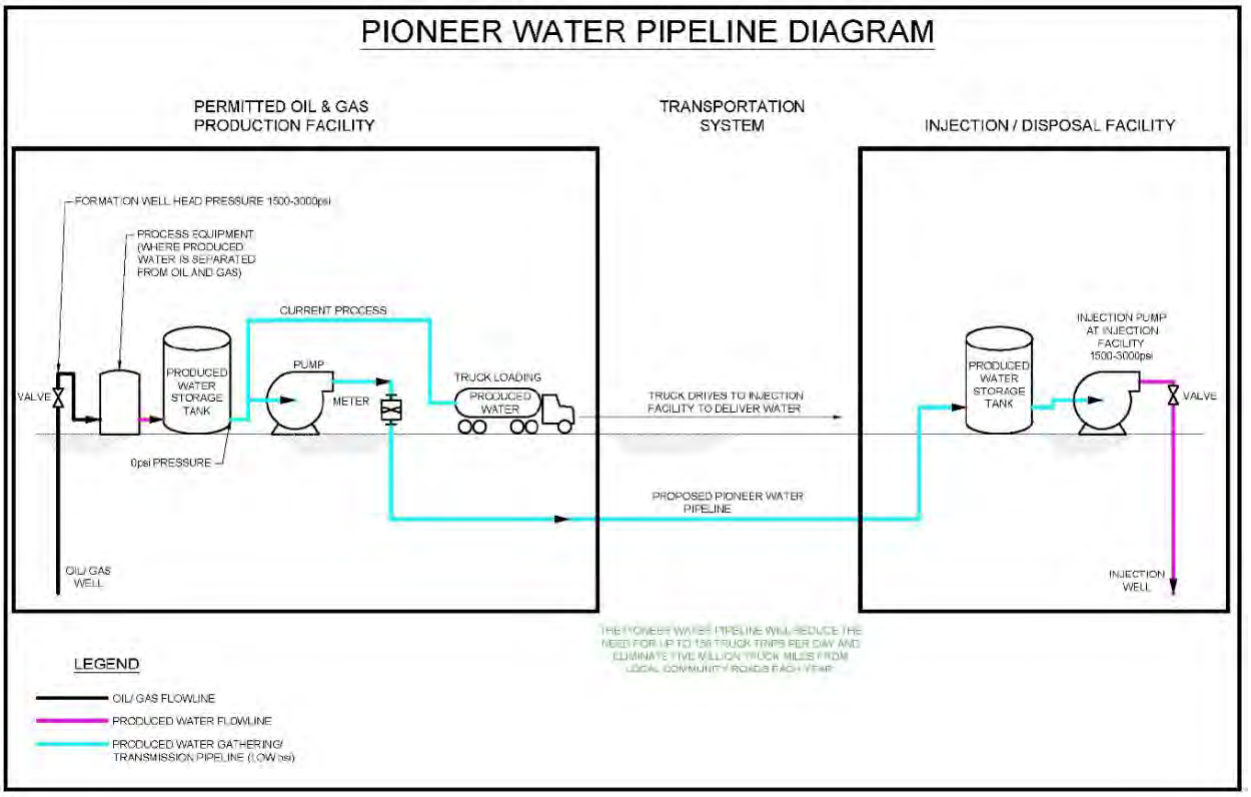


Illustration 1: Current and Proposed Method of Produced Water Transportation from Oil and Gas Production Facilities
Note: The Project would transport the produced water via pipeline; without the Project, the produced water would be transported by truck.

3.3. Project Standards

Pioneer will ensure the Project obtains applicable land use, environmental, and construction permits, and would ensure permit conditions are met prior to the start of construction of any phase. Pioneer will continue to comply with the Colorado ECMC 1100 Series Rules as well as continue to comply with the Adams County CUP and Development Agreement requirements. Pioneer will utilize the following best management practices during construction of the Project per, and in addition to, the above cited codes, agreements and regulations:

- Construction limited to 7 am to 7 pm Monday – Saturday, exceptions by approval only.
- GIS as-built data submission following in-service date.
- Stormwater Management per an established Stormwater Management Plan (SWMP).
- Minimum 4’ of cover on all buried lines.

- Active volume balance on the pipeline network for added leak detection.
- Construction of HDPE and Stainless Steel for superior corrosion resistance.

3.4. Oil and Gas Production Facilities

Pioneer requests approval for an additional route, which would gather all pads depicted per the attached. The new route will allow Pioneer to accommodate the following changes encountered by the project:

- PDC has added the Adams Crossing location as depicted in the attached. This pad is projected to have an estimated 14 wells, and a significant amount of produced water that can be gathered by the water pipeline.
- PDC has added the Edmundson location as depicted in the attached. This pad is projected to have an estimated 24 wells, and a significant amount of produced water that can be gathered by the water pipeline.

Table 1 identifies the permit status for the additional Adams County oil and gas production facilities that would be connected by the proposed pipeline.

Table *1*:
Oil and Gas Production Facility Permitting Jurisdictions and Permitting Status

Oil and Gas Production Facility Name	Permitting Jurisdiction	Permit Number/Status
Adams Crossing	**City of Brighton**	**Pending**
Edmundson	**Adams County**	**Pending**

PDC Energy in in the process of obtaining Use by Special Review permits for the Adams Crossing oil and gas facility from the City of Brighton, and the Edmundson oil and gas production facility from Adams County. Each Use by Special Review (USR) permit authorizes at least one produced water pipeline and associated appurtenances (pumps, valves, etc.) at the oil and gas production facility. PDC Energy would assign the right to construct the produced water pipeline to Pioneer. Pioneer would construct the pipeline and appurtenances associated with the Project within the limits of the permitted well pad. This application therefore excludes Project facilities within the well pad. Pioneer would not construct the facilities at these locations until a USR permit has been issued to PDC Energy.

3.5. Pipeline

The Project would consist of the construction of approximately 4 miles of up to 12-inch nominal diameter produced water gathering pipelines and associated appurtenances in Adams County. Pioneer is seeking a permanent easement for its pipeline that is approximately 10 feet wide as well as an additional 60 feet of temporary easement for pipeline construction.

To date, Pioneer has conducted a detailed routing effort to identify a preferred route. Pioneer is currently in the final stages of civil survey and anticipates finalizing landowner agreements and survey by the end of November 2023. The Project route may undergo minor route changes within the same parcels currently crossed by the Project as survey has been completed and landowner agreements are finalized. Pipeline construction often results in minor changes to the pipeline centerline within the permanent easement because of information gathered during construction. Pioneer would alert Adams County if information gathered in the field resulted in a change in the permanent easement and would provide as-built spatial data identifying the pipeline centerline to Adams County upon completion of construction.

Pioneer routed the Project to make use of existing rights-of-way (ROWs), property boundaries, and utility corridors associated with the oil and gas production facilities to the extent possible. Pioneer would obtain Adams' County Road ROW permits as required prior to construction. Pioneer has received preliminary approval to install pipelines within the E-470 Public Highway Authority ROW.

Pioneer's construction contractor would install the pipeline using mechanically excavated open-cut trenching techniques. The pipeline would be buried at a depth of 4 feet of cover or more. Pioneer's construction contractor would string pipe segments along the ditch line, fuse sections together using thermal fusion, and lower the pipeline into the open cut ditches. Each fusion joint would be logged by a data recorder with the results audited by qualified technicians, then lowered into the trench and backfilled. Upon completion of construction, the pipeline would be hydrostatically pressure tested to industry standards and Colorado ECMC rules prior to being placed in service.

Pioneer proposes to cross CDOT Hwy 85, County and municipal roads, the Union Pacific Railroad, floodplains, wetlands and streams, ditches, and other existing infrastructure where practicable via horizontal directional drilling (HDD) to mitigate impacts to infrastructure and sensitive resources to the maximum extent practicable. Table 2 lists the county and state road crossings where the pipeline would be installed using HDD within Adams County as currently anticipated. Section II - ii describes Pioneer's commitment to avoiding impacts to wetlands and surface waters. Pioneer would repair or replace any Adams County infrastructure damaged during construction of the Project to pre-construction conditions.

Table *2*:
Adams County Road Crossings

Street	Nearest Cross Streets	Road Type
E 136th Ave.	**E 136th Ave. & Brighton Rd.**	**County**
Hwy 85	**Hwy 85 & E-470**	**State Hwy**
Sable Blvd.	**Sable Blvd. and E-470**	**Municipal**
E 132nd Ave.	**E 132nd & Sable Blvd.**	**County**
E 136th Ave.	**E 136th Ave. & Sable Blvd.**	**County & Municipal**

The capacity of the produced water pipeline is dependent on the distance from the pipeline origin (at each oil and gas production facility) as well as many other factors. The temperature of the produced water when it is extracted from the ground is high (close to formation temperature) and natural cooling occurs as it travels through pipelines away from the well head to other facilities and storage tanks prior to injection into the pipeline. The Project pipeline would operate at a maximum anticipated operating pressure of 250 psi, which may be reduced dependent on temperature and manufacturer requirements Pioneer would have the ability to monitor the liquid balance across the network and shutdown contributing pumps at each oil and gas production facility if needed.

3.6. Above-Ground Appurtenances and Construction Laydown Areas

With respect to the Project, appurtenant aboveground facilities such cleaning tool launchers and receivers would be located at the existing oil and gas production facilities. Pioneer will locate buried isolation valves along the route to provide pipeline isolation if needed; while these valves are buried, an appurtenant access tube would accompany each one. Pioneer would site aboveground appurtenances outside of floodplains and outside of Adams County ROWs on private land. Final locations of valves and other appurtenances would be provided to the Adams County Department of Community and Economic

Development upon project completion as part of the as-built documentation required in the Development Agreement.

Pioneer would design the project to be remotely operated through an automated supervisory control and data acquisition (SCADA) system. In the event of a leak or other unsafe condition, the SCADA system will alarm and allows the shutdown of oil and gas production facility transfer pumps to stop the flow of produced water into the system.

Pioneer would use exiting laydown areas in Weld County to stage equipment and materials for Project construction. Pioneer does not anticipate using additional temporary workspaces in unincorporated Adams County besides those located along the pipeline route that would be used to excavate trench, fuse pipeline segments, deliver the HDD equipment and pipe segments, excavate HDD entry and receiving pits, temporarily stockpile excavated soil from the pits, and serve as laydown for pipe segments. Pioneer's construction contractor would backfill, compact, and restore and revegetate the pipeline ROW upon completion of the pipe installation. Following construction, the contractor would return temporary workspaces to pre-construction conditions.

3.7. Project Construction

Pioneer is seeking permanent easements that are approximately 10 feet wide and an additional 60 feet of temporary easements for the Project pipeline construction. The pipeline construction would consist of trenching, assembling the pipeline, and placing the pipeline within the open trench, backfilling the trench, and restoring the land according to landowner agreements. In addition, this phase would include pipeline HDD installation.

3.8. Surface Restoration

Upon completion of the construction, Pioneer's restoration contractor would remove construction materials and debris from the site. Temporary workspaces would be re-contoured to pre-construction conditions. Disturbed areas where vegetation was removed by construction activities to an extent that it caused potential soil erosion would be treated with seedbed preparation techniques, re-seeded with an

approved seed mixture, and mulched as necessary during the planting season according to landowner agreements.

The Project would utilize a Stormwater Management Plan (SWMP) for implementation of best management practices (BMPs) to mitigate soil erosion, control noxious weeds, and revegetate disturbed areas. Mature vegetation would be actively avoided, although some vegetation would be impossible to avoid and therefore would be replaced per the property owner's reasonable request with a like species. Vegetation in public ROW would be replaced to Adams County standards for revegetation within the public ROW. A copy of the Stormwater Management Plan (SWMP) is included with this submittal as Exhibit B.

Pioneer would repair or replace any Adams County infrastructure damaged by construction of the Project to pre-construction conditions.

3.9. Testing and Commissioning

The commissioning phase consists of testing and cleaning the pipeline and associated facilities. Before the pipeline is put into service, it would undergo hydrostatic pressure testing, i.e., filled with water and tested to verify the structural integrity and workmanship of the pipeline per manufacturers recommendation along with industry practice, rules, and regulations. Additionally, the test would ensure that no leaks are present.

3.10. Construction Schedule

Construction is proposed to start in Q1 2024, pending receipt of all required permits and agreements and will be based on requested construction timelines from various landowners. Based on a construction start date of Q1 2024, construction is anticipated to be completed no later than Q3 2024 with operations immediately following completion of construction. Table 3 summarizes the Project's anticipated schedule in Adams County.

Table 3:
Project Schedule

Project Schedule Milestone	Approximate Milestone Date
Adams County Neighborhood Meeting	October 11, 2023
CUP Application Filed with Adams County	October 30, 2023
Anticipated Adams County Planning Commission Hearing	December 14, 2023
Anticipated Board of County Commissioners (BOCC) Hearing	January 16, 2023
Anticipated Development Agreement Signed by BOCC	January 30, 2023
Begin Construction Adams County	Q1 2024
Pipeline Testing	Q2 2024
Project In-Service	Q2 2024

3.11. Traffic Statement

Pioneer will utilize State Highways and paved roads where possible, as these are typically built for larger vehicles. Pioneer will also obtain any overweight/oversized permits if necessary.

Construction traffic will primarily use Interstate Highway I-76 and US Hwy 85 to access E 136th Ave. and Sable Blvd. Pipe will be delivered directly to the right of way. All trucks will be scheduled prior and will arrive during regular construction hours.
Truck loads will not exceed CDOT requirements for weight limits. They will haul the equipment into the site and remove it from the site at the end of construction.

Following completion of construction there will be 1 employee to perform necessary inspection and maintenance. The operation and maintenance of the pipeline will be performed by trained and qualified operators and pipeline technicians.

3.12. Safety

Pioneer is committed to safety and the Project would comply with all federal, state, and local rules and regulations to provide safe, reliable service. The Colorado ECMC would regulate the Project under 1100 and 1000 Series Rules, which reference various technical standards and design, installation, construction reclamation, and operating/integrity management requirements. The 1100 Series Rules require Pioneer to submit, or amend, a Flowline Report (Form 44) within 90 days of placing the Project into active (in service) status. In this case, it is expected Pioneer will amend the existing Form 44 to include the location and specifications of the Project. The Colorado ECMC would have the authority to inspect the

Project, and Pioneer would be required to notify the Colorado ECMC of the location of the Project within 30 days of construction. Emergency response procedures are described in Pioneer's Emergency Response Plan Included with this submittal.

3.13. Routine Maintenance

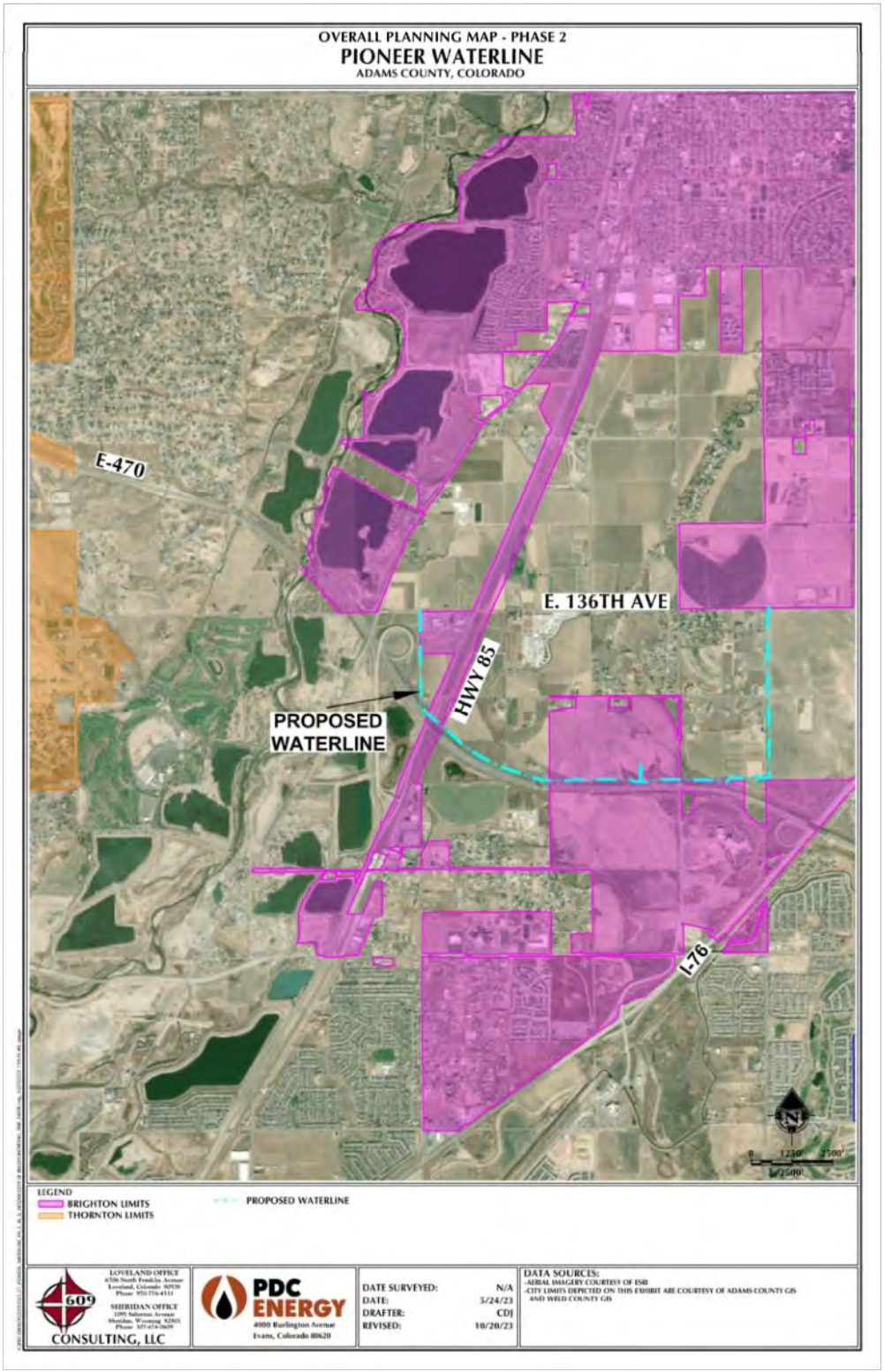
Routine maintenance of the Project facilities would be performed as outlined in Pioneer's internal operating standards and practices and written maintenance procedures, which meet or exceed regulatory requirements. Maintenance activities associated with the Project would include, but are not limited to:

- Implement a damage prevention program, including observation of any construction activities by others on or near the permanent easement.
- Participate in the State of Colorado's one-call program and responding to one-calls.
- Install and maintain pipeline markers.
- Inspect isolation valves.
- Inspect crossings by other pipelines, highways, railroads and utilities.
- Inspect and maintain safety, control, mechanical and electrical equipment.
- Maintain communication equipment.
- Calibrate all instruments per manufacturers recommendations.

4. Site Plan Showing Proposed Development

An overview of the Project is included as Figure 1. Alignment sheets according to CUP Application standards showing existing and proposed improvements for the entire gathering system are provided as Exhibit C.

Figure 1:
Project Overview



5. Proof of Ownership (Warranty Deed or Title Policy)

Pioneer would secure applicable easements and executed ROW agreements with landowners authorizing the right to construct, operate, and maintain the Project on privately and publicly owned properties. Pioneer would execute agreements with property owners and would record these agreements with the Adams County Clerk and Recorders Office prior to the commencement of construction activities or when reasonably practicable. A list of parcels and ROWs within unincorporated Adams County and the City of Brighton on which the Project would be located is included in Table 4.

Table 4:
Parcel & ROW Crossing Summary

Parcel / ROW	Section / Township / Range	Owner	Jurisdiction
0157126000004	S26 T1S R67W	Wagner, Rick, Gary & Terry	Adams County
E-470	S26 T1S R67W, S25 T1S R67W, S30 T1S R66W	E-470 Authority	Adams County City of Brighton
0156930000023	S30 T1S R66W	Millrock Capital LLC	City of Brighton
0156930000033	S30 T1S R66W	Edmundson Land LLC	Adams County
0156929100001	S29 T1S R66W	The Prairie Center Development LLC c/o The Realty Inc.	E 132nd Ave.

6. Proof of Water and Sewer Services

6.1. Water

Pioneer's construction contractor would use water during construction for dust suppression, weed control, soil conditioning, and testing of the pipeline. Pioneer's construction contractor would obtain water under permit or delivered to the site as needed from local supplier and would not require a municipal water supply.

6.2. Sewer

The operation of the Project would not require water or sanitary services. Temporary sanitary facilities would be provided for construction workers along the pipeline ROW during construction.

7. Proof of Utilities (e.g.Gas and Electric)

A utility connection is not required to construct or operate the Project.

8. Legal Descriptions

Table 5 lists the legal descriptions for the parcels crossed by the Project.

Table 5:
Parcel Crossing Legal Descriptions

Parcel	Owner	Legal Description
0157126000004	Wagner, Rick, Gary & Terry	SECT,TWN,RNG:26-1-67 DESC: NE4 NE4 EXC PORT TO E-470 11/395A
0156930000023	Millrock Capital LLC	SECT,TWN,RNG:30-1-66 DESC: BEG AT THE SE COR OF THE SW4 OF SEC 30 TH N 74D 32M W 256/23 FT SD PT BEING THE POB TH ALG SD NLY ROW THE FOL 5 COURSES TH W 616/47 FT TH S 20 FT TH W 595/51 FT TH N 50 FT TH W 1211/83 FT TH N 1202/17 FT TH E 2641/60 FT TH S 372/46 FT TH ALG SD NLY ROW LN THE FOL 5 COURSES W 52/45 FT TH S 03D 11M W 349/52 FT TH W 75/14 FT TH S 03D 11M W 490/94 FT TH S 44D 52M W 54/35 FT TO THE POB
0156930000033	Edmundson Land LLC	SECT,TWN,RNG:30-1-66 DESC: PT OF THE SE4 OF SEC 30 DESC AS FOLS BEG AT THE NW COR OF SD SE4 OF SEC 30 TH S 00D 44M 15S W 733/82 FT TH S 44D 05M 28S E 170/29 FT TH S 89D 27M 35S E 1249/61 TO THE TRUE POB TH S 00D 44M 15S W 1694/46 FT TH S 71D 42M 45S E 244/30 FT TH S 90D 00M 00S E 1040/80 FT TH N 00D 39M 11S E 2584/10 FT TH N 89D 27M 35S W 60 FT TH S 00D 39M 11S W 825 FT TH N 89D 27M 35S W 1211/05 FT TO THE TRUE POB AND EXC HIWAY 50/7824A
0156929100001	The Prairie Center Development LLC c/o The Realty Inc.	SECT,TWN,RNG:29-1-66 DESC: ALL OF SEC 29 LYING NWLY OF I-76 EXC HIWAY AND RDS 509/1760A

9. Certificate of Taxes Paid

Prior to commencement of construction activities, Pioneer would obtain applicable easements and executed ROW agreements for the pipeline. As easement holder, Pioneer is not responsible for the payment of property taxes on the parcels; they remain the responsibility of the landowner.

10. Certificate of Notice to Mineral Estate Owners and Lessees

Pursuant to Colorado Revised Statues (CRS) Section 24-65.5-102 (2)(a), a pipeline does not constitute an "application for development" that would trigger the requirements of the Mineral Estate Owners

Notification Act, CRS Section 24-65.5-101; therefore, these requirements are not applicable to the Project.

11. Notice of Surface Development

Pursuant to CRS Section 24-65.5-102 (2)(a), a pipeline does not constitute an "application for development" that would trigger the requirements of the Surface Development Notification Act, CRS Section 24-65.5-101; therefore, these requirements are not applicable to the Project.

Supplemental CUP Information

I. Neighborhood Meeting

Pioneer held a neighborhood meeting from 5:00 PM – 6:30 PM on Wednesday, October 11, 2023, at the Armory Performing Arts Center (300 Strong St, Brighton, CO 80601). The purpose of the neighborhood meeting was to provide the community a description of the Project and answer related questions from the attendees. A copy of the notification, neighborhood meeting materials, and a summary of the neighborhood meeting is provided in Exhibit D.

II. Environmental

i. Description of Threatened or Endangered Animal Species Habitat

The Project is in a highly developed area that includes existing agriculture, oil and gas development, urban development (e.g., residences) and transportation infrastructure (i.e., roads, paths, railroads). During the field survey, Tetra Tech observed suitable federally and state-listed threatened and endangered species habitat, widespread nesting substrate for raptors, and wetlands and other waters of the U.S. (WOTUS) within the Survey Area. The results of the threatened and endangered specifies field survey are further documented in Exhibit E.

Table 6:
Raptor Nests within 1-mile Buffer of the Project

Nest ID	Species	Condition	Location from Project	Longitude	Latitude
RN-01	Unknown	Good	75 feet south	-104.836998	39.94329834

ii. Wetlands and Waters of the U.S.

Three potential wetlands (Wetland-01, Wetland-02, Wetland-03) were found within the Survey Area (Table 6). These features were dominated by wetland vegetation, were in topographical low points, and had signs of hydrologic function (surface water). Wetland-01 is associated with an agricultural canal, Fulton Ditch, that has continuous surface hydrological connection to a likely WOTUS. Wetland-02 is associated with Second Creek and has continuous surface hydrological connection to a likely WOTUS. Wetland-03 is associated with Third Creek and has continuous surface hydrological connection to a likely WOTUS. The results of the wetlands and WOTUS findings are further documented in Exhibit F.

Table 7:
Evaluated Wetlands Within the Survey Area

Feature ID	Feature Type	NWI Feature Type	Location Description	Longitude of Crossing	Latitude of Crossing	Size (Acres)
Wetland-01	Potential Wetland	Riverine Wetland	Fulton Ditch	-104.844610	39.933548	0.055
Wetland-02	Potential Wetland	Freshwater Emergent Wetland	2nd Creek	-104.833832	39.929060	0.226
Wetland-03	Potential Wetland	Freshwater Emergent Wetland	3rd Creek	-104.812532	39.928648	0.649

Pioneer plans to install the pipeline using HDD for crossing of these features. If construction using HDD is not practicable, Pioneer would work under a USACE Nationwide Permit 12 and restore the crossing to pre-construction conditions when construction has been completed. Pioneer would not site aboveground appurtenances within the NRCO. Therefore, the Project would not result in permanent impacts to wetlands or other WOTUS.

The Project would not have an adverse net effect on the capacities or functioning of streams in the impact area, or on the permeability, volume, recharge capability, and depth of aquifers in the surrounding area. Pioneer would obtain all necessary state, county, and local permits and comply with associated permit conditions.

BMPs for sediment and erosion control to protect surface water would be accomplished through a combination of construction techniques, vegetation and revegetation, administrative controls, and structural features. The Project would utilize a Stormwater Management Plan (SWMP) for implementation of best management practices (BMPs) to mitigate soil erosion, control noxious weeds, and revegetate disturbed areas. BMPs that can be expected are listed in Table 7. Specific BMP types and selection criteria expected for various stages of construction are listed below in Table 8.

Table 8:
Non-Structural and Structural BMPs

Non-Structural BMPs		
Program Oversight	**Construction Site Planning and Management**	**Good Housekeeping/ Materials Management**
Construction Phase Plan Review **Contractor Training and Certification Database Development and Maintenance**	**Timing of Projects** **Construction Sequencing** **Site Operator BMP Inspection and Maintenance Training** **Non-structural practices may include, but are not limited to a stabilized staging area, minimize initial pad site acreage, slope pad to the reserve put, wind erosion and dust control, temporary vegetation, permanent vegetation, mulching, geotextiles, sod stabilization, slope roughening, vegetative buffer strops, protection of trees, and preservation of mature vegetation. A water source may be used to abate dust and alleviate wind erosion.**	**General Construction Site Waste Management** **Emergency Response Plan**
Structural BMPs		
Erosional Control	**Sediment Control**	**Runoff Control**
Berms **Check Dams** **Culverts** **Culvert Protection** **Diversions** **Land Grading**	**Silt Fence** **Straw Bales** **Land Grading** **Vehicle Tracking Control** **Wattle**	**Berm** **Check Dam** **Culverts** **Culvert Protection** **Ditch and Berm**

Table 9:
BMPs Types and Selection Criteria

Active	Completed	Final Stabilization
Pipelines and Storage Areas		
Berm Check Dams Culvert Protection Ditch & Berm Erosion Control Blanket Land Grading Mulches, with or without a tackifier Revegetation Silt Fence Vehicle Tracking Control Straw Bales Wind Erosion Control Wattles	Berm Check Dams Culvert Protection Ditch & Berm Erosion Control Blanket Land Grading Mulches, with or without a tackifier Revegetation Silt Fence Straw Bales Wattles	Berm Culverts Diversion Ditch/Ditch and Berm Revegetation Mulches, with or without a tackifier
Access Roads		
Berm Check Dams Culverts Culvert Protection Ditch & Berm Erosion Control Blanket Land Grading Mulches, with or without a tackifier Revegetation Silt Fence Vehicle Tracking Control Straw Bale Wind Erosion Control Wattles	Berm Check Dams Culverts Culvert Protection Ditch & Berm Erosion Control Blanket Land Grading Silt Fence Straw Bale Roadside Ditch with Turnout	Berm Culverts Culvert Protection Ditch and Berm Gravel Surfacing Revegetation

iii. Unanticipated Encounters

If a discovery of an unanticipated natural, cultural, or unique environmental resource is encountered during construction, contractors will immediately contact the designated Pioneer environmental/natural resource specialist for guidance.

III. Emergency Response

Included with this submittal as Exhibit H is Pioneer's current Emergency Response Plan to establish emergency protocols for the produced water pipelines and associated facilities; to be amended before the Project is placed in service. The plan describes the specific responsibilities of Pioneer responders including dispatchers and emergency responders. The purpose of this plan is primarily to minimize the hazard to the public, Pioneer's employees, contractors, and to property. This plan is also used to

reestablish service should a service interruption occur. The plan establishes procedures and defines responsibilities prior to, during, and following an emergency and includes contact information and instructions for all such anticipated emergency situations. The plan describes the specific responsibilities of Pioneer responders including dispatchers and emergency responders.

IV. Conceptual Review Comments and Responses

Below are Pioneer responses to staff comments received prior to the Conceptual Review (PRE2023-00045) meeting held on held on July 26, 2023.

Planner Review – Nick Eagleson

PLN01: Proposed amendment to a previously approved Conditional Use Permit (RCU2020-0004) to allow an additional route for the Pioneer Water Pipeline. This would benefit two different pads and multiple wells for a significant amount of produced water.

RESPONSE: It was agreed during the Conceptual Review Meeting that a new Conditional Use Permit application would be submitted for the proposed pipeline extension to benefit two additional pad sites.

PLN02: The pipeline would be no greater than 12 inches in diameter.

RESPONSE: Agreed. The pipeline shall not be greater than 12 inches in nominal diameter.

PLN03: Major Amendment to an approved Conditional Use Permit would follow a new Conditional Use Permit application process. Public hearing before Planning Commission and the Board of County Commissioners is required.

RESPONSE: It was agreed during the Conceptual Review Meeting that a Major Amendment is not applicable. A new Conditional Use Permit application will be submitted for the proposed pipeline extension to benefit two additional pad sites.

PLN04: A neighborhood/scoping meeting is required prior to submittal of any formal application. A summary of the meeting shall be required in the application. Staff will provide the property owner mailing labels for this meeting. Section 2-01-02 outlines the meeting requirements (time, location, notice, etc.).

RESPONSE: Pioneer received the neighborhood meeting notice mailing list from Adam's County Planner, Nick Eagleson. were sent first class postage to arrive three weeks prior to the meeting. A public notice sign stating the meeting date and location was posted 13295 E 136TH AVE. on 9/20/23. Pioneer held the

neighborhood meeting from 5:00 PM – 6:30 PM on Wednesday, October 11, 2023, at the Armory Performing Arts Center (300 Strong St, Brighton, CO 80601). The purpose of the neighborhood meeting was to provide the community a description of the Project and answer related questions from the attendees. A copy of the notification, neighborhood meeting materials, and a summary of the neighborhood meeting is provided in Exhibit D.

PLN05: An amendment to the originally approved Development Agreement that outlines the requirements regarding the pre-construction, construction, post-construction, and maintenance requirements of the Project will be required with submittal of any application.

RESPONSE: A copy of the proposed Development Agreement is included with this submittal as Exhibit G.

PLN06: Alternate routes may be requested as part of any future submittal related to the pipeline.

RESPONSE: At this time, the primary route has been submitted for consideration as discussed during the Conceptual Review (PRE2023-00045) meeting held on held on July 26, 2023.

PLN07: When submitting Major Amendment application, please provide site plan showing previously approved route and proposed route.

RESPONSE: It was agreed during the Conceptual Review Meeting that a Major Amendment is not applicable. Alignments of the preferred route will be submitted with the new Conditional Use Permit application.

Environmental Analyst Review – Megan Grant

ENV1. Please provide a figure showing the location of this additional pipeline in reference to the approved pipeline.

RESPONSE: An overview of the Project in relation to the approved pipeline is included as Figure 1. Alignment sheets according to CUP Application standards showing existing and proposed improvements for the gathering system are provided as Exhibit C.

ENV2. The following comments provide details on the subject parcels related to environmental review:

a) Parcel 0156929100001 - transected by NRCO.

RESPONSE:

- The results of the threatened and endangered specifies field survey can be found in Exhibit E, the Biological Resources Report which will be updated prior to construction with appropriate precautions taken prior to construction.

- The proposed pipeline route will not transect any wetland nor floodplain areas within Parcel 0156929100001.

b) Parcel 0156930000023 - plugged and abandoned well (API 00107215, operated by Chaparral Resources Inc.), transected by NRCO and 100-year floodplain.

RESPONSE:

- The results of the threatened and endangered specifies field survey can be found in Exhibit E, the Biological Resources Report which will be updated prior to construction with appropriate precautions taken prior to construction.
- The proposed pipeline route will not transect any wetland nor floodplain areas within Parcel 0156930000023.
- The plugged and abandoned well is not applicable.

c) Parcel 0156930000033 - transected by NRCO and 100-year floodplain, several small "lakes" (likely irrigation water).

RESPONSE:

- The results of the threatened and endangered specifies field survey can be found in Exhibit E, the Biological Resources Report. Appropriate precautions taken prior to construction.
- The wetland associated with 3rd Creek has been identified in Exhibit F, the Wetland and WOTUS Findings Report and BMPs will be implemented as outlined in Section ii of this submittal.
- The 100-year floodplain located in Parcel 0156930000033 has been noted and appropriate BMPs will be implemented. City of Brighton permitting requirements will be followed.

d) Parcel 0157126000004 - not in layers.

RESPONSE:

- The results of the threatened and endangered specifies field survey can be found in Exhibit E, the Biological Resources Report. Appropriate precautions taken prior to construction.
- Parcel 0157126000004 does not fall within the 100-year floodplain as shown in Figure 2 below, nor does it contain any wetland as shown in Figure 3 below.

Figure 2:
Parcel 0157126000004 – FEMA map 08001C0328H

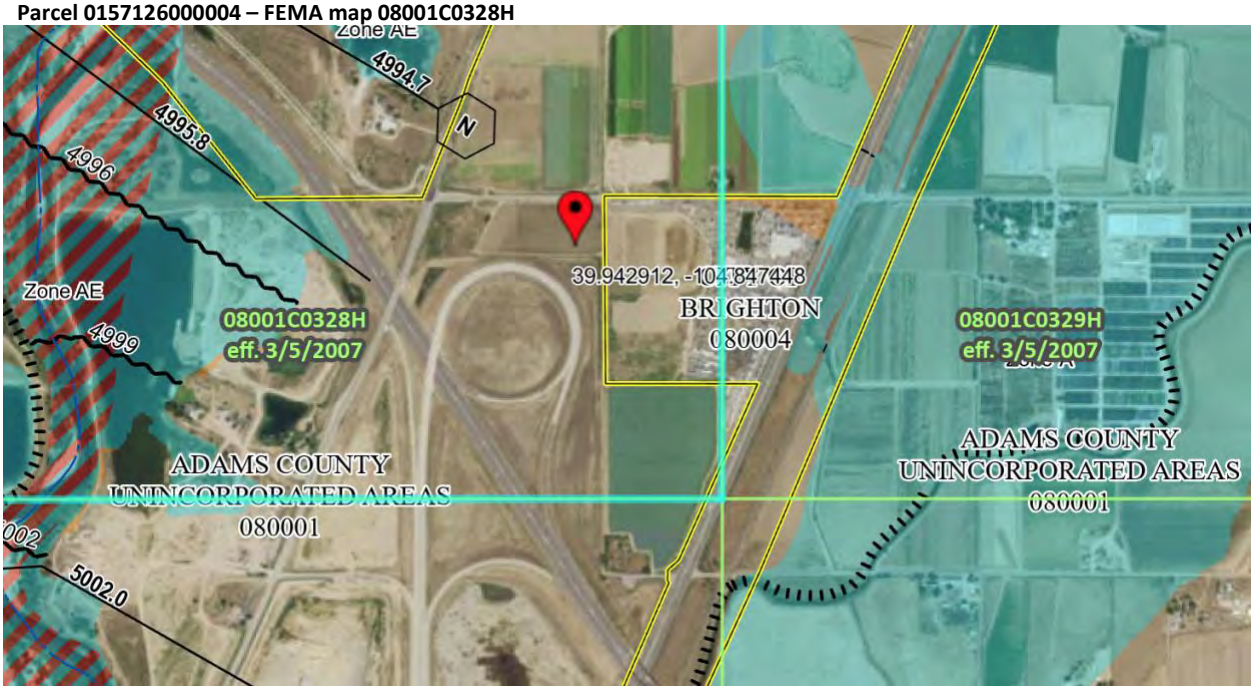


Figure 3:
Parcel 0157126000004 – Colorado Wetland Inventory Map

ENV3. There is one (1) plugged and abandoned oil and gas well, operated by Chaparral Resources Inc (API 05-001-07215), on one of the subject parcels. Please verify the location of the well and the location of the pipeline in reference to this well.

RESPONSE: The location of plugged and abandoned oil and gas well(s) is not applicable to this pipeline.

ENV4. Prior to submittal of a final plat or site-specific development plan, each plugged and abandoned well shall be located and surveyed. The plugged and abandoned well shall be permanently marked by a brass plaque set in concrete similar to a permanent benchmark to monument its existence and location. Such plaque shall contain all information required on a dry hole marker by the Colorado Oil and Gas Conservation Commission (COGCC) and the County.

RESPONSE: The location of plugged and abandoned oil and gas well(s) is not applicable to this pipeline.

ENV5. On every final plat or site-specific development plan which contains a plugged and abandoned well, there shall be dedicated a well maintenance and workover setback depicted on the plat, the dimensions of which shall be not less than fifty feet in width and 100 feet in length. No permanent structures shall be located within this setback. The plugged and abandoned well shall be located in the center of the setback. There shall be public access for ingress and egress to the setback of a width of not less than twenty feet. Refer to Section 4-11-02-03-03-05.2.c

RESPONSE: The location of plugged and abandoned oil and gas well(s) is not applicable to this pipeline.

ENV 6. Please verify that the previous comments and responses to those comments are addressed for this additional pipeline section, including the Resources Review completed for the NRCO:

a) All federal and state regulatory permits, including those required by PHMSA and COGCC, must be provided to the County at the time of conditional use permit application.

RESPONSE: No additional permits are required for the construction or operation of this produced water transfer system; with regards to the COGCC (ECMC), Pioneer intends to amend their current Form 44 (#482222) for the system as allowed and stipulated in the ECMC 1100 Series Rules.

b) Applicant must submit an emergency response plan for referral to the responding DERA for entire pipeline segment or various responding agencies for specific jurisdiction in which pipeline crosses.

RESPONSE: Included with this submittal as Exhibit H is Pioneer's current Emergency Response Plan to establish emergency protocols for the produced water pipelines and associated facilities; to be amended prior to placing the Project in service. The plan describes the specific responsibilities of Pioneer responders including dispatchers and emergency responders.

c) It appears that segments of the pipeline cross land within the Natural Resource Conservation Overlay, the intent of which is to protect environmentally valuable areas and wildlife corridors associated with rivers, streams, riparian ecosystems and wetlands. All development within these areas must comply with NRCO buffers/setback requirements set forth in Section 4-11-02-04-02.

RESPONSE: All development which crosses land within the Natural Resource Conservation Overlay shall comply with NRCO buffers/setback requirements set forth in Section 4-11-02-04-02.

Development Engineering Review – Steve Krawczyk

ENG1: No floodplain use permit required for underground utilities.

RESPONSE: Noted.

ENG2: Applicant is aware an Adams County SWQ Permit will be required prior to construction/utility permit issuance. The applicant can contact Juliana Archuleta, the County's Stormwater Program Manager, to inquire about obtaining a SWQ Permit. Ms. Archuleta can be contacted at 720-523-6869 or by email at mjarchuleta@adcogov.org.

RESPONSE: Per the Adams County 2021 MS4 Permitted Area map, approximately 0.50 miles of the proposed pipeline may fall within the MS4 area and will be confirmed with Juliana Archuleta, the County's Stormwater Program Manager. Upon confirmation, the appropriate SWQ Permit shall be obtained prior to construction.

ENG3: Prior to construction/utility permit issuance, the applicant should ensure the pipeline elevation and alignment does not conflict with Mile High Flood District plans when designed plans are available. There are some proposed detention/ water quality facilities and associated drainage infrastructure within the proposed pipeline alignment in the following locations:

1) Along E 136th Ave east of Potomac St. Brighton Watershed Area – Brighton Watershed Tributary to South Platte River – Outfall Systems Planning – Preliminary Design Report; Prepared for Urban Drainage and Flood Control District, Adams County, and the City of Brighton; Dec 1998.

RESPONSE: Pioneer will verify with Mile High Flood District that alignment does not conflict with plans for proposed detention / water quality facilities and associated drainage infrastructure.

2) Along northern property line of Parcel #: 0157121000016 Todd Creek Area – Todd Creek and DFA 0052 Watersheds Outfall System Planning Study – Preliminary Design Report; Prepared for Urban Drainage and Flood Control District, Adams County, and City of Thornton; Dec 2003

RESPONSE: The proposed route under this application does not cross of Parcel #: 0157121000016.

ENG4: The County will review all construction documents via the Engineering Review process to ensure County roadway crossings meet requirements set forth in Chapter 7 of the Adams County Development Standards and Regulations. Pipeline setbacks from roadway centerlines should be included on the construction plans. Compliance with County environmental and right-of-way requirements will be confirmed prior to construction/utility permit issuance.

RESPONSE: Pioneer will submit the approved route's alignments and road crossing plan & profiles for Engineering Review and the appropriate ROW permits.

ROW Review – David Dittmer

ROW1: Pipeline must be outside of the 70' half width of future Right-of-way along any section line arterial, and 40' at all other right-of-ways.

RESPONSE: Noted.

Exhibit A

Adams County Conceptual Review Team Comments

Community & Economic
Development Department
www.adcogov.org

ADAMS COUNTY
COLORADO

4430 South Adams County Parkway
1st Floor, Suite W2000B
Brighton, CO 80601-8218
PHONE 720.523.6880
FAX 720.523.6967
EMAIL: epermitcenter@adcogov.org

Development Review Team Comments

Date: 7/21/2023

Project Number: PRE2023-00045

Project Name: Pioneer Water Pipeline Expansion Concept

Commenting Division: Planner Review

Name of Reviewer: Nick Eagleson

Date: 07/21/2023

Email:

Complete

PLN01: Proposed amendment to a previously approved Conditional Use Permit (RCU2020-0004) to allow an additional route for the Pioneer Water Pipeline. This would benefit two different pads and multiple wells for a significant amount of produced water.
PLN02: The pipeline would be no greater than 12 inches in diameter.
PLN03: Major Amendment to an approved Conditional Use Permit would follow a new Conditional Use Permit application process. Public hearing before Planning Commission and the Board of County Commissioners is required.
PLN04: A neighborhood/scoping meeting is required prior to submittal of any formal application. A summary of the meeting shall be required in the application. Staff will provide the property owner mailing labels for this meeting. Section 2-01-02 outlines the meeting requirements (time, location, notice, etc.).
PLN05: An amendment to the originally approved Development Agreement that outlines the requirements regarding the pre-construction, construction, post-construction, and maintenance requirements of the Project will be required with submittal of any application.
PLN06: Alternate routes may be requested as part of any future submittal related to the pipeline.
PLN07: When submitting Major Amendment application, please provide site plan showing previously approved route and proposed route.

Commenting Division: Environmental Analyst Review

Name of Reviewer: Megan Grant

Date: 07/20/2023

Email:

Complete

ENV1. Please provide a figure showing the location of this additional pipeline in reference to the approved pipeline.

ENV2. The following comments provide details on the subject parcels related to environmental review:
a) Parcel 0156929100001 - transected by NRCO
b) Parcel 0156930000023 - plugged and abandoned well (API 00107215, operated by Chaparral Resources Inc.), transected by NRCO and 100-year floodplain
c) Parcel 0156930000033 - transected by NRCO and 100-year floodplain, several small "lakes" (likely irrigation water)
d) Parcel 0157126000004 - not in layers

ENV3. There is one (1) plugged and abandoned oil and gas well, operated by Chaparral Resources Inc (API 05-001-07215), on one of the subject parcels. Please verify the location of the well and the location of the pipeline in reference to this well.

ENV4. Prior to submittal of a final plat or site-specific development plan, each plugged and abandoned well shall be located and surveyed. The plugged and abandoned well shall be permanently marked by a brass plaque set in concrete similar to a permanent benchmark to monument its existence and location. Such plaque shall contain all information required on a dry hole marker by the Colorado Oil and Gas Conservation Commission (COGCC) and the County.

ENV5. On every final plat or site-specific development plan which contains a plugged and abandoned well, there shall be dedicated a well maintenance and workover setback depicted on the plat, the dimensions of which shall be not less than fifty feet in width and 100 feet in length. No permanent structures shall be located within this setback. The plugged and abandoned well shall be located in the center of the setback. There shall be public access for ingress and egress to the setback of a width of not less than twenty feet. Refer to Section 4-11-02-03-03-05.2.c

ENV 6. Please verify that the previous comments and responses to those comments are addressed for this additional pipeline section, including the Resources Review completed for the NRCO:
a) All federal and state regulatory permits, including those required by PHMSA and COGCC, must be provided to the County at the time of conditional use permit application.
b) Applicant must submit an emergency response plan for referral to the responding DERA for entire pipeline segment or various responding agencies for specific jurisdiction in which pipeline crosses.
c) It appears that segments of the pipeline cross land within the Natural Resource Conservation Overly, the intent of which is to protect environmentally valuable areas and wildlife corridors associated with rivers, streams, riparian ecosystems and wetlands. All development within these areas must comply with NRCO buffers/setback requirements set forth in Section 4-11-02-04-02.

Commenting Division: Development Engineering Review

Name of Reviewer: Steve Krawczyk

Date: 07/20/2023

Email:

Complete

ENG1: No floodplain use permit required for underground utilities.

ENG2: Applicant is aware an Adams County SWQ Permit will be required prior to construction/utility permit issuance. The applicant can contact Juliana Archuleta, the County's Stormwater Program Manager, to inquire about obtaining a SWQ Permit. Ms. Archuleta can be contacted at 720-523-6869 or by email at mjarchuleta@adcogov.org.

ENG3: Prior to construction/utility permit issuance, the applicant should ensure the pipeline elevation and alignment does not conflict with Mile High Flood District plans when designed plans are available. There are some proposed detention/ water quality facilities and associated drainage infrastructure within the proposed pipeline alignment in the following locations:
1) Along E 136th Ave east of Potomac St.
Brighton Watershed Area – Brighton Watershed Tributary to South Platte River – Outfall Systems Planning – Preliminary Design Report; Prepared for Urban Drainage and Flood Control District, Adams County, and the City of Brighton; Dec 1998
2) Along northern property line of Parcel #: 0157121000016
Todd Creek Area – Todd Creek and DFA 0052 Watersheds Outfall System Planning Study – Preliminary Design Report; Prepared for Urban Drainage and Flood Control District, Adams County, and City of Thornton; Dec 2003

ENG4: The County will review all construction documents via the Engineering Review process to ensure County roadway crossings meet requirements set forth in Chapter 7 of the Adams County Development Standards and Regulations. Pipeline setbacks from roadway centerlines should be included on the construction plans. Compliance with County environmental and right-of-way requirements will be confirmed prior to construction/utility permit issuance.

Commenting Division: ROW Review

Name of Reviewer: David Dittmer

Date: 07/20/2023

Email:

Complete

ROW1: Pipeline must be outside of the 70' half width of future Right-of-way along any section line arterial, and 40' at all other right-of-ways.

Commenting Division: Neighborhood Services Review

Name of Reviewer: Gail Moon

Date: 07/20/2023

Email: gmoon@adcogov.org

Complete

There are no OPEN violations at this location at this time. NO COMMENT

Commenting Division: Long Range Planner Review

Name of Reviewer: John Stoll

Date: 07/20/2023

Email:

Complete

Exhibit B
Stormwater Management Plan

Pioneer Water Pipeline LLC – Ponderosa Phase II Site-Specific Pre-Construction SWMP

Field-Wide SWMP: Pioneer Water Pipeline Field-Wide SWMP for Pipeline Construction Activities

Project: Ponderosa Phase II

Project Summary:

Pioneer Water Pipeline LLC has prepared a field-wide SWMP that covers their pipeline construction activities within the DJ Basin in Colorado. This site-specific pre-construction SWMP covers construction from the Gus Connect to the Schaefer oil and gas pad as well as the Edmundson and Prairie oil and gas pads. All this pipeline construction will occur within Pioneer's permitted area. Construction activities within this area are covered under the CDPS General Permit for Discharges Associated with Construction Activity (Permit No. COR-400000). Pioneer's permit certification under the general permit is COR415490. The subject project consists of water pipeline construction and activities outlined in the field-wide SWMP – a network of water pipelines intended to transport produced water from oil and gas exploration and production pads to a water treatment and disposal facility. The proposed sequence for major activities is addressed within the field-wide SWMP. Construction at the subject project is expected to commence in January 2024 and is anticipated to last for an estimated six months. Reclamation will commence for each segment immediately following the completion of construction for that specific segment. BMPs will be employed in accordance with good engineering, hydrologic, and pollution control practices in order to prevent pollution in stormwater discharges associated with the construction of the pipeline network.

All information and conditions represented herein are estimated and intended as a preliminary plan. This site-specific SWMP is intended to be a living document that will change and be updated routinely as field conditions change. Actual placement of BMP's etc. may deviate from the preliminary plan based on actual conditions discovered in the field and updates will be made accordingly.

Project and Disturbance Estimates:

The maximum temporary working area for this pipeline installation project is 85 feet wide but ranges between 60 and 85 feet throughout the length of the ROW and generally maintains a 75-foot working area across the project. The combined length is approximately 7.3 miles. Soil clearing may or may not extend across the entire and maximum 85-foot width depending on field conditions and installation requirements. The total area of disturbance is projected to be 71.8 acres or less.

Receiving Waters/Municipal Systems:

The proposed midstream line stretches across multiple waterways in total, so each segment is broken out by location and specific waterbodies they may encounter during an offsite stormwater discharge. The nearest downstream waterbody on the westernmost segment of ROW east of the Gus Connect line and west of Riverdale Road is an unnamed canal/ditch located ~150' from its closest point of disturbance. This unnamed ditch/canal is a tributary of Big Dry Creek, which is a tributary of the South Platte River. The nearest downstream waterbody on the stretch of ROW east of Riverdale Road and west of the South Platte River is an unnamed agriculture lake/pond located ~130' N from its closest point of disturbance where the flow would terminate. The next nearest downgradient waterbody is the South Platte River located ~0.1 mile E from its closest point of disturbance. The nearest downgradient waterbody for the stretch of ROW east of Riverdale Road and east of the South Platte

River is an unnamed agriculture lake/pond located ~250’ N where the flow would terminate. The next nearest downgradient waterbody is the South Platte River located ~0.1 mile W from its closest point of disturbance. The nearest downgradient waterbody for the stretch of ROW that is east of Brighton Road and west of Highway 85 is Second Creek located ~0.1 mile N from its closest point of disturbance. Second Creek is a tributary of the South Platte River. The nearest downgradient waterbody for the stretch of ROW east of Highway 85 and west of the PDC Shaefer pad is Third Creek located ~0.1 mile N from its closest point of disturbance. Third Creek is a tributary of the South Platte River. The nearest downgradient waterbody for the stretch of ROW east of Highway 85 and west of Tucson Street is an unnamed canal/ditch located ~150’ W from its closest point of disturbance. This unnamed canal/ditch is a tributary of Fulton Ditch, which is a tributary of Mose Davis Reservoir Number 2 where the flow would terminate. The nearest downgradient waterbody for the stretch of ROW east of Tucson Street and west of Sable Road is Second Creek located ~125’ from its closest point of disturbance. Second Creek is a tributary of the South Platte River. The nearest downgradient waterbody for the stretch of ROW east of Sable Road and west of the PDC Edmundson pad is Third Creek located ~65’ from its closest point of disturbance. Third Creek is a tributary of the South Platte River.

Soils:

To determine anticipated site characteristics for the project site, Geographic Information System (GIS) data from the Natural Resource Conservation Service (NRCS) along with aerial photography was overlain on the site proposed disturbance boundary to derive NRCS soils map units for the planned disturbance area. A desktop review of the proposed project area indicates the presence of 21 soils map units:

- 23.8% Nunn loam (0-1% percent slopes)
- 9.0% Samsil-Shingle complex (3-35% percent slopes)
- 8.5% Gravelly land-Shale outcrop complex
- 8.4% Ascalon sandy loam (0-3% percent slopes)
- 7.9% Nunn clay loam (0-1% percent slopes)
- 5.7% Nunn loam (1-3% percent slopes)
- 5.2% Loamy alluvial land, moderately wet
- 5.1% Truckton sandy loam (0-3% percent slopes)
- 5.0% Gravel Pits
- 4.7% Truckton loamy sand (3-9% percent slopes)
- 3.0% Vona sandy loam (1-3% percent slopes)
- 28% Dacono loam (1-3% percent slopes)
- 2.5% Wet alluvial land
- 2.1% Vona loamy sand (3-9% percent slopes)
- 1.4% Dacono loam (0-1% percent slopes)
- 1.1% Blakeland loamy sand (3-9% percent slopes)
- 1.1% Terrace escarpments
- 1.0% Vona sandy loam (3-5% percent slopes)
- 0.6% Ulm loam (5-9% percent slopes)
- 0.4% Nunn clay loam (1-3% percent slopes)
- 0.3% Water (excluded from analysis)
- 0.2% Truckton sandy loam (3-5% percent slopes)

The Nunn loam (0-1% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is high (about 9.2 inches).

The Samsil-Shingle complex (3-35% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 4 inches. The depth to a restrictive ground feature is more than 4 to 20 inches. The drainage class is well drained, and the available water capacity is very low (about 2.0 inches).

The Gravelly land-Shale outcrop complex (slopes not defined) soils map unit shows an anticipated top soil depth of 0 to 3 inches. The depth to a restrictive ground feature is 0 inches. The drainage class is not defined, and the available water capacity is very low (about 0.0 inches).

The Ascalon sandy loam (0-3% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is moderate (about 7.7 inches).

The Nunn clay loam (0-1% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is high (about 9.1 inches).

The Nunn loam (1-3% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is high (about 9.2 inches).

The Loamy alluvial land, moderately wet (slopes not defined) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is not defined. The drainage class is somewhat poorly drained, and the available water capacity is low (about 6.0 inches).

The Truckton sandy loam (0-3% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is low (about 4.6 inches).

The Gravel pits (slopes not defined) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is not defined. The drainage class and available water capacity is not defined.

The Truckton loamy sand (3-9% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 9 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is low (about 4.3 inches).

The Vona sandy loam (1-3% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 9 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is moderate (about 6.3 inches).

The Dacono loam (1-3% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 9 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is low (about 5.9 inches).

The Wet alluvial land (slopes not defined) soils map unit shows an anticipated top soil depth of 0 to 8 inches. The depth to a restrictive ground feature is not defined. The drainage class is poorly drained, and the available water capacity is low (about 4.8 inches).

The Vona loamy sand (3-9% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 7 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is moderate (about 6.4 inches).

The Dacono loam (0-1% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 9 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is low (about 5.9 inches).

The Blakeland loamy sand (3-9% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 9 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is somewhat excessively drained, and the available water capacity is low (about 4.3 inches).

The Terrace escarpments (slopes not defined) soils map unit shows an anticipated top soil depth of 0 to 3 inches. The depth to a restrictive ground feature, drainage class and available water capacity is not defined.

The Vona sandy loam (3-5% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 7 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is moderate (about 6.3 inches).

The Ulm loam (5-9% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 4 inches. The depth to a restrictive ground feature is 40 to 60 inches. The drainage class is well drained, and the available water capacity is moderate (about 8.2 inches).

The Nunn clay loam (1-3% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 9 inches. The depth to a restrictive ground feature is More than 80 inches. The drainage class is well drained, and the available water capacity is high (about 9.9 inches).

The Truckton sandy loam (3-5% percent slopes) soils map unit shows an anticipated top soil depth of 0 to 6 inches. The depth to a restrictive ground feature is more than 80 inches. The drainage class is well drained, and the available water capacity is low (about 4.6 inches).

Slopes in the area range from 0-35%. Based on K factor values, the risk of susceptibility to erosion/runoff is low to high throughout the project area. The overall erosion hazard is slight to moderate throughout the length of the line. Soils maps, erosion maps, and soils reports are included in the report.

Pre-Disturbance Vegetation:

The pre-disturbance land use consists of disturbed grassland, harvested, unharvested and fallow agriculture and industrial – oil and gas throughout the project area. The vegetation throughout the project area where disturbance is expected to occur on disturbed grassland consisted of annual/biannual, perennial and noxious/undesirable species. Although outside of the growing season, CDPHE vegetation assessments were still able to be conducted.

The vegetation density metric is used to assess CDPHE final stabilization – the CDPHE requirement for final stabilization is met when:

- All construction activities are complete.
- All temporary control measures are removed except when control measure specifications allow the control measure to be left in place.
- Permanent stabilization methods are complete (permanent pavement or concrete, hardscape, xeriscape, stabilized driving surfaces, vegetative cover, or other alternative method approved by the division).
    - Vegetative cover must meet the following criteria:
        - Evenly distributed perennial vegetation, and
        - Coverage, at a minimum, equal to 70% of the pre-disturbance vegetation if the site is undisturbed, or 70% of what would have been provided by native vegetation in a local, undisturbed area or adequate reference site.

The following section discusses the land use and pre-disturbance vegetation existing along the different portions of ROW.

Ponderosa Pipeline Phase II – south of E-470 and West of Riverdale Road near Gus Connect

This portion of ROW runs east, south of E-470 and west of Riverdale Road near the Gus Connect line. The pre-disturbance land use throughout this area is disturbed grassland. The ROW travels through various perennials (crested wheatgrass, smooth brome, American beachgrass, perennial ryegrass, and side-oats grama) and annuals (kochia, Japanese chess, golden crownbeard, Russian thistle, fetid dogweed and downy brome – list C noxious weed).

Vegetation Density (CDPHE): 13 semi-random quadrats were analyzed throughout the section of proposed disturbance south of E-470 and west of Riverdale Road to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 1 – 28 throughout the samples, with a mean of 15.5 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken. The dominant specie that was identified during the analysis was smooth brome.

Ponderosa Pipeline Phase II – north of E-470 and West of Riverdale Road

This portion of the ROW runs east, north of E-470 and west of Riverdale Road. The pre-disturbance land use throughout this area is disturbed grassland, and the new ROW will sit south of an existing oil and gas pipeline riser where boring operations will occur. The ROW travels through various perennials (curly dock, hairyseed bahia, and field bindweed – List C noxious weed) and annuals (kochia, Russian thistle, golden crownbeard, and big bract verbena).

Vegetation Density (CDPHE): 5 semi-random quadrats were analyzed throughout the portion of the segment area north of E-470 and west of Riverdale Rd to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 0 – 8 throughout the samples, with a mean of 3.4 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken. The dominant species that were identified during the analysis was curly dock and Russian thistle.

Ponderosa Pipeline Phase II – east of Riverdale Road and West of the South Platte River

This portion of the ROW runs east, east of Riverdale Road and west of the South Platte River. The pre-disturbance land use throughout this area is disturbed grassland. A vegetation assessment was unable to be conducted at the time of the inspection due to restricted access/locked gates. A vegetation assessment will be performed during the initial stormwater inspection using the adjacent grassland 10 feet off the ROW as a proxy.

Ponderosa Pipeline Phase II – southeast of the South Platte River and West of Brighton Road

This portion of the ROW runs southeast, southeast of the South Platte River to just west of Brighton Road north of E-470. The pre-disturbance land use throughout this area is disturbed grassland, and the proposed ROW will sit adjacent to a paved bike path where boring operations will occur under the South Platte River. The ROW travels through various perennials (crested wheatgrass, perennial ryegrass, and alkali sacaton) and annuals (kochia, downy brome – list C noxious weed, and Russian thistle).

Vegetation Density (CDPHE): 8 semi-random quadrats were analyzed throughout the portion of the segment area near the proposed bore location under the South Platte River traveling southeast to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 0 – 5 throughout the samples, with a mean of 2.5 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken. The dominant specie that was identified during the analysis was crested wheatgrass.

Ponderosa Pipeline Phase II – east of Brighton Road and West of the PDC Sharp Pad

This portion of the ROW runs east, east of Brighton Road to just west of the PDC Sharp Pad. The pre-disturbance land use throughout this area is agriculture. No vegetation analysis is needed throughout this segment due to its location in an agricultural field. Portions of this segment go through disturbed grassland north of 136th Ave (Roadside ditches); however, these areas will be left undisturbed and bored (HDD) under.

Ponderosa Pipeline Phase II – southeast of PDC Sharp Pad

This portion of the ROW runs east, east of Brighton Road and to the southeast extent of the PDC Sharp oil and gas pad on the north side of 136th Ave. The pre-disturbance land use throughout this area is a reclaimed disturbed grassland, previously disturbed by industrial – oil and gas activities. The ROW travels through perennials (curly dock and field bindweed – list C noxious weed) and annuals (kochia, barnyard grass, prostrate knotweed, and fetid dog weed).

Vegetation Density (CDPHE): 5 semi-random quadrats were analyzed throughout the portion of the proposed ROW area southeast of the PDC Sharp oil and gas pad traveling east to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 0 – 4 throughout the samples, with a mean of 2.8 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken. The dominant species that were identified during the analysis was barnyard grass, prostrate knotweed, and field bindweed

Ponderosa Pipeline Phase II – east of the PDC Sharp Pad and West of Hwy 85

This portion of the ROW runs east, east of the PDC Sharp oil and gas pad to just west of Hwy 85. The pre-disturbance land use throughout this area is agriculture (corn and beets). No vegetation analysis is needed throughout this segment due to its location in an agricultural field. Portions of this segment go through disturbed grassland (bordering Hwy 85 and 136th Ave); however, these areas will be left undisturbed and bored (HDD) under.

Ponderosa Pipeline Phase II – east of Hwy 85 and southwest/south/southeast of the PDC Schaefer Pad

This portion of the ROW runs east, east of Hwy 85 and moves toward the PDC Schaefer oil and gas pad. The line will run eastward bordering the south side of the PDC Shaefer pad and then shifts north and continues to border the pad on its east side before shifting eastward again towards another agriculture field. The pre-disturbance land use throughout this area is agriculture (corn and alfalfa). No vegetation analysis is needed throughout this segment due to its location in agricultural fields. The western portion of this segment go through disturbed grassland (disturbed grassland bordering Hwy 85); however, this area will be left undisturbed and bored (HDD) under.

Ponderosa Pipeline Phase II – west of the PDC Schaefer Pad

This portion of the ROW runs east, east of Hwy 85 and the PDC Schaefer oil and gas pad. The pre-disturbance land use throughout this area is agriculture (corn). No vegetation analysis is needed throughout this segment due to its location in an agricultural field. This portion of the proposed line will then terminate at the projects northeasternmost point above a residential property.

Ponderosa Pipeline Phase II – south of 136th Ave and west of Johnson Auto Plaza

This portion of the line runs south, south of the PDC Sharp oil and gas pad and west of the Johnson Auto Plaza. The land use throughout this section is agriculture (corn). The line will bore underneath 136th Ave and the agriculture field and reemerge onto a disturbed grassland near the southwest corner of Johnson Auto Plaza. No vegetation analysis was conducted on the agriculture field due to boring operations. Portions of this segment go through disturbed grassland (bordering the south side of 136th Ave); however, these areas will be left undisturbed and bored (HDD) under.

Ponderosa Pipeline Phase II – southwest of Johnson Auto Plaza and north of Brighton Road

This portion of the ROW runs south, south of 136th Ave to the intersection of E-470 and Brighton Road. The pre-disturbance land use throughout this area is disturbed grassland, and the proposed ROW will sit within a drainage basin, south of 136th Ave. The ROW travels through perennials (western wheatgrass, plains prickly pear, and field bindweed – list C noxious weed) and annuals (yellow salsify, big bract verbena, golden crownbeard, horseweed, kochia, and yellow sweet clover).

Vegetation Density (CDPHE): 8 semi-random quadrats were analyzed throughout the portion of the segment area southwest of Johnson Auto Plaza and north of Brighton Road traveling south to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 5 – 31 throughout the samples, with a mean of 16 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken. The dominant species that were identified during the analysis was western wheatgrass and field bindweed.

Ponderosa Pipeline Phase II – east of Highway 85, north of E-470 and west of Tucson Street

This portion of the ROW runs east/southeast, east of Highway 85 and north of E-470. The pre-disturbance land use throughout this area is disturbed grassland. The ROW travels through perennials (beardless wildrye, narrow lead cattail, purple prairie clover, crested wheatgrass, and smooth brome) and annuals (kochia and western tansymustard).

Vegetation Density (CDPHE): 12 semi-random quadrats were analyzed throughout the portion of the segment area north of E-470 traveling east to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 4 – 86 throughout the samples, with a mean of 32.4 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken. The dominant species that were identified during the analysis was smooth brome, beardless wildrye, crested wheatgrass and kochia.

Ponderosa Pipeline Phase II – west of Tucson Street, north of E-470 and west of Second Creek

This portion of the ROW runs east, west of the Tucson Street, north of E-470 and west of Second Creek. The pre-disturbance land use throughout this area is disturbed grassland. The ROW travels through perennial species (crested wheatgrass and smooth brome). No annuals were identified during the assessment.

Vegetation Density (CDPHE): 6 semi-random quadrats were analyzed throughout the portion of the segment area north of E-470 traveling east to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 6 – 36 throughout the samples, with a mean of 21.3 perennial plants per quadrat. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance

perennial vegetation in areas where samples were taken. The dominant specie that was identified during the analysis was smooth brome.

Ponderosa Pipeline Phase II – west of Sable Blvd, north of E-470, east of Second Creek and west of the Adams Crossing Connect

This portion of the ROW runs east, west of Sable Blvd, north of E-470, east of Second Creek and west of the Adams Crossing Connect. The pre-disturbance land use throughout this area is disturbed grassland. The ROW travels through perennials (western wheatgrass, side oats grama, crested wheatgrass and smooth brome) and annuals (kochia and downy brome – list C noxious weed).

Vegetation Density (CDPHE): 7 semi-random quadrats were analyzed throughout the portion of the segment area north of E-470, west of Sable Blvd, east of Second Creek and west of the Adams Crossing Connect to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 4 – 26 throughout the samples, with a mean of 14.3 perennial plants per quadrat. The dominant species that were identifiable in this assessment was smooth brome. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken.

Ponderosa Pipeline Phase II – Adams Crossing Connect

This portion of the line runs north, north of E-470 as an extension from the main trunk line onto a fallow agriculture field. The land use throughout this section is fallow agriculture. The line will bend north from the main trunk Ponderosa Phase II line and terminate onto the agriculture field. No vegetation analysis was needed for this portion of the line existing within an agriculture field.

Ponderosa Pipeline Phase II – west of Sable Blvd, north of E-470, east of Second Creek and east of the Adams Crossing Connect

This portion of the ROW runs east, west of Sable Blvd, north of E-470, east of Second Creek and east of the Adams Crossing Connect. The pre-disturbance land use throughout this area is disturbed grassland. The proposed ROW will travel through annuals (kochia, Russian thistle, western tansymustard and downy brome – list C noxious weed) only. There were no perennials identified during the assessment through this segment of disturbed grassland.

Vegetation Density (CDPHE): 3 semi-random quadrats were analyzed throughout the portion of the segment area west of the Sable Blvd bore location traveling west to determine pre-disturbance vegetation density. There were no perennial plants identified during the assessment, resulting in a mean of 0 perennial plants per quadrat. The dominant species that were identifiable in this assessment was Russian thistle and downy brome. A standard error of the mean of 10% or less was not achieved due to the total lack in perennial vegetation.

Ponderosa Pipeline Phase II – boring location west of Sable Blvd

This portion of the ROW runs east, directly west of Sable Blvd at a proposed boring location. The pre-disturbance land use throughout this area is disturbed grassland. The proposed disturbance travels through perennials (crested wheatgrass and lindheimer's muhly) and annuals (kochia and downy brome – list C noxious weed).

Vegetation Density (CDPHE): 6 semi-random quadrats were analyzed throughout the project area to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 2 – 8 throughout the samples, with a mean of 4.7 perennial plants per quadrat. The dominant species that were identifiable in this assessment was crested wheatgrass and lindheimer's muhly. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken.

Ponderosa Pipeline Phase II – south of PDC Edmundson Pad to Sable Blvd

This portion of the ROW runs east, east of Sable Blvd to the PDC Edmundson oil and gas location. The pre-disturbance land use throughout this area is disturbed grassland. The ROW travels through perennials (smooth brome, deer grass, beardless wildrye, and crested wheatgrass) and annuals (kochia).

Vegetation Density (CDPHE): 12 semi-random quadrats were analyzed throughout the portion of the segment area south of the Edmundson pad traveling west to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 5 – 187 throughout the samples, with a mean of 58.8 perennial plants per quadrat. The dominant species that were identifiable in this assessment was smooth brome, beardless wildrye and deer grass. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken.

Ponderosa Pipeline Phase II – PDC Edmundson Pad to 132nd Ave

This portion of the ROW runs north, south of 132nd Ave. The pre-disturbance land use throughout this area is disturbed grassland. The ROW travels through perennials (smooth brome) and annuals (Russian thistle, kochia, downy brome – list C noxious weed, puncturevine – list C noxious weed and scotch thistle – list B noxious weed).

Vegetation Density (CDPHE): 7 semi-random quadrats were analyzed throughout the portion of the segment area moving north from the PDC Edmundson Pad towards 132nd Ave to determine pre-disturbance vegetation density. The number of perennial plants per quadrat ranged from 0 – 43 throughout the samples, with a mean of 26.1 perennial plants per quadrat. The dominant species that were identifiable in this assessment was smooth brome. A standard error of the mean of 10% or less was not achieved due to high variability among the vegetative samples. This indicates low uniform coverage of pre-disturbance perennial vegetation in areas where samples were taken.

Ponderosa Pipeline Phase II – PDC Edmundson Pad Connect

This portion of the line runs west towards the PDC Edmundson Pad as an extension from the main trunk line onto an existing oil and gas pad (PDC Edmundson). The land use throughout this section is industrial – oil and gas. The line will shift west from the main trunk Ponderosa Phase II line and terminate onto the oil and gas pad. No vegetation analysis was needed for this portion of the line existing within an industrial – oil and gas pad.

Ponderosa Pipeline Phase II – South of E 136th Ave to E 132nd Ave

This portion of the ROW runs north from 132nd Ave to 136th Ave. The pre-disturbance land use throughout this area is agriculture (corn). No vegetation analysis is needed throughout this segment. Portions of this segment go through disturbed grassland (bordering 136th Ave and 132nd Ave); however, these areas will be left undisturbed and bored (HDD) under.

Ponderosa Pipeline Phase II – north of 136th Ave to Prairie Connect

This portion of the ROW runs east, west of the PDC Prairie oil and gas pad. The pre-disturbance land use throughout this area is disturbed grassland which had been disturbed in the past previously by another midstream construction operation. The proposed construction will on/near the old midstream operation. The ROW travels through annuals (Russian thistle and witchgrass).

Vegetation Density (CDPHE): 4 semi-random quadrats were analyzed throughout the portion of the segment area to determine pre-disturbance vegetation density. There were no perennial plants identified during the assessment, resulting in a mean of 0 perennial plants per quadrat. The dominant vegetation specie that was identifiable in this assessment was Russian thistle. A standard error of the mean of 10% or less was not achieved due to the total lack in perennial vegetation.

Final stabilization for the proposed project will consist of seeding/mulching all portions of the project that travel through disturbed grassland. All portions of agricultural disturbance will be ripped and returned to landowner for reincorporation into

the surrounding agricultural field. All portions of disturbance to occur on industrial – oil and gas pads will be stabilized and resurfaced with surface armor.

Site-Specific Pollutant Sources:

All potential pollutant sources from this project are identified in the field-wide SWMP. No additional site-specific pollutants are anticipated.

Modifications/Deviations from Field-Wide SWMP:

No modification and/or deviations are anticipated from the field-wide SWMP.

Stormwater Management Plan Overview Map

Ponderosa Phase II

N W E S

0 5,000 10,000

Feet

Scale: 1:46,570

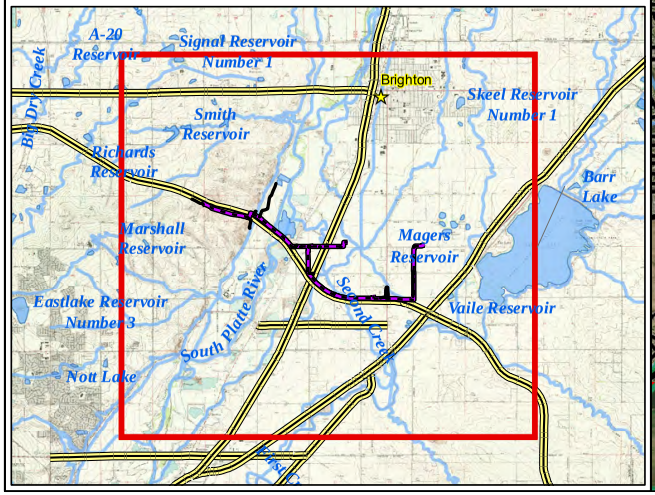
Prepared by:

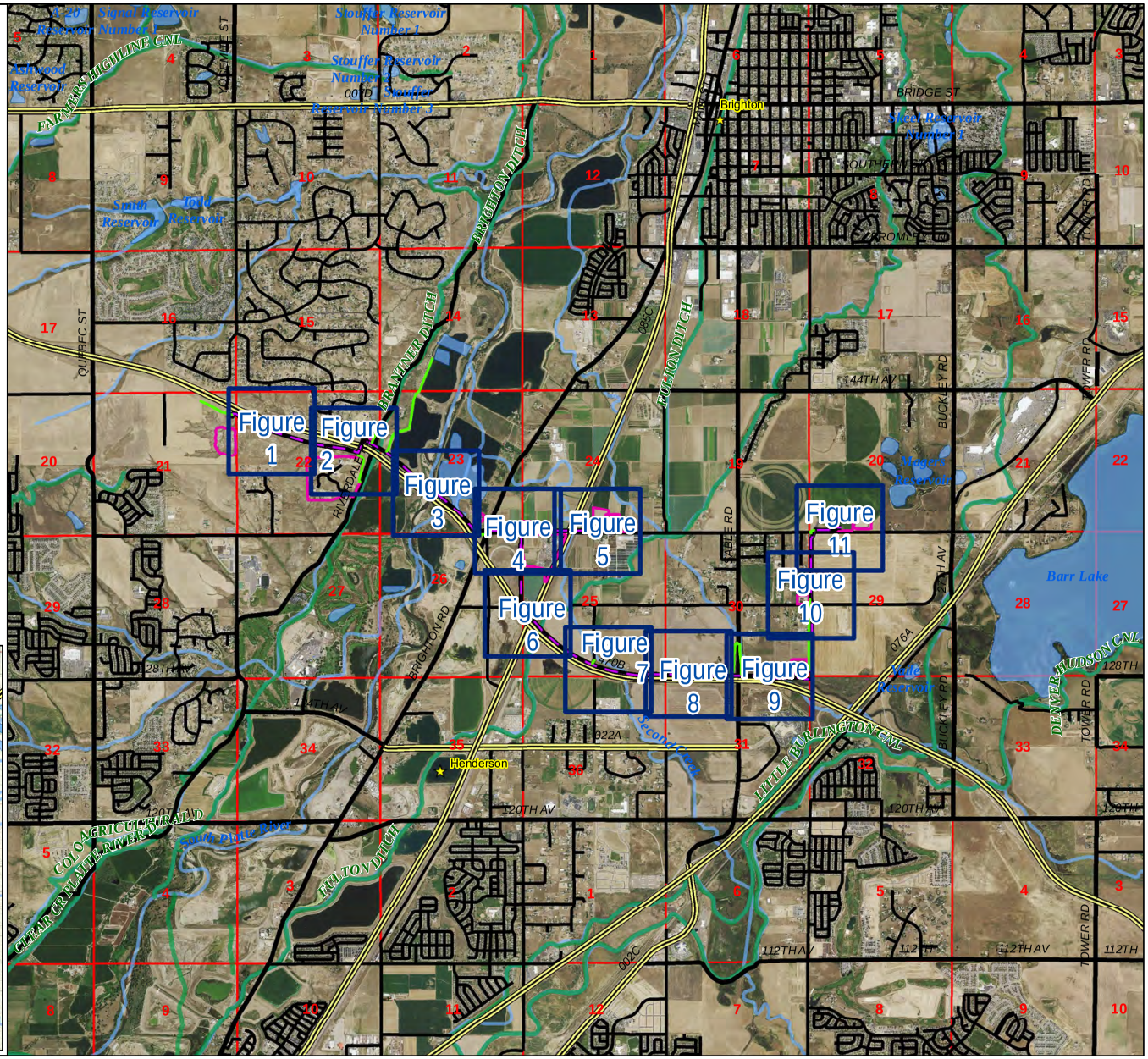
Editor: nwilson

Date: 10/11/2023

File: PreConstr_Overview_PW Pipeline_V1

- City
- Pipeline - Proposed
- Access Road
- Disturbance
- Other
- Highway
- Major Road
- Adams Local
- NHD Waterbody
- NHD Flowline
- Canal/Irrigation Ditch
- Sections





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 1

Prepared by:

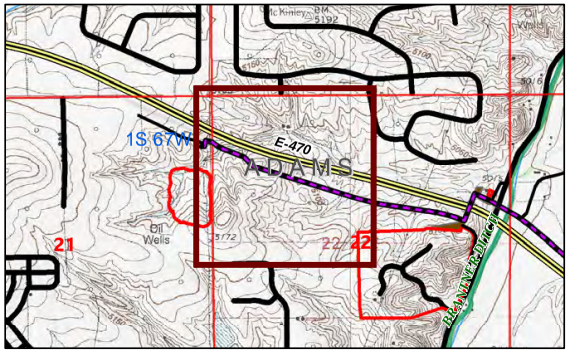
0 500 1,000
Feet

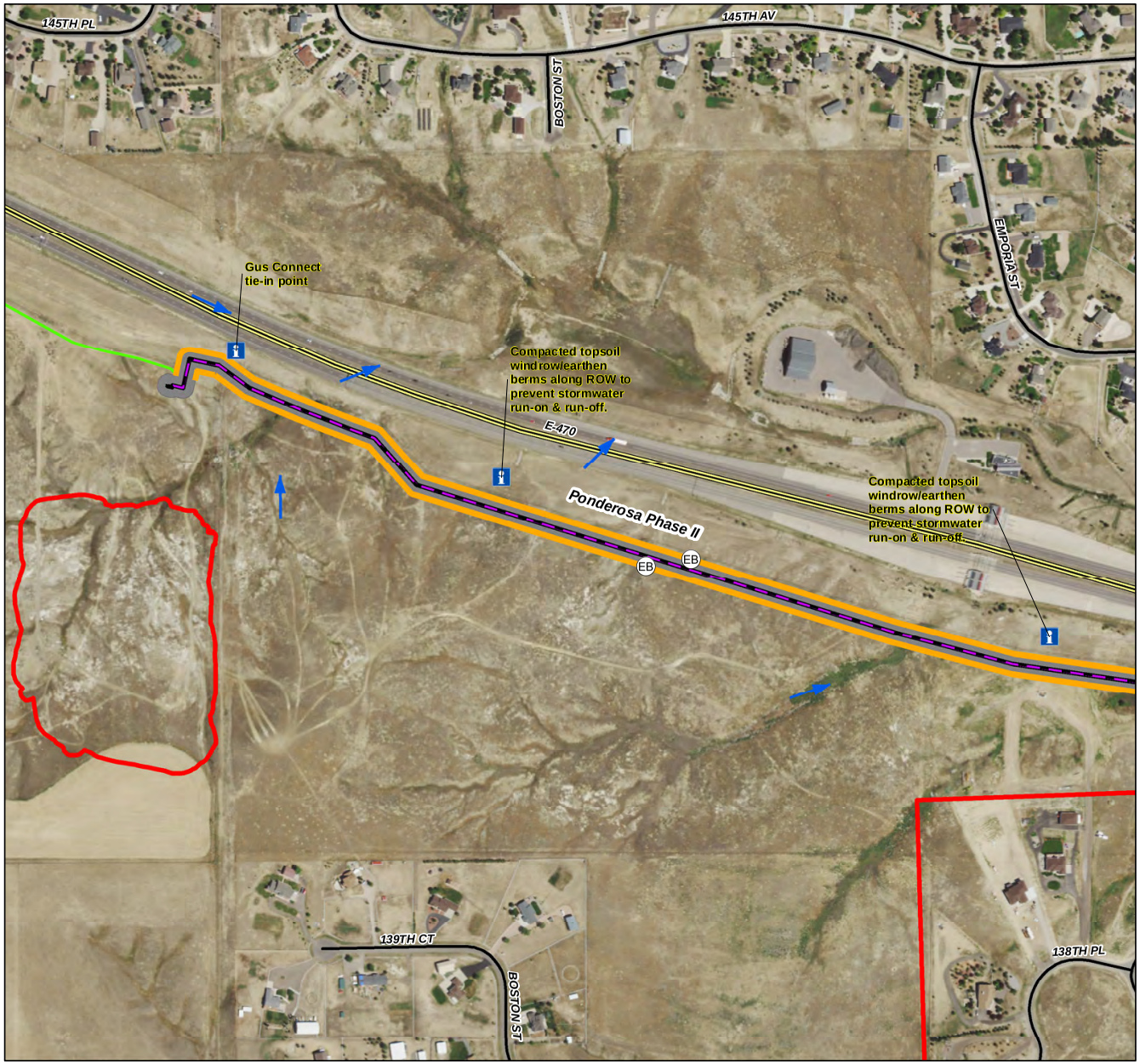
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- Information
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- Adams Local Roads

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 2

Prepared by:

N W E S

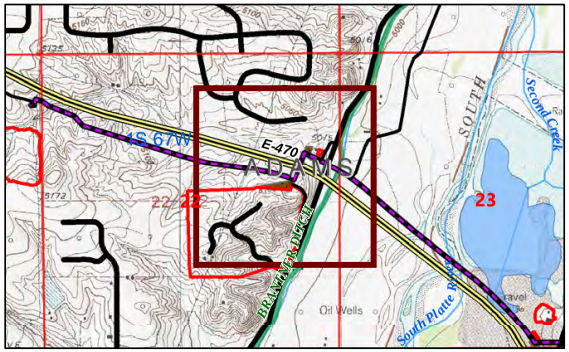
0 500 1,000
Feet

Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- CO Major Roads
- Adams Local Roads
- NHD Waterway
- Canal/Irrigation Ditch
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.



Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 3

Prepared by:

N W E S

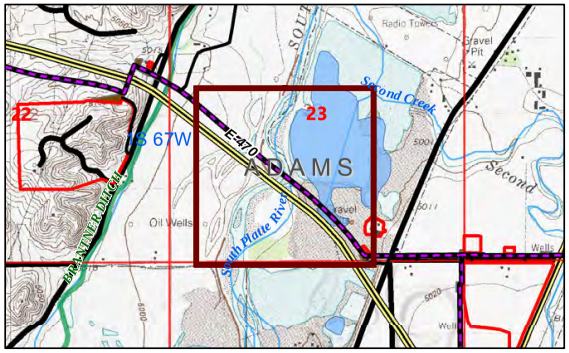
0 500 1,000
Feet

Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Freshwater Emergent Wetland
- Access Road
- Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- CO Major Roads
- Adams Local Roads
- NHD Waterway
- NHD Waterbody
- Canal/Irrigation Ditch

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.



Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 4

Prepared by:

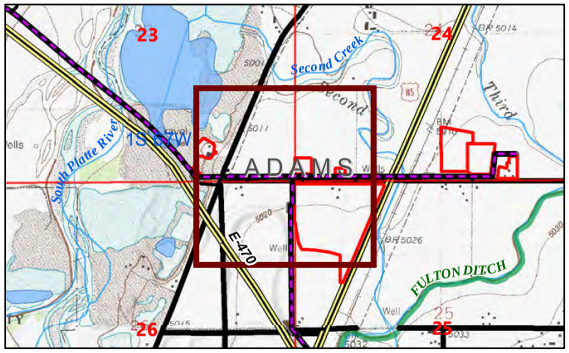
0 500 1,000
Feet

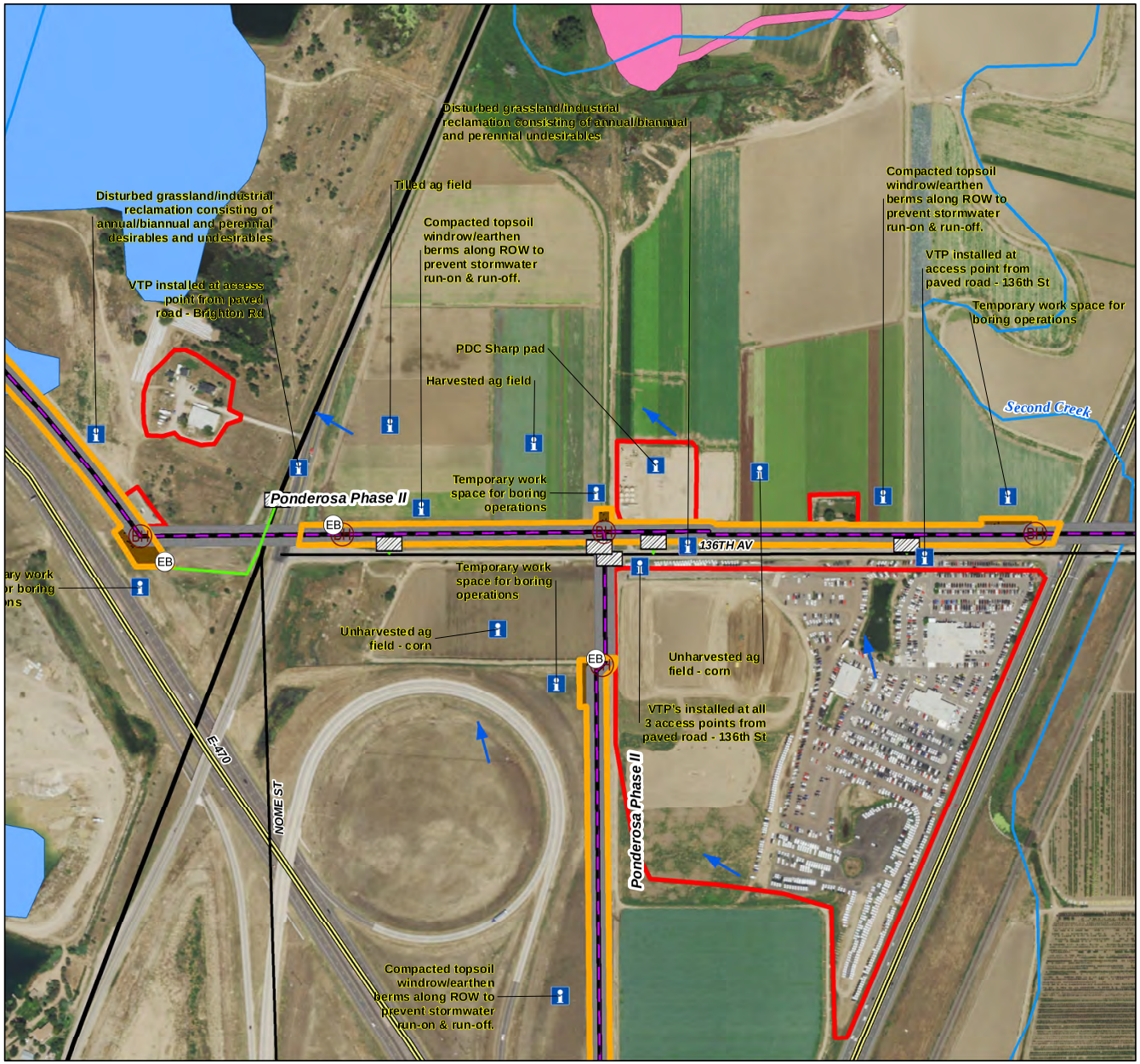
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- CO Major Roads
- Adams Local Roads
- NHD Waterway
- NHD Waterbody
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 5

Prepared by:

N
W E
S

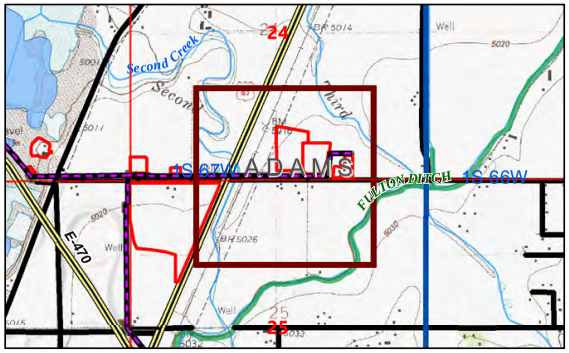
0 500 1,000
Feet

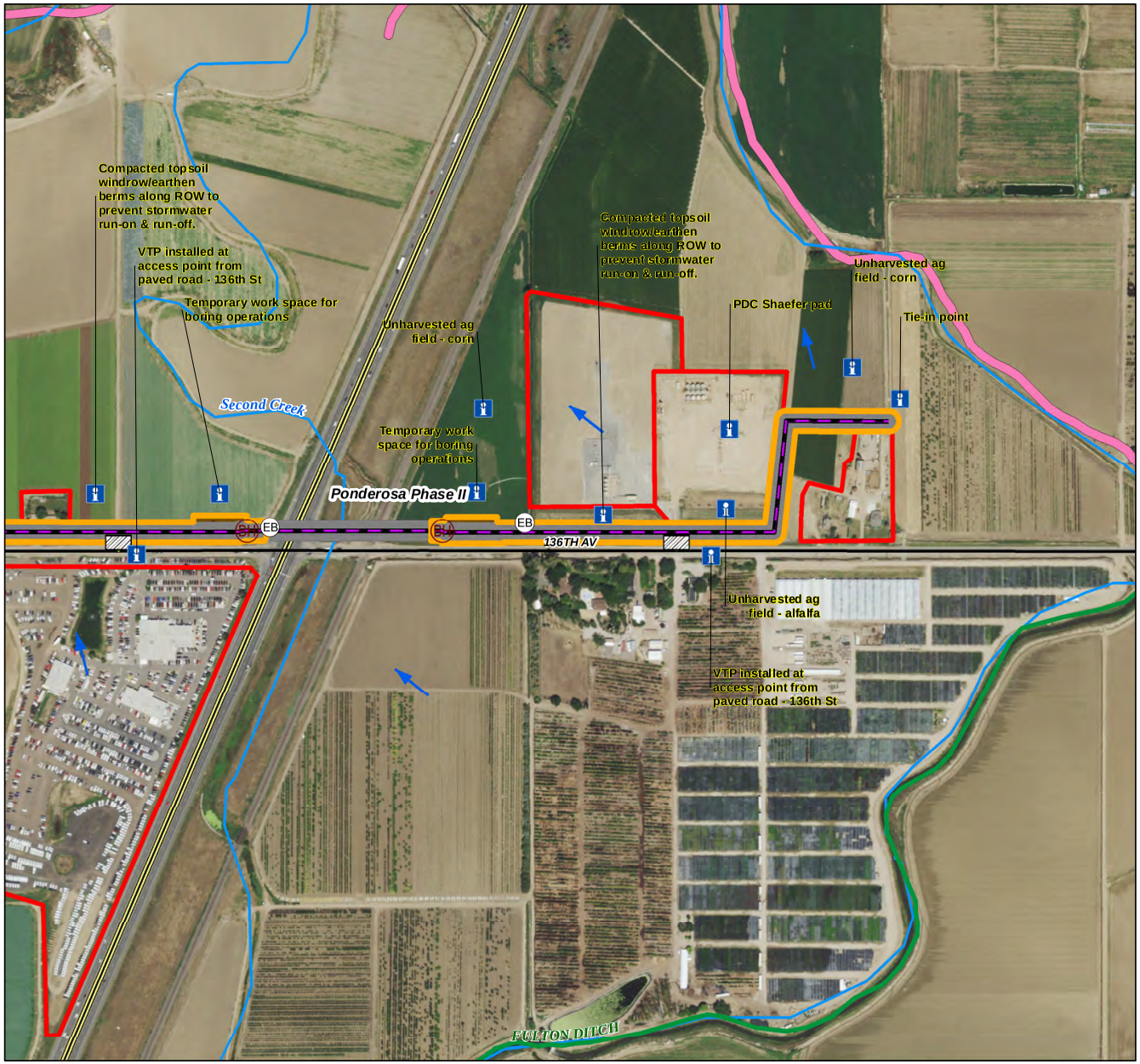
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- (BH) Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- Adams Local Roads
- NHD Waterway
- Canal/Irrigation Ditch
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 6

Prepared by:

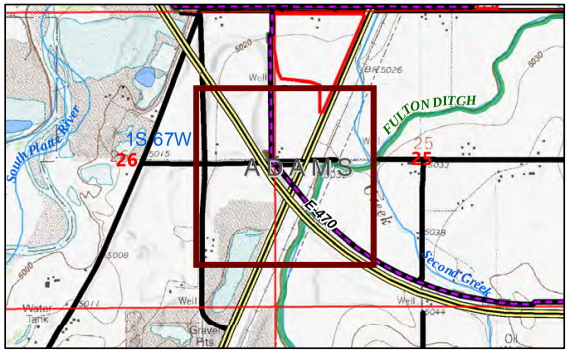
0 500 1,000
Feet

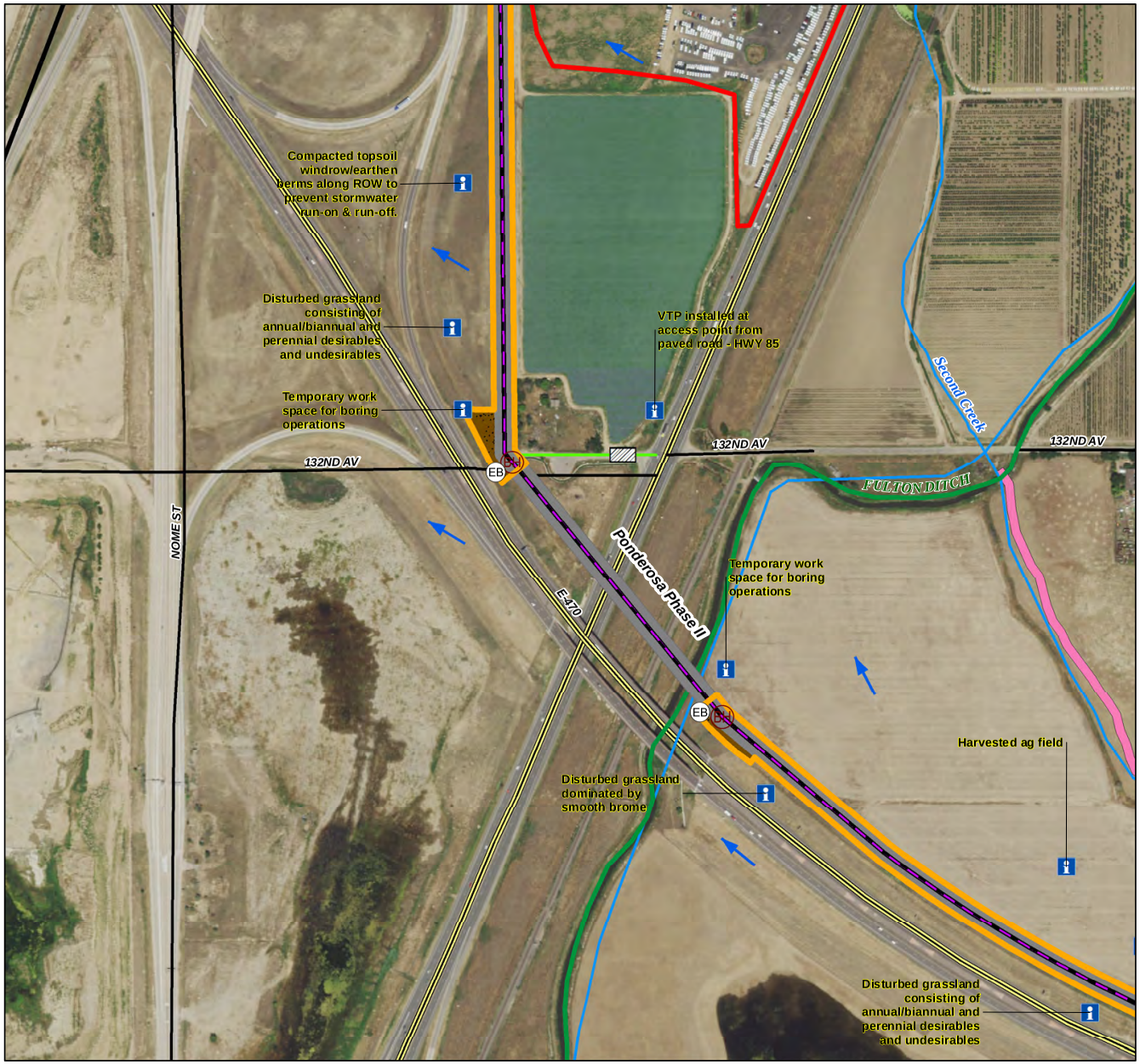
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- CO Major Roads
- Adams Local Roads
- NHD Waterway
- Canal/Irrigation Ditch
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 7

Prepared by:

N W E S

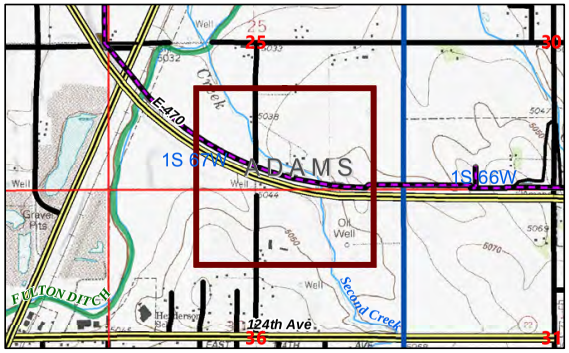
0 500 1,000
Feet

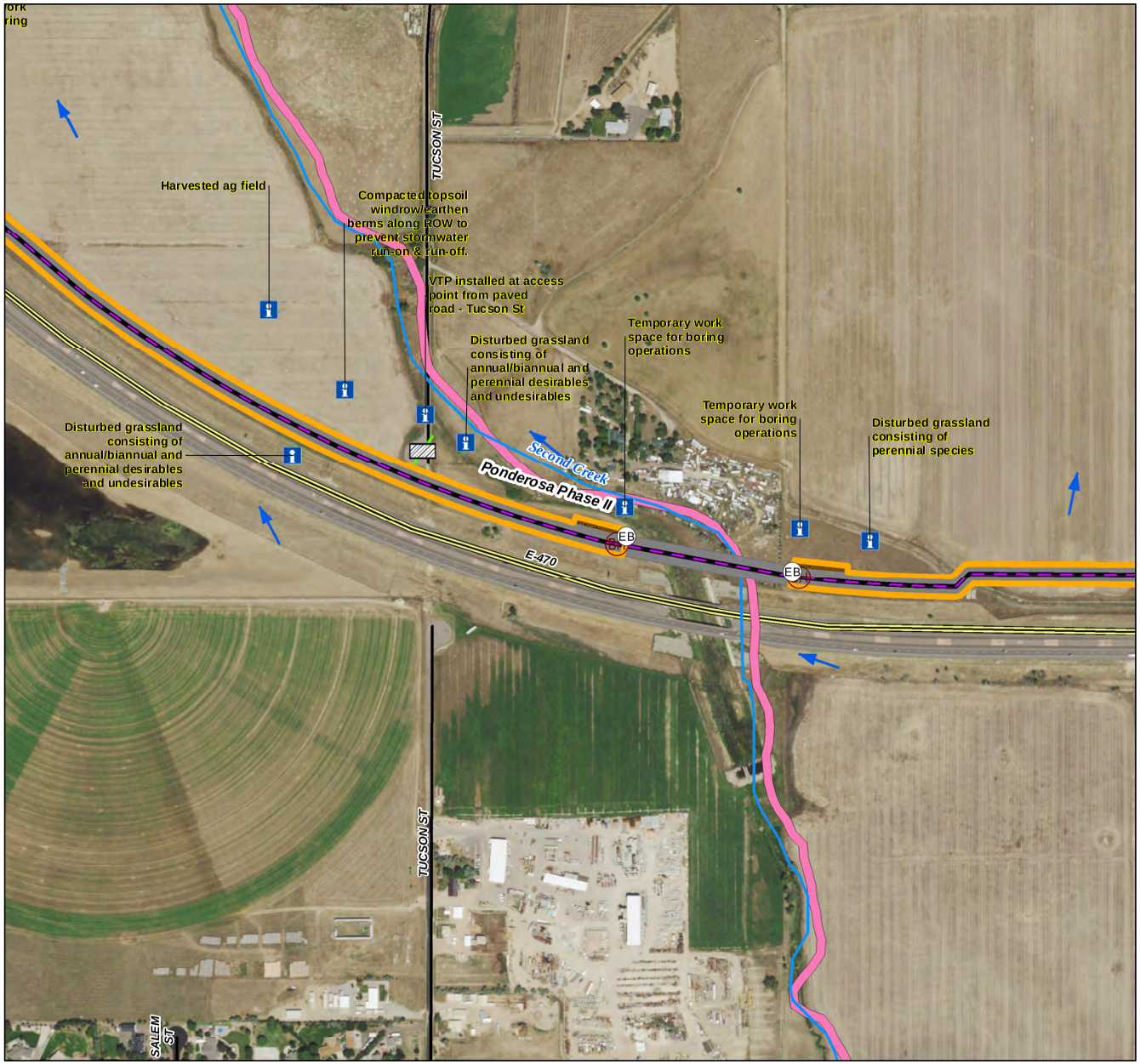
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- CO Highways
- Adams Local Roads
- NHD Waterway
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 8

Prepared by:

N W E S

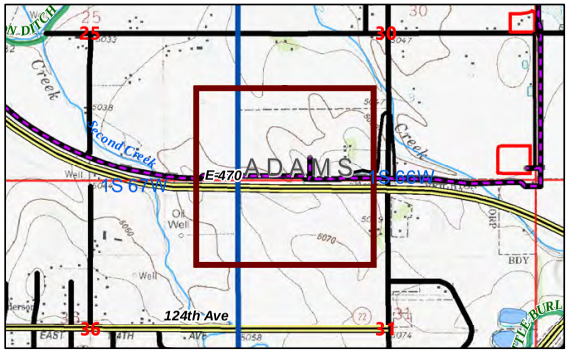
0 500 1,000
Feet

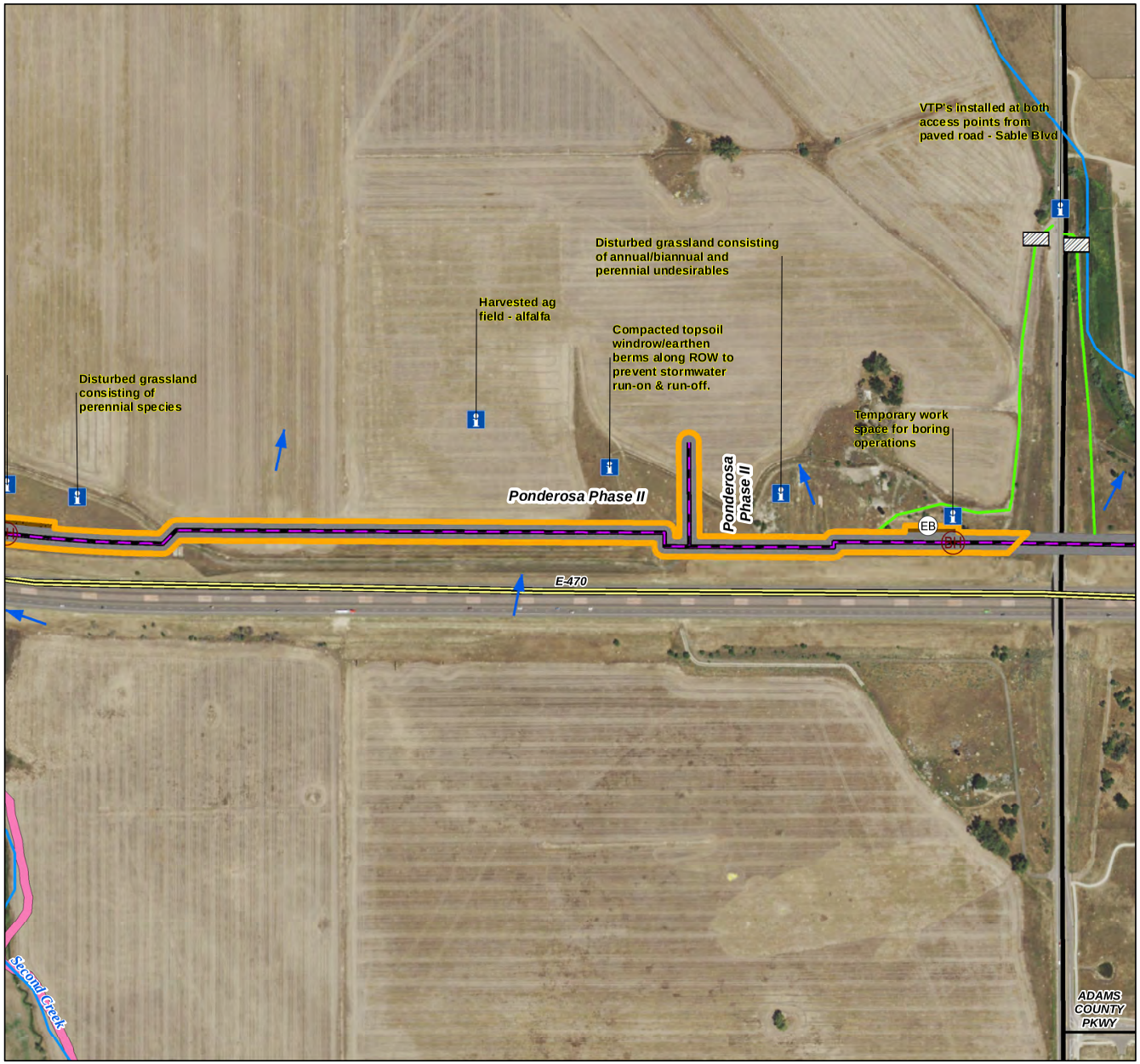
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- (BH) Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- CO Highways
- CO Major Roads
- Adams Local Roads
- NHD Waterway
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 9

Prepared by:

N W E S

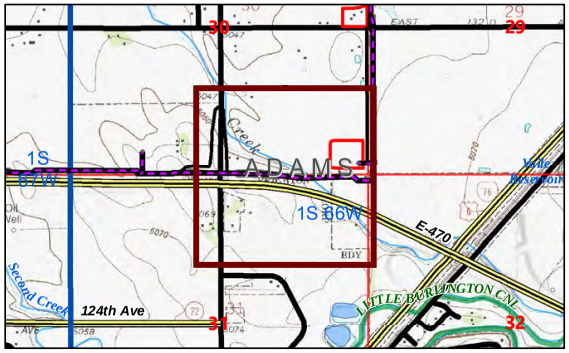
0 500 1,000
Feet

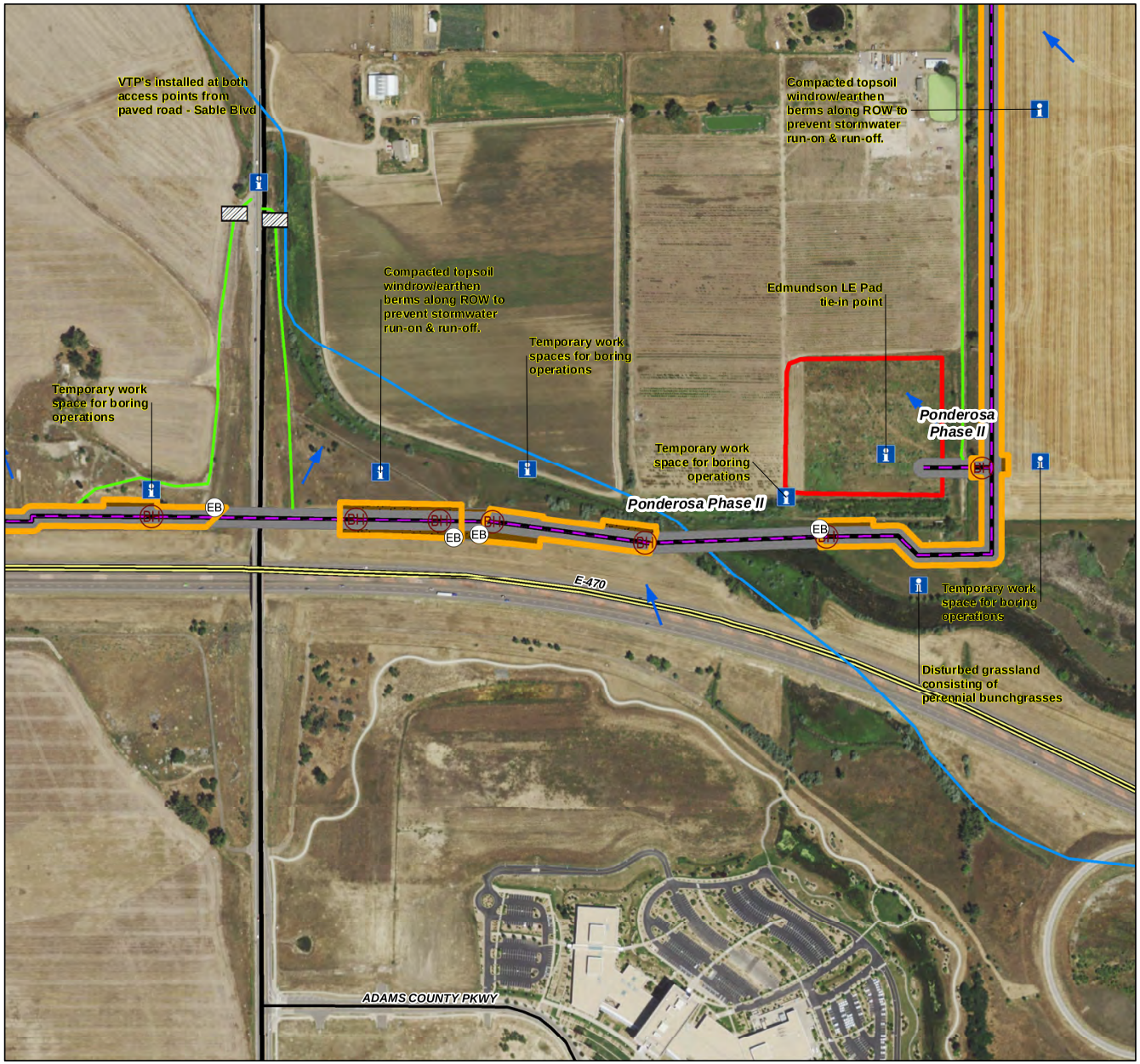
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- (BH) Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- CO Highways
- CO Major Roads
- Adams Local Roads
- NHD Waterway

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 10

Prepared by:

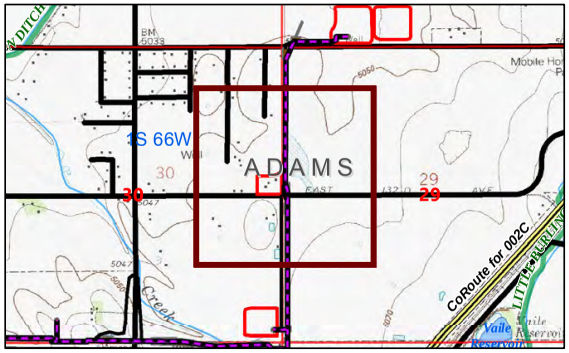
0 500 1,000
Feet

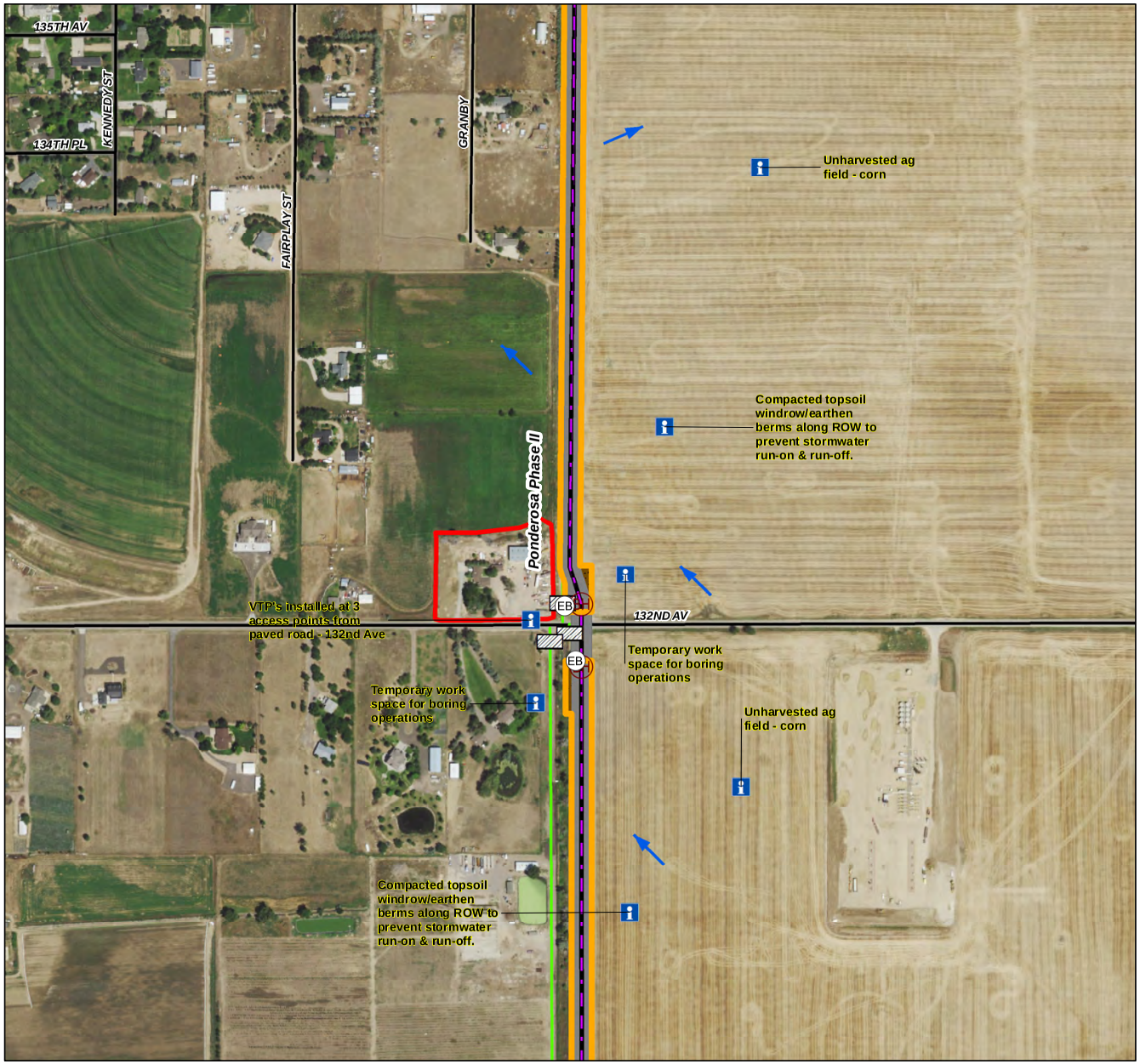
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- Adams Local Roads

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan Site Map

Ponderosa Phase II
Figure 11

Prepared by:

N W E S

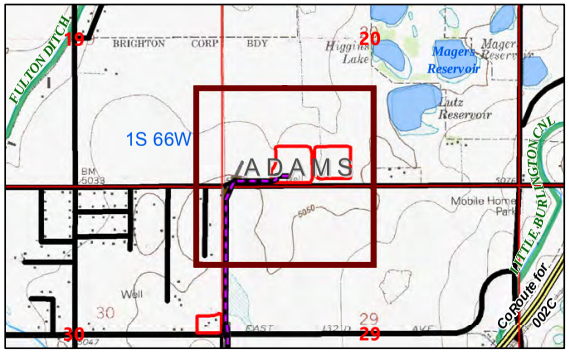
0 500 1,000
Feet

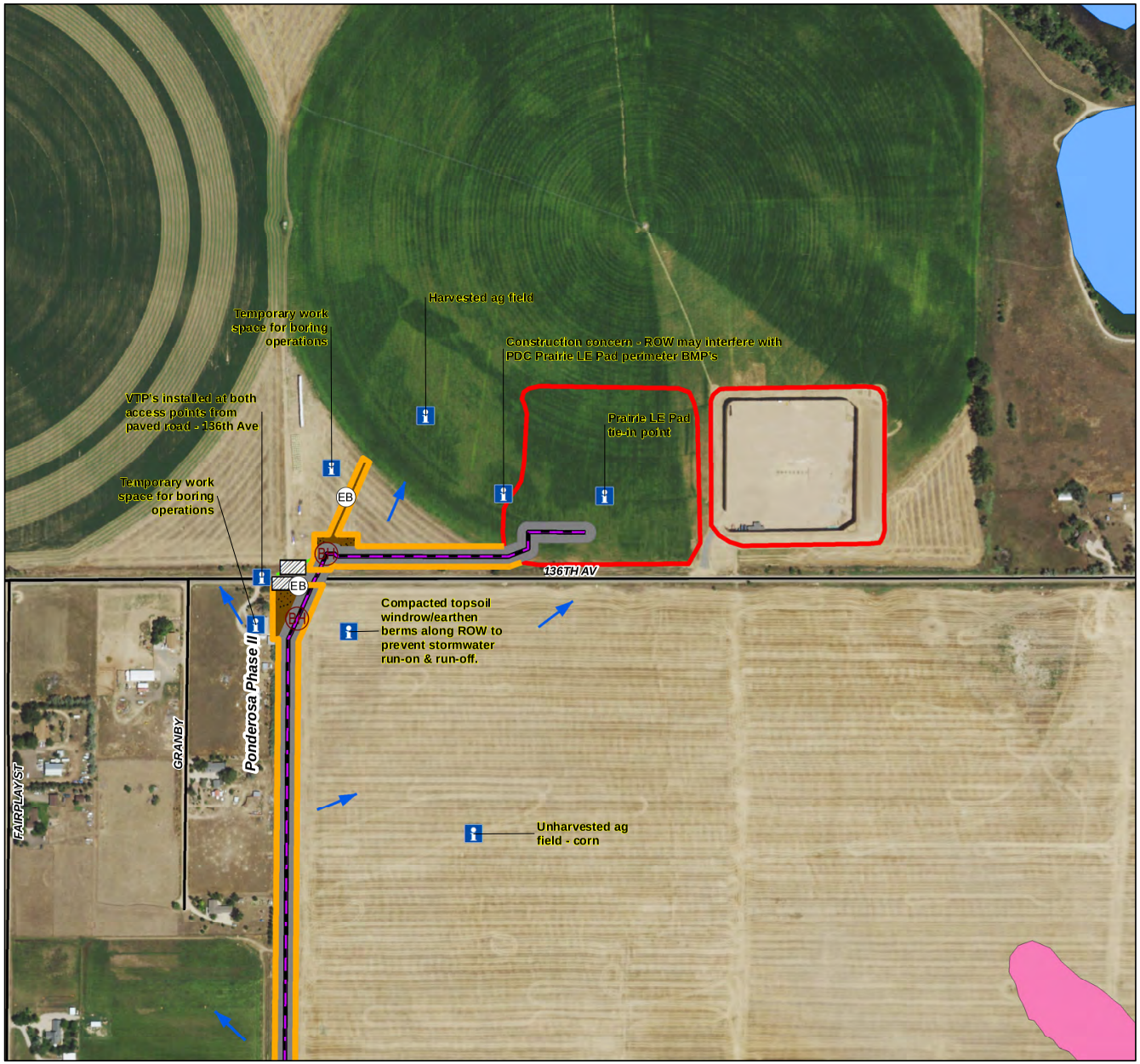
Editor: nwilson
File: Construction_PW Pipeline_V2

Scale:1:4,730
Date: 9/20/2023

- Pipeline - Proposed
- Access Road
- (BH) Bore Hole
- Information
- Vehicle Track Pad
- Earthen Berm
- Flow
- Temp ROW
- Disturbance
- Other
- Adams Local Roads
- NHD Waterbody
- Freshwater Emergent Wetland

Note: Pipeline alignment and borehole locations based on planning materials available prior to construction and may not be entirely accurate. BMPs such as wattles may be exaggerated in scale for purposes of representation.





Stormwater Management Plan
Soils Map

Ponderosa Phase II

Date: 9/21/2023

0 0.3 0.6

Miles

1:18,100

Prepared by:

- AREA OF POTENTIAL IMPACT
- Arents, earthen dam | 822615
- Dacono loam, 0 to 1 percent slopes | 94050
- Dacono loam, 1 to 3 percent slopes | 94051
- Gravel pits | 94060
- Gravelly land-Shale outcrop complex | 94052
- Loamy alluvial land | 94057
- Loamy alluvial land, gravelly substratum | 94058
- Loamy alluvial land, moderately wet | 94059
- Nunn clay loam, 1 to 3 percent slopes | 94064
- Platner loam, 0 to 3 percent slopes | 94065
- Renohill loam, 3 to 9 percent slopes | 94068
- Samsil-Shingle complex, 3 to 35 percent slopes | 94071
- Sandy alluvial land | 94072
- Terrace escarpments | 94078
- Ulm loam, 3 to 5 percent slopes | 94089
- Ulm loam, 5 to 9 percent slopes | 94090
- Water | 816537
- Wet alluvial land | 94101

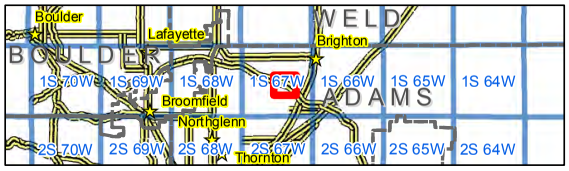
- Access Road
- CO Highways
- CO Major Roads
- NHD Waterway
- NHD Waterbody

K Factor Value Groupings (Approximate):

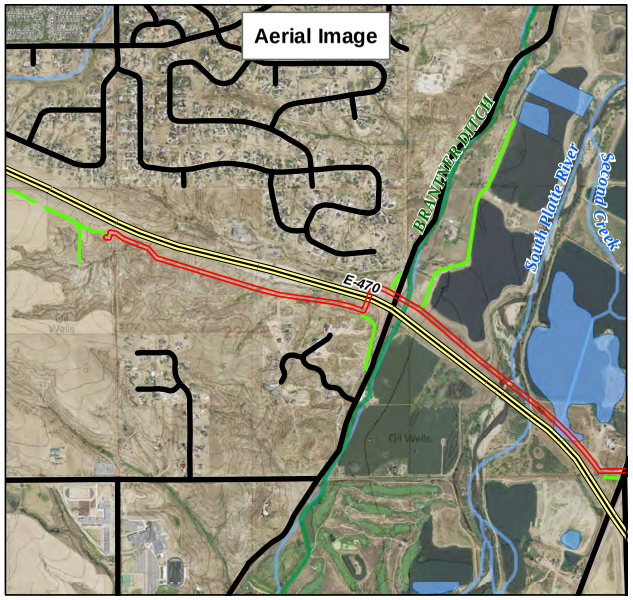
Low susceptibility to erosion/runoff: ≤ 0.2

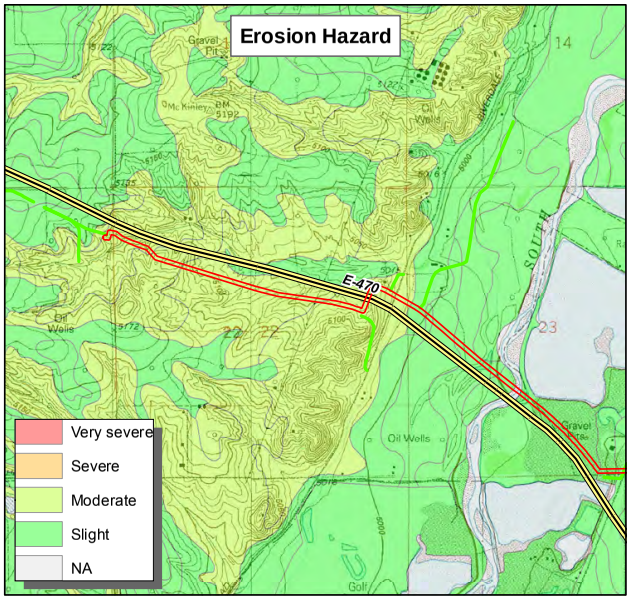
Moderate susceptibility to erosion/runoff: > 0.2 - 0.4

High susceptibility to erosion/runoff: > 0.4

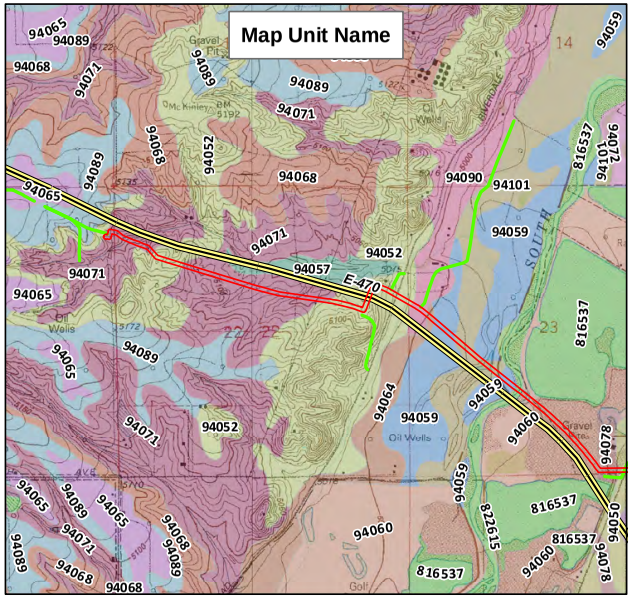


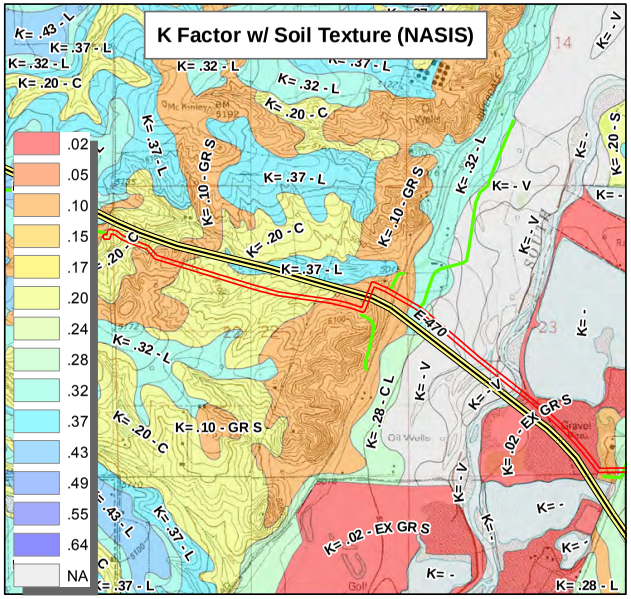
Document Name: Soils_PW Pipeline_1 User Name: nwilson





All data is from the NRCS soil surveys and is useful for overview purposes only. Onsite verifications are required to confirm accuracy when used for planning.





Stormwater Management Plan
Soils Map
Ponderosa Phase II

Date: 9/21/2023

0 0.3 0.6

Miles

1:18,100

Prepared by:

AREA OF POTENTIAL IMPACT

- Arents, earthen dam | 822615
- Blakeland loamy sand, 3 to 9 percent slopes | 94047
- Dacono loam, 0 to 1 percent slopes | 94050
- Dacono loam, 1 to 3 percent slopes | 94051
- Gravel pits | 94060
- Gravelly land-Shale outcrop complex | 94052
- Loamy alluvial land, gravelly substratum | 94058
- Loamy alluvial land, moderately wet | 94059
- Nunn clay loam, 0 to 1 percent slopes | 94063
- Nunn clay loam, 1 to 3 percent slopes | 94064
- Nunn loam, 0 to 1 percent slopes | 94061
- Nunn loam, 1 to 3 percent slopes | 94062
- Sandy alluvial land | 94072
- Satanta loam, 0 to 1 percent slopes | 94073
- Satanta loam, 1 to 3 percent slopes | 94074
- Terrace escarpments | 94078
- Truckton loamy sand, 0 to 3 percent slopes | 94083
- Truckton sandy loam, 1 to 3 percent slopes | 94085
- Truckton sandy loam, 3 to 5 percent slopes | 94086
- Ulm loam, 5 to 9 percent slopes | 94090
- Vona sandy loam, 0 to 1 percent slopes | 94094
- Vona sandy loam, 3 to 5 percent slopes | 94096
- Water | 816537
- Wet alluvial land | 94101

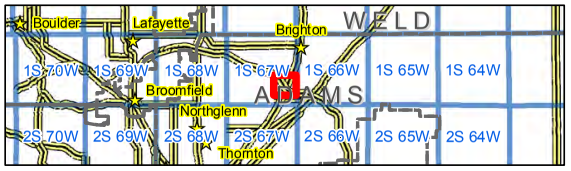
- Access Road
- CO Highways
- CO Major Roads
- NHD Waterway
- NHD Waterbody

K Factor Value Groupings (Approximate):

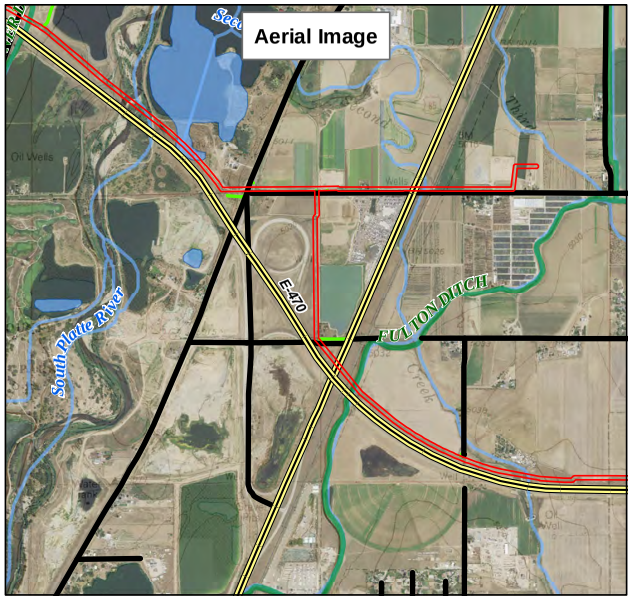
Low susceptibility to erosion/runoff: ≤ 0.2

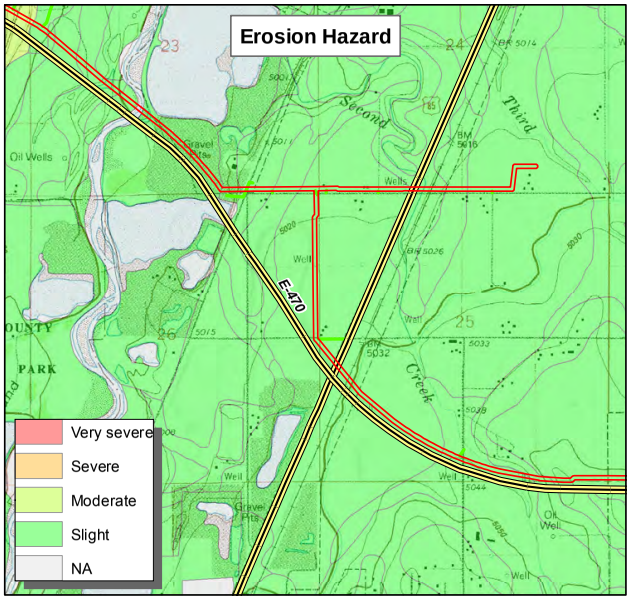
Moderate susceptibility to erosion/runoff: > 0.2 - 0.4

High susceptibility to erosion/runoff: > 0.4

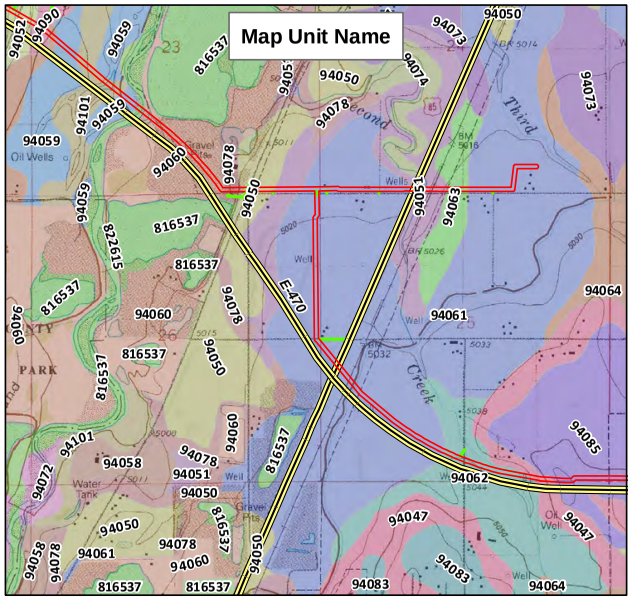


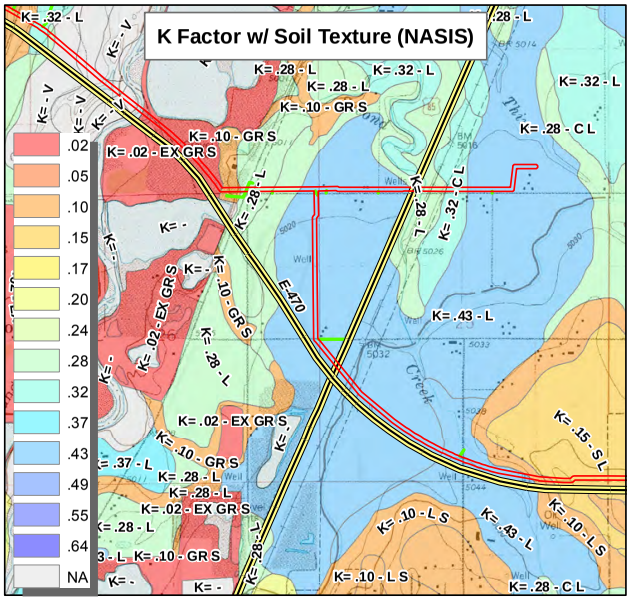
Document Name: Soils_PW Pipeline_1 User Name: nwilson





All data is from the NRCS soil surveys and is useful for overview purposes only. Onsite verifications are required to confirm accuracy when used for planning.





Stormwater Management Plan
Soils Map
Ponderosa Phase II

Date: 9/21/2023

0 0.3 0.6

Miles

1:18,100

Prepared by:

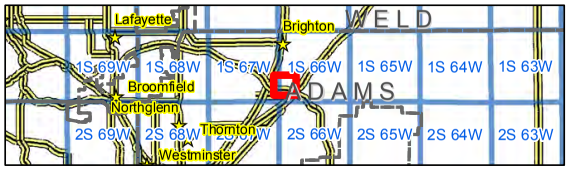
AREA OF POTENTIAL IMPACT

- Ascalon loamy sand, 0 to 3 percent slopes | 94040
- Ascalon sandy loam, 0 to 3 percent slopes | 94042
- Ascalon sandy loam, 3 to 5 percent slopes | 94043
- Blakeland loamy sand, 3 to 9 percent slopes | 94047
- Dacono loam, 1 to 3 percent slopes | 94051
- Intermittent water | 822617
- Loamy alluvial land, moderately wet | 94059
- Nunn clay loam, 0 to 1 percent slopes | 94063
- Nunn clay loam, 1 to 3 percent slopes | 94064
- Nunn loam, 0 to 1 percent slopes | 94061
- Nunn loam, 1 to 3 percent slopes | 94062
- Satanta loam, 0 to 1 percent slopes | 94073
- Truckton loamy sand, 0 to 3 percent slopes | 94083
- Truckton loamy sand, 3 to 9 percent slopes | 94084
- Truckton sandy loam, 1 to 3 percent slopes | 94085
- Truckton sandy loam, 3 to 5 percent slopes | 94086
- Vona loamy sand, 3 to 9 percent slopes | 94091
- Vona sandy loam, 1 to 3 percent slopes | 94095
- Vona sandy loam, 3 to 5 percent slopes | 94096
- Water | 816537
- Wet alluvial land | 94101

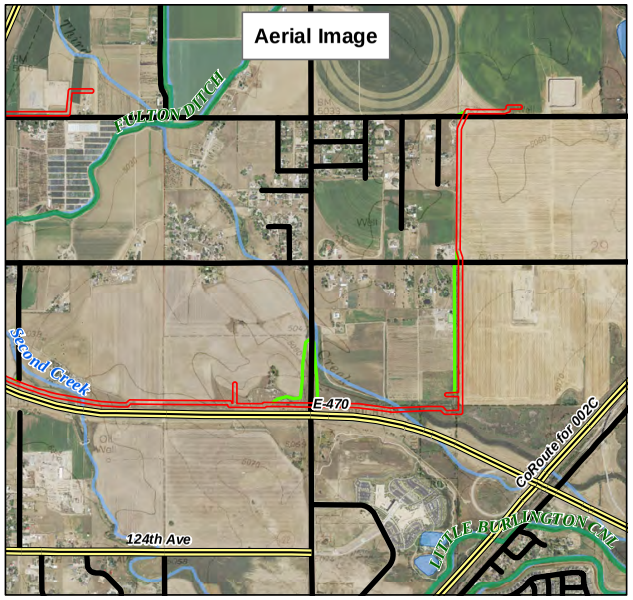
- Access Road
- CO Highways
- CO Major Roads
- NHD Waterway
- NHD Waterbody

K Factor Value Groupings (Approximate):

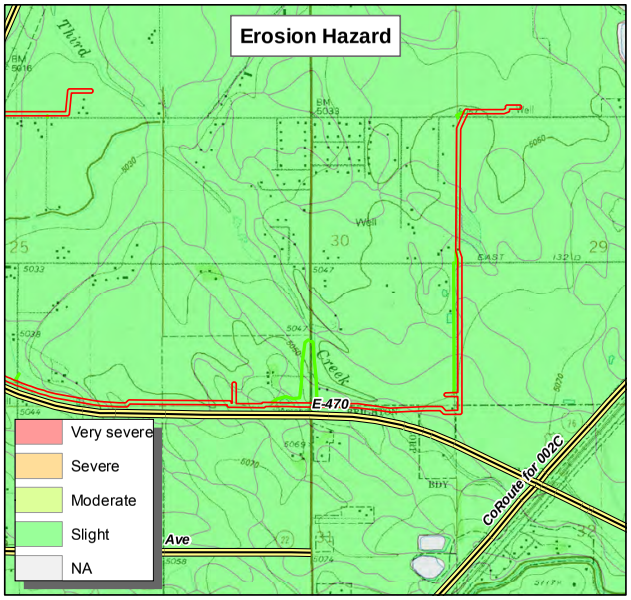
Low susceptibility to erosion/runoff: ≤ 0.2
Moderate susceptibility to erosion/runoff: > 0.2 - 0.4
High susceptibility to erosion/runoff: > 0.4

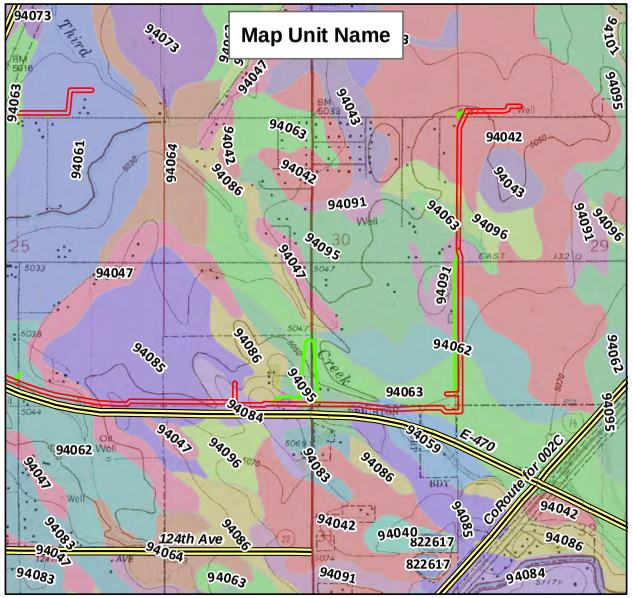


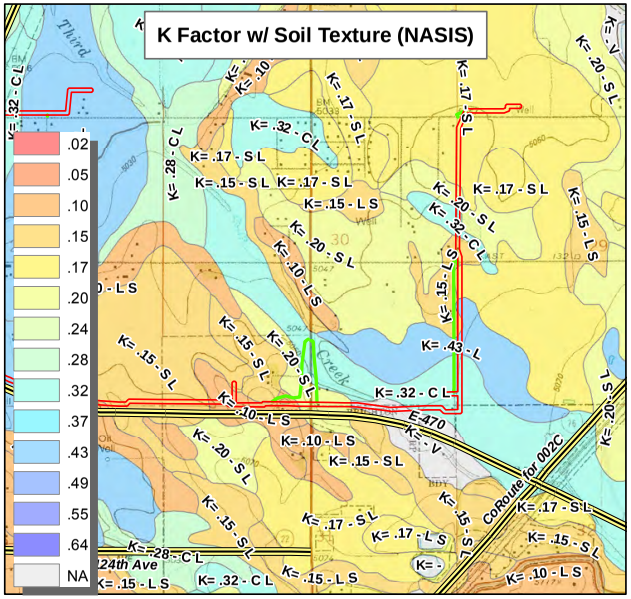
Document Name: Soils_PW Pipeline_1 User Name: nwilson

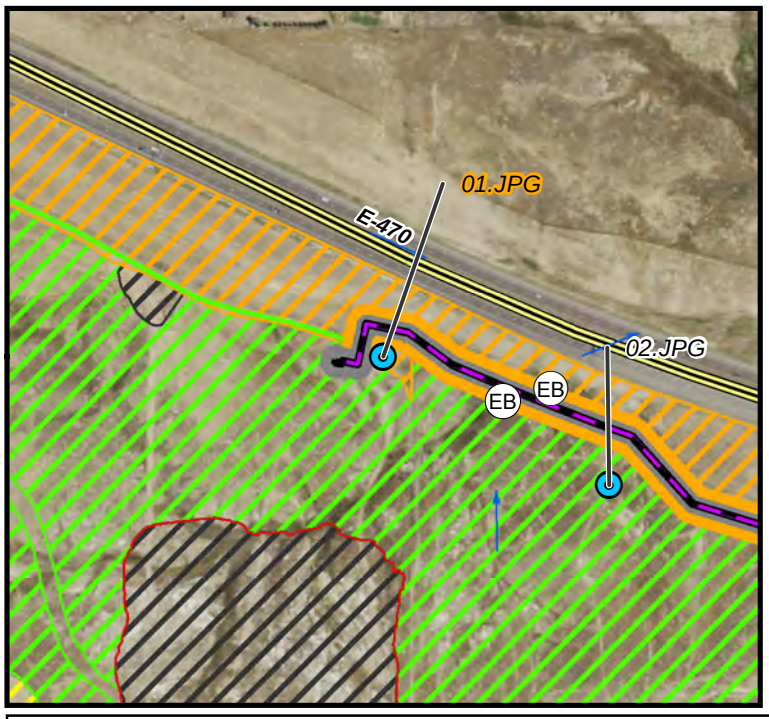


All data is from the NRCS soil surveys and is useful for overview purposes only. Onsite verifications are required to confirm accuracy when used for planning.









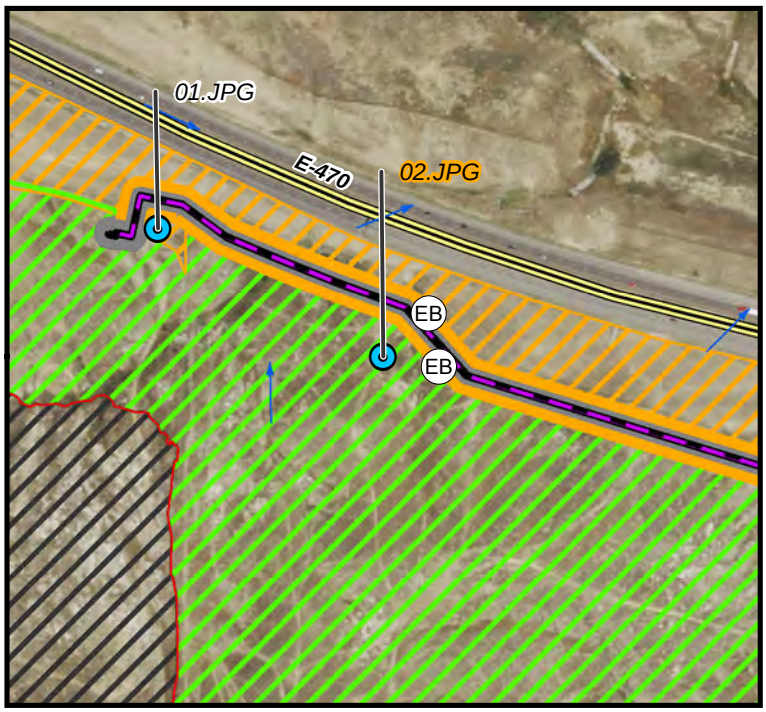
Stormwater Management Plan Map

01.JPG Ponderosa Phase II

D_WGS_1984: 39.955280 -104.884600

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Cropland
- Disturbed Grassland
- Industrial
- Grassland
- CO Highways

Photo taken facing W towards the pigging station at the westernmost tie-in point near the existing Gus Connect line.



Stormwater Management Plan Map

02.JPG Ponderosa Phase II

D_WGS_1984: 39.954360 -104.882500

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Disturbed Grassland
- Industrial
- Grassland
- CO Highways

Photo taken facing W across the proposed ROW towards the tie-in point near the existing Gus connect line. Identifiable vegetation found in the photo includes Japanese brome, kochia, smooth brome and perennial rye grass.

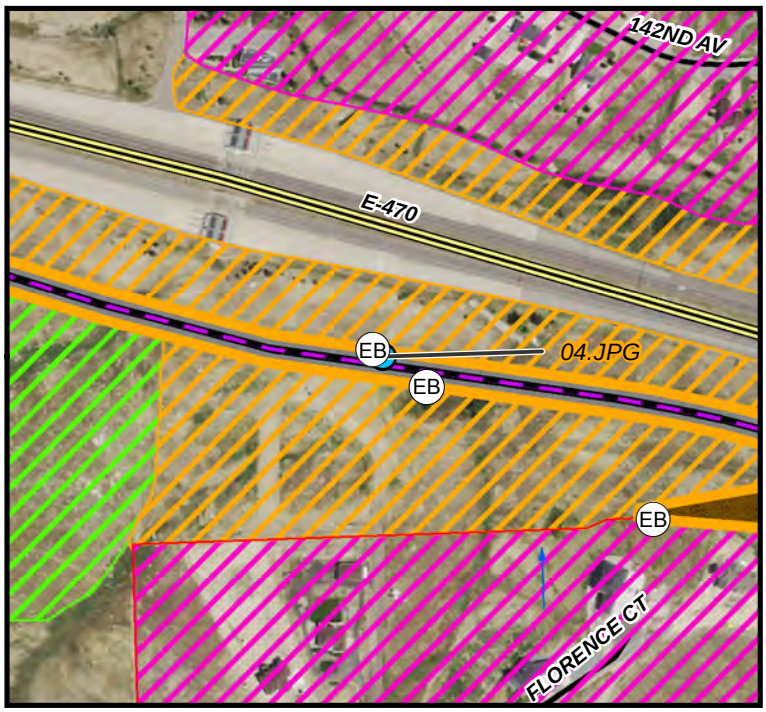
Stormwater Management Plan Map

03.JPG Ponderosa Phase II

D_WGS_1984: 39.953400 -104.878200

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Other
- Residential
- Disturbed Grassland
- Grassland
- CO Highways

Photo taken facing E across the proposed ROW ~0.36-mile E of the pigging station to the W. Identifiable vegetation found in the photo includes Japanese brome, kochia, smooth brome and perennial rye grass.



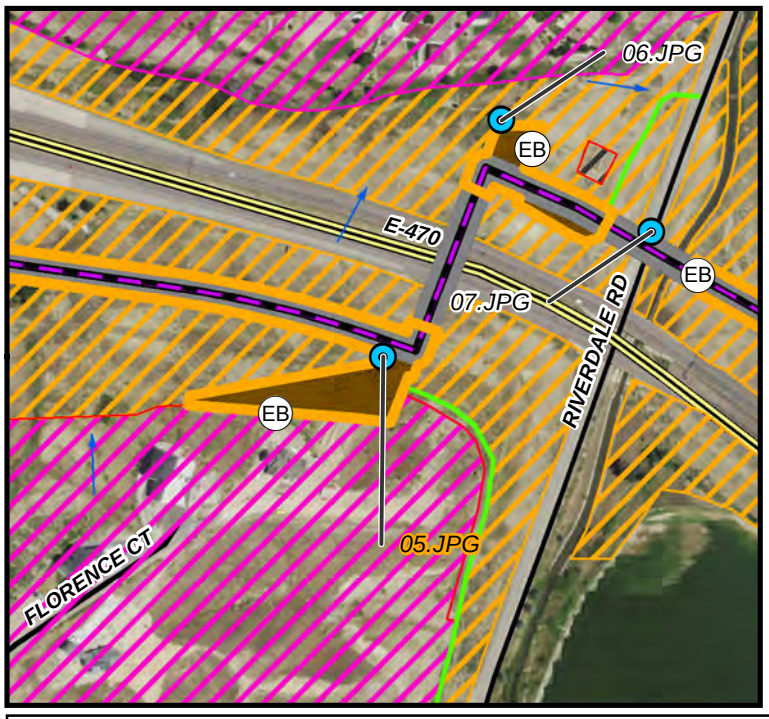
Stormwater Management Plan Map

04.JPG Ponderosa Phase II

D_WGS_1984: 39.952330 -104.872700

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Other
- Residential
- Disturbed Grassland
- Grassland
- CO Highways
- Adams Local Roads

Photo taken facing E across the proposed ROW towards the E-470 bore location. Identifiable vegetation found in this photo includes Japanese brome, kochia, smooth brome and perennial rye grass.



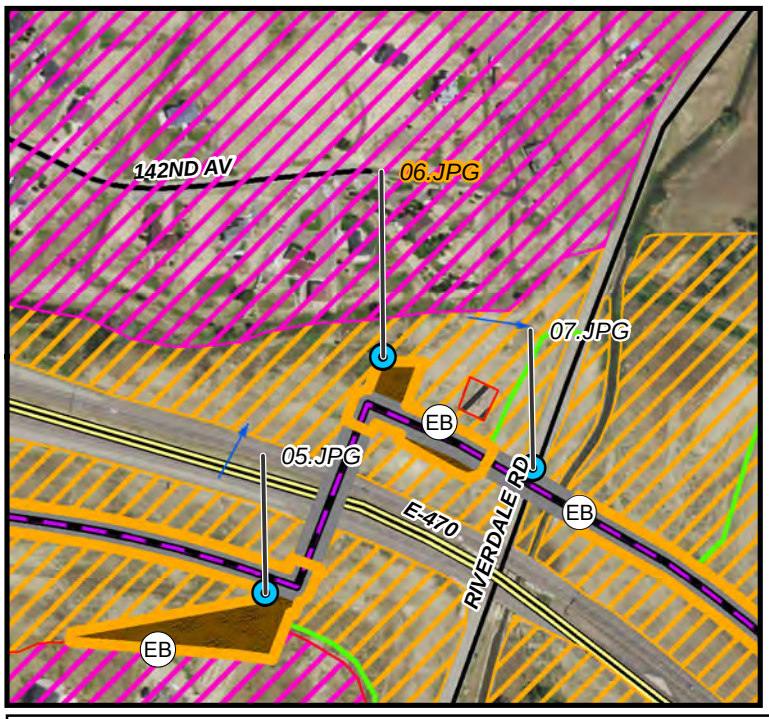
Stormwater Management Plan Map

05.JPG Ponderosa Phase II

D_WGS_1984: 39.951520 -104.868600

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Disturbed Grassland
- Industrial
- CO Highways
- CO Major Roads
- Adams Local Roads

Photo taken facing N across the proposed ROW where the line will shift north and bore underneath E-470 and re-enter on the N side of the highway. Photo is taken on the future staging yard for boring operations.



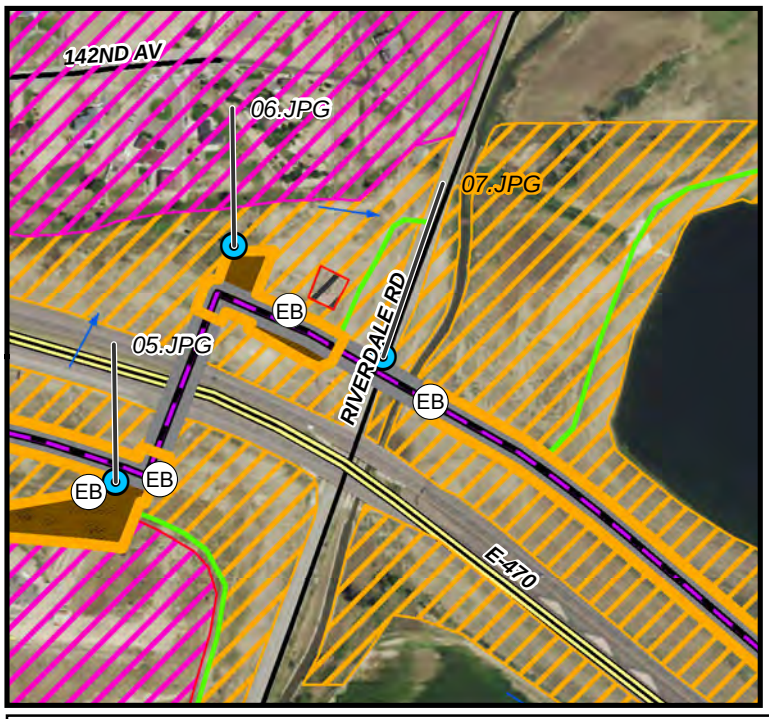
Stormwater Management Plan Map

06.JPG Ponderosa Phase II

D_WGS_1984: 39.953210 -104.867500

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Disturbed Grassland
- Industrial
- CO Highways
- CO Major Roads
- Adams Local Roads

Photo taken facing across the proposed ROW on the N side of E-470 on top of an expected bore staging yard. Identifiable vegetation found in the photo includes kochia, Russian thistle, curly dock, field bindweed and big bract verbena.



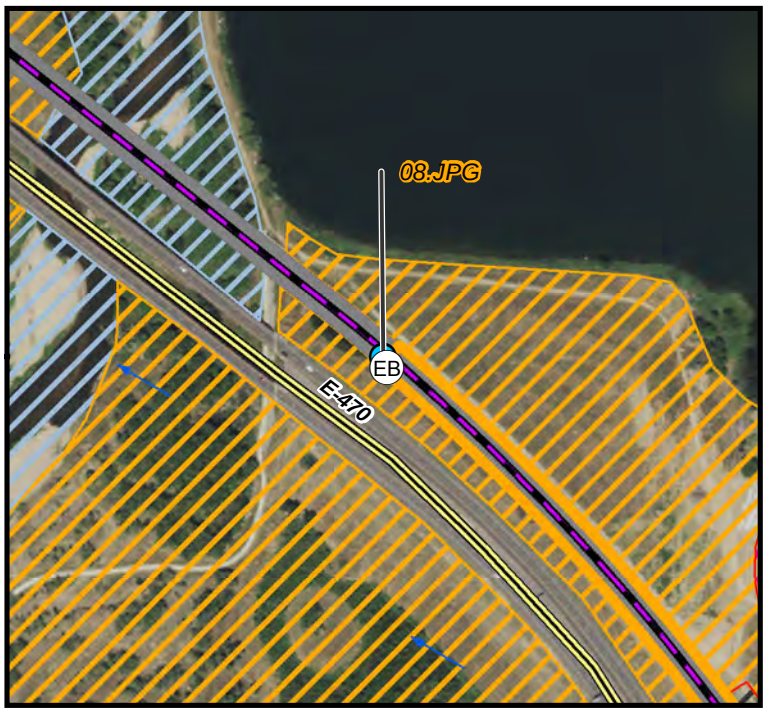
Stormwater Management Plan Map

07.JPG Ponderosa Phase II

D_WGS_1984: 39.952410 -104.866100

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Disturbed Grassland
- Industrial
- CO Highways
- CO Major Roads
- Adams Local Roads

Photo taken facing E across the proposed ROW on the E side of Riverdale Road towards Brantner Ditch where the line will bore underneath and reemerge on the E side of the South Platte River.



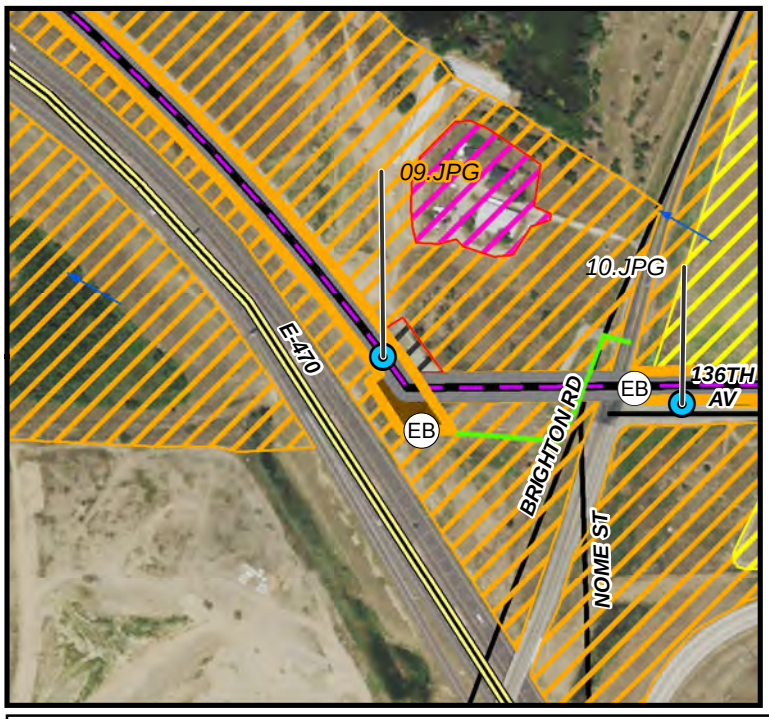
Stormwater Management Plan Map

08.JPG Ponderosa Phase II

D_WGS_1984: 39.946360 -104.856400

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Other
- Residential
- Disturbed Grassland
- Industrial
- Riparian
- CO Highways

Photo taken facing SE across the proposed ROW on the E side of the South Platte River where the line will reemerge from the bore and continue eastward. Dominant vegetation found in the photo includes kochia and Russian thistle.



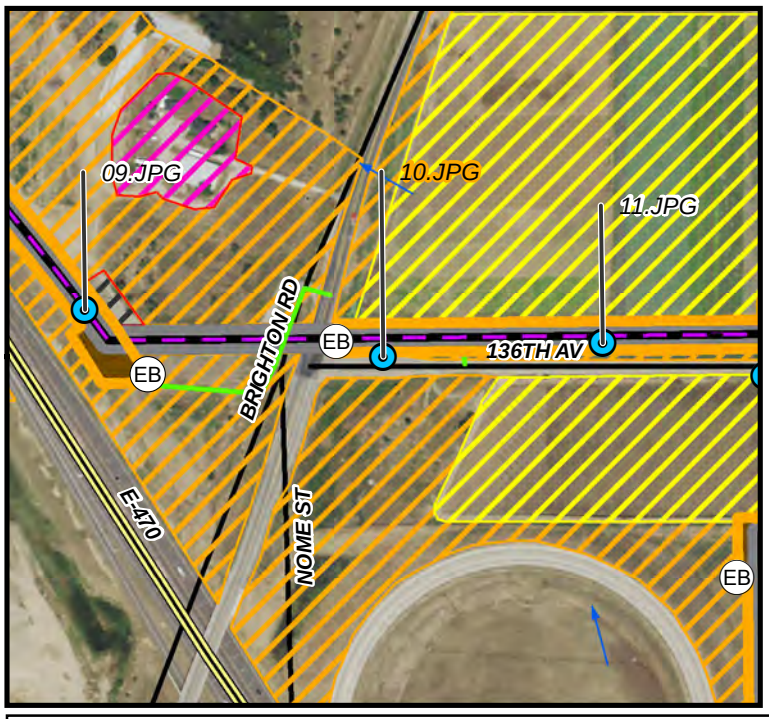
Stormwater Management Plan Map

09.JPG Ponderosa Phase II

D_WGS_1984: 39.943760 -104.853200

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- CO Major Roads
- Adams Local Roads

Photo taken facing E across the proposed ROW where the line will shift eastward and bore underneath and reemerge on the other side of Brighton Road. The photo was taken on top of another proposed bore staging yard.



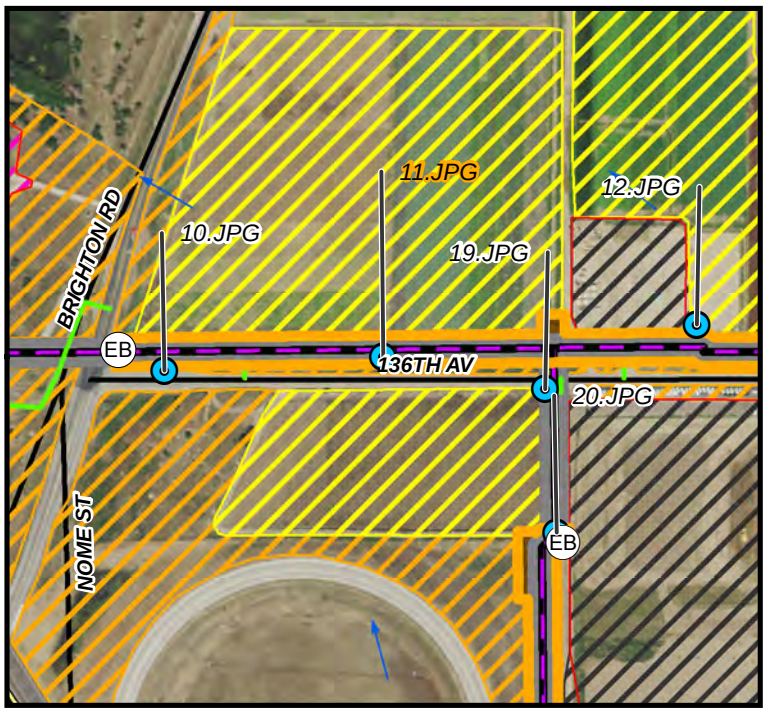
Stormwater Management Plan Map

10.JPG Ponderosa Phase II

D_WGS_1984: 39.943420 -104.850400

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- CO Major Roads
- Adams Local Roads

Photo taken facing E across the proposed ROW on the E side of Brighton Road where the line will continue eastward. The line will continue through this currently harvested agriculture field.



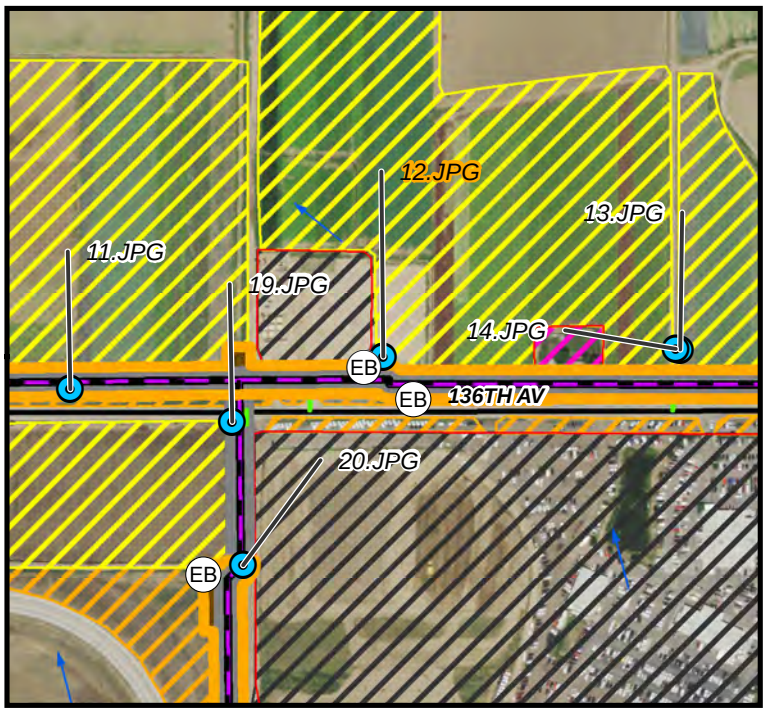
Stormwater Management Plan Map

11.JPG Ponderosa Phase II

D_WGS_1984: 39.943510 -104.848400

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- CO Major Roads
- Adams Local Roads

Photo taken facing E across the proposed ROW where the line will enter a different agriculture field. This agriculture field was recently harvested during the preconstruction inspection.



Stormwater Management Plan Map

12.JPG Ponderosa Phase II

D_WGS_1984: 39.943740 -104.845500

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing W across the proposed ROW back towards the access road to the PDC Sharp pad where the line will continue eastward and move through a portion of disturbed grassland. Identifiable vegetation found in the photo includes curly dock, kochia, prostrate knotweed and field bindweed.

Stormwater Management Plan Map

13.JPG Ponderosa Phase II

D_WGS_1984: 39.943790 -104.842700

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- Adams Local Roads

Photo taken facing W across the proposed ROW towards the PDC sharp pad. The line will shift from the disturbed grassland to the W and enter an agricultural field and continue eastward. Sugar beets were currently being grown in the agricultural field during the preconstruction inspection.

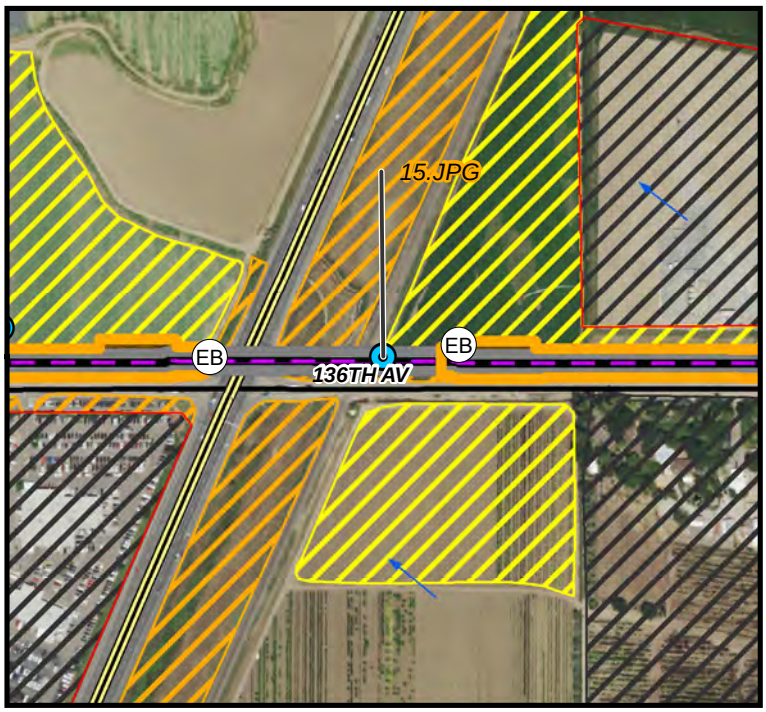
Stormwater Management Plan Map

14.JPG Ponderosa Phase II

D_WGS_1984: 39.943790 -104.842800

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- Adams Local Roads

Photo taken facing E across the proposed ROW towards Highway 85 within the sugar beets agricultural field. The line will bore underneath and reemerge on the E side of Highway 85.



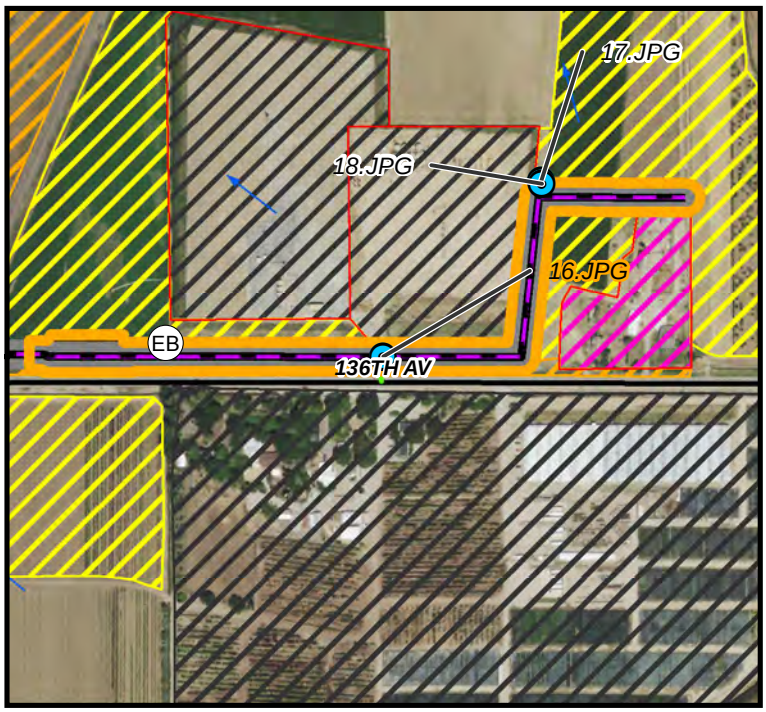
Stormwater Management Plan Map

15.JPG Ponderosa Phase II

D_WGS_1984: 39.943580 -104.839200

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Other
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- Adams Local Roads

Photo taken facing E along the proposed ROW towards an unharvest corn field on the E side of Highway 85 where the bore will reemerge.



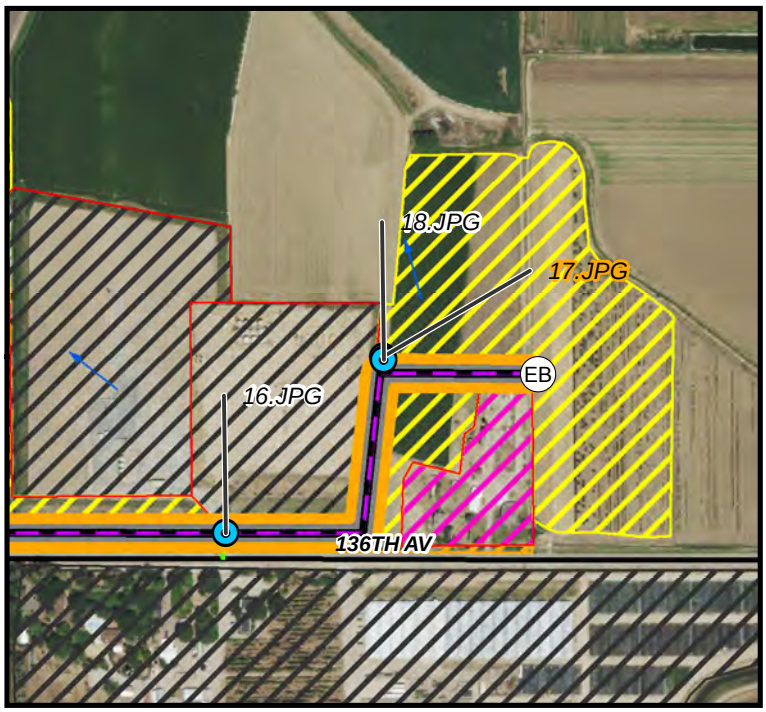
Stormwater Management Plan Map

16.JPG Ponderosa Phase II

D_WGS_1984: 39.943520 -104.835400

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing E along the proposed ROW towards the PDC Schaefer pad across an unharvested alfalfa field.



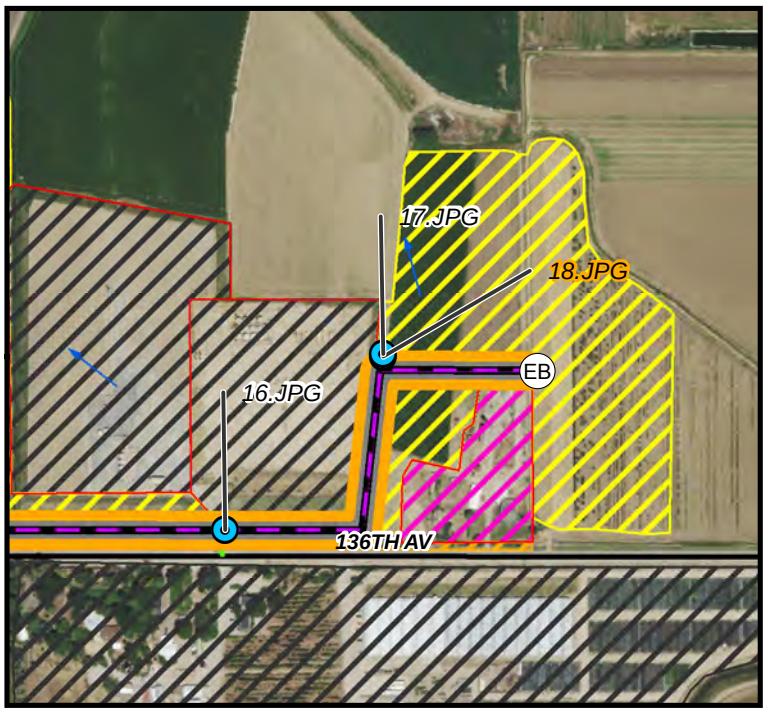
Stormwater Management Plan Map

17.JPG Ponderosa Phase II

D_WGS_1984: 39.944780 -104.833900

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing S along the proposed ROW where the line will shift to the N and continue eastward through another agriculture field.



Stormwater Management Plan Map

18.JPG Ponderosa Phase II

D_WGS_1984: 39.944760 -104.833900

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing E along the proposed ROW towards an unharvested corn field where this portion of the line will then terminate on the E side of the agriculture field.

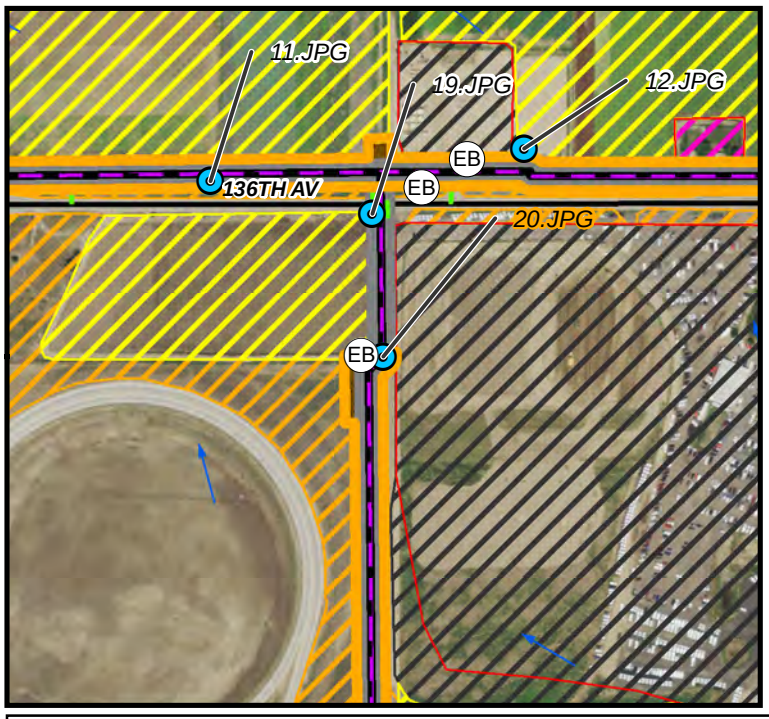
Stormwater Management Plan Map

19.JPG Ponderosa Phase II

D_WGS_1984: 39.943280 -104.846900

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Major Roads
- Adams Local Roads

Photo taken facing S along the proposed ROW just S of 136th Ave where the line will bore underneath the road and agriculture field found in the photo and reemerge on the other side and continue southward.



Stormwater Management Plan Map

20.JPG Ponderosa Phase II

D_WGS_1984: 39.942250 -104.846800

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing S along the proposed ROW on another expected bore staging yard across a disturbed grassland where the line will continue southward.

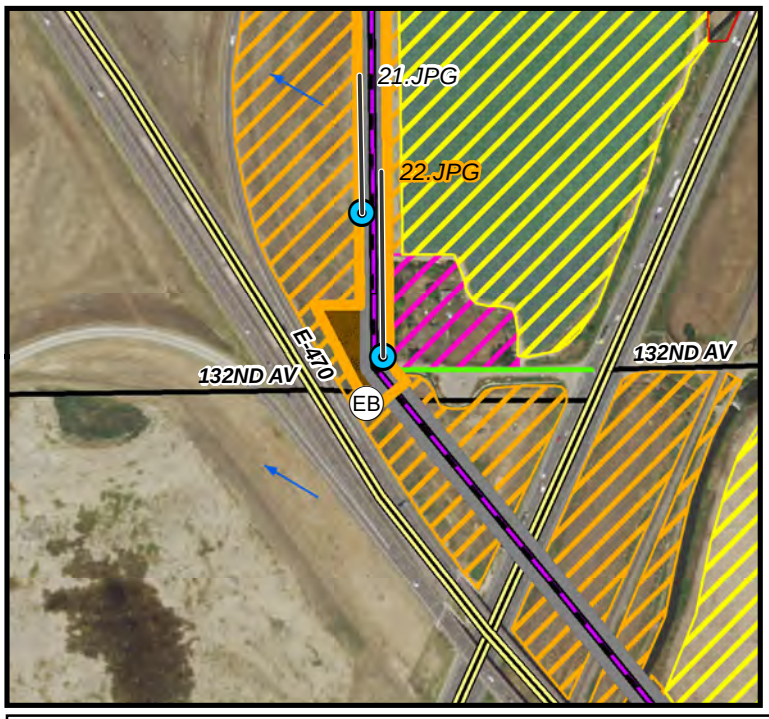
Stormwater Management Plan Map

21.JPG Ponderosa Phase II

D_WGS_1984: 39.937160 -104.847000

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- Adams Local Roads

Photo taken facing N along the proposed ROW towards 136th Ave across a disturbed grassland. Identifiable vegetation found in the photo includes kochia, western wheatgrass and field bindweed.



Stormwater Management Plan Map

22.JPG Ponderosa Phase II

D_WGS_1984: 39.936130 -104.846800

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- CO Highways
- Adams Local Roads

Photo taken facing SE along the proposed ROW near another future bore staging yard where the line will shift to the southeast and bore underneath Highway 85.

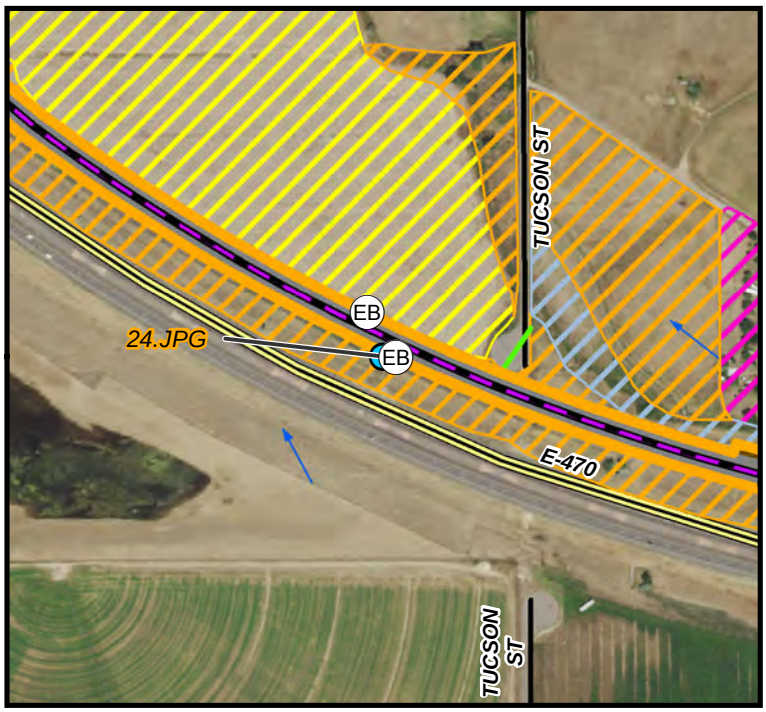
Stormwater Management Plan Map

23.JPG Ponderosa Phase II

D_WGS_1984: 39.932980 -104.843500

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Cropland
- Disturbed Grassland
- CO Highways

Photo taken facing NW along the proposed ROW towards Highway 85 where the line will reemerge from its bore and continue generally eastward. Dominant vegetation found in the photo includes smooth brome and curly dock.



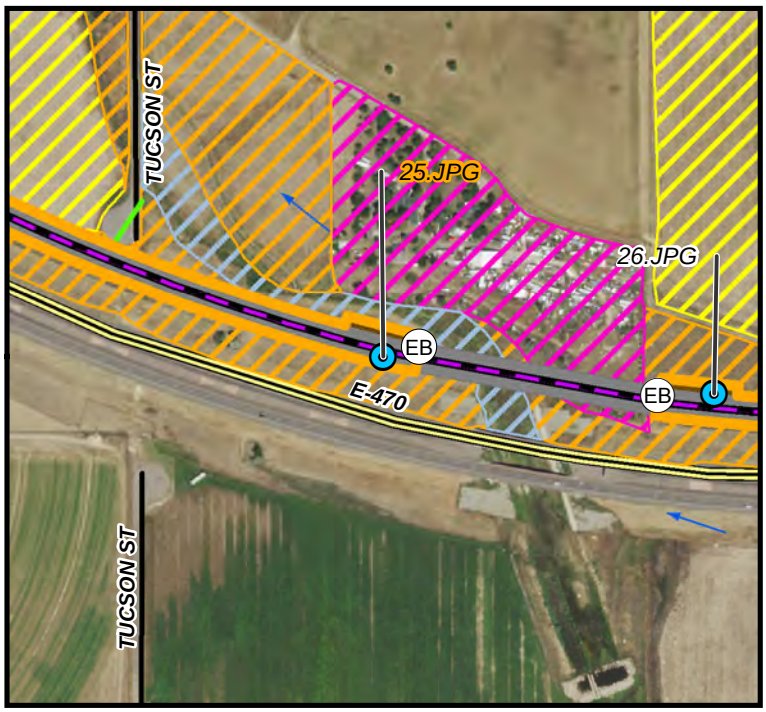
Stormwater Management Plan Map

24.JPG Ponderosa Phase II

D_WGS_1984: 39.930310 -104.838600

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Residential
- Cropland
- Disturbed Grassland
- Riparian
- CO Highways
- Adams Local Roads

Photo taken facing NW along the proposed ROW just N of E-470 through a disturbed grassland that borders E-470 on the N side. This portion of future ROW is dominated with smooth brome.



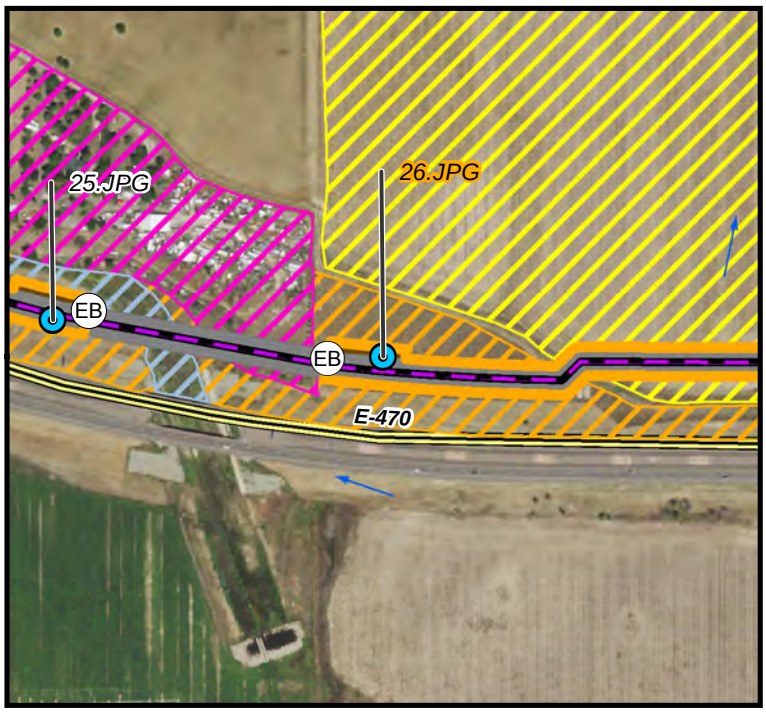
Stormwater Management Plan Map

25.JPG Ponderosa Phase II

D_WGS_1984: 39.929390 -104.835000

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Residential
- Cropland
- Disturbed Grassland
- Riparian
- CO Highways
- Adams Local Roads

Photo taken facing along the proposed ROW just N of E-470 near another bore staging yard where the line will bore underneath Second Creek and continue eastward. Dominant vegetation species found in the photo includes kochia and curly dock.



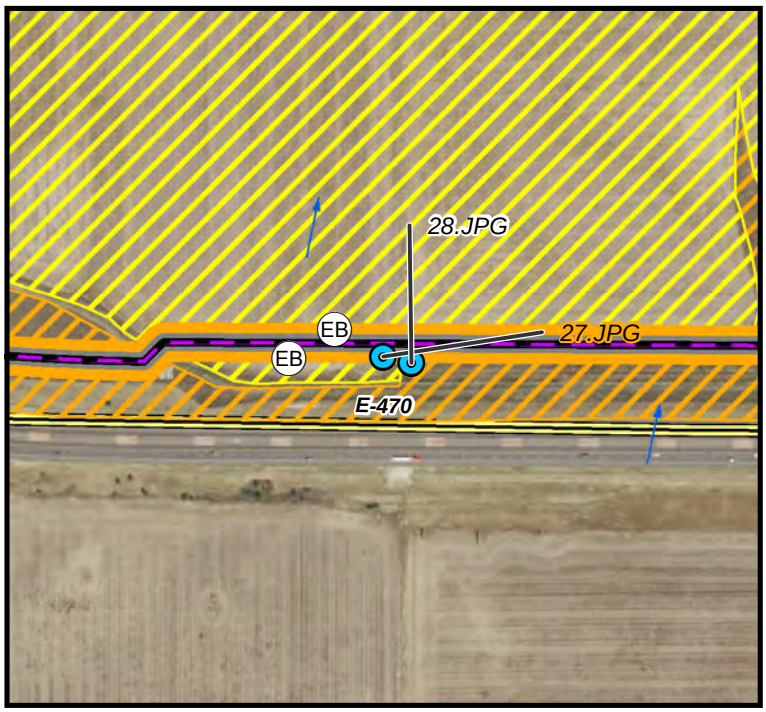
Stormwater Management Plan Map

26.JPG Ponderosa Phase II

D_WGS_1984: 39.929130 -104.831900

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Residential
- Cropland
- Disturbed Grassland
- Riparian
- CO Highways

Photo taken facing W along the proposed ROW towards Second Creek where the line will reemerge on the E side of the creek and continue eastward. Identifiable vegetation found in the photo includes smooth brome and crested wheatgrass.



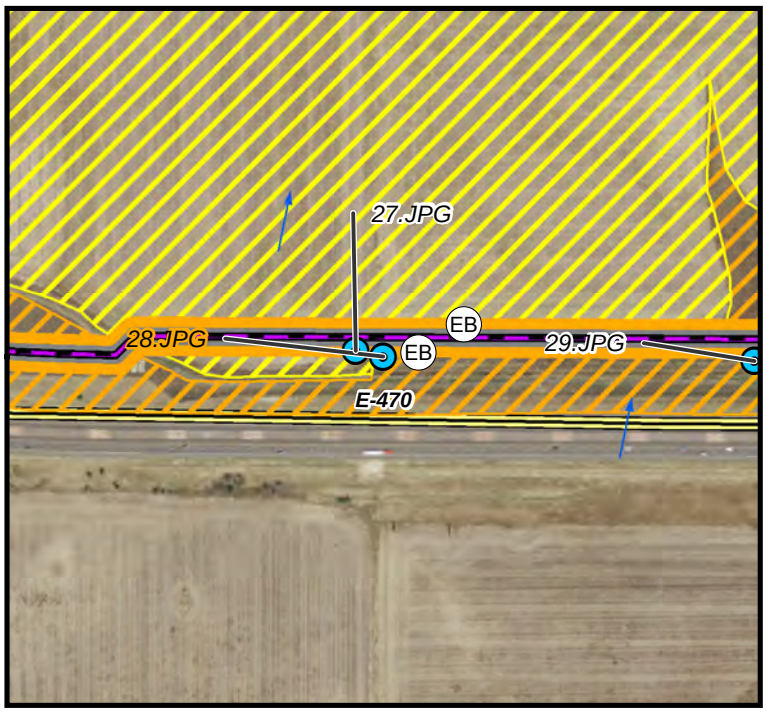
Stormwater Management Plan Map

27.JPG Ponderosa Phase II

D_WGS_1984: 39.928980 -104.828100

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Cropland
- Disturbed Grassland
- CO Highways

Photo taken facing W along the proposed ROW just N of E-470 in a fallow agriculture field.



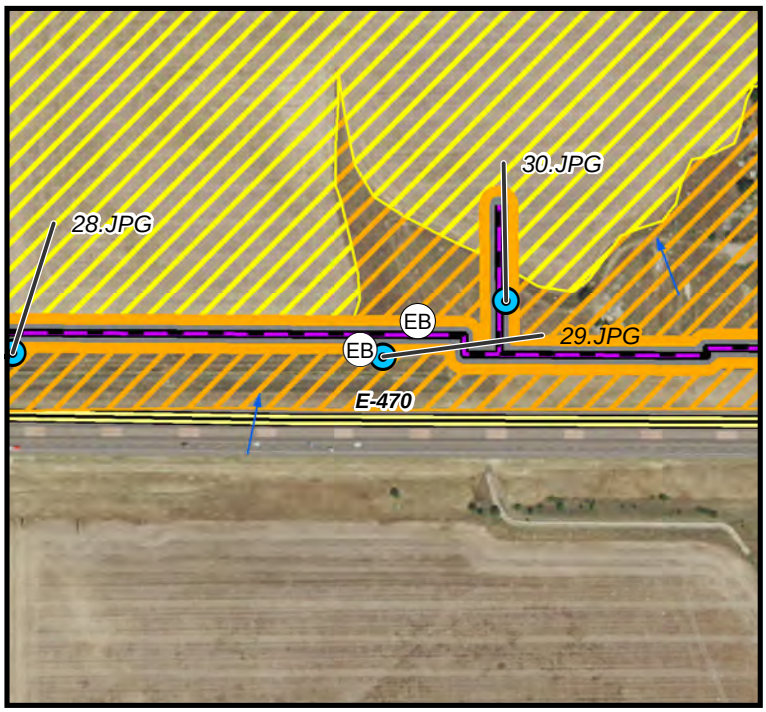
Stormwater Management Plan Map

28.JPG Ponderosa Phase II

D_WGS_1984: 39.928940 -104.827800

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Cropland
- Disturbed Grassland
- CO Highways

Photo taken facing E along the proposed ROW where the line borders the fallow agriculture field and enters a disturbed grassland containing smooth brome, kochia, downy brome and western wheatgrass.



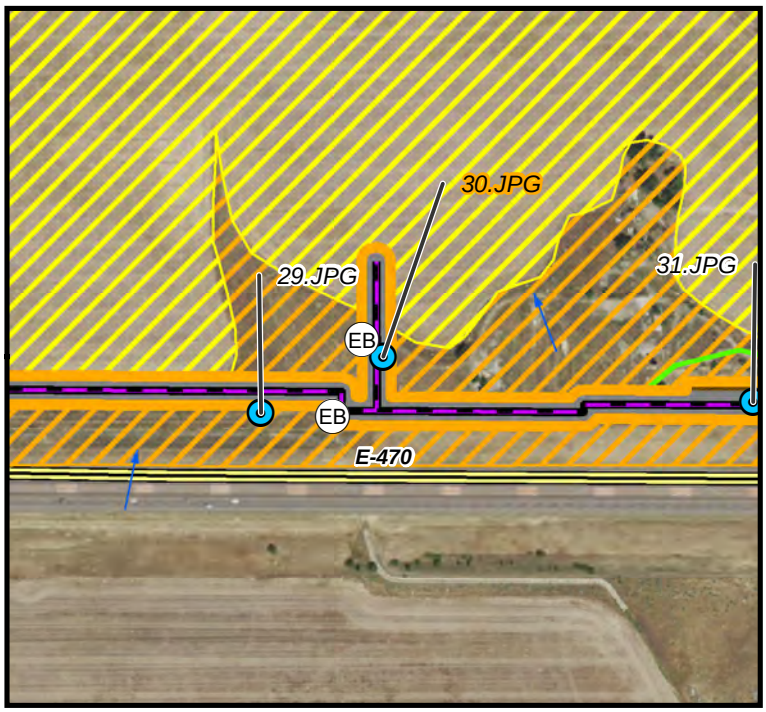
Stormwater Management Plan Map

29.JPG Ponderosa Phase II

D_WGS_1984: 39.928900 -104.824300

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Cropland
- Disturbed Grassland
- CO Highways

Photo taken facing W along the proposed ROW where the line will shift to the N and terminate at the Adams Crossing Well Connect. This portion of disturbed grassland is dominated by downy brome.



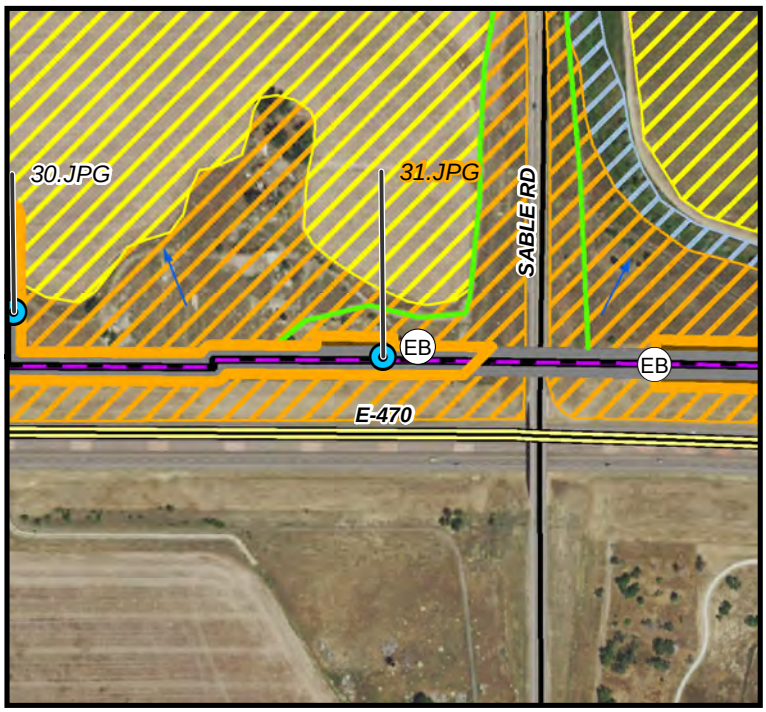
Stormwater Management Plan Map

30.JPG Ponderosa Phase II

D_WGS_1984: 39.929300 -104.823200

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Cropland
- Disturbed Grassland
- CO Highways

Photo taken facing N towards the future Adams Crossing Well Connect within the fallow agriculture field.



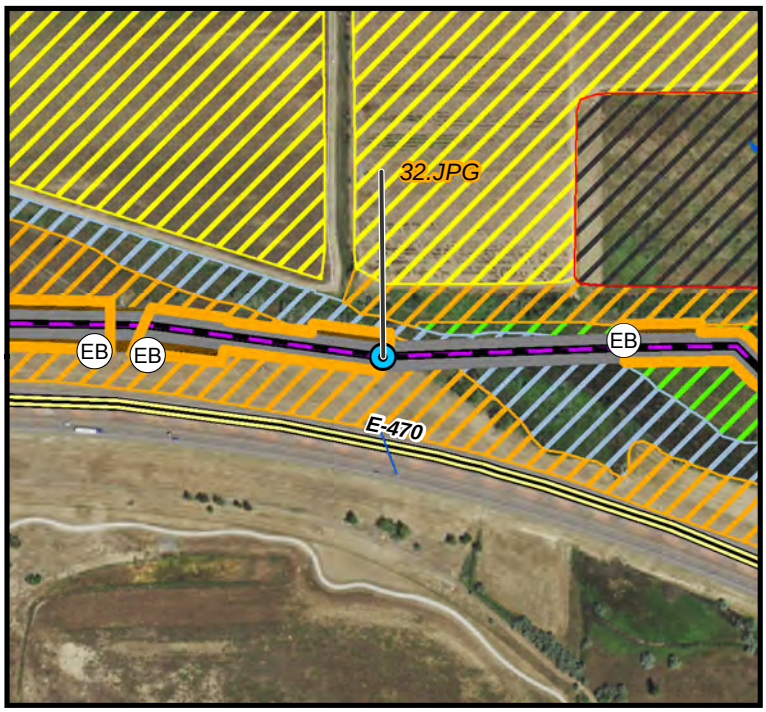
Stormwater Management Plan Map

31.JPG Ponderosa Phase II

D_WGS_1984: 39.928970 -104.819800

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Cropland
- Disturbed Grassland
- Riparian
- CO Highways
- CO Major Roads

Photo taken facing W along the proposed ROW towards the Adams Crossing Well Connect across another portion of disturbed grassland. Identifiable vegetation found in the photo includes Russian thistle, kochia and downy brome. The line will continue eastward and bore underneath Sable Blvd.



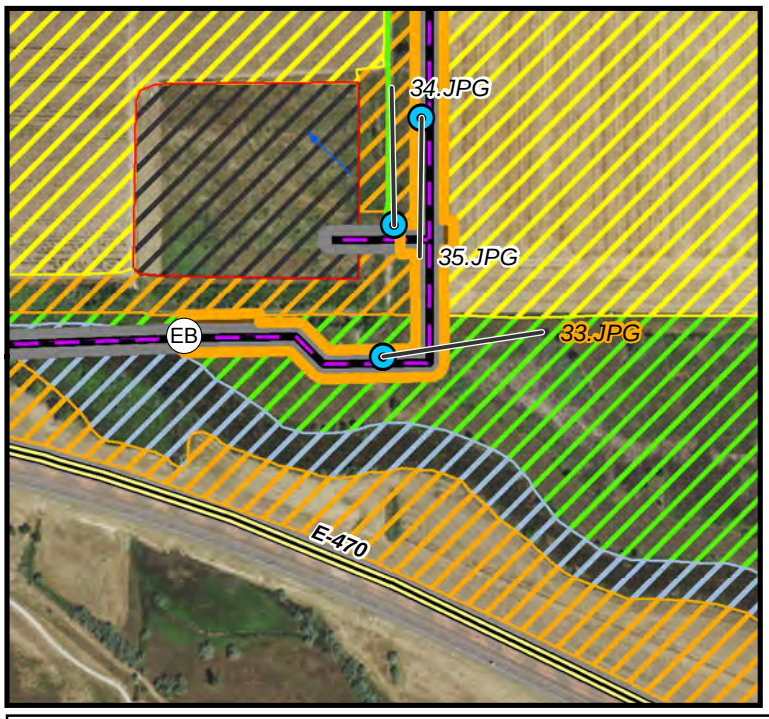
Stormwater Management Plan Map

32.JPG Ponderosa Phase II

D_WGS_1984: 39.928670 -104.813100

- Earthen Berm
- Flow
- Pipeline - Proposed
- Temp ROW
- Disturbance
- Other
- Cropland
- Disturbed Grassland
- Industrial
- Grassland
- Riparian
- CO Highways

Photo taken facing W along the proposed ROW across another portion of disturbed grassland towards another expected bore staging yard ~420' W of Third Creek where the line will bore underneath and continue eastward towards the PDC Edmundson pad. Identifiable vegetation found in the photo includes smooth brome, beardless wildrye and crested wheatgrass.



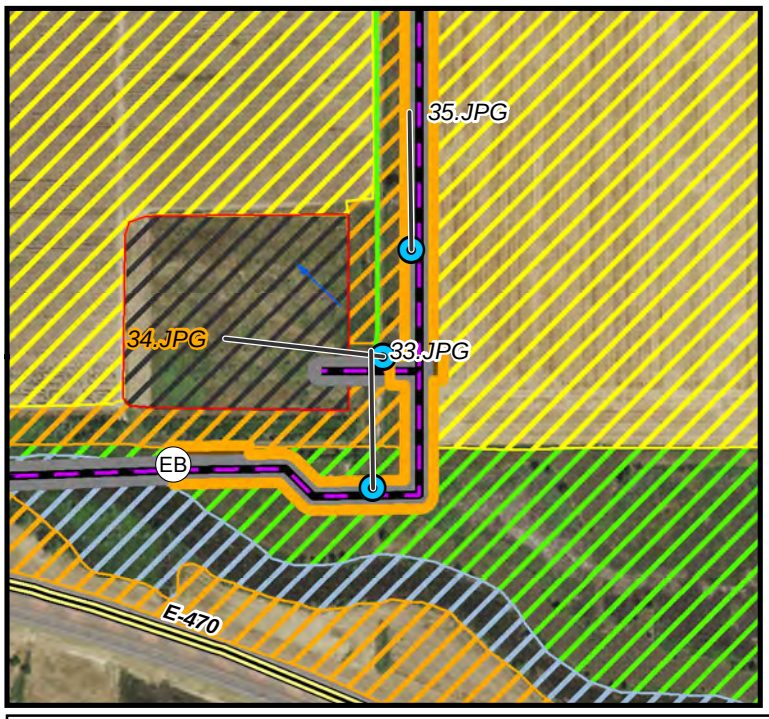
Stormwater Management Plan Map

33.JPG Ponderosa Phase II

D_WGS_1984: 39.928590 -104.809000

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Cropland
- Disturbed Grassland
- Industrial
- Grassland
- Riparian
- CO Highways

Photo taken facing W along the proposed ROW towards Third Creek at the southeasternmost corner of the future line where the line will shift N towards the PDC Edmundson pad. identifiable vegetation found in the photo includes smooth brome, beardless wildrye, crested wheatgrass, kochia and scotch thistle.



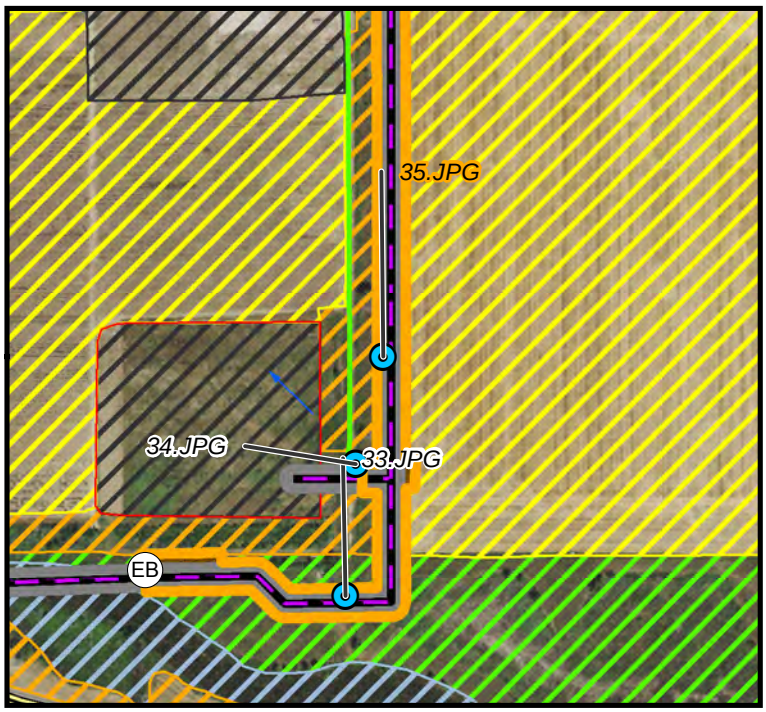
Stormwater Management Plan Map

34.JPG Ponderosa Phase II

D_WGS_1984: 39.929530 -104.808900

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Cropland
- Disturbed Grassland
- Industrial
- Grassland
- Riparian
- CO Highways

Photo taken facing W along the proposed ROW towards the PDC Edmundson pad where a portion of the line will tie-in to the pad and terminate.



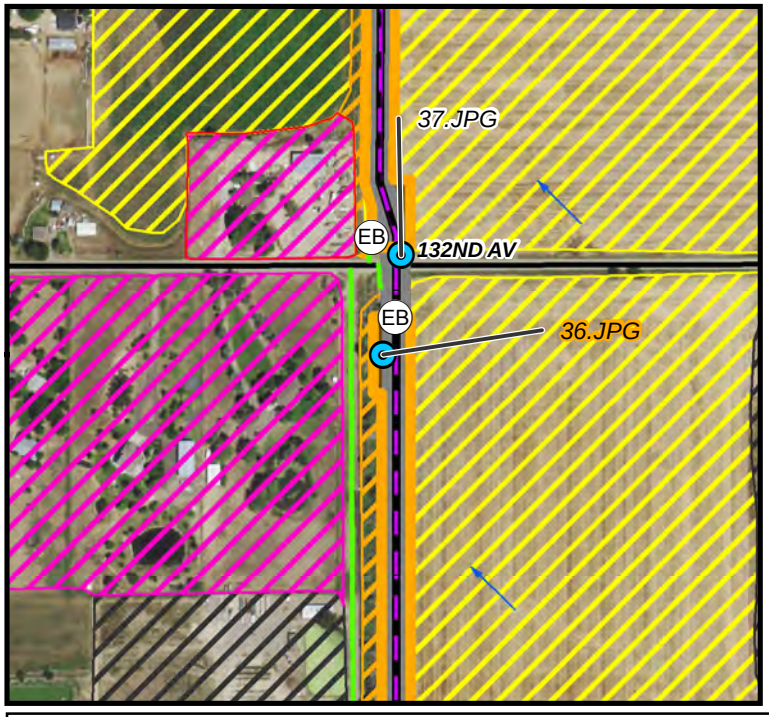
Stormwater Management Plan Map

35.JPG Ponderosa Phase II

D_WGS_1984: 39.930300 -104.808700

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Cropland
- Disturbed Grassland
- Industrial
- Grassland
- Riparian
- CO Highways

Photo taken facing S along the proposed ROW towards the Edmundson Connect across a portion of disturbed grassland. The dominant vegetation species found in the photo is smooth brome and downy brome.



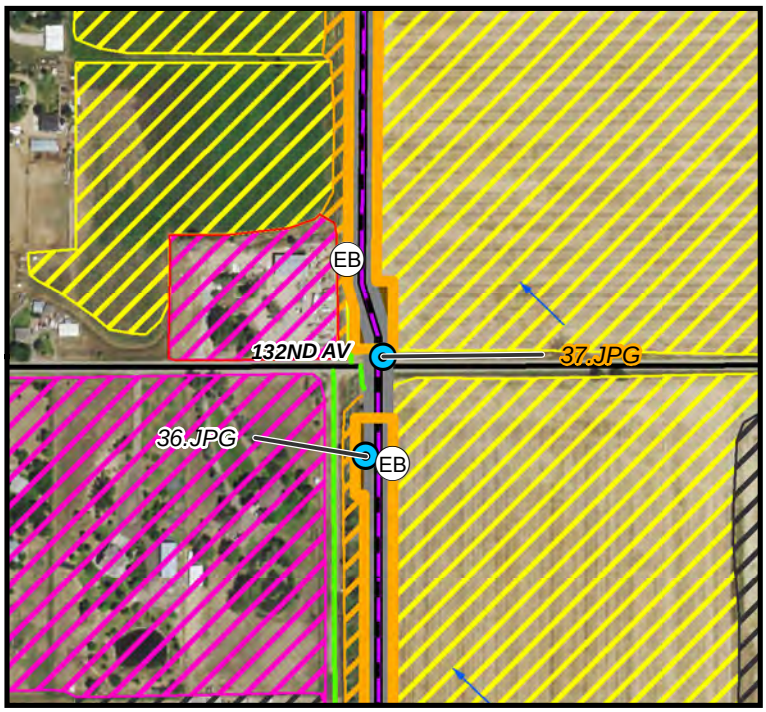
Stormwater Management Plan Map

36.JPG Ponderosa Phase II

D_WGS_1984: 39.935410 -104.808700

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing S along the proposed ROW just S of 132nd Ave across a portion of disturbed grassland. The dominant vegetation species found in the photo is smooth brome and downy brome.



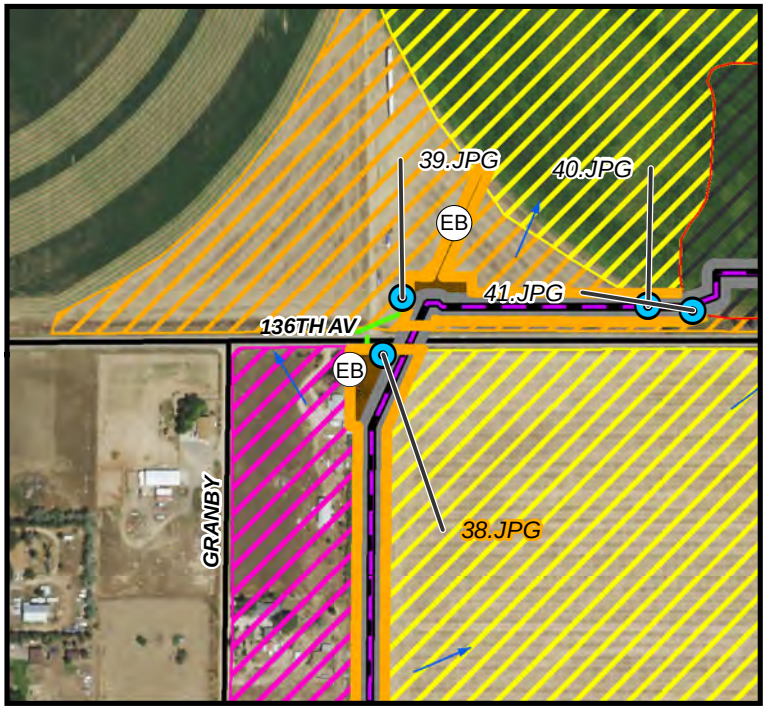
Stormwater Management Plan Map

37.JPG Ponderosa Phase II

D_WGS_1984: 39.936120 -104.808500

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing N along the proposed ROW just N of 132nd Ave towards an unharvested agriculture field that was growing corn during the preconstruction inspection.



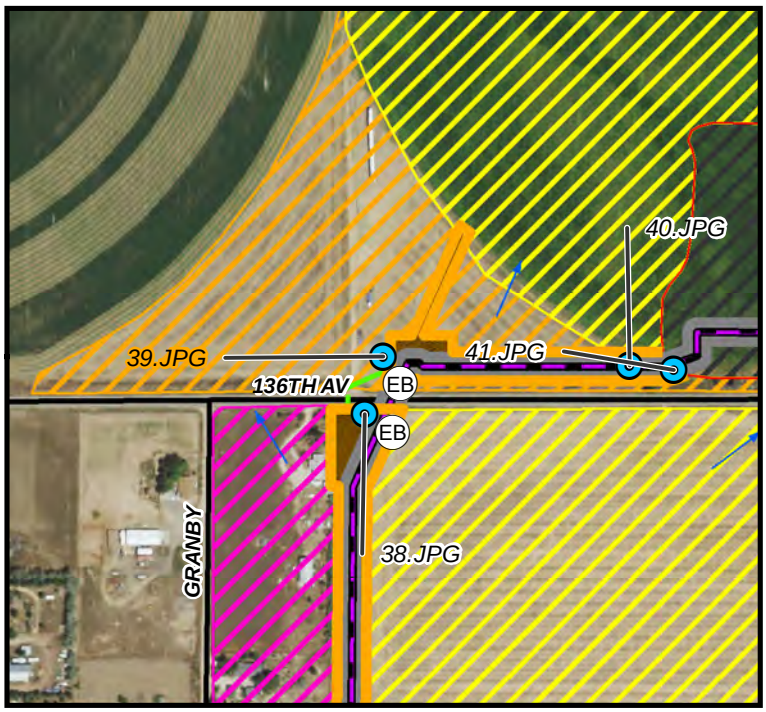
Stormwater Management Plan Map

38.JPG Ponderosa Phase II

D_WGS_1984: 39.943240 -104.808500

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing S along the proposed ROW towards 132nd Ave and just S of 136th Ave across the unharvested corn field and on top of another proposed bore staging yard.



Stormwater Management Plan Map

39.JPG Ponderosa Phase II

D_WGS_1984: 39.943650 -104.808400

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing NE towards a proposed bore staging yard for the ROW that is just N of 136th Ave where boring activity and equipment will be staged to facilitate the bore underneath 136th Ave.

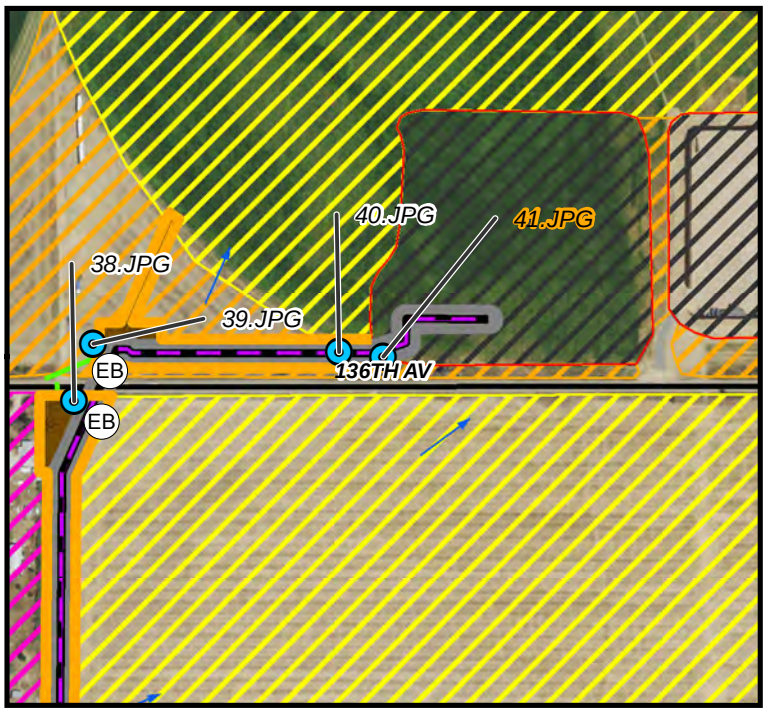
Stormwater Management Plan Map

40.JPG Ponderosa Phase II

D_WGS_1984: 39.943580 -104.806100

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing W along the proposed ROW ~100' W of the PDC Prairie Pad across a portion of disturbed grassland dominated by golden crownbeard.



Stormwater Management Plan Map

41.JPG Ponderosa Phase II

D_WGS_1984: 39.943550 -104.805700

- Earthen Berm
- Flow
- Pipeline - Proposed
- Access Road
- Temp ROW
- Disturbance
- Other
- Residential
- Cropland
- Disturbed Grassland
- Industrial
- Adams Local Roads

Photo taken facing NE along the proposed ROW towards the PDC Prairie pad where the line will tie-in to the pad and terminate.

Pre-disturbance Vegetation Assessment (Coverage & Density)

Facility/Site Name: Ponderosa Phase II - south of E-470 and West of Riverdale Road near Gus Connect
Operator: Pioneer Produced Water LLC
Date: 9/6/2023
Eval. Company: H2E
Surveyor Name: Ethan Janak
C. Interval: 95%
Density Quadrat Size: 2.25 ft2
Coverage Quadrat Size: N/A ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).
Coverage (COGCC) include all plants, excluding noxious weeds (% cover per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite: Downy brome

Dominant species: Japanese Chess, Smooth brome, and Perennial rye grass
Common species: American beachgrass and Downy brome
Rare species: Crested wheatgrass, Golden crownbeard, Fetid dogweed, Kochia, and Russian thistle

Other notes on distribution, bare areas, etc.: Access road is present along the northern portion of the proposed alignment.

Native/Reference						
Quadrat/Photo ID:		Density # perennial hits	Coverage % cover (all non-noxious)	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Predisturbance density 1	25			Smooth brome	Downy brome
2	Predisturbance density 2	9		Japanese chess	Smooth brome, Side-oats grama	
3	Predisturbance density 3	5		Japanese chess, Kochia	American beachgrass	Downy brome
4	Predisturbance density 4	1		Japanese chess, Golden crownbeard	American beachgrass	
5	Predisturbance density 5	23			Smooth brome	
6	Predisturbance density 6	19		Japanese chess, Russian thistle	Smooth brome	
7	Predisturbance density 7	20			Smooth brome	
8	Predisturbance density 8	18			Smooth brome, Perennial rye grass	
9	Predisturbance density 9	17		Japanese chess	Smooth brome, Perennial rye grass	
10	Predisturbance density 10	11		Japanese chess	Smooth brome, Crested wheatgrass	
11	Predisturbance density 11	11		Fetid dogweed	Smooth brome, Perennial rye grass	
12	Predisturbance density 12	14		Japanese chess	Smooth brome, Perennial rye grass	
13	Predisturbance density 13	28			Smooth brome, Perennial rye grass	
14						
15						
16						
17						
18						
19						
20						

Density - High Variability - Rec. More Samples			
n:	13	SE/μ %:	14%
σ^2:	62.4	C.T:	
σ:	7.9	μ:	15.5
CV:	0.5	LL:	
SE:	2.2	UL:	

Coverage Average: #DIV/0!

Pre-disturbance Vegetation Assessment (Coverage & Density)

Facility/Site Name: Ponderosa Phase II - north of E-470 and West of Riverdale Road
Operator: Pioneer Produced Water LLC
Date: 9/6/2023 **C. Interval:** 95%
Eval. Company: H2E **Density Quadrat Size:** 2.25 ft2
Surveyor Name: Ethan Janak **Coverage Quadrat Size:** N/A ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).
Coverage (COGCC) include all plants, excluding noxious weeds (% cover per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite: Field bindweed

Dominant species: Big bract verbena, Curly doc, and Russian thistle
Common species: Field bindweed
Rare species: Kochia, Golden crownbeard, and Hairyseed bahia

Other notes on distribution, bare areas, etc.:

Native/Reference						
Quadrat/Photo ID:		Density # perennial hits	Coverage % cover (all non-noxious)	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	predisturbance density 1	2		Big bract verbena, Russian thistle, Kochia		Field bindweed (P)
2	predisturbance density 2	4		Big bract verbena, Russian thistle	Curly dock	
3	predisturbance density 3	3		Big bract verbena, Russian thistle	Curly dock	
4	predisturbance density 4	8			Hairyseed bahia, Curly doc	Field bindweed (P)
5	predisturbance density 5	0		Golden crownbeard, Russian thistle		
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Density - High Variability - Rec. More Samples			
n:	5	SE/μ %:	39%
σ^2:	8.8	C.T:	
σ:	3.0	μ:	3.4
CV:	0.9	LL:	
SE:	1.3	UL:	

Coverage Average: #DIV/0!

Pre-disturbance Vegetation Assessment (Coverage & Density)

Facility/Site Name: Ponderosa Phase II - southeast of the South Platte River and West of Brighton Road
Operator: Pioneer Produced Water LLC
Date: 9/6/2023 **C. Interval:** 95%
Eval. Company: H2E **Density Quadrat Size:** 2.25 ft2
Surveyor Name: Ethan Janak **Coverage Quadrat Size:** N/A ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).
Coverage (COGCC) include all plants, excluding noxious weeds (% cover per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite: Downy brome

Dominant species: Crested wheatgrass
Common species: Kochia, Russian thistle, Perennial ryegrass, Downy brome
Rare species: Alkali sacaton

Other notes on distribution, bare areas, etc.:

Native/Reference						
Quadrat/Photo ID:		Density # perennial hits	Coverage % cover (all non-noxious)	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	predisturbance density 1	0		Russian thistle		Downy brome
2	predisturbance density 2	1		Russian thistle	Crested wheatgrass	
3	predisturbance density 3	3		Kochia	Crested wheatgrass, Perennial ryegrass	
4	predisturbance density 4	3		Kochia	Crested wheatgrass	
5	predisturbance density 5	4		Kochia	Crested wheatgrass, Perennial ryegrass	
6	predisturbance density 6	3		Russian thistle	Crested wheatgrass	Downy brome
7	predisturbance density 7	1		Russian thistle	Crested wheatgrass	Downy brome
8	predisturbance density 8	5		Kochia	Alkali sacaton	
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Density - High Variability - Rec. More Samples			
n:	8	SE/μ %:	24%
σ^2:	2.9	C.T:	
σ:	1.7	μ:	2.5
CV:	0.7	LL:	
SE:	0.6	UL:	

Coverage Average: #DIV/0!

Pre-disturbance Vegetation Assessment (Coverage & Density)

Facility/Site Name: Ponderosa Phase II - southeast of PDC Sharp Pad
Operator: Pioneer Produced Water LLC
Date: 9/6/2023
Eval. Company: H2E
Surveyor Name: Ethan Janak

C. Interval: 95%
Density Quadrat Size: 2.25 ft2
Coverage Quadrat Size: N/A ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).
Coverage (COGCC) include all plants, excluding noxious weeds (% cover per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite: Field bindweed

Dominant species: Barnyard grass, Prostrate knotweed, and Field bindweed
Common species: Curly dock
Rare species: Kochia and Fetid dogweed

Other notes on distribution, bare areas, etc.:

Native/Reference						
Quadrat/Photo ID:		Density # perennial hits	Coverage % cover (all non-noxious)	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	predisturbance density 1	3		Kochia	Curly dock	
2	predisturbance density 2	4			Curly dock	Field bindweed (P)
3	predisturbance density 3	4		Barnyard grass, Prostrate knotweed		Field bindweed (P)
4	predisturbance density 4	0		Barnyard grass, Prostrate knotweed, Fetid dogweed		
5	predisturbance density 5	3		Barnyard grass, Prostrate knowtweed		Field bindweed (P)
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Density - High Variability - Rec. More Samples

n:	5	SE/μ %:	26%
σ^2:	2.7	C.T:	
σ:	1.6	μ:	2.8
CV:	0.6	LL:	
SE:	0.7	UL:	

Coverage Average: #DIV/0!

Pre-disturbance Vegetation Assessment (Coverage & Density)

Facility/Site Name: Ponderosa Phase II - southwest of Johnson Auto Plaza and north of Brighton Road
Operator: Pioneer Produced Water LLC
Date: 9/6/2023 **C. Interval:** 95%
Eval. Company: H2E **Density Quadrat Size:** 2.25 ft2
Surveyor Name: Ethan Janak **Coverage Quadrat Size:** N/A ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).
Coverage (COGCC) include all plants, excluding noxious weeds (% cover per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite: Field bindweed

Dominant species: Westrern wheatgrass and Field bindweed
Common species: None
Rare species: Yellow salsify, Big bract verbena, Golden crownbeard, Horseweed, Kochia, Yellow sweet clover, and Plains pricklypear

Other notes on distribution, bare areas, etc.: The proposed alignment runs through a drainage basin along E-470.

Native/Reference						
Quadrat/Photo ID:		Density # perennial hits	Coverage % cover (all non-noxious)	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	predisturbance density 1	27			Western wheatgrass	Field bindweed (P)
2	predisturbance density 2	18		Yellow salsify	Western wheatgrass	Field bindweed (P)
3	predisturbance density 3	31			Western wheatgrass	Field bindweed (P)
4	predisturbance density 4	12		Big bract verbena, Golden crownbeard	Western wheatgrass	Field bindweed (P)
5	predisturbance density 5	17			Plains pricklypear, Western wheatgrass	
6	predisturbance density 6	10			Western wheatgrass	Field bindweed (P)
7	predisturbance density 7	8		Horseweed, Kochia, Yellow sweet clover	Western wheatgrass	Field bindweed (P)
8	predisturbance density 8	5			Western wheatgrass	Field bindweed (P)
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Density - High Variability - Rec. More Samples			
n:	8	SE/μ %:	20%
σ^2:	84.0	C.T:	
σ:	9.2	μ:	16.0
CV:	0.6	LL:	
SE:	3.2	UL:	

Coverage Average: #DIV/0!

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name:	Ponderosa Phase II - east of Highway 85, north of E-470 and west of Tucson Street			
Operator:	Pioneer PW Pipeline LLC			
Date:	9/5/2023	**C. Interval:**	95%	
Eval. Company:	H2E	**Density Quadrat Size:**	2.25	ft2
Surveyor Name:	Cameron Denison	**Coverage Quadrat Size:**		ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite:

Dominant species:
Common species: Beardless wildrye, Crested wheatgrass, Smooth brome, Kochia
Rare species: Purple Prairie Clover, Western Tansymustard

Other notes on distribution, bare areas, etc.: Exists partially in a vegetated swale with diverse perennial grass population, and some wetland characteristics. High variability due to mixture of bunchgrass and single-stalk grass. Weeds only found on the eastern portion, away from the drainage area.

Pre-disturbance Analysis					
Quadrat/Photo ID:		**Density # perennial hits**	**Annual/Biannual Species**	**Perennial Species**	**Noxious Weeds A = annual/biannual P = perennial**
1	Density 1	20		Crested wheatgrass, Smooth brome	
2	Density 2	8	Kochia, Western Tansymustard	Smooth brome	
3	Density 3	4	Kochia	Crested wheatgrass	
4	Density 4	4	Kochia	Crested wheatgrass	
5	Density 5	58		Beardless wildrye	
6	Density 6	36		Beardless wildrye	
7	Density 7	22		Beardless wildrye	
8	Density 8	32		Beardless wildrye	
9	Density 9	15		Narrow Lead Cattail	
10	Density 10	34		Beardless wildrye, Purple Prairie Clover	
11	Density 11	70		Smooth brome	
12	Density 12	86		Beardless wildrye	
13					
14					
15					
16					
17					
18					
19					
20					

Density - High Variability - Rec. More Samples

n:	12	SE/μ %:	24%
σ^2:	702.8	C.T:	
σ:	26.5	μ:	32.4
CV:	0.8	LL:	
SE:	7.7	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name: Ponderosa Phase II - west of Tucson Street, north of E-470 and west of Second Creek
Operator: Pioneer PW Pipeline LLC
Date: 9/5/2023 **C. Interval:** 95%
Eval. Company: H2E **Density Quadrat Size:** 2.25 ft2
Surveyor Name: Cameron Denison **Coverage Quadrat Size:** ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite: Scotch Thistle
Colorado List C noxious weeds found onsite:

Dominant species: Smooth brome
Common species: Crested Wheatgrass
Rare species: Scotch Thistle

Other notes on distribution, bare areas, etc.: Grassy field full of perennial grass growth. No weeds besides a small patch of dead Scotch Thistle.

Pre-disturbance Analysis					
Quadrat/Photo ID:		Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	26		Smooth brome	
2	Density 2	22		Smooth brome	
3	Density 3	24		Smooth brome	
4	Density 4	6		Crested wheatgrass	
5	Density 5	14		Smooth brome, Crested wheatgrass	
6	Density 6	36		Smooth brome	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Density - High Variability - Rec. More Samples			
n:	6	SE/μ %:	20%
σ^2:	106.7	C.T:	
σ:	10.3	μ:	21.3
CV:	0.5	LL:	
SE:	4.2	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name: Ponderosa Phase II - west of Sable Blvd, north of E-470, east of Second Creek and west of the Adams Crossing Connect
Operator: Pioneer PW Pipeline LLC
Date: 9/5/2023 **C. Interval:** 95%
Eval. Company: H2E **Density Quadrat Size:** 2.25 ft2
Surveyor Name: Cameron Denison **Coverage Quadrat Size:** ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite: Downy Brome

Dominant species: Smooth Brome
Common species: Western Wheatgrass, Blue Grama, Crested Wheatgrass, Kochia, Downy Brome
Rare species:

Other notes on distribution, bare areas, etc.: Grassy swale with diverse perennial grass growth and minimal weed presence.

Pre-disturbance Analysis

	Quadrat/Photo ID:	Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	26		Western Wheatgrass, Blue Grama	
2	Density 2	8		Side Oats Grama	
3	Density 3	4		Crested Wheatgrass	
4	Density 4	11	Kochia, Downy Brome	Smooth Brome	Downy Brome(A)
5	Density 5	16		Smooth Brome	
6	Density 6	9	Kochia, Downy Brome	Crested Wheatgrass, Smooth Brome	Downy Brome(A)
7	Density 7	26		Smooth Brome	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Density - High Variability - Rec. More Samples

n:	7	SE/μ %:	23%
σ^2:	76.9	C.T:	
σ:	8.8	μ:	14.3
CV:	0.6	LL:	
SE:	3.3	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name: Ponderosa Phase II - west of Sable Blvd, north of E-470, east of Second Creek and east of the Adams Crossing Connect

Operator: Pioneer PW Pipeline LLC

Date: 9/5/2023 **C. Interval:** 95%

Eval. Company: H2E **Density Quadrat Size:** 2.25 ft2

Surveyor Name: Cameron Denison **Coverage Quadrat Size:** ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:

Colorado List B noxious weeds found onsite:

Colorado List C noxious weeds found onsite: Cheatgrass

Dominant species: Russian Thistle, Cheatgrass

Common species: Kochia, Western Tansymustard

Rare species:

Other notes on distribution, bare areas, etc.: Land was previously disturbed and is only growing weeds.

Pre-disturbance Analysis					
Quadrat/Photo ID:		Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	0	Russian Thistle, Cheatgrass		Cheatgrass(A)
2	Density 2	0	Russian Thistle, Cheatgrass		Cheatgrass(A)
3	Density 3	0	Kochia, Western Tansymustard		Cheatgrass(A)
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Density - More Samples Needed

n:	3	SE/μ %:	
σ^2:	0.0	C.T:	
σ:	0.0	μ:	0.0
CV:		LL:	
SE:	0.0	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name:	Ponderosa Phase II - boring location west of Sable Blvd			
Operator:	Pioneer PW Pipeline LLC			
Date:	9/5/2023	**C. Interval:**	95%	
Eval. Company:	H2E	**Density Quadrat Size:**	2.25	ft2
Surveyor Name:	Cameron Denison	**Coverage Quadrat Size:**		ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite: Scotch Thistle
Colorado List C noxious weeds found onsite: Cheatgrass

Dominant species: Crested Wheatgrass, Lindheimer's Muhly
Common species: Cheatgrass, Kochia
Rare species: Scotch Thistle

Other notes on distribution, bare areas, etc.: Even mix of various bunchgrasses with one area dominated by annual weeds.

Pre-disturbance Analysis

Quadrat/Photo ID:		Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	8		Crested Wheatgrass	
2	Density 2	2		Lindheimer's Muhly	
3	Density 3	3	Cheatgrass	Lindheimer's Muhly	Cheatgrass(A)
4	Density 4	5	Cheatgrass, Kochia		Cheatgrass(A)
5	Density 5	7		Crested Wheatgrass, Lindheimer's Muhly	
6	Density 6	3			
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Density - High Variability - Rec. More Samples

n:	6	SE/μ%:	21%
σ^2:	5.9	C.T:	
σ:	2.4	μ:	4.7
CV:	0.5	LL:	
SE:	1.0	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name:	Ponderosa Phase II - south of PDC Edmundson Pad to Sable Blvd			
Operator:	Pioneer PW Pipeline LLC			
Date:	9/5/2023	**C. Interval:**	95%	
Eval. Company:	H2E	**Density Quadrat Size:**	2.25	ft2
Surveyor Name:	Cameron Denison	**Coverage Quadrat Size:**		ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite: Scotch Thistle
Colorado List C noxious weeds found onsite:

Dominant species: Smooth Brome, Beardless Wildrye
Common species: Deer Grass, Crested wheatgrass,
Rare species: Kochia, Scotch Thistle

Other notes on distribution, bare areas, etc.: Mix of single stalk grass and bunchgrass so confidence interval is thrown off. Area is dominated by perennial grasses.

Pre-disturbance Analysis

	Quadrat/Photo ID:	Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	50		Smooth brome	
2	Density 2	54		Smooth brome	
3	Density 3	6		Deer Grass	
4	Density 4	6		Deer Grass	
5	Density 5	5		Deer Grass	
6	Density 6	66		Smooth brome	
7	Density 7	107		Beardless Wildrye	
8	Density 8	111		Beardless Wildrye	
9	Density 9	187		Beardless Wildrye	
10	Density 10	6	Kochia	Crested wheatgrass	
11	Density 11	61		Smooth brome	
12	Density 12	47		Smooth brome	
13					
14					
15					
16					
17					
18					
19					
20					

Density - High Variability - Rec. More Samples

n:	12	SE/μ%:	27%
σ^2:	3003.4	C.T:	
σ:	54.8	μ:	58.8
CV:	0.9	LL:	
SE:	15.8	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name:	Ponderosa Phase II - PDC Edmundson Pad to 132nd Ave			
Operator:	Pioneer PW Pipeline LLC			
Date:	9/5/2023	**C. Interval:**	95%	
Eval. Company:	H2E	**Density Quadrat Size:**	2.25	ft2
Surveyor Name:	Cameron Denison	**Coverage Quadrat Size:**		ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite: Scotch Thistle
Colorado List C noxious weeds found onsite: Puncturevine

Dominant species: Smooth Brome
Common species: Cheatgrass, Kochia, Scotch Thistle, Puncturevine
Rare species:

Other notes on distribution, bare areas, etc.: Vegetated strip in between the farm field and irrigation ditch is dominated by smooth brome, with some areas completely taken over by weeds.

Pre-disturbance Analysis

	Quadrat/Photo ID:	Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	35		Smooth Brome	
2	Density 2	43		Smooth Brome	
3	Density 3	37		Smooth Brome	
4	Density 4	0	Kochia, Scotch Thistle		Scotch Thistle(A), Cheatgrass (A)
5	Density 5	0	Kochia, Puncturevine		Puncturevine(A)
6	Density 6	32		Smooth Brome	
7	Density 7	36		Smooth Brome	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Density - High Variability - Rec. More Samples

n:	7	SE/μ %:	26%
σ^2:	329.8	C.T:	
σ:	18.2	μ:	26.1
CV:	0.7	LL:	
SE:	6.9	UL:	

Pre-disturbance Vegetation Assessment (Density)

Facility/Site Name:	Ponderosa Phase II - north of 136th Ave to Prairie Connect			
Operator:	Pioneer PW Pipeline LLC			
Date:	9/5/2023	**C. Interval:**	95%	
Eval. Company:	H2E	**Density Quadrat Size:**	2.25	ft2
Surveyor Name:	Cameron Denison	**Coverage Quadrat Size:**		ft2

Density (CDPHE) includes all *perennial* plants (# individual plants per quadrat).

Colorado List A noxious weeds found onsite:
Colorado List B noxious weeds found onsite:
Colorado List C noxious weeds found onsite:

Dominant species: Russian thistle
Common species: witchgrass, Western Tansymustard.
Rare species:

Other notes on distribution, bare areas, etc.: Assessment conducted in the reclaimed area of the Prairie pad. No perennial growth present observed.

Pre-disturbance Analysis					
Quadrat/Photo ID:		Density # perennial hits	Annual/Biannual Species	Perennial Species	Noxious Weeds A = annual/biannual P = perennial
1	Density 1	0	Russian thistle		
2	Density 2	0	Witchgrass		
3	Density 3	0	Witchgrass		
4	Density 4	0	Witchgrass		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Density - More Samples Needed			
n:	4	SE/μ %:	
σ^2:	0.0	C.T:	
σ:	0.0	μ:	0.0
CV:		LL:	
SE:	0.0	UL:	

Adams County Area, Parts of Adams and Denver Counties, Colorado

AsB—Ascalon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2swl3
Elevation: 3,870 to 5,960 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Ascalon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ascalon

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind-reworked alluvium and/or calcareous sandy eolian deposits

Typical profile

Ap - 0 to 6 inches: sandy loam
Bt1 - 6 to 12 inches: sandy clay loam
Bt2 - 12 to 19 inches: sandy clay loam
Bk - 19 to 35 inches: sandy clay loam
C - 35 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0

Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Olnest

Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Vona

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

BoD—Blakeland loamy sand, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34vs
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 135 to 155 days

Map Unit Composition

Blakeland and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: loamy sand
H2 - 9 to 60 inches: sand

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Minor Components

Truckton
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

DaA—Dacono loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 34vw
Elevation: 3,500 to 5,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Dacono and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dacono

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 17 inches: clay
H3 - 17 to 26 inches: sandy clay loam
H4 - 26 to 35 inches: loamy coarse sand
H5 - 35 to 60 inches: gravelly sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Satanta
Percent of map unit: 10 percent
Landform: Paleoterraces
Hydric soil rating: No

Altvan
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

DaB—Dacono loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 34vx
Elevation: 3,500 to 5,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Dacono and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dacono

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 17 inches: clay
H3 - 17 to 26 inches: sandy clay loam
H4 - 26 to 35 inches: loamy coarse sand
H5 - 35 to 60 inches: gravelly sand

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Satanta
Percent of map unit: 10 percent
Landform: Paleoterraces
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

MISLD—Gravel pits

Map Unit Setting

National map unit symbol: 34w6
Mean annual precipitation: 12 to 14 inches
Farmland classification: Not prime farmland

Map Unit Composition

Gravel pits: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: A
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

Gr—Gravelly land-Shale outcrop complex

Map Unit Setting

National map unit symbol: 34vy
Elevation: 4,400 to 5,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 120 to 160 days

Map Unit Composition

Gravelly land: 65 percent
Shale outcrop: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravelly Land

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium derived from mixed and/or slope alluvium derived from mixed

Typical profile

H1 - 0 to 3 inches: gravelly sand
H2 - 3 to 60 inches: gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R067BY063CO - Gravel Breaks
Hydric soil rating: No

Description of Shale Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 45 percent
Depth to restrictive feature: 0 inches to paralithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Ecological site: R067BY045CO - Shaly Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

Lw—Loamy alluvial land, moderately wet

Map Unit Setting

National map unit symbol: 34w5
Elevation: 4,000 to 5,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Loamy alluvial land: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Loamy Alluvial Land

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 6 inches: variable
H2 - 6 to 36 inches: stratified loam to clay loam
H3 - 36 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 18 to 36 inches
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Nunn
Percent of map unit: 12 percent
Hydric soil rating: No

Satanta
Percent of map unit: 12 percent
Landform: Paleoterraces
Hydric soil rating: No

Fluvaquentic haplustolls
Percent of map unit: 6 percent
Landform: Sloughs
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

NuA—Nunn clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tlng
Elevation: 4,100 to 5,700 feet
Mean annual precipitation: 14 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 152 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pleistocene aged alluvium and/or eolian deposits

Typical profile

Ap - 0 to 6 inches: clay loam
Bt1 - 6 to 10 inches: clay loam
Bt2 - 10 to 26 inches: clay loam
Btk - 26 to 31 inches: clay loam
Bk1 - 31 to 47 inches: loam
Bk2 - 47 to 80 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Heldt

Percent of map unit: 10 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Wages

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

NuB—Nunn clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tlpl
Elevation: 3,900 to 5,840 feet
Mean annual precipitation: 13 to 17 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pleistocene aged alluvium and/or eolian deposits

Typical profile

Ap - 0 to 9 inches: clay loam
Bt - 9 to 13 inches: clay loam
Btk - 13 to 25 inches: clay loam
Bk1 - 25 to 38 inches: clay loam
Bk2 - 38 to 80 inches: clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Heldt

Percent of map unit: 10 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Satanta

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

NlA—Nunn loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tln3
Elevation: 3,900 to 6,250 feet
Mean annual precipitation: 13 to 16 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pleistocene aged alluvium and/or eolian deposits

Typical profile

Ap - 0 to 6 inches: loam
Bt1 - 6 to 10 inches: clay loam
Bt2 - 10 to 26 inches: clay loam
Btk - 26 to 31 inches: clay loam
Bk1 - 31 to 47 inches: loam
Bk2 - 47 to 80 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Haverson, rarely flooded

Percent of map unit: 10 percent
Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R067BY036CO - Overflow
Hydric soil rating: No

Heldt

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

NlB—Nunn loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tln2
Elevation: 3,900 to 6,250 feet
Mean annual precipitation: 13 to 16 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 135 to 160 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Nunn and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nunn

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pleistocene aged alluvium and/or eolian deposits

Typical profile

Ap - 0 to 6 inches: loam
Bt1 - 6 to 10 inches: clay loam
Bt2 - 10 to 26 inches: clay loam
Btk - 26 to 31 inches: clay loam
Bk1 - 31 to 47 inches: loam
Bk2 - 47 to 80 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 7 percent
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 0.5
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Wages

Percent of map unit: 8 percent
Landform: Terraces, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Fort collins

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Haverson, very rarely flooded

Percent of map unit: 2 percent
Landform: Terraces, drainageways, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R067BY036CO - Overflow
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

ShF—Samsil-Shingle complex, 3 to 35 percent slopes

Map Unit Setting

National map unit symbol: 34wk
Elevation: 3,500 to 5,600 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Samsil and similar soils: 40 percent
Shingle and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Samsil

Setting

Landform: Hills
Landform position (three-dimensional): Base slope, side slope, nose slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from shale

Typical profile

H1 - 0 to 4 inches: clay
H2 - 4 to 14 inches: silty clay
H3 - 14 to 18 inches: weathered bedrock

Properties and qualities

Slope: 3 to 35 percent
Depth to restrictive feature: 4 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R067BY045CO - Shaly Plains
Hydric soil rating: No

Description of Shingle

Setting

Landform: Hills
Landform position (three-dimensional): Base slope, side slope, nose slope, head slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from shale

Typical profile

H1 - 0 to 3 inches: loam
H2 - 3 to 12 inches: loam
H3 - 12 to 16 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 35 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: R067BY045CO - Shaly Plains
Hydric soil rating: No

Minor Components

Renohill

Percent of map unit: 10 percent
Hydric soil rating: No

Ulm

Percent of map unit: 10 percent
Hydric soil rating: No

Loamy alluvial land
Percent of map unit: 3 percent
Hydric soil rating: No

Satanta
Percent of map unit: 2 percent
Landform: Paleoterraces
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

Tc—Terrace escarpments

Map Unit Setting

National map unit symbol: 34ws
Elevation: 4,400 to 5,500 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Terrace escarpments: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Terrace Escarpments

Setting

Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 3 inches: gravelly sand
H2 - 3 to 60 inches: gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R067BY063CO - Gravel Breaks
Hydric soil rating: No

Minor Components

Dacono

Percent of map unit: 5 percent
Hydric soil rating: No

Vona

Percent of map unit: 5 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

TtD—Truckton loamy sand, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34wz
Elevation: 4,400 to 6,000 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: loamy sand
H2 - 9 to 21 inches: sandy loam
H3 - 21 to 32 inches: loamy sand
H4 - 32 to 60 inches: coarse sand

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Vona
Percent of map unit: 8 percent
Hydric soil rating: No

Blakeland
Percent of map unit: 5 percent
Hydric soil rating: No

Loup
Percent of map unit: 1 percent
Landform: Swales
Ecological site: R067BY029CO - Sandy Meadow
Hydric soil rating: Yes

Tryon
Percent of map unit: 1 percent
Landform: Swales
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

TuB—Truckton sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2yvrf
Elevation: 4,600 to 6,100 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Terraces, interfluves
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wind re-worked alluvium derived from arkose

Typical profile

A - 0 to 6 inches: sandy loam
Bt1 - 6 to 10 inches: sandy loam
Bt2 - 10 to 16 inches: sandy loam
C - 16 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Bresser
Percent of map unit: 4 percent
Landform: Terraces, interfluves
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Vona
Percent of map unit: 4 percent
Landform: Hills, dunes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Blakeland
Percent of map unit: 3 percent
Landform: Interfluves, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Pleasant, frequently ponded
Percent of map unit: 2 percent
Landform: Closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R067BY010CO - Closed Upland Depression
Hydric soil rating: Yes

Urban land
Percent of map unit: 2 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

TuC—Truckton sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2yvrg
Elevation: 4,700 to 6,100 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Interfluves, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Wind re-worked alluvium derived from arkose

Typical profile

A - 0 to 6 inches: sandy loam
Bt1 - 6 to 10 inches: sandy loam
Bt2 - 10 to 16 inches: sandy loam
C - 16 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Vona

Percent of map unit: 5 percent
Landform: Hills, dunes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Blakeland

Percent of map unit: 5 percent
Landform: Interfluves, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Bresser

Percent of map unit: 3 percent
Landform: Interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Pleasant, frequently ponded

Percent of map unit: 1 percent
Landform: Closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: R067BY010CO - Closed Upland Depression
Hydric soil rating: Yes

Urban land

Percent of map unit: 1 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

UID—Ulm loam, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 34x5
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Ulm and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ulm

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 13 inches: silty clay
H3 - 13 to 30 inches: clay
H4 - 30 to 48 inches: clay loam
H5 - 48 to 52 inches: unweathered bedrock

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R067BY002CO - Loamy Plains
Hydric soil rating: No

Minor Components

Shingle

Percent of map unit: 10 percent
Hydric soil rating: No

Renohill

Percent of map unit: 8 percent
Hydric soil rating: No

Apishapa

Percent of map unit: 2 percent
Landform: Swales
Ecological site: R067BY035CO - Salt Meadow
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

VnD—Vona loamy sand, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j7
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 130 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Vona and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vona

Setting

Landform: Hills, hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Eolian sands

Typical profile

A - 0 to 7 inches: loamy sand
Bt1 - 7 to 14 inches: sandy loam
Bt2 - 14 to 20 inches: sandy loam
Bk - 20 to 45 inches: sandy loam
C - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline (0.1 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Minor Components

Manter

Percent of map unit: 5 percent
Landform: Interfluves, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Interfluve, base slope, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Ascalon

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Olnest

Percent of map unit: 3 percent
Landform: Interfluves, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Valent

Percent of map unit: 2 percent
Landform: Dunes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand

Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

VoB—Vona sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 34xb
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Vona and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vona

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands

Typical profile

H1 - 0 to 9 inches: sandy loam
H2 - 9 to 22 inches: sandy loam
H3 - 22 to 60 inches: loamy sand

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Dacono

Percent of map unit: 8 percent
Hydric soil rating: No

Tryon

Percent of map unit: 2 percent
Landform: Swales
Ecological site: R067BY029CO - Sandy Meadow
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

VoC—Vona sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 34xc
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Vona and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vona

Setting

Landform: Plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 22 inches: sandy loam
H3 - 22 to 60 inches: loamy sand

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Truckton

Percent of map unit: 10 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

W—Water

Map Unit Setting

National map unit symbol: wdnx
Mean annual precipitation: 12 to 14 inches
Farmland classification: Not prime farmland

Map Unit Composition

Water: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Aquolls

Percent of map unit: 10 percent
Landform: Marshes
Hydric soil rating: Yes

Other soils

Percent of map unit: 10 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Adams County Area, Parts of Adams and Denver Counties, Colorado

Wt—Wet alluvial land

Map Unit Setting

National map unit symbol: 34xj
Elevation: 4,000 to 5,600 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Wet alluvial land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wet Alluvial Land

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 8 inches: variable
H2 - 8 to 36 inches: stratified sandy loam to clay
H3 - 36 to 60 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 6.00 in/hr)
Depth to water table: About 6 to 24 inches
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): 5w
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: R067BY038CO - Wet Meadow

Hydric soil rating: Yes

Data Source Information

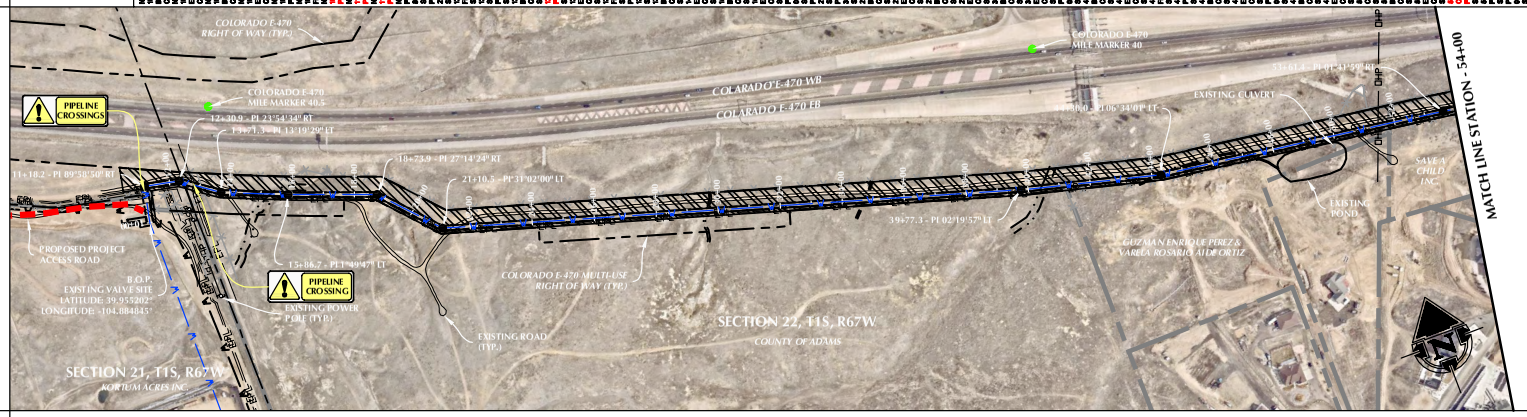
Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 19, Sep 1, 2022

Exhibit C
Project Alignment

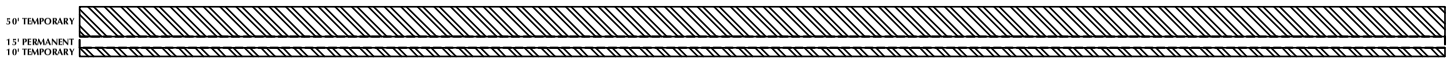
OWNERSHIP	KORTUM ACRES INC. 90.55 FEET 5.49 RODS SEC. 21, T1S, R67W	COLORADO E-470 154.60 FEET 9.37 RODS SEC. 21, T1S, R67W	COUNTY OF ADAMS 2874.37 FEET 174.20 RODS SEC. 22, T1S, R67W	GUZMAN ENRIQUE PEREZ & VARELA ROSARIO AIDE ORTIZ 1063.91 FEET 64.48 RODS SEC. 22, T1S, R67W	SAVE A CHILD INC. 216.57 FEET 13.13 RODS SEC. 22, T1S, R67W

ALIGNMENT STATIONING

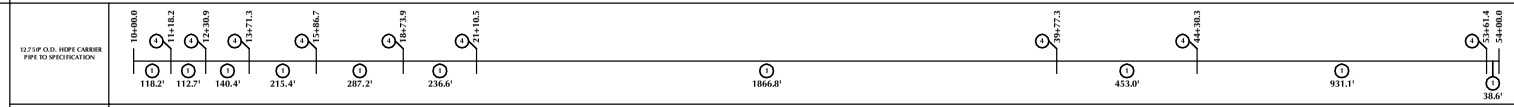
ALIGNMENT PLAN VIEW SCALE 1" = 400'



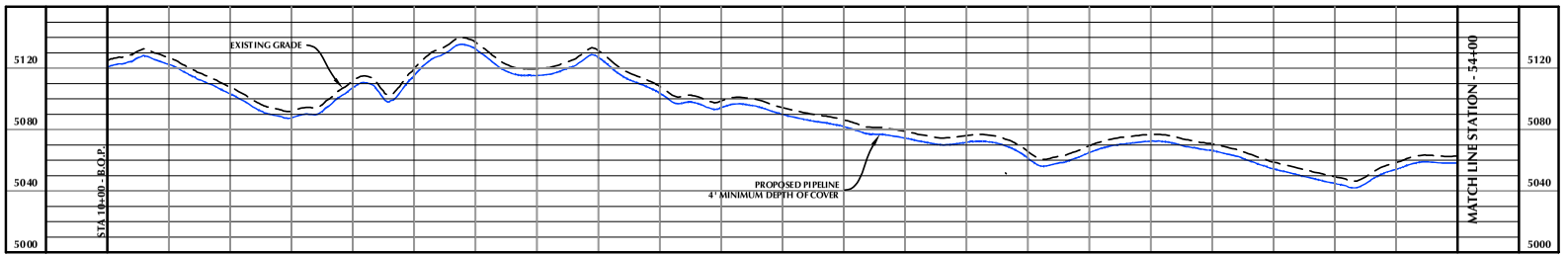
EASEMENT



ENGINEERING & MATERIALS



PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



BILL OF MATERIALS

ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	4,400.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	0'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0
4	12" ELBOW	9
5	10" ELBOW	0
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- EXISTING UNDERGROUND POWER
- EXISTING OVERHEAD POWER
- EXISTING PIPELINE
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING FIBER OPTIC LINE
- EXISTING DITCH
- POINT OF INTERSECTION (PI)
- HDD ENTRY / EXIT
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE

NOTES

1. PIPELINE MATERIAL AND INSTALLATION MUST COMPLY WITH COMPANY SPECIFICATIONS AND STANDARDS
2. TYPICAL DRAWINGS - SEE COMPANY STANDARDS

HORIZONTAL 0 200' 400' 1" = 400'

VERTICAL 0 40' 80' 1" = 80'

GENERAL INFORMATION:

- AERIAL IMAGERY COURTESY OF NEARMAP
- SEE DRAWING PACKAGE FOR FULL LIST OF REFERENCE DRAWINGS
- HORIZONTAL CLEARANCE - 10'-0" MINIMUM FROM ANY PIPE
- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 2 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS

DRAWING NAME	DESCRIPTION

DRAWING REVISIONS

REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

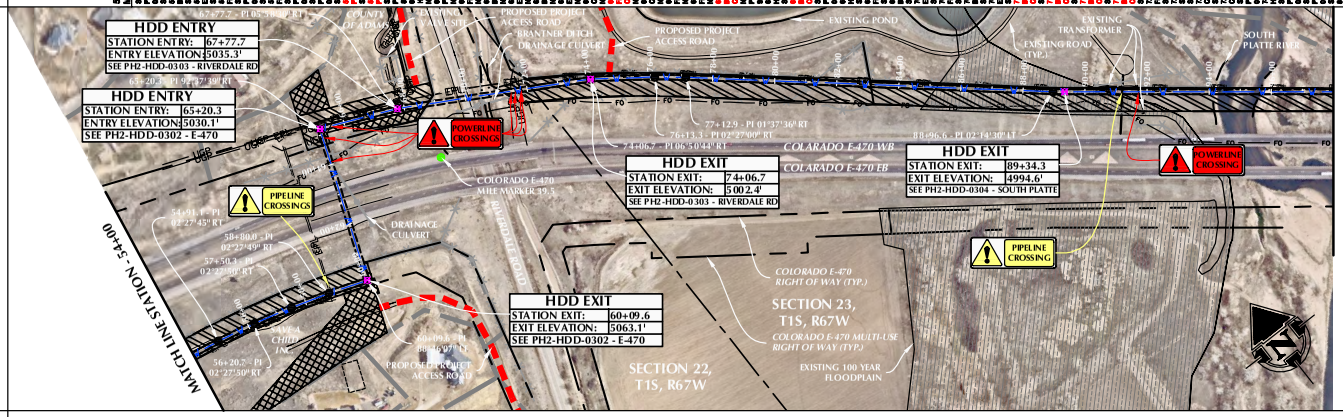
PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

PH2-AS-001

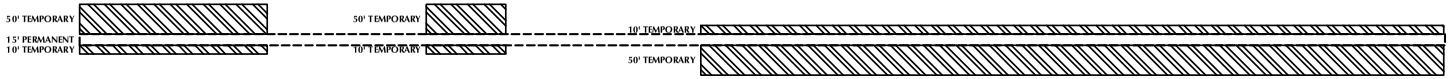
OWNERSHIP	SAVE A CHILD INC. 667.13 FEET 40.43 RODS SEC. 22, T1S, R67W	COLORADO E-470/ RIVERDALE ROAD 154.60 FEET 9.37 RODS SEC. 22, T1S, R67W	COUNTY OF ADAMS 408.67 FEET 24.77 RODS SEC. 22, T1S, R67W	COLORADO E-470 339.05 FEET 9.37 RODS SEC. 22, T1S, R67W	COLORADO E-470 2,585.55 FEET 156.70 RODS SEC. 23, T1S, R67W

ALIGNMENT STATIONING

ALIGNMENT PLAN VIEW SCALE 1" = 400'

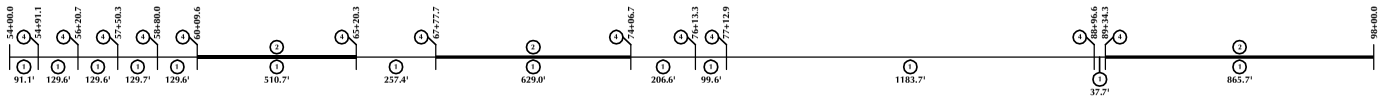


EASEMENT

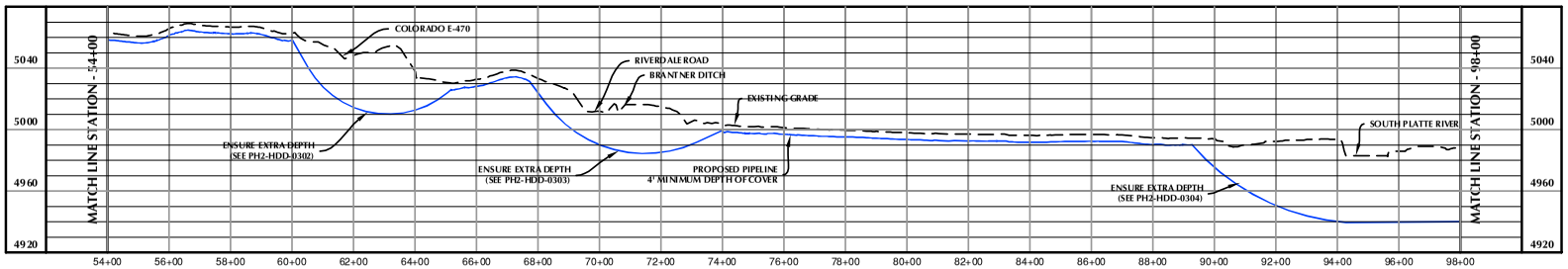


ENGINEERING & MATERIALS

16.000" O.D. CASING PIPE TO SPECIFICATION
12.750" O.D. HDPE CARRIER PIPE TO SPECIFICATION



PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



BILL OF MATERIALS

ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	4,400.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	2,005.4'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0'
4	12" ELBOW	12
5	10" ELBOW	0
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- EXISTING UNDERGROUND POWER
- EXISTING OVERHEAD POWER
- EXISTING PIPELINE
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING FIBER OPTIC LINE
- EXISTING DITCH
- POINT OF INTERSECTION (PI)
- HDD ENTRY / EXIT
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE

NOTES

1. PIPELINE MATERIAL AND INSTALLATION MUST COMPLY WITH COMPANY SPECIFICATIONS AND STANDARDS
2. TYPICAL DRAWINGS - SEE COMPANY STANDARDS

HORIZONTAL 0 200' 400' 1" = 400'

VERTICAL 0 40' 80' 1" = 80'

GENERAL INFORMATION:

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- SEE DRAWING PACKAGE FOR FULL LIST OF REFERENCE DRAWINGS
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- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 3 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS	
DRAWING NAME	DESCRIPTION
PH2-HDD-0302	HWY E-470 CROSSING
PH2-HDD-0303	RIVERDALE RD/BRANTNER DITCH CROSSING
PH2-HDD-0304	SOUTH PLATTE RIVER CROSSING

DRAWING REVISIONS		
REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

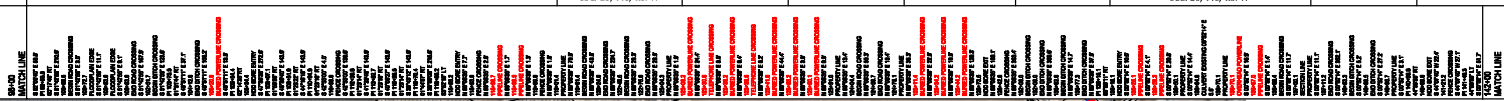
ISSUED FOR REVIEW

PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

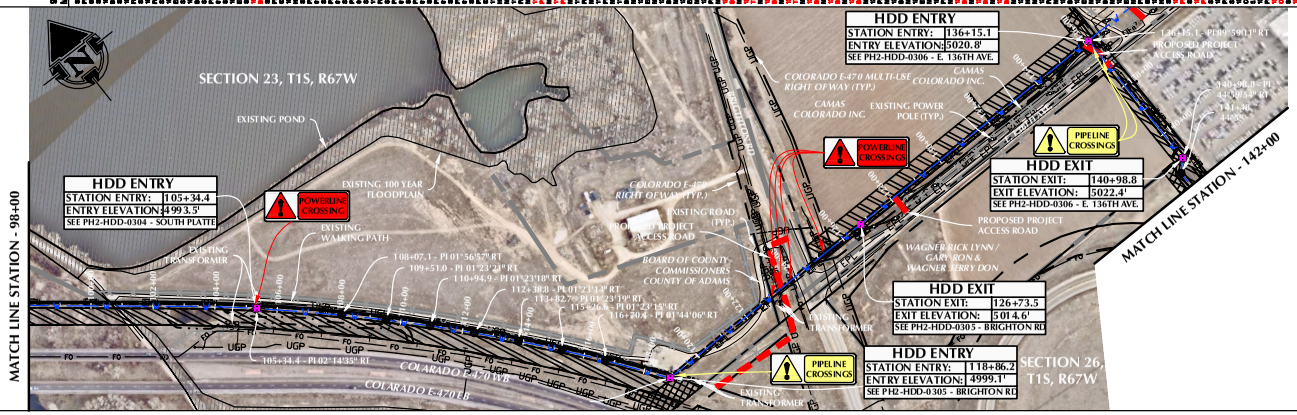
PH2-AS-002

OWNERSHIP	COLORADO E-470 2101.44 FEET 127.36 RODS SEC. 23, T1S, R67W	BOARD OF COUNTY COMMISSIONERS COUNTY OF ADAMS 402.88 FEET 24.42 RODS SEC. 23, T1S, R67W	COLORADO E-470/ BRIGHTON ROAD 170.75 FEET 10.35 RODS SEC. 23, T1S, R67W	CAMAS COLORADO INC. 1175.87 FEET 71.22 RODS SEC. 23, T1S, R67W	COLORADO E-470/ E. 136TH AVE. 19.99 FEET 1.21 RODS SEC. 23, T1S, R67W	COUNTY OF ADAMS/ E. 136TH AVE. 29.99 FEET 1.82 RODS SEC. 23, T1S, R67W	WAGNER RICK LYNN / GARY RON & WAGNER TERRY DON 395.61 FEET 23.98 RODS SEC. 26, T1S, R67W	COLORADO E-470 104.27 FEET 6.32 RODS SEC. 26, T1S, R67W

ALIGNMENT STATIONING



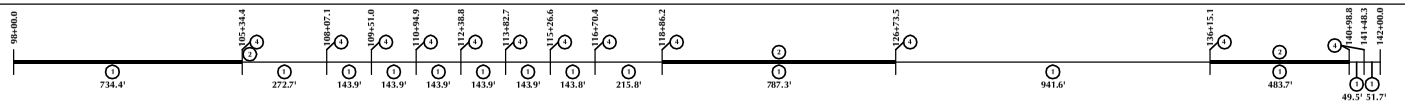
ALIGNMENT PLAN VIEW SCALE 1" = 400'



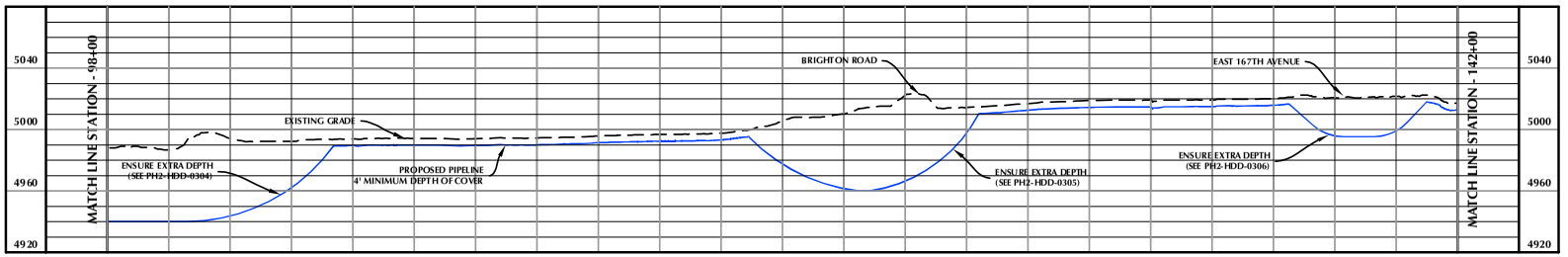
EASEMENT

ENGINEERING & MATERIALS

16.000" O.D. CASING PIPE TO SPECIFICATION
12.750" O.D. HDPE CARRIER PIPE TO SPECIFICATION



PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



BILL OF MATERIALS

ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	4,400.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	2005.4'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0'
4	12" ELBOW	12
5	10" ELBOW	0
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- UGP — EXISTING UNDERGROUND POWER
- OHP — EXISTING OVERHEAD POWER
- EPL — EXISTING PIPELINE
- W — EXISTING WATER LINE
- T — EXISTING TELEPHONE LINE
- EXISTING SANITARY SEWER LINE
- FO — EXISTING FIBER OPTIC LINE
- EXISTING DITCH
- POINT OF INTERSECTION (PI)
- HDD ENTRY / EXIT
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE

NOTES

1. PIPELINE MATERIAL AND INSTALLATION MUST COMPLY WITH COMPANY SPECIFICATIONS AND STANDARDS
2. TYPICAL DRAWINGS - SEE COMPANY STANDARDS

HORIZONTAL 0 200' 400' 1" = 400'

VERTICAL 0 40' 80' 1" = 80'

GENERAL INFORMATION:

- AERIAL IMAGERY COURTESY OF NEARMAP
- SEE DRAWING PACKAGE FOR FULL LIST OF REFERENCE DRAWINGS
- HORIZONTAL CLEARANCE - 10'-0" MINIMUM FROM ANY PIPE
- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 4 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS	
DRAWING NAME	DESCRIPTION
PH2-HDD-0304	SOUTH PLATTE RIVER CROSSING
PH2-HDD-0305	BRIGHTON ROAD CROSSING
PH2-HDD-0306	EAST 136TH AVENUE CROSSING

DRAWING REVISIONS		
REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

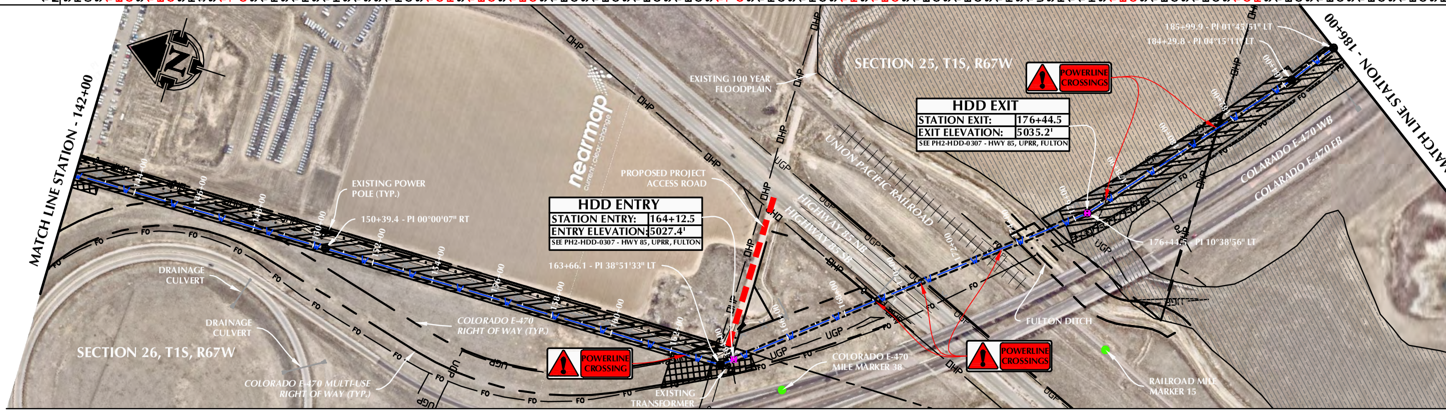
PH2-AS-003

OWNERSHIP

COLORADO E-470 2268.35 FEET 137.48 RODS SEC. 26, T1S, R67W	COLORADO E-470 428.17 FEET 25.95 RODS SEC. 25, T1S, R67W	STATE OF COLORADO/ HWY 85 177.95 FEET 10.78 RODS SEC. 25, T1S, R67W	UPRR 447.89 FEET 27.14 RODS SEC. 25, T1S, R67W	COLORADO E-470 1077.64 FEET 65.31 RODS SEC. 25, T1S, R67W

ALIGNMENT STATIONING

ALIGNMENT PLAN VIEW SCALE 1" = 400'



EASEMENT

50' TEMPORARY
15' PERMANENT
10' TEMPORARY
VARYING WIDTH
10' TEMPORARY
50' TEMPORARY

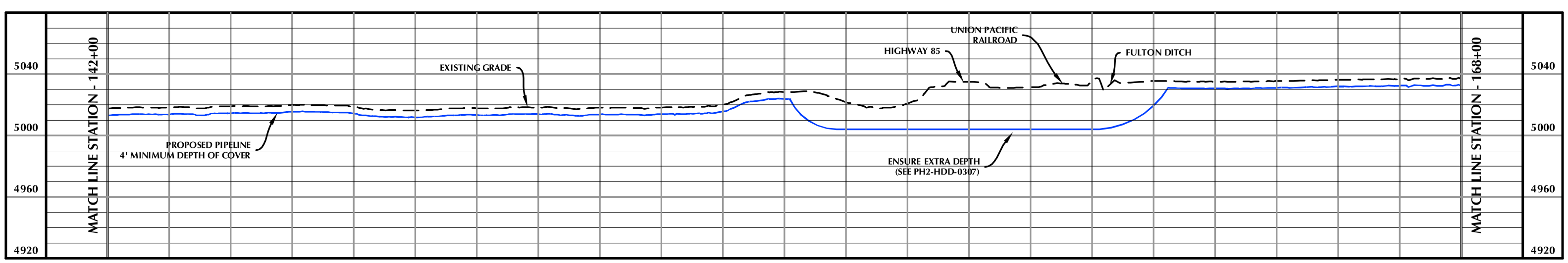
ENGINEERING & MATERIALS

16.000" O.D. CASING PIPE TO SPECIFICATION
12.750" O.D. HDPE CARRIER PIPE TO SPECIFICATION

Station	142+00.0	150+39.4	163+66.1	164+12.5	176+44.5	184+29.8	185+99.9 / 186+00.0

Item	1	1	1	2	1	1	1
Length	839.4'	1326.7'	46.4'	1232.0'	785.3'	170.1'	0.1'

PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



BILL OF MATERIALS

ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	3,168.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	0'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	1,232.0'
4	12" ELBOW	4
5	10" ELBOW	2
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- EXISTING UNDERGROUND POWER
- EXISTING OVERHEAD POWER
- EXISTING PIPELINE
- EXISTING WATER LINE
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- EXISTING SANITARY SEWER LINE
- EXISTING FIBER OPTIC LINE
- EXISTING DITCH
- POINT OF INTERSECTION (PI)
- HDD ENTRY / EXIT
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- ADDITIONAL TEMPORARY WORKSPACE

NOTES

1. PIPELINE MATERIAL AND INSTALLATION MUST COMPLY WITH COMPANY SPECIFICATIONS AND STANDARDS
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HORIZONTAL 0 200' 400' 1" = 400'
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- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 5 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS

DRAWING NAME	DESCRIPTION
PH2-HDD-0307	HWY-85, UPRR & FULTON DITCH CROSSING

DRAWING REVISIONS

REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC
LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331
SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

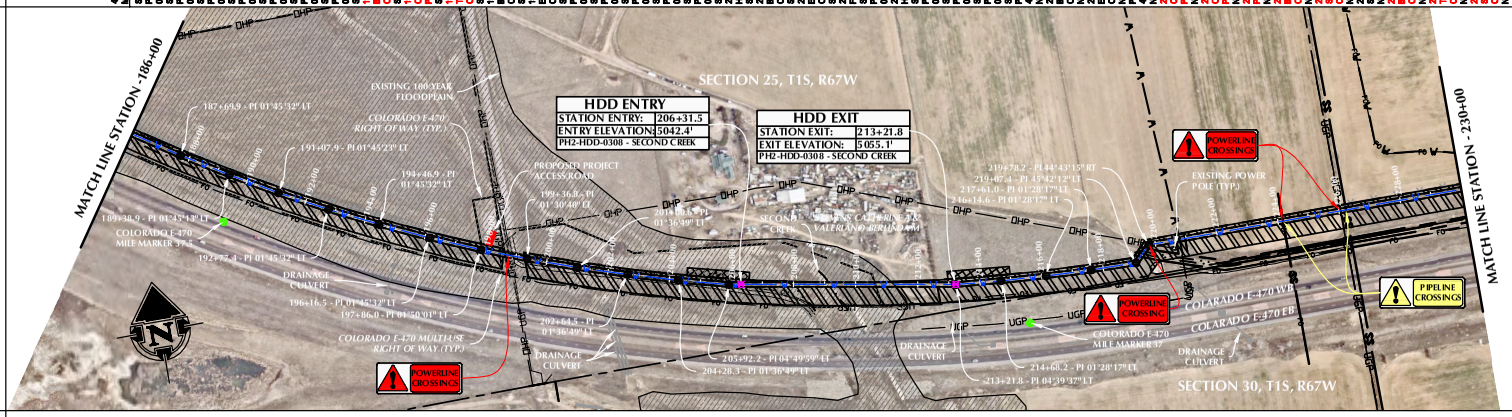
PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

PH2-AS-004

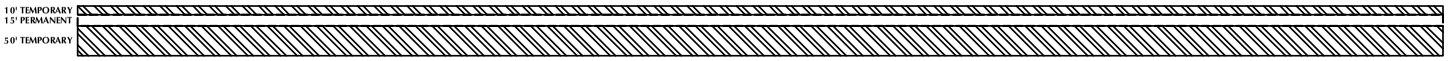
OWNERSHIP	COLORADO E-470 2462.90 FEET 149.27 RODS SEC. 25, T1S, R67W	STEVENS CATHERINE A & VALERIANO BERLINDA M 199.09 FEET 12.07 RODS SEC. 25, T1S, R67W	COLORADO E-470 1343.13 FEET 81.40 RODS SEC. 25, T1S, R67W	COLORADO E-470 394.88 FEET 23.93 RODS SEC. 30, T1S, R67W

ALIGNMENT STATIONING

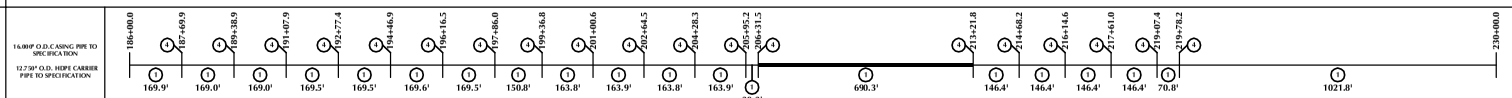
ALIGNMENT PLAN VIEW SCALE 1" = 400'



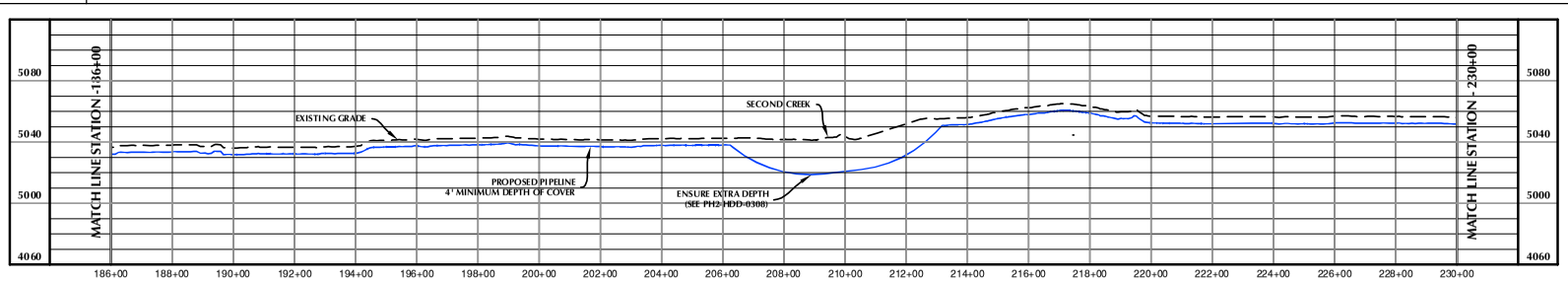
EASEMENT



ENGINEERING & MATERIALS



PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



BILL OF MATERIALS

ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	4,400.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	0'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0'
4	12" ELBOW	19
5	10" ELBOW	0
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- UGP — EXISTING UNDERGROUND POWER
- OHP — EXISTING OVERHEAD POWER
- EPL — EXISTING PIPELINE
- W — EXISTING WATER LINE
- T — EXISTING TELEPHONE LINE
- EXISTING SANITARY SEWER LINE
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- ADDITIONAL TEMPORARY WORKSPACE

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- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 6 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS	
DRAWING NAME	DESCRIPTION
PH2-HDD-0308	SECOND CREEK CROSSING

DRAWING REVISIONS		
REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

PH2-AS-005

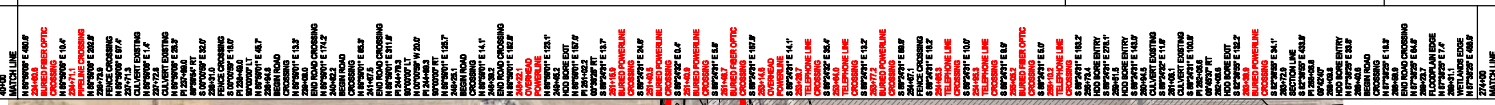
K:\PDC ENERGY\2023\2023_07_PIONEER_WATERLINE_PH.2_AS_B_WCD\WG\ALIGNMENT\PIONEER_PHASE_2_ALIGNMENT.dwg, 9/7/2023 3:39:05 PM, clarsen

OWNERSHIP

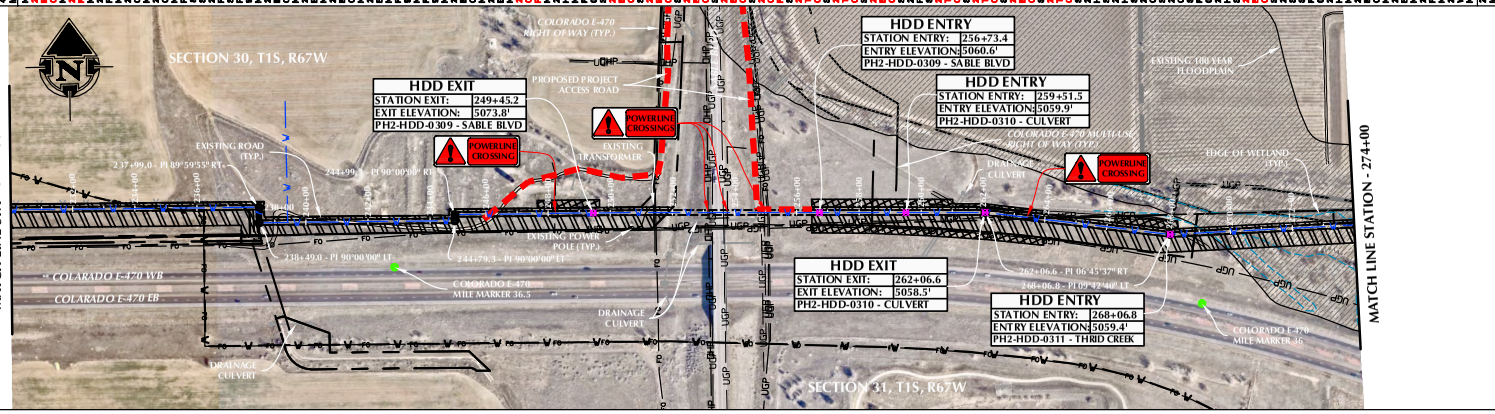
COLORADO E-470
3 372.92 FEET 204.42 RODS
SEC. 30, T1S, R67W

COLORADO E-470
1 027.00 FEET 62.25 RODS
SEC. 31, T1S, R67W

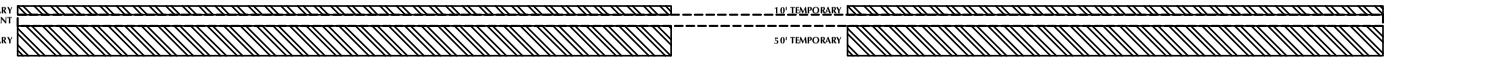
ALIGNMENT STATIONING



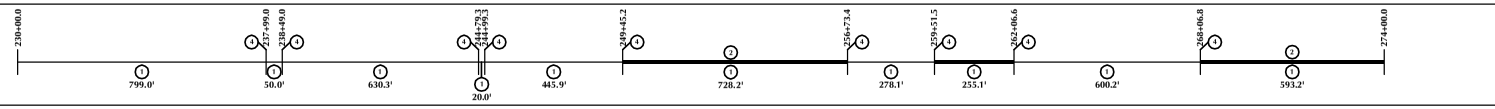
ALIGNMENT PLAN VIEW SCALE 1" = 400'



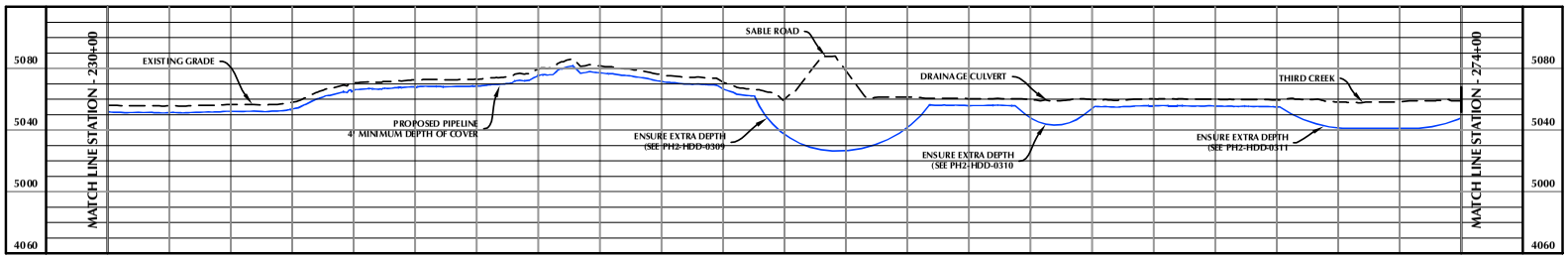
EASEMENT



ENGINEERING & MATERIALS



PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



BILL OF MATERIALS

ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	4,400.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	728.2'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0'
4	12" ELBOW	9
5	10" ELBOW	0
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- UGP — EXISTING UNDERGROUND POWER
- OHP — EXISTING OVERHEAD POWER
- EPL — EXISTING PIPELINE
- W — EXISTING WATER LINE
- T — EXISTING TELEPHONE LINE
- EXISTING SANITARY SEWER LINE
- FO — EXISTING FIBER OPTIC LINE
- EXISTING DITCH
- POINT OF INTERSECTION (PI)
- HDD ENTRY / EXIT
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE

NOTES

1. PIPELINE MATERIAL AND INSTALLATION MUST COMPLY WITH COMPANY SPECIFICATIONS AND STANDARDS
2. TYPICAL DRAWINGS - SEE COMPANY STANDARDS

HORIZONTAL 0 200' 400' 1" = 400'

VERTICAL 0 40' 80' 1" = 80'

GENERAL INFORMATION:

- AERIAL IMAGERY COURTESY OF NEARMAP
- SEE DRAWING PACKAGE FOR FULL LIST OF REFERENCE DRAWINGS
- HORIZONTAL CLEARANCE - 10'-0" MINIMUM FROM ANY PIPE
- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 7 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS

DRAWING NAME	DESCRIPTION
PH2-HDD-0309	SABLE BLVD CROSSING
PH2-HDD-0310	CULVERT EAST OF SABLE CROSSING
PH2-HDD-0311	THIRD CREEK CROSSING

DRAWING REVISIONS

REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC

LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331

SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

PH2-AS-006

K:\PDC ENERGY\2023\2023_07_PIONEER_WATERLINE_PH 2_AS_B_WCD\WG\ALIGNMENT\PIONEER_PHASE_2_ALIGNMENT.dwg, 9/7/2023 3:30:10 PM, clarsen

BILL OF MATERIALS

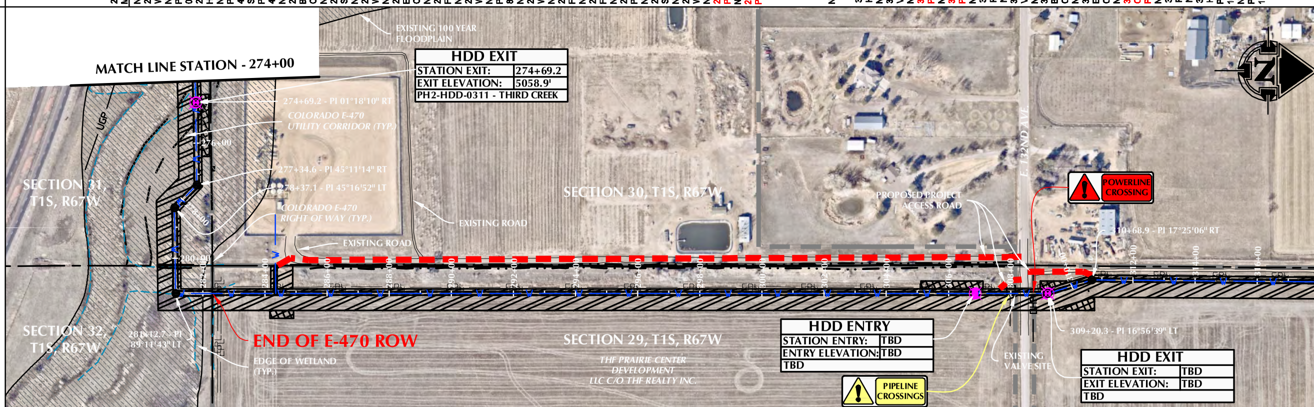
ITEM	DESCRIPTION	QTY
1	12.750" O.D. - CARRIER PIPE - HDPE WL PLASTICS SDR 9, PE4710, ASTM F2619, API 15LE I.D. 9.750"	4,400.0'
2	16.000" O.D. - CASING PIPE - .0250" W.T. - ASTM A106/A53, SMLS OR API 5L PS32 SMLS, GR B, FBE COATED, 14-16 MILS PER NACE RP0394 - PE OR BE	234.6'
3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0'
4	12" ELBOW	8
5	10" ELBOW	0
6	PIPELINE MARKERS PER TYPICAL DRAWING (GWA-CPT-001)	TBD
7	FOREIGN PIPELINE CROSSINGS (LOCATIONS TBD) PER TYPICAL DRAWING (GWA-CPT-004)	TBD

OWNERSHIP

COLORADO E-470	COLORADO E-470	THF PRAIRIE CENTER DEVELOPMENT LLC C/O THF REALTY INC.	COUNTY OF ADAMS/ E. 132ND AVE.	THF PRAIRIE CENTER DEVELOPMENT LLC C/O THF REALTY INC.
623.18 FEET 37.77 RODS	207.91 FEET 12.60 RODS	2583.21 FEET 156.56 RODS	60.00 FEET 3.64 RODS	925.70 FEET 56.10 RODS
SEC. 31, T1S, R67W	SEC. 32, T1S, R67W	SEC. 29, T1S, R67W	SEC. 29, T1S, R67W	SEC. 29, T1S, R67W

ALIGNMENT STATIONING

ALIGNMENT PLAN VIEW SCALE 1" = 400'



EASEMENT

10' TEMPORARY
15' PERMANENT
50' TEMPORARY
10' TEMPORARY
10' PERMANENT
50' TEMPORARY

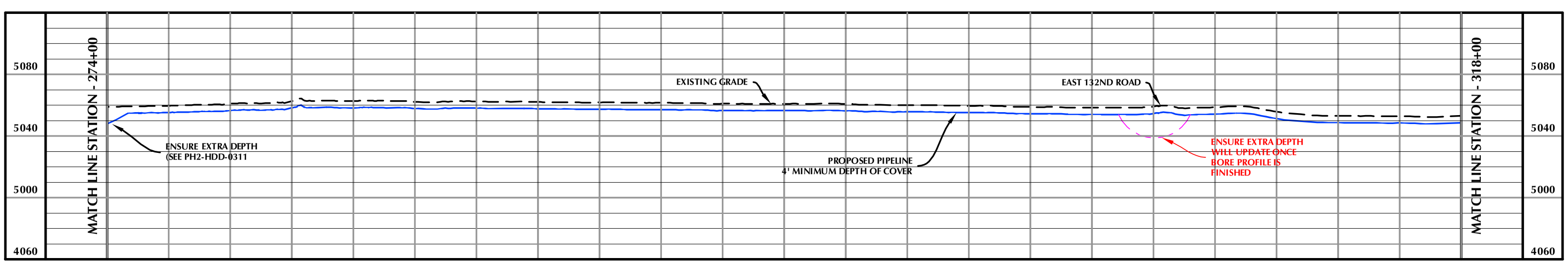
ENGINEERING & MATERIALS

16.000" O.D.CASING PIPE TO SPECIFICATION
12.750" O.D. HDPE CARRIER PIPE TO SPECIFICATION

274+00.0, 274+69.2, 277+34.6, 278+37.1, 281+12.7, 284+34.5, 306+85.7, 309+20.3, 310+68.9, 318+00.0

69.2', 265.4', 102.5', 275.6', 321.7', 2251.2', 234.6', 148.6', 731.1'

PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



LEGEND

- PROPOSED WATER PIPELINE
- HEAVY WALL / BORE PIPE
- PROPERTY LINE
- SECTION LINE
- FENCE LINE
- EXISTING UNDERGROUND POWER
- EXISTING OVERHEAD POWER
- EXISTING PIPELINE
- EXISTING WATER LINE
- EXISTING TELEPHONE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING FIBER OPTIC LINE
- EXISTING DITCH
- POINT OF INTERSECTION (PI)
- HDD ENTRY / EXIT
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE

NOTES

1. PIPELINE MATERIAL AND INSTALLATION MUST COMPLY WITH COMPANY SPECIFICATIONS AND STANDARDS
2. TYPICAL DRAWINGS - SEE COMPANY STANDARDS

HORIZONTAL 0 200' 400' 1" = 400'
VERTICAL 0 40' 80' 1" = 80'

GENERAL INFORMATION:

- AERIAL IMAGERY COURTESY OF NEARMAP
- SEE DRAWING PACKAGE FOR FULL LIST OF REFERENCE DRAWINGS
- HORIZONTAL CLEARANCE - 10'-0" MINIMUM FROM ANY PIPE
- VERTICAL CLEARANCE - 2'-0" MINIMUM FROM ANY PIPE OR ELECTRICAL

ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 7 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS

DRAWING NAME	DESCRIPTION
PH2-HDD-0311	THIRD CREEK CROSSING

DRAWING REVISIONS

REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC
LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331
SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

PH2-AS-007

K:\PDC ENERGY\2023\2023_07_PIONEER_WATERLINE_PH_2_AS_&_WC\DWG\ALIGNMENT\PIONEER_PHASE_2_ALIGNMENT.dwg, 9/7/2023 3:30:14 PM, cjaeger

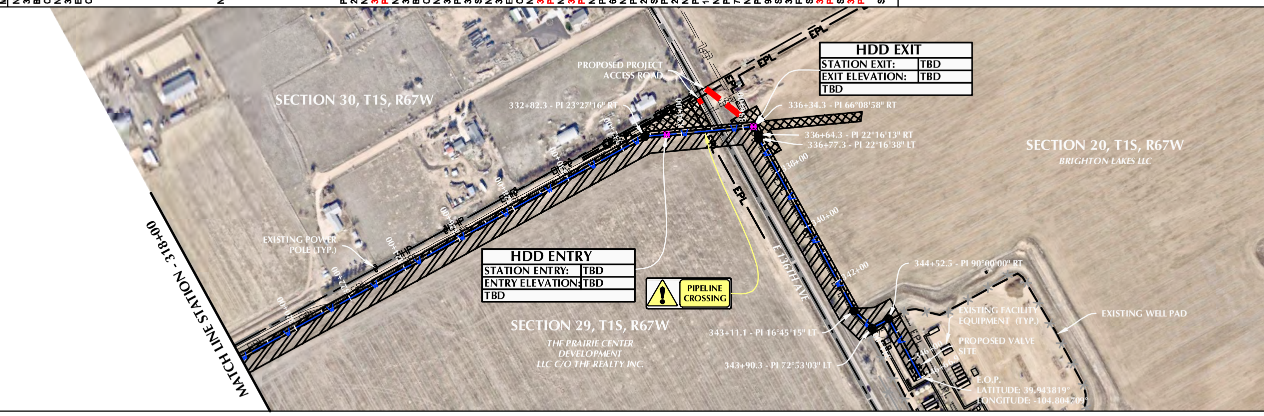
OWNERSHIP

THF PRARIE CENTER DEVELOPMENT LLC C/O THF REALTY INC. 1725.59 FEET 104.58 RODS SEC. 29, T1S, R67W	BRIGHTON LAKES LLC 1141.28 FEET 69.17 RODS SEC. 20, T1S, R67W

ALIGNMENT STATIONING

318+00 MATCH LINE
N 00°07'41" E 350.1'
321+50.1 BEGIN ROAD CROSSING
N 00°07'41" E 42.8'
321+92.9 END ROAD CROSSING
N 00°07'41" E 1089.4'
PI 332+82.3 23°27'16" RT
N 23°34'56" E 194.6'
334+76.9 PIPELINE CROSSING
N 23°34'56" E 36.6'
335+13.4 BEGIN ROAD CROSSING
N 23°34'56" E 12.2'
335+25.6 PROPERTY LINE
N 23°34'56" E 14.2'
335+39.8 SECTION LINE END ROAD CROSSING
N 23°34'56" E 74.5'
336+14.3 PIPELINE CROSSING
N 23°34'56" E 3.4'
336+17.7 PIPELINE CROSSING
N 23°34'56" E 16.6'
PI 336+34.3 66°08'58" RT
N 89°43'54" E 30.0'
PI 336+64.3 22°16'13" RT
S 67°59'53" E 13.0'
PI 336+77.3 22°16'39" LT
N 89°43'29" E 633.7'
PI 343+11.1 16°45'14" LT
N 72°58'14" E 79.2'
PI 343+90.3 72°53'03" LT
N 00°05'11" E 62.1'
PI 344+52.5 90°00'00" RT
S 89°54'49" E 4.2'
344+56.7 FENCE CROSSING
S 89°54'49" E 7.7'
344+64.4 PIPELINE CROSSING
S 89°54'49" E 3.1'
344+67.5 PIPELINE CROSSING
S 82°27'14" E 199.4'
E.O.P. 346+66.9

ALIGNMENT PLAN VIEW SCALE 1" = 400'



EASEMENT

10' TEMPORARY
15' PERMANENT
50' TEMPORARY
50' TEMPORARY
10' TEMPORARY
30' TEMPORARY
20' TEMPORARY

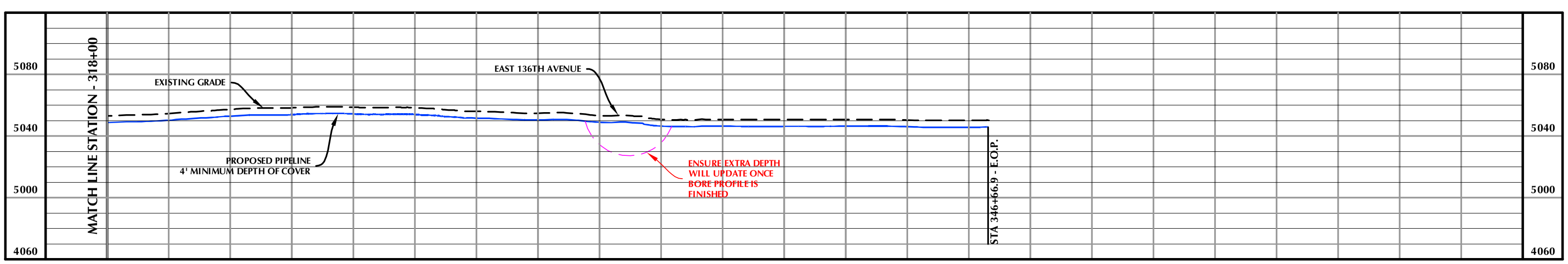
ENGINEERING & MATERIALS

16.000" O.D. CASING PIPE TO SPECIFICATION
12.750" O.D. HDPE CARRIER PIPE TO SPECIFICATION

318+00.0; 332+82.3; 333+53.3; 336+34.3; 336+64.3; 336+77.3; 343+11.1; 343+90.3; 344+52.5; 346+66.9

(1) 1482.3'; (1) 71'; (1) 281'; (2); 30.0'; 13.0'; (1) 633.8'; (1) 79.2'; (1) 62.2'; (1) 214.4'

PROFILE SCALE 1" = 400' HORIZONTAL SCALE 1" = 80' VERTICAL



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3	10.750" O.D. - STAINLESS STEEL SS316 PIPE, SCH. 40 (0.365" W.T.)	0
4	12" ELBOW	8
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ORIGINAL DOCUMENT SIZE: 11"X17"

SHEET: 8 OF 9 DATE: 9/10/23

REFERENCE DRAWINGS

DRAWING NAME	DESCRIPTION

DRAWING REVISIONS

REV.	DATE	DESCRIPTION
A	9/10/23	ISSUED FOR REVIEW (IFR)

609 CONSULTING, LLC
LOVELAND OFFICE
6706 North Franklin Avenue
Loveland, Colorado 80538
Phone 970-776-4331
SHERIDAN OFFICE
1095 Saberton Avenue
Sheridan, Wyoming 82801
Phone 307-674-0609

PDC ENERGY
1099 18th Street,
Granite Tower, Suite 1500
Denver, Colorado 80202

ISSUED FOR REVIEW

PIONEER PHASE 2 TRUNK LINE
12" WATER LINE
ALIGNMENT SHEET STA. 10+00.0 TO 54+00

PH2-AS-008

K:\PDC ENERGY\2023\2023_07_PIONEER_WATERLINE_PH_2_AS_8_WC\DWG\ALIGNMENT\PIONEER_PHASE_2_ALIGNMENT.dwg, 9/7/2023 3:30:19 PM, cjaeger

Exhibit D
Community Meeting

Pioneer Water Pipeline, LLC
Produced Water Pipeline
City of Brighton & Adams County
Community Meeting Mailing List

City of Brighton - 1000' offset:

Emma Lane, Senior Planner
City of Brighton
500 S 4th Ave.,
Brighton, CO 80601

E-470 Authority
22470 E. Stephen D. Hogan Parkway
Aurora, Colorado 80018

Adams County
Board of County Commissioners
4430 S Adams County Pkwy
5th Floor
Brighton, CO 80601

Adams County Board of County Commissioners
c/o Facilities & Fleet Management, Division of Real Estate
4430 S Adams County Pkwy
Brighton, CO 80601

Henderson Aggregate Ltd.
PO Box 700
Henderson, CO 80640

WAGNER RICK LYNN/GARY RON AND WAGNER TERRY DON
8808 BEHRENS MILE ROAD
BYERS CO 80103

CAMAS COLORADO INC
C/O AGGREGATE INDUSTRIES
6211 N ANN ARBOR RD
DUNDEE MI 48131-9527

SHARP AC LAND LLC
10955 E 150TH PL
BRIGHTON CO 80602-7467

Elaine Schaefer
13295 E 136th Ave.
Brighton, CO 80601

Cynthia L Thorngren
12980 E 136th Ave.
Brighton, CO 80601

Ritchey Investment Company LLC
13821 Sable Blvd.
Brighton, CO 80601

John Schissler
13584 Crystal St.
Brighton, CO 80601

John Schissler
13564 Crystal St.
Brighton, CO 80601

Ricky Schissler
13544 Crystal St.
Brighton, CO 80601

Steven and Sarah Ball
13524 Crystal St.
Brighton, CO 80601

Gary and Nancy Nixon
13464 Crystal St.
Brighton, CO 80601

James Thomas
13581 Sable Blvd.
Brighton, CO 80601

Kisten Bellemarie
13561 Sable Blvd.
Brighton, CO 80601

Jerald & Barbara Street
13541 Sable Blvd.
Brighton, CO 80601

Randall & Lisa Cleveland
13521 Sable Blvd.
Brighton, CO 80601

Barbara Juarez
13481 Sable Blvd.
Brighton, CO 80601

Thomas Land
13441 Sable Blvd.
Brighton, CO 80601

Donald & Pauline Seeger
13590 Sable Blvd.
Brighton, CO 80601

George Webb
14600 E 136th Ave.
Brighton, CO 80601

Mianne & Brooke Besser
14640 E 136th Ave.
Brighton, CO 80601

Sadie & Jeffrey Lyons
14740 E 136th Ave.
Brighton, CO 80601

Nathan Austin
13571 Kennedy Ave.
Brighton, CO 80601

Kenneth Drozd
13540 Sable Blvd.
Brighton, CO 80601

John Sauer
14589 E 135th Ave.
Brighton, CO 80601

Philip & Sharon Popish
14649 E 135th Ave.
Brighton, CO 80601

Rodney & Linda Holland
14709 E 135th Ave.
Brighton, CO 80601

William & Donna Dressler
14789 E 135th Ave.
Brighton, CO 80601

Jonathan Gonzalez-Millan & Bianca Ruby Garza
13530 Sable Blvd.
Brighton, CO 80601

Michael & Patricia Baca
14588 E 135th Ave.
Brighton, CO 80601

Matthew & Brenda Lavely
14648 E 135th Ave.
Brighton, CO 80601

Arden & Barbara Youmans
Or Current Resident
14708 E 135th Ave.
Brighton, CO 80601

Jeffrey & Tami Saathoff
14768 E 135th Ave.
Brighton, CO 80601

Jesus Contreras
14567 E 134th Pl.
Brighton, CO 80601

Daniel Stathis & Trista Denning
14587 E 134th Pl.
Brighton, CO 80601

Viswa Peesapati & Ramaleela Muppala
14647 E 134th Pl.
Brighton, CO 80601

David & Pamela Stathis
14707 E 134th Pl.
Brighton, CO 80601

Howard Jones
14767 E 134th Pl.
Brighton, CO 80601

Joshua & Tracy Gazaway
13440 Sable Blvd.
Brighton, CO 80601

Tyler & Tiffany Flageolle
14566 E 134th Pl.
Brighton, CO 80601

Coy & Charon Livingston
14646 E 134th Pl.
Brighton, CO 80601
Robert & Brian Laurence
14706 E 134th Pl.
Brighton, CO 80601

Shannon & Geraldine Smith
14766 E 134th Pl.
Brighton, CO 80601

Comeau Family Trust
13572 Kennedy Ave.
Brighton, CO 80601

Jesus Gustavo Ramirez Jr.
13552 Kennedy Ave.
Brighton, CO 80601

Jared & Kendal Argotsinger
13532 Kennedy Ave.
Brighton, CO 80601

Kenneth Uhing
13526 Kennedy Ave.
Brighton, CO 80601

Carrie & Gregory Zimmerman
13516 Kennedy Ave.
Brighton, CO 80601

Michael & Shawna Karl
13490 Kennedy Ave.
Brighton, CO 80601

Julie & Henry Gleim
13444 Kennedy Ave.
Brighton, CO 80601

Arden & Barbara Youmans
13422 Kennedy Ave.
Brighton, CO 80601

Kevin & Christine Barnes
14810 E 136th Ave.
Brighton, CO 80601

Gregory & Jessica Olivas
13475 Fairplay St.
Brighton, CO 80601

Larry & Rosemary Jackson
13510 Fairplay St.
Brighton, CO 80601

Jerry & Jewell Stratton
13460 Fairplay St.
Brighton, CO 80601

Lopez Jose Laurrauri
13550 Granby St.
Brighton, CO 80601

Pauline Villenueve Trust
12989 W Montana Dr.
Lakewood, CO 80228

Mary Lorshbough
15380 E 136th Ave.
Brighton, CO 80601

Benjamin & Annalee Alires
13560 Granby St.
Brighton, CO 80601

Irene Pfannenstiel Living Trust
13410 Granby St.
Brighton, CO 80601

Prairie Center Development LLC
c/o THF Realty Inc.
211 N Stadium Blvd.
Suite 201
Columbia, MD 65203

Brighton Lakes LLC
200 W Hampden Ave.
Suite 201
Englewood, CO 80110

Adams Crossing LLC
c/o Woodbury Corporation
2733 E Parleys Way
Suite 300
Salt Lake City, UT 84109

Millrock Capitol LLC
PO Box 71405
Salt Lake City, UT 84171
Michael & Karen Vaughn
12575 Tucson St.
Henderson, CO 80640

Adams County Provided List
De-duped from City of Brighton List

ADAMS COUNTY BOARD OF COUNTY COMMISSIONERS
C/O FACILITIES & FLEET MANAGEMENT, DIVISION OF REAL ESTATE
4430 S ADAMS COUNTY PKWY
BRIGHTON CO 80601-8222

John Applehanz, Christine Ann Joseph
MONACO RENTALS LLC
5980 MONACO ST
COMMERCE CITY CO 80022-4023

BOARD OF COUNTY COMMISSIONERS
COUNTY OF ADAMS
9755 HENDERSON RD
BRIGHTON CO 80601-8114

BUCKLEY PARALLEL LLC
PO BOX 247
EASTLAKE CO 80614-0247

CITY OF BRIGHTON
500 S 4TH AVE
BRIGHTON CO 80601-3165

DE CRESCENTIS LOUIS J
12853 E LOUISIANA AVE
AURORA CO 80012-4437

PHAM KINH
6680 W ARKANSAS AVE
LAKEWOOD CO 80232-5602

PLAZA WEST 20 LLC
9377 E 147TH PL
BRIGHTON CO 80602

SABLE LAND LLC
PO BOX 247
EASTLAKE CO 80614-0247

SAMPSON FAMILY LIMITED PARTNERSHIP
PO BOX 468
BRIGHTON CO 80601

SASAKI FAMILY PARTNERSHIP LLLP
697 VOILES DR
BRIGHTON CO 80601-3322

SILVER PEAKS METROPOLITAN DISTRICT NO 1
5460 S QUEBEC STREET
GREENWOOD VILLAGE CO 80111

TLMG LLC
725 E BRIDGE ST
BRIGHTON CO 80601-2153

UNITED POWER INC
ATTN: PROPERTY TAX DEPT.
500 COOPERATIVE WAY
BRIGHTON CO 80603-8728

FAVUZZI LEONARD AND FAVUZZI MARTHA
OR CURRENT RESIDENT
13201 ABILENE STREET
BRIGHTON CO 80601

HINOJOS JOSEFINA
OR CURRENT RESIDENT
13331 ABILENE ST
BRIGHTON CO 80601

LAURRAURI LOPEZ JOSE M
OR CURRENT RESIDENT
13550 GRANBY ST
BRIGHTON CO 80601-6959

LORSHBOUGH MARY J
OR CURRENT RESIDENT
15280 E 136TH AVE
BRIGHTON CO 80601-6955

MADER CLINT AND MADER KARNA
OR CURRENT RESIDENT
14850 E 132ND AVE
BRIGHTON CO 80601-6901

MOEDING JOHN R AND QUINBY LAURA L
OR CURRENT RESIDENT
13221 ABILENE ST
BRIGHTON CO 80601-7224

NEWTON BRADLEY R AND NEWTON PAULA J
OR CURRENT RESIDENT
13350 FAIRPLAY ST
BRIGHTON CO 80601-6953

OKADA FARMS INC
OR CURRENT RESIDENT
12670 E 132ND AVE BRIGHTON CO 80601

PFANNENSTIEL IRENE L LIVING TRUST
OR CURRENT RESIDENT
13410 GRANBY ST
BRIGHTON CO 80601-6959

REED GENE N AND REED JANICE D
OR CURRENT RESIDENT
13442 E 132ND AVE
BRIGHTON CO 80601-7108
CURRENT RESIDENT
16291 E 136TH AVE
BRIGHTON CO 80601-6956

CURRENT RESIDENT
17101 E 136TH AVE
BRIGHTON CO 80601-7046

CURRENT RESIDENT
17180 E 136TH AVE
BRIGHTON CO 80601-7047

CURRENT RESIDENT
12892 TUCSON ST
BRIGHTON CO 80601-7105

CURRENT RESIDENT
13060 TUCSON ST
BRIGHTON CO 80601-7105

CURRENT RESIDENT
13515 E 132ND AVE
BRIGHTON CO 80601-7107

CURRENT RESIDENT
13400 E 132ND AVE
BRIGHTON CO 80601-7108

CURRENT RESIDENT
13512 E 132ND AVE
BRIGHTON CO 80601-7108

CURRENT RESIDENT
12911 SABLE BLVD
BRIGHTON CO 80601-7117

CURRENT RESIDENT
13185 SABLE BLVD
BRIGHTON CO 80601-7117

CURRENT RESIDENT
12650 TUCSON ST
HENDERSON CO 80640-9443

DECRESCENTIS LOUIS J AND DECRESCENTIS RAYMOND L
12853 E LOUISIANA AVE
AURORA CO 80012-4437

EDMUNDSON LAND LLC
18539 COUNTY ROAD 4
BRIGHTON CO 80603-9414

GONZALES JOSE AND GONZALES JENNIE J
PO BOX 1217
BRIGHTON CO 80601

H-F INVESTMENT COMPANY LLC
13022 E 136TH AVE
BRIGHTON CO 80601-7281

JRE 85 LLC
9377 E 147TH PL
BRIGHTON CO 80602-5713

L AND R LEASING LLC
11665 SALEM ST
HENDERSON CO 80640-9258

OKADA FARMS INC
12670 E 132ND AVE
BRIGHTON CO 80601-7111

OTTEN DONALD M REVOCABLE TRUST
12870 SILVER WOLF RD
RENO NV 89511-3400

PAULINE VILLENUEVE IRREVOCABLE TRUST
12989 W MONTANA DR
LAKEWOOD CO 80228-4244

VALERIANO NOE
12890 TUCSON ST
BRIGHTON CO 80601-7105

VAUGHN MICHAEL L AND VAUGHN KAREN J
12575 TUCSON ST
HENDERSON CO 80640-9447

WARNER ROBERT
PO BOX 9
BRIGHTON CO 80601-0009

ALIRES BENJAMIN T JR AND ALIRES ANNALEE L
OR CURRENT RESIDENT
13560 GRANBY ST
BRIGHTON CO 80601-6959

ANDERSON THOMAS D LIVING TRUST,
ANDERSON PATRICIA A LIVING TRUST
OR CURRENT RESIDENT
15250 E 132ND AVE
BRIGHTON CO 80601-6936

BANKS TED K AND BANKS CONNIE S
OR CURRENT RESIDENT
15150 E 132ND AVE
BRIGHTON CO 80601

BUNKER JAMES A
OR CURRENT RESIDENT
13198 SABLE BLVD
BRIGHTON CO 80601-7118

DIGREGORIO DINO AND DIGREGORIO CARLA M
OR CURRENT RESIDENT
13200 ABILENE ST
BRIGHTON CO 80601-7224

EWING JOHN L AND EWING LINDA L
OR CURRENT RESIDENT
14950 E 132ND AVE
BRIGHTON CO 80601-6937

ROSSI ANTHONY J
OR CURRENT RESIDENT 13210 ABILENE ST
BRIGHTON CO 80601

SAUER SHANE T AND SAUER BRITTANI A
OR CURRENT RESIDENT
13211 ABILENE ST
BRIGHTON CO 80601

SMITH DEANNA M
OR CURRENT RESIDENT
15200 E 132ND AVE
BRIGHTON CO 80601
STEVENS CATHERINE A AND VALERIANO BERLINDA M
OR CURRENT RESIDENT
12890 TUCSON ST
BRIGHTON CO 80601-7105

VAUGHN MICHAEL AND VAUGHN KAREN J
OR CURRENT RESIDENT
12575 TUCSON ST
HENDERSON CO 80640-9447

WAGNER SAM AND IRENE WILMA TRUST
OR CURRENT RESIDENT
15201 E 132ND AVE
BRIGHTON CO 80601

WERBACH CYNTHIA
OR CURRENT RESIDENT
16601 E 136TH AVE
BRIGHTON CO 80601-6956

ZAISS BRIAN RONALD AND ZAISS AMY LYNN
OR CURRENT RESIDENT
13300 FAIRPLAY ST
BRIGHTON CO 80601-6953

CURRENT RESIDENT
15300 E 132ND AVE
BRIGHTON CO 80601-6900

CURRENT RESIDENT 13080 SABLE BLVD
BRIGHTON CO 80601-7118

CURRENT RESIDENT
13200 TUCSON ST
BRIGHTON CO 80601-7201

CURRENT RESIDENT
13920 SABLE BLVD
BRIGHTON CO 80601-7265

CURRENT RESIDENT
12410 E 136TH AVE
BRIGHTON CO 80601-7300

CURRENT RESIDENT
12361 E 136TH AVE
BRIGHTON CO 80601-7319

CURRENT RESIDENT
12280 E 136TH AVE
BRIGHTON CO 80601-7320

CURRENT RESIDENT
13675 BRIGHTON RD
BRIGHTON CO 80601-7326

CURRENT RESIDENT
12800 CAMERON DR
BRIGHTON CO 80603-6901

CURRENT RESIDENT
12895 BUCKLEY RD
COMMERCE CITY CO 80603-7069

CURRENT RESIDENT
12630 TUCSON ST
HENDERSON CO 80640-9443


NO PARKING
NOTICE OF COMMUNITY OPEN HOUSE
PIONEER PRODUCED WATER PIPELINE PHASE 2
Chevron has applied to permit and construct a produced water pipeline called Pioneer Phase 2. The applicant for this pipeline was originally PDC Energy. As of August 2023, PDC Energy has been acquired by Chevron.
Chevron will hold a public open house for the application from 5:00- 6:30 p.m. on Wednesday, October 11th, 2023. The open house will take place at the Armory Performing Arts Center, 300 Strong St., Brighton, CO 80601.
Come and meet Chevron representatives to learn more about the company's development plan for the Pioneer Produced Water Pipeline Phase 2. The event is open house style, so please join any time within this timeframe. Families are welcome, and light food and beverages will be provided. Translation and childcare services will be provided upon request.
For event questions or to contact Chevron, please call 720-319-7989.

Pioneer Produced Water Pipeline Phase 2
Community Open House

On October 11, 2023 Chevron hosted an in-person open house for all landowners within the area of the proposed Pioneer Produced Water Pipeline project. Letters were sent first class postage to arrive three weeks prior to the meeting to 140 landowners within the area. Included in the packet was:

- A flyer invitation with information about the open house event and an email for RSVPs
- A map of the area highlighting Brighton city limits and where the proposed pipeline will run

Chevron did not have any RSVPs from landowners prior to the event, however we did have two area landowners attend:

- Wayne Schaefer – 13295 E. 136th Avenue, Brighton, CO 80601. (Property owned by his mother, Elaine Schaefer)
- John Sauer – 14589 E. 135th Avenue, Brighton, CO 80601

Also in attendance were Greg Dean, Adams County Oil & Gas liaison and Mike Tylka, Assistant Director of Community Development from the City of Brighton.

The event was held at the Armory of Brighton Cultural Center from 5:00-6:30PM, and we had six representatives of Chevron to greet landowners and answer questions.

Some questions that were asked were:

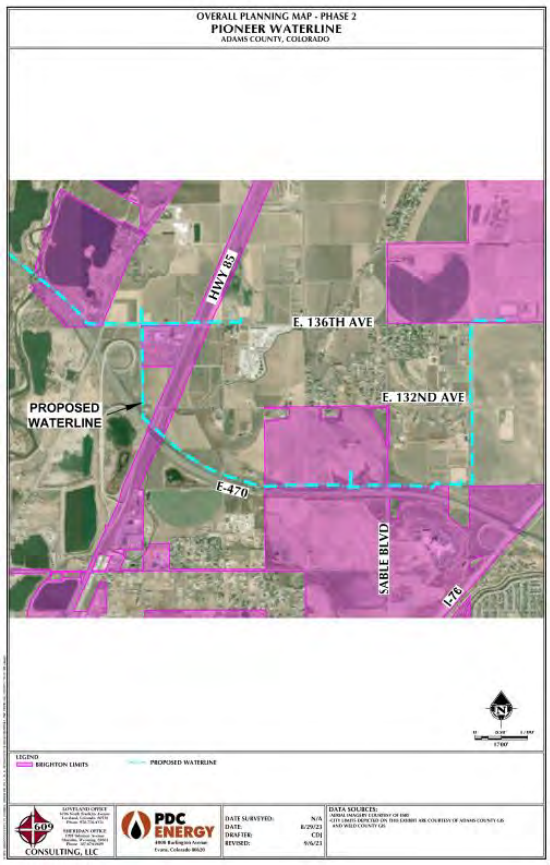
- When is the project starting?
  - We intend to start the project in Q1 2024.
- Where is this water coming from?
  - The pipeline transports produced water, this comes to the surface alongside oil and gas from wells that are approved and drilled.
- How deep are the wells?
  - While the depth varies, generally 6-8,000 ft of depth; the wells are drilled for a few miles laterally from that depth to effectively capture hydrocarbons.
- What is this water?
  - It is primarily brine (salt water) from the naturally occurring formation along with water left in place from hydraulic fracturing of the wells within the permitted limits.
- How much volume will be in the pipeline and what size will it be; “it must be large”?
  - It is primarily of 8”-12” nominal diameter; regarding the subject ROW we anticipate a maximum of 20-25,000 BWPD at peak and that will taper off over time. This is mostly dependent on the timing of the flowbacks.
- What is done with the water once it reaches the NGL C2 disposal site in Weld County, can it be used for something else?
  - The goal of the pipeline is to replace the need for trucks to move the water to the NGL C2 disposal site; at that point NGL takes custody of the water. While we cannot dictate what is done with the water after the transfer, it is our understanding the majority is injected into permitted Class II SWD disposal wells; though they do have the rights to reuse the water if the opportunity exists.
- Are any boosters needed?
  - No, the current design allows the transfer pumps at the well pads to move the water all the way through the pipeline.
- How deep is the line buried?

- At a minimum it is buried to 4', however, in some areas it will deeper to accommodate other utilities or at landowner requests. Additionally, where bores are needed it can be 25+ feet below the surface.

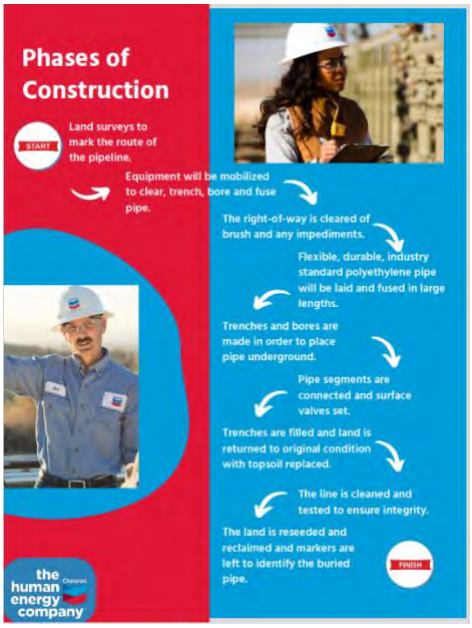
Each person was also able to visit a station that highlighted a specific part of the project process. We also had maps of the project.

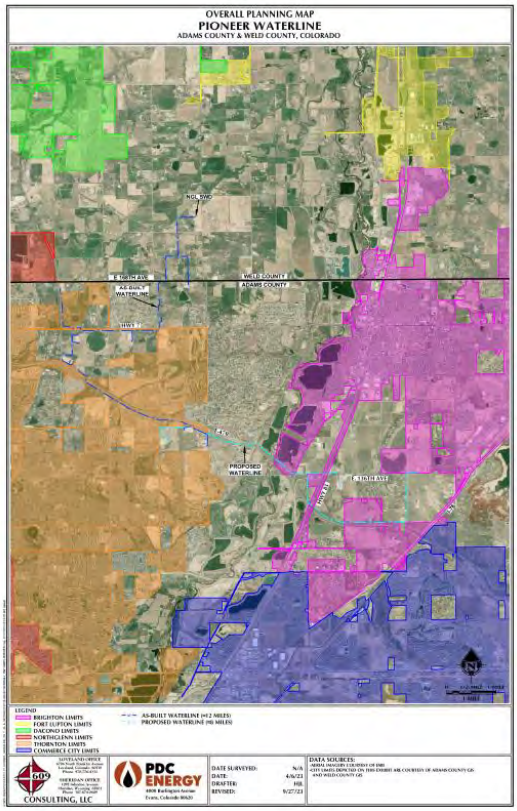
Invitation

Map included with invitation.



Posters from the event


Phases of Construction
START
Land surveys to mark the route of the pipeline.
Equipment will be mobilized to clear, trench, bore and fuse pipe.
The right-of-way is cleared of brush and any impediments.
Flexible, durable, industry standard polyethylene pipe will be laid and fused in large lengths.
Trenches and bores are made in order to place pipe underground.
Pipe segments are connected and surface valves set.
Trenches are filled and land is returned to original condition with topsoil replaced.
The line is cleaned and tested to ensure integrity.
The land is reseeded and reclaimed and markers are left to identify the buried pipe.
FINISH
the human energy company


OVERALL PLANNING MAP
PIONEER WATERLINE
ADAMS COUNTY & WELD COUNTY, COLORADO
E. 136TH AVE
WELD COUNTY
ADAMS COUNTY
PROPOSED WATERLINE
HWY 85
E. 132ND AVE
LEGEND
BRIGHTON LIMITS
FORT LUPTON LIMITS
DACONO LIMITS
NORTHGLENN LIMITS
THORNTON LIMITS
COMMERCE CITY LIMITS
AS-BUILT WATERLINE (+/-2 MILES)
PROPOSED WATERLINE (+/- MILES)
CONSULTING, LLC
PDC ENERGY
DATE SURVEYED:
DATE:
DRAFTER:
REVISED:
DATA SOURCES:


OVERALL PLANNING MAP - PHASE 2
PIONEER WATERLINE
ADAMS COUNTY, COLORADO
HWY 85
E. 136TH AVE
E. 132ND AVE
PROPOSED WATERLINE
E-470
SABLE BLVD
E-76
LEGEND
BRIGHTON LIMITS
PROPOSED WATERLINE
CONSULTING, LLC
PDC ENERGY
DATE SURVEYED:
DATE:
DRAFTER:
REVISED:
DATA SOURCES:

Room Layout

Exhibit E
Biological Resources Report

Biological Resources Field Reconnaissance Report

Pioneer Water Pipeline Project Phase 2

Adams County, Colorado

January 2023

Prepared for

PDC ENERGY
4000 Burlington Ave
Evans, CO 80620

Prepared by

TETRA TECH
350 Indiana Street, Suite 500
Golden, CO 80401

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1.0 Project Description

Tetra Tech, Inc. (Tetra Tech) was contracted on behalf PDC Energy, Inc. (PDC) to conduct a biological assessment for the proposed Pioneer Water Pipeline Phase 2 (Project), located in Adams County, Colorado (Figure 1). This document summarizes the results of the desktop analysis, details the field biological assessment methods used and their results, and provides a discussion of biological observations and recommendations.

PDC is proposing to build a water pipeline to safely dispose of wastewater from existing natural gas wells in the area. The Project involves installing approximately 5.5 miles of 4-inch to 12-inch pipeline and associated appurtenances. The majority of the pipeline will follow existing road rights-of-way overland, some of which will be installed using horizontal directional drilling to avoid impacts to wetlands and other sensitive biological resources. The biological assessment area for this Project included a 0.5-mile buffer (0.25 mile on either side) of the proposed pipeline centerline for burrowing owl (*Athene cunicularia*) habitat and a 1-mile buffer (0.5 mile on either side) of the proposed pipeline centerline for the raptor nest survey (Survey Area).

1.1 Ecoregion

The Project is located in the U.S. Environmental Protection Agency's (EPA) Flat to Rolling Plains (25d) Level IV ecoregion of the High Plains Level III Ecoregion. The common native vegetation found within the ecoregion consists of buffalograss (*Buchloë dactyloides*), blue grama (*Bouteloua gracilis)*, and western wheatgrass (*Pascopyrum smithii*). Land use is predominantly agriculture, and oil and gas fields are scattered throughout the region (Chapman et al. 2006). The elevation in the Survey Area is approximately 5,100 feet above mean sea level.

The site visit conducted on December 21, 2022, confirmed the presence of the common vegetative species associated with this ecoregion. The Survey Area is dominated by a mix of planted wheat grasses (*Agropyron* spp.) as well as common sunflower (*Helianthus annuus*), smooth brome (*Bromus inermis*), Russian thistle (*Salsola* spp.) and kochia (*Bassia scoparia*). Extensive urban development, agriculture, and oil and gas development were observed within and in the direct vicinity of the Survey Area.

1.2 Land Use

The land use within the Project is primarily agricultural, with some urban development. Irrigation ditches/canals are commonly found intersecting the Survey Area. Numerous oil and gas well pads are scattered throughout the area as well. Agriculture dominates the areas outside the residential neighborhoods and appears to be primarily used for crops such as corn and wheat, as observed during the site visit. Urban development, including residential communities and interstate infrastructure (i.e., county roads and highways), are the dominant land uses of the adjacent lands. Public parklands, open space, and city of Denver reservoirs exist in the areas where the Survey Area crosses the South Platte River. Representative photos of land use can be found in Appendix A.

2.0 Regulatory Framework

This section outlines the applicable federal and state regulations, polices, and related permits and approvals relative to biological resources that may be required for the Project.

2.1 Federal Regulations

2.1.1 Endangered Species Act

The Endangered Species Act (ESA) directs the U.S. Fish and Wildlife Service (USFWS) to identify and protect endangered and threatened species and their critical habitat and to provide a means to conserve their ecosystems. Among its other provisions, the ESA requires the USFWS to assess civil and criminal penalties for violations of the Act or its regulations. Section 9 of the ESA makes it unlawful to knowingly violate the "take" provisions of the ESA. "Take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 United States Code [U.S.C.] 1532). Significant modification or degradation of listed species' habitats where the modification kills or injures wildlife by significantly impairing essential behavioral patterns is considered "harm" under ESA regulations. Projects involving federal lands, funding, or authorizations require consultation between the federal agency under which jurisdiction falls and the USFWS, pursuant to Section 7 of the ESA. Projects without a federal nexus work directly with the USFWS to avoid adversely impacting listed species and their critical habitats.

2.1.2 Bald and Golden Eagle Protection Act

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are afforded legal protection under authority of the Bald and Golden Eagle Protection Act (BGEPA; 16 [United States Code [U.S.C.] 668–668d). The BGEPA prohibits the take, sale, purchase, offer of sale, purchase or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof (16 U.S.C. 668). The BGEPA also defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb" (16 U.S.C. 668c), and includes criminal and civil penalties for violating the statute (see 16 U.S.C. 668). The term "disturb" is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 Code of Federal Regulations [CFR] 22.3).

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements the United States' obligations under four international treaties for the protection of migratory birds—more than 1,000 species (Federal Register; 50 CFR 10 and 21), including the bald eagle and golden eagle. The MBTA is administered by the USFWS and prohibits "take" of migratory birds—their parts, eggs, or nests "at any time, by any means." "Take" is defined by the MBTA as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." There has been varying guidance on the prohibition of incidental take under the MBTA. A rulemaking on October 4, 2021, reestablished incidental take as prohibited under the MBTA. This regulation took effect on December 3, 2021.

2.2 State Regulations

Development in the state of Colorado is regulated by different agencies depending on the land ownership, size and type of the development, and access needs.

2.2.1 Colorado Parks and Wildlife

Colorado Parks and Wildlife (CPW), a branch of the Colorado Department of Natural Resources, has the statutory charge for managing and conserving wildlife resources within state borders and for hunted, fished, and non-game wildlife, including state-listed threatened and endangered (T&E) species (Colorado Revised Statutes [CRS] 33-1-101). Agency consultation and continued correspondence with CPW will identify potential impacts to state-listed T&E species as well as habitat or species of concern.

2.2.2 State Listed Threatened and Endangered Species

CPW is required to establish and maintain a list of species of wildlife indigenous to the state of Colorado that have been determined to be endangered or threatened within Colorado (CRS 33-1-101–33-60-114). It is unlawful for any person to take, possess, transport, export, process, sell or offer for sale, or ship and for any common or contract carrier to knowingly transport or receive for shipment any species or subspecies of wildlife appearing on the list of wildlife indigenous to this state determined to be endangered within Colorado.

3.0 Methods

This assessment of biological resources within the Project is intended to identify any constraints associated with potentially occurring federally or state-listed species, protected habitats, or environmentally sensitive areas that may be impacted by the proposed Project.

3.1 Desktop Analysis

Tetra Tech conducted a desktop analysis to identify potential species of concern and their associated habitats that have the potential to occur within the Project. Tetra Tech reviewed the following publicly available data:

- CPW Species Activity Mapping Data (CPW 2022)
- Google Earth Aerial Imagery
- USFWS Information for Planning and Consultation (IPaC) online tool (USFWS 2022a)
- USFWS Critical Habitat Portal (USFWS 2022b)

The CPW Species Activity Mapping Data were reviewed for data pertaining to species that are both federally and state protected. In addition to listed species, CPW tracks and maps data for Special Concern wildlife species (SC) and game species in their publicly available Species Activity Mapping dataset (CPW 2022). The SC designation is a non-regulatory category indicative of management interest that does not carry protection for the species.

3.2 Site Reconnaissance Methods

Tetra Tech conducted a field survey on December 21, 2022, to perform a biological assessment of the Project. The field survey was conducted by qualified biologists traveling on public roads within and adjacent to the Project and on foot when necessary and where access had been granted. The biologists assessed the Project for potential suitable habitat for federal and state-listed species. Tetra Tech identified raptor nests within a 0.5-mile buffer of the Project. A 0.25-mile buffer was used for identifying and mapping suitable burrowing owl habitat. Binoculars and handheld GPS units were used for the Project.

4.0 Results

4.1 Field Survey

The Project is located in a highly developed area that includes agriculture, oil and gas development, urban development (i.e., residences, recreation) and transportation infrastructure (i.e., roads, paths, railroads).

During the field survey, Tetra Tech observed prevalent nesting substrate for raptors in the area as well as wetlands, ditches, and a perennial stream (South Platte River) within the Project. The results of the wetlands and WOTUS findings are documented in a separate report. Representative photographs of the field survey can be found in Appendix A.

4.2 Federal Threatened and Endangered Species

The IPaC query identified six federal T&E species and one candidate T&E species for the Project Area: gray wolf (*Canis lupus*), piping plover (*Charadrius melodus*), whooping crane (*Grus americana*), pallid sturgeon (*Scaphirhynchus albus*), Ute ladies'-tresses (*Spiranthes diluvialis*), western prairie fringed orchid (*Platanthera praeclara*), and the candidate monarch butterfly (*Danaus plexippus*) (USFWS 2022a; Appendix B). There is no USFWS-designated critical habitat within the Project Area (Figure 2) (USFWS 2022b).

Suitable habitat for the Ute ladies'-tresses and the Monarch butterfly was observed within the Project. A discussion of each of these species is below.

4.2.1 Ute Ladies'-Tresses

Ute ladies'-tresses is a federally threatened plant associated with moist soils in mesic or wet meadows adjacent to springs, lakes, or perennial streams (USFWS 1995). Potential habitat was observed within the Project and was limited to the South Platte River riparian corridor. However, this habitat has been heavily disturbed with urbanization; therefore; the likelihood of the species occurring within the Project Area is low.

4.2.2 Monarch Butterfly

The monarch butterfly is a federal candidate species that was proposed for listing in 2020. The monarch butterfly depends on milkweed (*Asclepias* spp.) for a larvae food source (Monarch Joint Venture 2022). Flowering plants provide suitable nectar sources for adults. Breeding habitat

(milkweed) was observed within the majority of the ditch features observed throughout the Project (see the wetland and WOTUS findings report for locations [Tetra Tech 2023]. However, the milkweed was sparse and located within heavily urbanized areas and therefore, the likelihood of the species occurring within the Project Area is low.

Candidate species are not statutorily protected under the ESA; therefore, Project effects to the monarch butterfly are not unlawful (although consideration of this species may be required if the Project is on federal lands or subject to National Environmental Policy Act environmental review). Effects to the monarch butterfly could become unlawful in the future should the USFWS decide to list it as endangered or threatened. Photographs of representative habitat can be found in Appendix A.

4.3 State-listed Species

Tetra Tech reviewed the CPW species profiles database to identify state-listed T&E species with potential to occur in the Project (CPW 2022). Desktop analysis and the field survey identified one CPW state listed species with the likelihood of occurring within the Project, the burrowing owl.

4.3.1 Burrowing Owl

Burrowing owls, a state threatened species in Colorado and protected under the MBTA, are widespread throughout western and central North America, but their populations have sharply declined across much of the species' range (Poulin et al. 2020). Although burrowing owls are commonly seen during the day, they are primarily nocturnal and crepuscular (i.e., active at dawn and dusk). During these times, they hunt for invertebrates, small mammals, lizards, snakes, and small birds. Burrowing owls nest underground, most often in unoccupied prairie dog burrows, although they will also use the burrows of other mammals and reptiles (Poulin et al. 2020). Burrows are used year-round, though not necessarily in the same location, for protection from predators and severe weather, and are occupied in spring and summer for nesting (Poulin et al. 2020). Burrowing owls migrate individually, forming colonies at wintering and breeding grounds, where they exhibit high nest fidelity. Burrowing owls inhabit a variety of habitats in Colorado, including annual and perennial grasslands, agricultural fields, and deserts (Poulin et al. 2020).

Suitable burrowing owl nesting habitat (i.e., prairie dog colonies) as well as foraging habitat was observed throughout the Project. Three active prairie dog colonies were mapped withing the Survey Area (Figure 2). Photographs of representative nesting habitat can be found in Appendix A.

4.3.2 Raptor Nest Survey

Multiple raptors are listed as of State Special Concern (CPW 2022). Suitable nesting substrates for raptors including eagles—transmission line structures and tall trees—were present within 0.5 mile of the Project. One unidentified and inactive raptor nest (RN-01), non-eagle, was observed within 0.5 mile of the Project during the field survey. The nest is located approximately 75 feet south of the Project directly adjacent to East 136th Avenue with direct line of sight to the Project (Table 1; Figure 2). The nest is located within an urban developed area.

Table 1. Raptor Nests within 1-mile Buffer of the Project

Nest ID	Species	Condition	Latitude	Longitude	Location from Project
RN-01	Unknown	Good	39.94329834	-104.836998	75 feet south

5.0 Discussion and Recommendations

The Project is located within a heavily urbanized area under constant disturbance. This constant disturbance has likely limited the biological diversity of the Project. However, habitat for federally and state listed species is present in the Project.

Based on the desktop analysis and field survey, one federally threatened species (Ute ladies'-tresses) and one federal candidate species (Monarch butterfly) have the potential to occur within the Project. Both of these species have a low likelihood of occurring within the Project. Impacts to wetlands and other waters of the U.S. (i.e., ditches and streams including the South Platte River and associated riparian corridor) are not anticipated; therefore, impacts to the federally listed species and their associated habitat are not anticipated.

Suitable habitat for a state listed species (burrowing owl) was mapped within the Project's Survey Area. If construction is planned between March 15 and October 31, Tetra Tech recommends conducting a CPW-protocol burrowing owl survey (CPW 2021) prior to construction activities to determine whether burrowing owls are present within 0.25 mile of the Project. CPW recommends no permitted, authorized, or human encroachment activities within 0.25 mile (320 feet, 400 meters) of the nest site for large industrial disturbances during the nesting season, March 15 through August 31.

One unidentified and inactive raptor nest (RN-01), non-eagle, was observed within 0.5 mile of the Project. To comply with the MBTA (16 U.S. C. 1532 (19)) and CPW's Recommended Buffer Zones and Seasonal Restriction for Colorado Raptors (CPW 2020), Tetra Tech recommends a follow up raptor survey, prior to construction if construction is planned between February 15 and July 30, to determine whether the mapped raptor nest is active during the 2023 season. To best determine whether raptor nests are active on the follow up survey, Tetra Tech recommends conducting this survey in early to mid-April, or at a minimum, a few weeks prior to construction. If raptor nests are active, Tetra Tech recommends implementing the species-specific seasonal and spatial nest avoidance buffers recommended by CPW (CPW 2020).

6.0 Literature Cited

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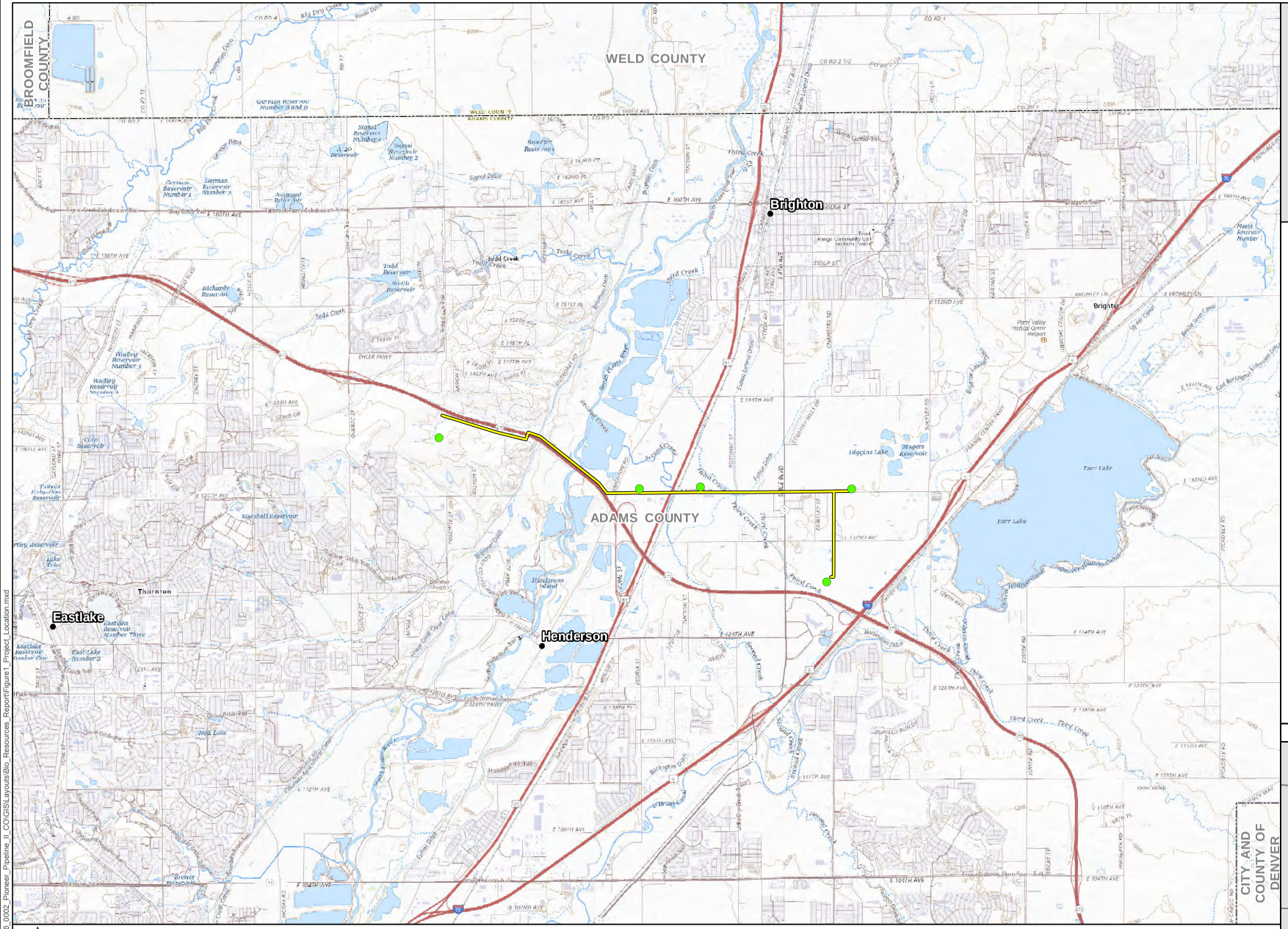
Figures



PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 1
Project Location

Adams County, CO

Project Features

- Pad Location
- Pipeline Alignment

Boundaries

- County Boundary

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map

1:60,000 NAD 1983 StatePlane Colorado Central FIPS 0502 Feet

0 0.5 1 2 Miles

Source: ESRI, USGS US TOPO MAPS, US CENSUS, BTS

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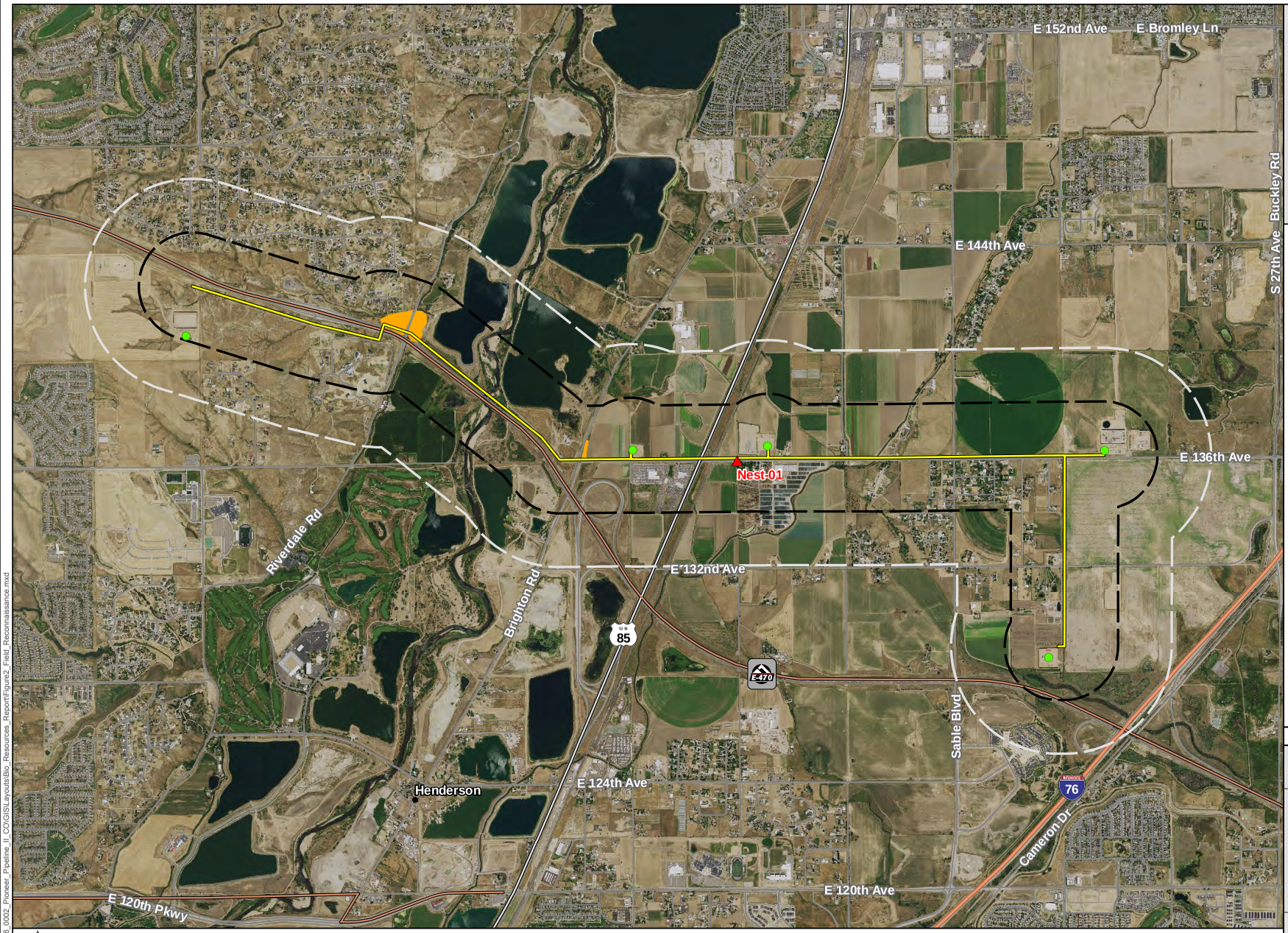


PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Field Reconnaissance

Adams County, CO

Project Features
- Pad Location
- Pipeline Alignment

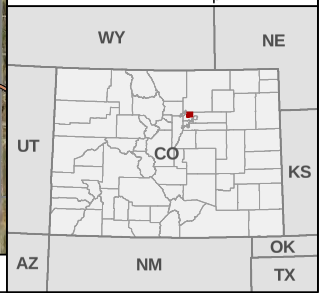
Transportation
- Interstate Highway
- US Highway
- State Highway
- Local Road

Field Reconnaissance Results
- Inactive Non-Eagle Raptor Nest
- Prairie Dog Colony
- Raptor Nest Survey Buffer (0.5 mile)
- Burrowing Owl Habitat Survey Buffer (0.25 mile)

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map



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APPENDIX A: Photograph Log

Photo 1: Unidentified and inactive raptor nest (RN-01), non-eagle, observed directly adjacent to the Project.

Photo 2: Suitable burrowing owl habitat located directly north of the pipeline corridor (39.94390106, -104.8509979). View is looking west.

Photo 3: Suitable burrowing owl habitat located directly north of the pipeline corridor (39.95280075 -104.8669968). Photo looking west.

Photo 4: Suitable habitat (showy milkweed) along a ditch feature for Monarch Butterfly. View is looking north.

Photo 5: **View over the South Platte River showing suitable habitat for Ute ladies' tresses on the eastern bank** of the river (top of photo). View is looking east.

Photo 6: A oil and gas pad on the eastern end of the Project corridor, typical of the area. View is looking north.

Photo 7: A typical agriculture field in the area of the Project. View is looking east along Project corridor.

Photo 8: City and interstate infrastructure that is a typical of the Project Area. View is looking west along Project corridor.

Photo 9: Cleared land near a new housing development at the western end of the Project. View is looking west along Project corridor.

APPENDIX B: IPaC Resource List

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Adams County, Colorado

Local office

Colorado Ecological Services Field Office

(303) 236-4773
(303) 236-4005

MAILING ADDRESS
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS
134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Wolf Canis lupus This species only needs to be considered if the following condition applies: • Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. There is **final** critical habitat for this species. https://ecos.fws.gov/ecp/species/4488	Endangered

Birds

NAME	STATUS
Piping Plover Charadrius melodus This species only needs to be considered if the following condition applies: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Whooping Crane Grus americana There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/758	Endangered

Fishes

NAME	STATUS

Pallid Sturgeon Scaphirhynchus albus Wherever found This species only needs to be considered if the following condition applies: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7162	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses Spiranthes diluvialis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2159	Threatened
Western Prairie Fringed Orchid Platanthera praeclara Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Jul 31

Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Ferruginous Hawk Buteo regalis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6038	Breeds Mar 15 to Aug 15
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-billed Curlew Numenius americanus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Long-eared Owl asio otus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

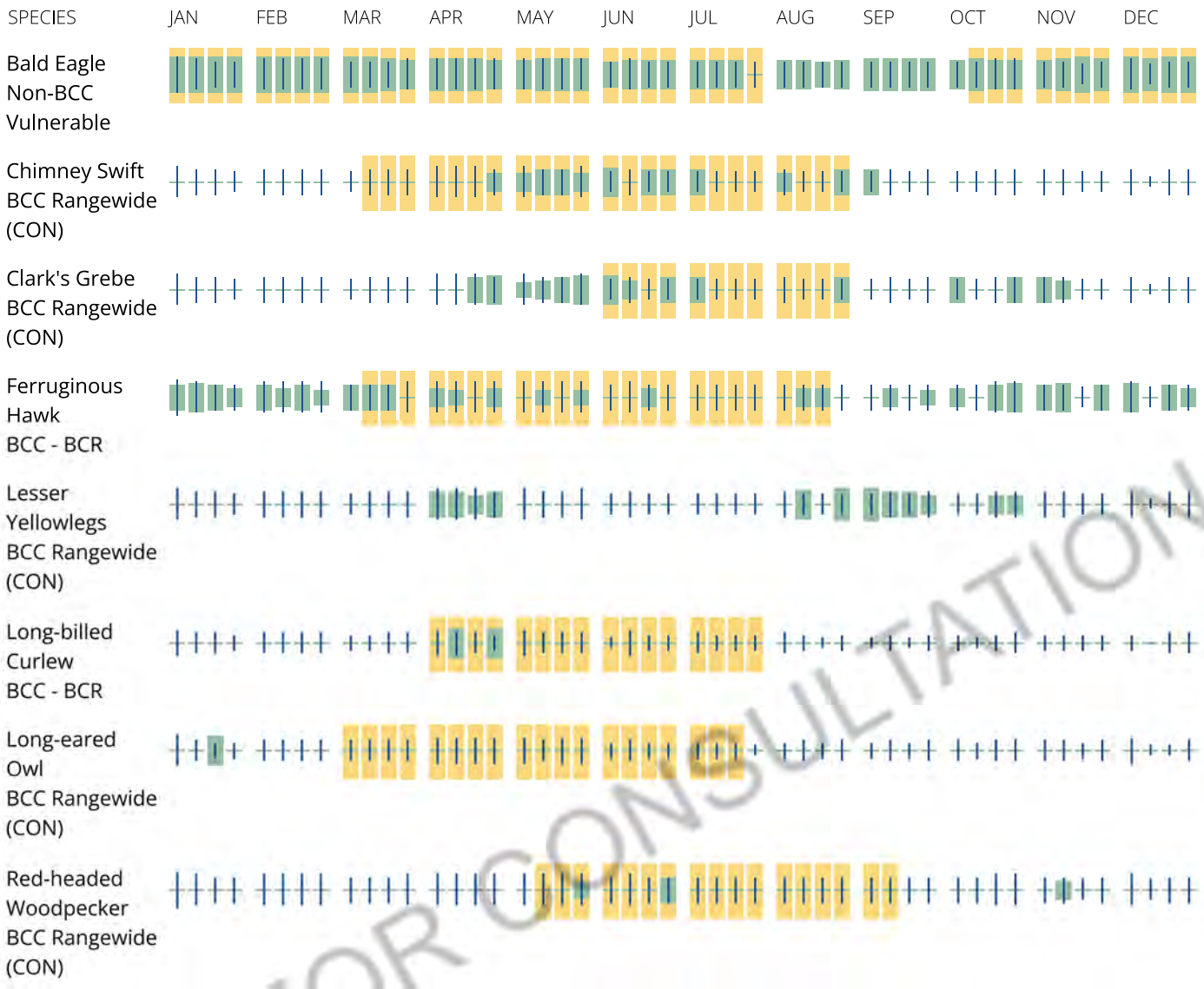
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

▪ probability of presence ▪ breeding season | survey effort – no data



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

Refuge and fish hatchery information is not available at this time

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local

government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Exhibit F
Wetland and WOTUS Findings Report

Wetland and WOTUS Findings Report

Pioneer Water Pipeline Phase 2 Project

Adams County, Colorado

January 2023

Prepared for

PDC ENERGY

4000 Burlington Ave.
Evans, CO 80620

Prepared by

TETRA TECH

350 Indiana St., Ste. 500
Golden, CO 80401

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1.0 Project Description

Tetra Tech, Inc. (Tetra Tech) was contracted on behalf of PDC Energy, Inc. (PDC) to support the proposed Pioneer Water Pipeline Project Phase 2 (Project), located in Adams County, Colorado (Figure 1). This report summarizes the results of the wetlands and other waters of the U.S. (WOTUS) evaluation that occurred on December 21, 2022.

PDC is proposing to build a water pipeline to safely dispose of wastewater from existing natural gas wells in the area. The Project involves installing approximately 5.5 miles of 4- to 12-inch pipeline and associated appurtenances. The majority of the pipeline will follow existing road rights-of-way overland, sections of which will be installed using horizontal directional drilling to avoid impacts to wetlands and other WOTUS. The wetland and WOTUS evaluation area for this Project included a 75-foot buffer (37.5 feet on either side) of the proposed pipeline centerline (Survey Area).

1.1 Ecoregion

The Project is located in the U.S. Environmental Protection Agency's (EPA) Flat to Rolling Plains (25d) Level IV ecoregion of the High Plains Level III Ecoregion. The common native vegetation found within the ecoregion consists of buffalograss (*Buchloë dactyloides*), blue grama (*Bouteloua gracilis)*, and western wheatgrass (*Pascopyrum smithii*). Land use is predominantly agriculture, and oil and gas fields are scattered throughout the region (Chapman et al. 2006). The elevation in the Survey Area is approximately 5,100 feet above mean sea level.

The site visit conducted on December 21, 2022, confirmed the presence of the common vegetative species associated with this ecoregion. The Survey Area is dominated by a mix of planted wheat grasses (*Agropyron* spp.) as well as common sunflower (*Helianthus annuus*), smooth brome (*Bromus inermis*), Russian thistle (*Salsola* spp.) and kochia (*Bassia scoparia*). Extensive urban development, agriculture, and oil and gas development were observed within and in the direct vicinity of the Survey Area.

1.2 Land Use

The land use within the Project is primarily agricultural with some urban development. Irrigation ditches/canals are commonly found intersecting the Survey Area. Numerous oil and gas well pads are scattered throughout the area as well. Agriculture dominates the areas outside the residential neighborhoods and appears to be primarily used for crops such as corn and wheat, as observed during the site visit. Urban development, including residential communities and interstate infrastructure (i.e., county roads and highways), are the dominant land uses of the adjacent lands. Public parklands, open space, and city of Denver reservoirs exist in the areas where the Survey Area crosses the South Platte River.

2.0 Regulatory Framework

This section outlines the applicable federal, state, and local regulations, polices, and related permits and approvals relative to wetlands and other WOTUS resources that may be required for development of the Project.

2.1 Federal Regulations

Section 404 of the Clean Water Act

The principal federal laws affecting wetlands and streams are Section 404 of the Clean Water Act (CWA) of 1977, as amended, and Section 10 of the Rivers and Harbors Act of 1899. However, all water features in the Survey Area would be subject to the CWA rather than the Rivers and Harbors Act because no navigable water features are present in the Survey Area. Therefore, this section focuses on Section 404 of the CWA.

Section 404 of the CWA is administered jointly by the U.S. Army Corp of Engineers (USACE) and the EPA and authorizes the USACE to regulate the discharge of dredge/fill materials into WOTUS, including wetlands and streams. According to 33 Code of Federal Regulations (CFR) 328.3(c)(4), the term wetlands is defined as those areas that "are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987). Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3[b]; USACE 1987).

On December 30, 2022, the EPA and Department of the Army (the agencies) announced that a final rule founded upon the pre-2015 definition of "waters of the United States" (i.e., WOTUS) had been updated to reflect consideration of Supreme Court decisions, the science, and the agencies' technical expertise.

Under the 2022 final rule, determining jurisdiction for tributaries, adjacent wetlands, and additional waters relies upon applying either the relatively permanent standard or significant nexus standard (EPA 2022).

The relatively permanent standard is a test that provides important efficiencies and clarity for regulators and the public by readily identifying a subset of waters that will virtually always significantly affect traditionally navigable waters, interstate waters, the territorial sea, or impoundments of the these (paragraph (a)(1) waters). To meet the relatively permanent standard, the waterbodies must be relatively permanent, standing, or continuously flowing waters connected to paragraph (a)(1) waters, or waters with a continuous surface connection to such relatively permanent waters, or to paragraph (a)(1) waters.

The significant nexus standard is a test that clarifies whether certain waterbodies, such as tributaries and wetlands, are subject to the CWA based on their connection to and effect on larger downstream waters that Congress fundamentally sought to protect. A significant nexus exists if the waterbody (alone or in combination) significantly affects the chemical, physical, or biological integrity of traditional navigable waters, the territorial seas, or interstate waters.

If the Project impacts WOTUS, a general (i.e., Nationwide Permit [NWP]) or Individual Permit will need to be obtained from the USACE-Denver Regulatory office. The type of permit depends on the project activity and the size of the affected area. However, given the conditions in the Survey Area and the type of project being proposed, the most likely type of permit to be required for the Project would be an NWP.

General permits (i.e., NWPs) are often issued by the USACE for categories of activities that are similar in nature and would have only minimal individual or cumulative adverse environmental effects. NWP authorization is intended to be more streamlined than Individual Permits, and they must be issued within 45 days of receipt of a complete Pre-Construction Notification (PCN; required if impacts exceed the NWP disturbance threshold), although the timelines can shift based on impacts and consultations with agencies. On January 13, 2021, the USACE published a Final Rule that reissued 12 NWPs and issued 4 new NWPs (86 FR 2744). The reissued and modified NWPs in this rule replace prior versions of the 2017 NWPs. The remaining 40 NWPs from the 2017 rule were reissued on February 25, 2022, and remain in effect through their scheduled expiration date of March 14, 2026 (USACE 2021). Of particular note, the revised version of NWP 12, which previously was used for utility line activities, is being reissued to apply solely to oil and natural gas activities.

A PCN would likely be required for an NWP if impacts from the Project exceed thresholds identified within the NWP or the general and regional conditions are not met. The USACE will determine whether the activity qualifies under an NWP or if an Individual Permit is required.

Section 401 of the Clean Water Act

An application for a federal permit (such as a CWA Section 404 permit), including the construction or operation of facilities that may result in any discharge into navigable waters, requires water quality certification (WQC) under Section 401 of the CWA. WQC under Section 401 of the CWA falls under the delegated purview of the Colorado Department of Public Health and Environment (CDPHE). A Joint Application is required for the Section 404 and Section 401 permits only if the USACE issues an Individual Permit. If the USACE issues an NWP, the state automatically issues a WQC under Section 401 of the CWA.

2.2 State Regulations

Colorado Department of Public Health and Environment, Water Quality Control Division Permits

Construction activity that disturbs 5 acres or more of land will require the National Pollutant Discharge Elimination System (NPDES) General Permit under Section 402 of the CWA. Administration of the NPDES stormwater program in Colorado has been delegated to the CDPHE. For all large construction sites disturbing 5 acres or more, or small construction sites disturbing 1 acre to less than 5 acres, the owner or operator must apply for coverage under a Stormwater Construction Permit at least 10 days prior to the start of construction activities. The application, which includes guidance for developing a Stormwater Management Plan (SWMP), is available from the CDPHE Water Quality Control Division. The SWMP must be completed prior to application submittal but does not need to be submitted. The SWMP must include best management practices. The permit certification must be inactivated once the site has been finally stabilized so that permit coverage and billing can be completed. An inactivation form is supplied with the permit certification.

If the USACE issues a project an Individual Permit under CWA Section 404, a WQC, under Section 401 of the CWA, would be required. A Joint Application is then required, and the applicant must send the

finalized USACE application and associated materials to the state prior to USACE public comment periods.

3.0 Methods

3.1 Wetland Evaluation

Prior to conducting the site visit, Tetra Tech conducted a desktop analysis of the Survey Area to identify potential jurisdictional wetlands and other WOTUS that may be present. The desktop analysis was based on the following sources of information:

- U.S. Department of Agriculture aerial imagery (USDA 2018)
- U.S. Fish and Wildlife Service National Wetland Inventory (NWI) dataset (USFWS 2022)
- U.S. Geological Survey (USGS) Topographic Maps (USGS 1997)
- USGS National Hydrography Dataset (NHD; USGS 2022)

Qualified wetland scientists from Tetra Tech conducted a site visit on December 21, 2022, when snow cover was not an issue, to perform a wetland evaluation and preliminary WOTUS investigation/determination to field-verify the potential jurisdictional wetland/WOTUS features identified in the desktop analysis within the Survey Area. During the site visit, Tetra Tech surveyed the proposed pipeline alignment and a buffer of 37.5 feet on either side of the alignment.

The objective of the wetland evaluation was to identify the wetland and/or WOTUS boundaries so that PDC can avoid impacts. The field evaluation relied on the wetland desktop analysis to identify potential wetland and other WOTUS to increase the efficiency of the wetland field survey. The wetland evaluation consisted of identifying potential wetlands and other WOTUS features (i.e., streams, ditches) based on wetland indicators (i.e., wetland vegetation and hydrology indicators) observed in the field. Formal wetland delineations, for which full soil sampling is required, were not performed during the field survey. Qualified wetland biologists mapped conservative boundaries of wetlands or other WOTUS features observed within the Survey Area using a handheld GPS. The wetland evaluation is preliminary and is not sufficient for supporting permitting requirements.

3.2 Other WOTUS Delineation Methods

Non-wetland potential WOTUS are also regulated under the CWA for dredge or fill activities that may be caused by construction of the Project. For this Project, the wetland scientists assessed and mapped non-wetland potential WOTUS features that intersect the Project by following the ordinary high-water mark (OHWM). USACE defines the OHWM as the following (33 CFR 328.3(e); USACE 2012):

> …that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

3.3 Wetland and WOTUS Delineation

Once vegetation and hydrology had been assessed, an evaluation was conducted to identify the zone of transition between the WOTUS feature and upland conditions. The wetland scientist accomplished the delineation by walking the outer limit of the visibly identifiable WOTUS feature with a handheld GPS unit. The limit of the WOTUS feature was defined in the field by a change in vegetation and hydrologic indicators (e.g., OHWM or surface water).

4.0 Results

4.1 Desktop Analysis

The NWI dataset identifies wetlands using high altitude imagery in conjunction with other data sources and field survey (USFWS 2022). The NHD dataset identifies surface water and surface water flow locations as mapped at a 1:24,000 scale (USGS 2022). The NWI and NHD data are used only as a guide for the location of likely wetlands and other WOTUS features because the data at this mapping scale inherently contain inaccuracies. NWI data identified 10 features that intersect the Survey Area. These features included eight riverine wetlands and two freshwater emergent wetlands. NHD data identified nine potential WOTUS features that intersect the Survey Area: three intermittent canal/ditches, two intermittent streams, two artificial paths, one intermittent pond, and one perennial stream/river (Figure 2). These 19 features were evaluated during the field survey.

4.2 Wetland Evaluation Results

Tetra Tech evaluated 10 NWI-mapped features during the field survey. The majority of these features lacked wetland characteristics and were determined not to be wetlands. These features were identified as non-wetlands because of a lack of dominant wetland vegetation and wetland hydrology. Tetra Tech observed and mapped three potential wetlands (WET-01, WET-02 and WET-03) within the Survey Area (Table 1; Figure 2). These features were dominated by wetland vegetation, were in topographical low points, and had signs of hydrologic function. WET-01 is located approximately 0.13 mile east of the South Platte River and is associated with a depression that is isolated in nature with no apparent hydrological connection to a potential WOTUS that could be observed during the field survey. WET-02 is associated with the eastern portion of the South Platte River's riparian corridor. This feature continued both upstream and downstream from the Project intersection and Survey Area. WET-03 is located approximately 0.07 mile west of the South Platte River just north of E-470 within a depression. WET-03 appeared to be isolated in nature and had no apparent hydrological connection to a potential WOTUS that could be observed during the field survey. Representative photographs of the evaluated wetland features are located in Appendix A.

Table 1. Evaluated Wetlands Within the Survey Area

Feature ID	Feature Type	NWI Feature Type	Latitude	Longitude	Size (acres)	Preliminary Jurisdictional Determination[1]
WET-01	Potential Wetland	Freshwater Emergent Wetland	39.94649887	-104.8570023	0.27	Not Likely Jurisdictional
WET-02	Potential Wetland	Riverine Wetland	39.94729996	-104.8580017	1.77	Likely jurisdictional

Feature ID	Feature Type	NWI Feature Type	Latitude	Longitude	Size (acres)	Preliminary Jurisdictional Determination[1]
WET-03	Potential Wetland	Freshwater Emergent Wetland	39.94869995	-104.8600006	0.10	Not Likely Jurisdictional

1/ The likely jurisdictional status listed in Table 1 reflects Tetra Tech's professional assessment of jurisdiction. Only the USACE can render an Approved Jurisdictional Determination.

4.3 Other WOTUS Evaluation Results

Tetra Tech evaluated the nine NHD-mapped features during the field survey. The majority of these features had observable hydrological features (e.g., OHWM, surface water). During the field survey Tetra Tech mapped 14 features including 11 ditch/canal features, 2 intermittent streams (Second Creek and Third Creek), and 1 perennial stream (South Platte River) within the Survey Area (Table 2, Figure 2).

Ditch-01 is an earthen agricultural ditch that was observed from public roads; however, it could not be determined during the field survey whether a significant nexus to a WOTUS was present. Ditch-02 (Fulton Ditch) is an intermittent agricultural canal/ditch that continues north out of the Survey Area and likely fulfils the relatively permanent and significant nexus standard. Ditch-03 is a concrete agricultural ditch with an unknown terminus. Ditch-04 (Fulton Lateral Ditch) is an intermittent agricultural canal/ditch that continues north out of the Survey Area and likely has a significant nexus to a WOTUS. Ditch-05 is an earthen agricultural ditch that continues north out of the Survey Area and terminates in uplands. Ditch-06 (Third Creek) continues north out of the Survey Area and likely has a significant nexus to a WOTUS. Ditch-07 is an earthen roadside agricultural ditch that terminates in uplands. Ditch-08 is an earthen agricultural ditch that continues north out of the Survey Area and terminates in uplands. Ditch-09 (Second Creek) continues north out of the Survey Area and likely has a significant nexus to a WOTUS. Ditch-10 is an earthen roadside agricultural ditch that terminates in uplands. Ditch-11 is an earthen agricultural ditch that continues north out of the Survey Area; however, it could not be determined during the field survey whether a significant nexus to a WOTUS was present. Ditch-12 (Brantner Ditch) is a concrete agricultural canal/ditch that continues north out of the Survey Area and likely has a significant nexus to a WOTUS. Ditch-13 is an ephemeral ditch that continues northeast out of the Survey Area; however, it could not be determined during the field survey whether a significant nexus to a WOTUS was present. Steam-01 (South Platte River) is a perennial stream that continues north out of the Survey Area. Representative photographs of the WOTUS features are located in Appendix A.

Table 2. WOTUS Features Mapped Within or Directly Adjacent to the Survey Area

Feature ID	Feature Type	NHD Feature Type	Latitude	Longitude	Length (feet)	Preliminary Jurisdictional Determination[1]
Ditch-01	Intermittent	-	39.93259811	-104.8089981	1629.6	Unknown
Ditch-02	Intermittent	Canal/Ditch	39.94340134	-104.8249969	180.6	Likely Jurisdictional
Ditch-03	Ephemeral	-	39.94350052	-104.8249969	91.4	Likely Non-Jurisdictional
Ditch-04	Intermittent	Canal/Ditch	39.94340134	-104.8280029	148.2	Likely Jurisdictional
Ditch-05	Intermittent	-	39.94340134	-104.8280029	150.0	Likely Non-Jurisdictional
Ditch-06	Intermittent	Stream	39.94350052	-104.8290024	112.9	Likely Jurisdictional
Ditch-07	Intermittent	-	39.94340134	-104.8339996	2728.2	Likely Non-Jurisdictional

Feature ID	Feature Type	NHD Feature Type	Latitude	Longitude	Length (feet)	Preliminary Jurisdictional Determination[1]
Ditch-08	Ephemeral	-	39.9435997	-104.8399963	66.5	Likely Non-Jurisdictional
Ditch-09	Ephemeral	Stream	39.9435997	-104.8399963	80.4	Likely Jurisdictional
Ditch-10	Intermittent	-	39.94350052	-104.8420029	1189	Likely Non-Jurisdictional
Ditch-11	Intermittent	-	39.94380188	-104.8470001	274.8	Likely Non-Jurisdictional
Ditch-12	Intermittent	Canal/Ditch	39.95209885	-104.8659973	153.1	Likely Jurisdictional
Ditch-13	Ephemeral	Canal/Ditch	39.95500183	-104.8830032	33.9	Unknown
Stream-01	Perennial	Perennial River	39.94810104	-104.8590012	155.9	Likely Jurisdictional

1/ The likely jurisdictional status listed in Table 2 reflects Tetra Tech's professional assessment of jurisdiction. Only the USACE can render an Approved Jurisdictional Determination.

5.0 Discussion and Recommendations

All discharges of dredged or fill material that result in permanent or temporary losses of jurisdictional WOTUS are regulated by the USACE under Section 404 of the CWA. The 2022 final rule described in Section 2.1 provides regulatory protections on ephemeral streams and isolated wetlands if they meet the relatively permanent of significant nexus standard.

The Project intersects one likely jurisdictional wetland (WET-02) and two likely non-jurisdictional wetlands (WET-01 and WET-03; Figure 2). Tetra Tech recommends avoiding all three evaluated wetlands. However, if impacts are anticipated, Tetra Tech recommends a formal delineation following the methods described in the Corps of Engineers Wetland Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (USACE 2010) to determine the full extent and area of wetlands that are to be impacted. Impacts will be covered under NWP 12, Oil or Natural Gas Pipeline Activities (Appendix B), so long as impacts result in a loss of less than 0.1 acre for each feature and all general and regional conditions are met (Appendix C). If impacts are anticipated and are greater than the 0.1-acre threshold, a PCN submittal to USACE under NWP 12 would be required.

The Project intersects one likely jurisdictional perennial stream (Stream-01), two likely jurisdictional intermittent streams (Ditch-06 and Ditch-09), and three likely jurisdictional canal/ditch features (Ditch-02, Ditch-04, Ditch-12). The Project also intersects six likely non-jurisdictional ditch features (Ditch-03, Ditch-05, Ditch-07, Ditch-08, Ditch-10, and Ditch-11) and two unknown jurisdictional status ditches (Ditch-01 and Ditch-13). The Tetra Tech recommends avoidance of all WOTUS features. However, if impacts cannot be avoided, they will likely be covered under NWP 12 so long as all general and regional conditions are met (Appendix C).

Notably, at of the time of this report PDC anticipates that all features will be avoided and no impacts to wetland and other WOTUS features are anticipated and therefore coordination with USACE is not required.

6.0 References

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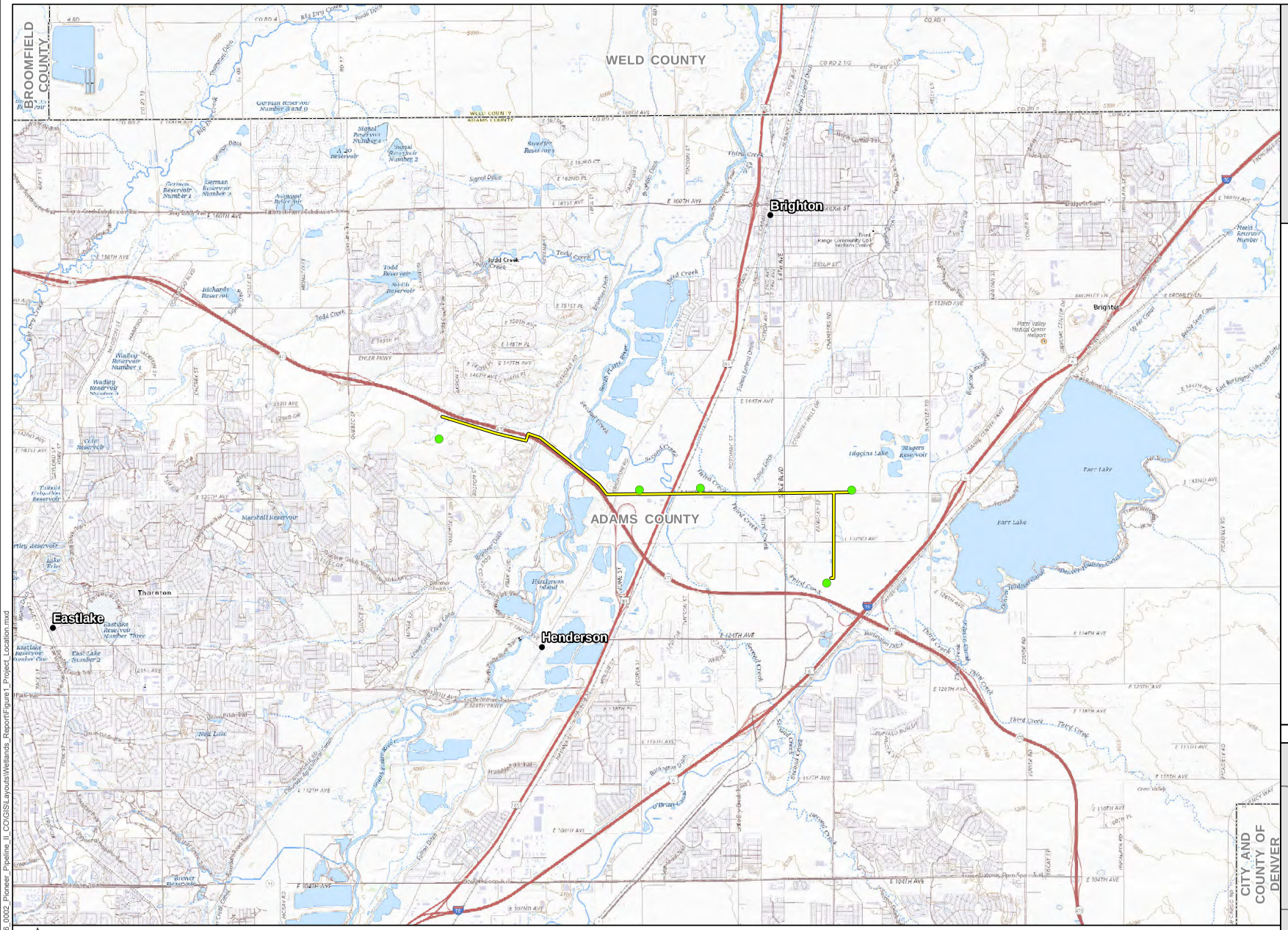
FIGURES



PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 1
Project Location

Adams County, CO

Project Features

- Pad Location
- Pipeline Alignment

Boundaries

- County Boundary

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map

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0 0.5 1 2 Miles

Source: ESRI, USGS US TOPO MAPS, US CENSUS, BTS

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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 1 of 11

Adams County, CO

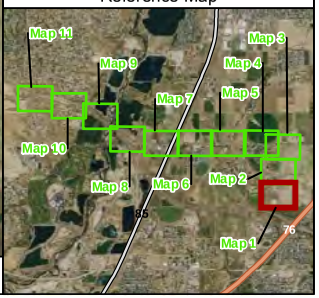
Project Features
- Pad Location
- Pipeline Alignment

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Ditch
- NHD Waterbody
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map



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Source: ESRI, USDA NAIP, US CENSUS, BTS, NHD, NWI, TETRA TECH

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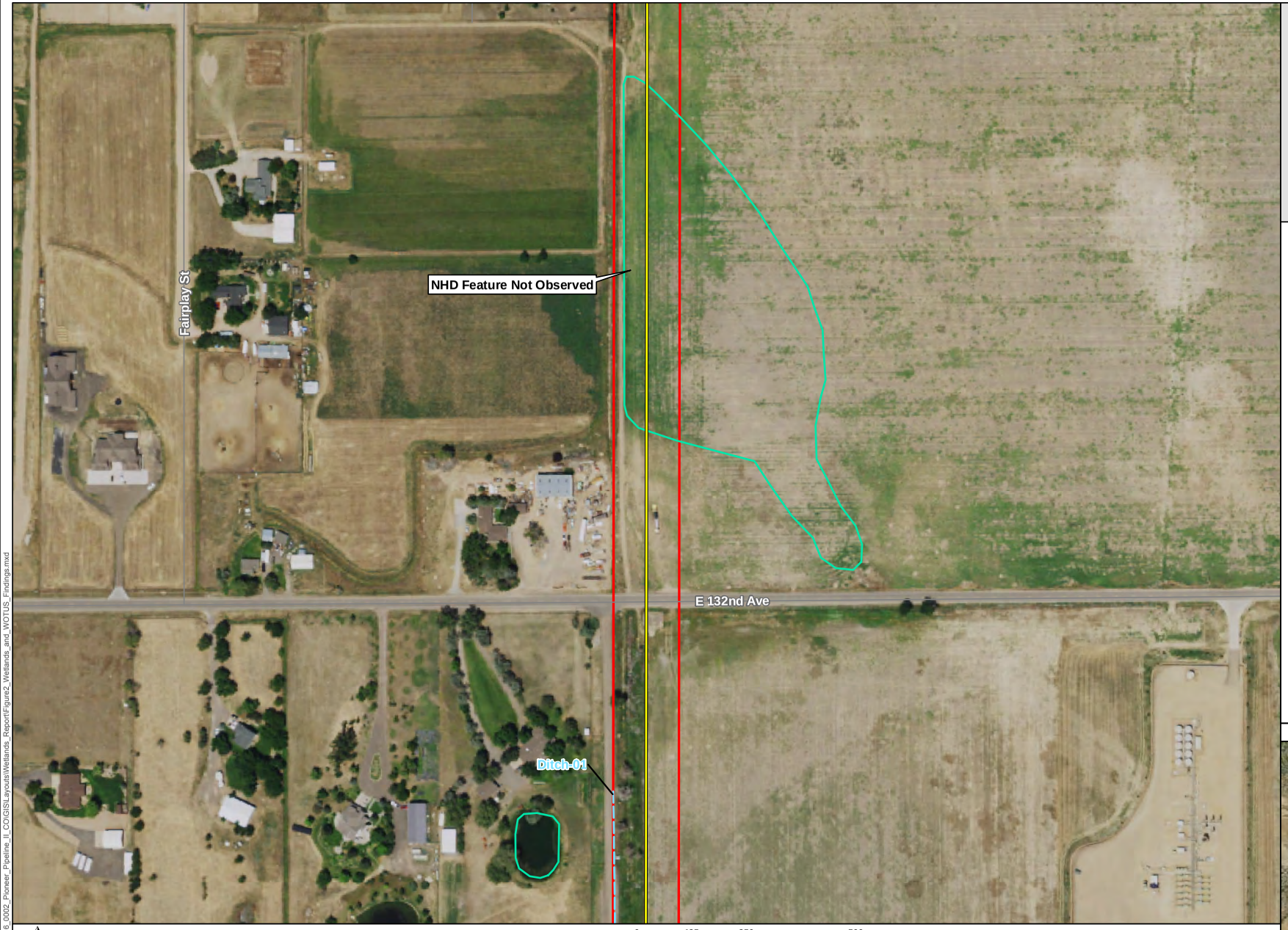

PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 2 of 11

Adams County, CO

Project Features
- Pipeline Alignment

Transportation
- Local Road

Wetlands and WOTUS Findings
- Field-delineated Ditch
- NHD Waterbody
- Wetlands Survey Area (75 ft)

TETRA TECH

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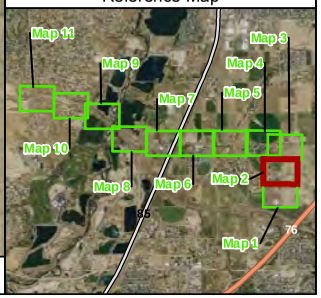
Reference Map



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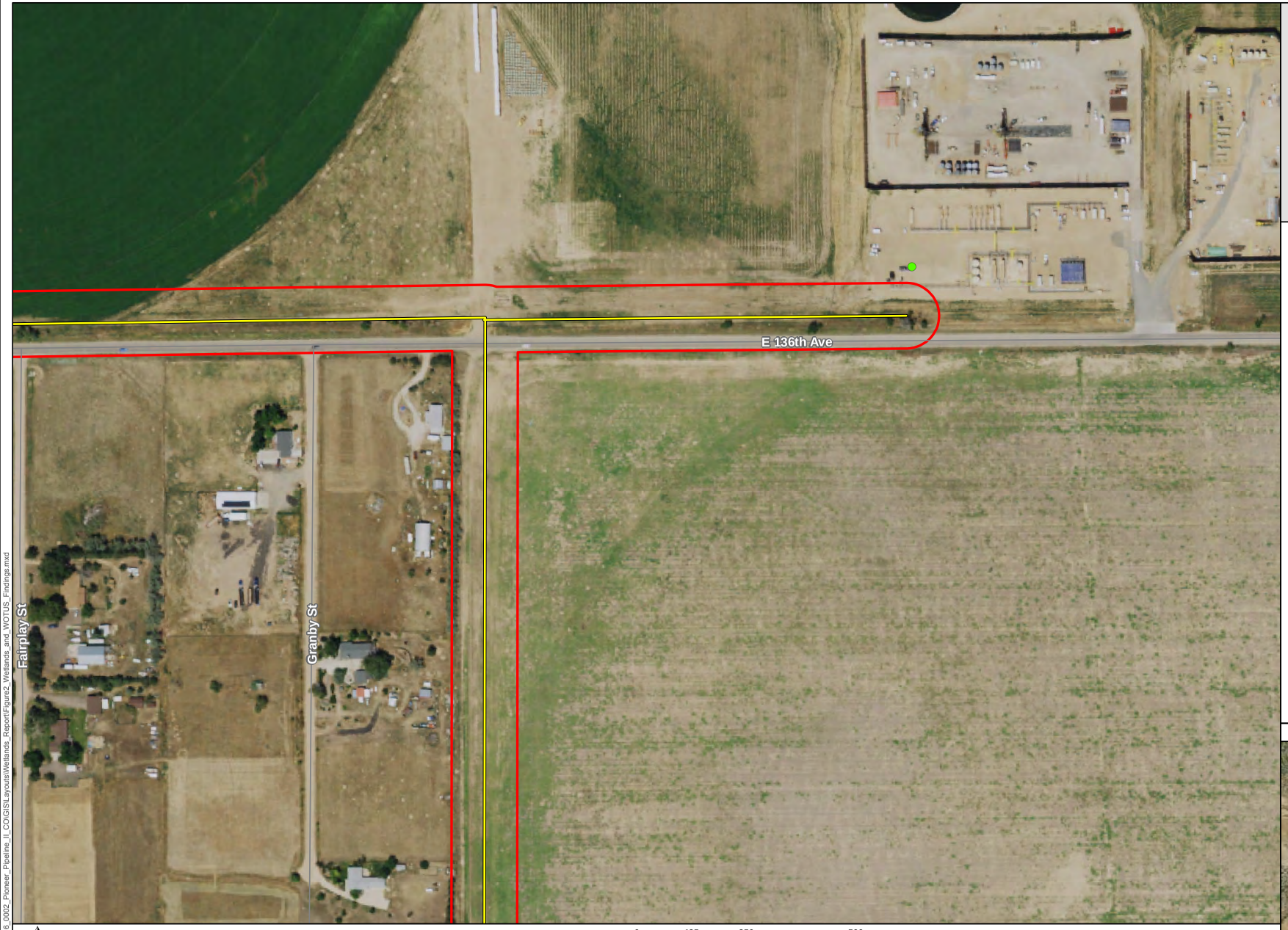

PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 3 of 11

Adams County, CO

Project Features
- Pad Location
- Pipeline Alignment

Transportation
- Local Road

Wetlands and WOTUS Findings
- Wetlands Survey Area (75 ft)

TETRA TECH

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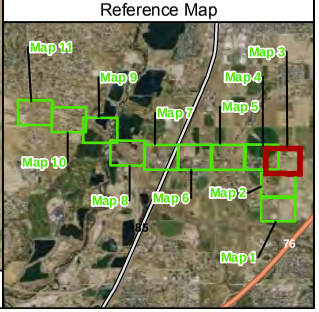

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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 4 of 11

Adams County, CO

Project Features
Pipeline Alignment

Transportation
Local Road

Wetlands and WOTUS Findings
Wetlands Survey Area (75 ft)

TETRA TECH

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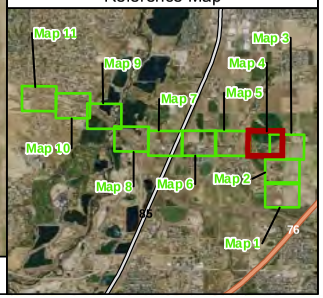
Reference Map



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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 5 of 11

Adams County, CO

Project Features
- Pipeline Alignment

Transportation
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Ditch
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

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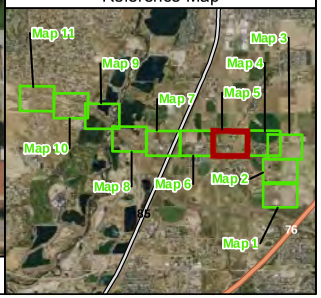
Reference Map



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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 6 of 11

Adams County, CO

Project Features
- Pad Location
- Pipeline Alignment

Transportation
- U.S. Highway
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Ditch
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

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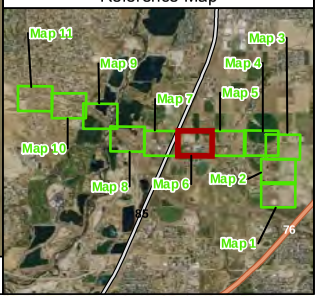

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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 7 of 11

Adams County, CO

Project Features
- Pad Location
- Pipeline Alignment

Transportation
- U.S. Highway
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Ditch
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

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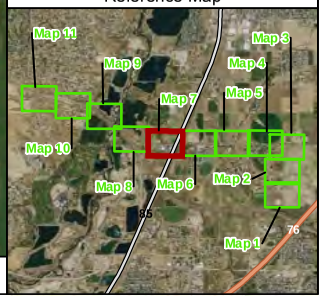

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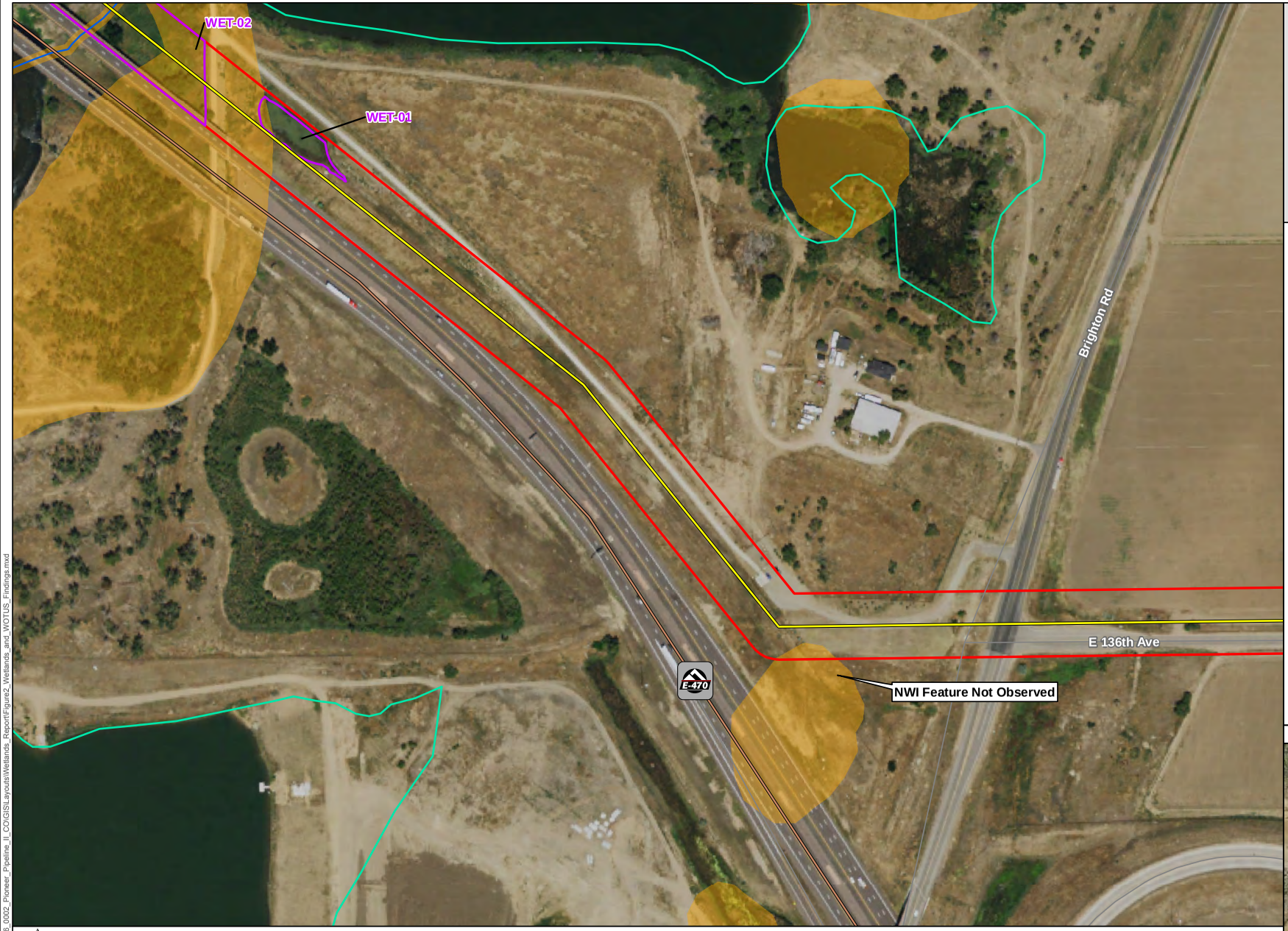

PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 8 of 11

Adams County, CO

Project Features
- Pipeline Alignment

Transportation
- State Highway
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Wetland
- NHD Waterbody
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

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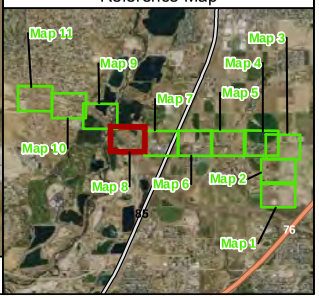

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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 9 of 11

Adams County, CO

Project Features
- Pipeline Alignment

Transportation
- State Highway
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Ditch
- Field-delineated Stream
- Field-delineated Wetland
- NHD Waterbody
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

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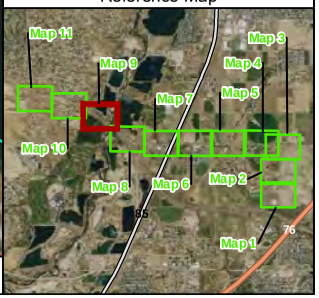

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Source: ESRI, USDA NAIP, US CENSUS, BTS, NHD, NWI, TETRA TECH

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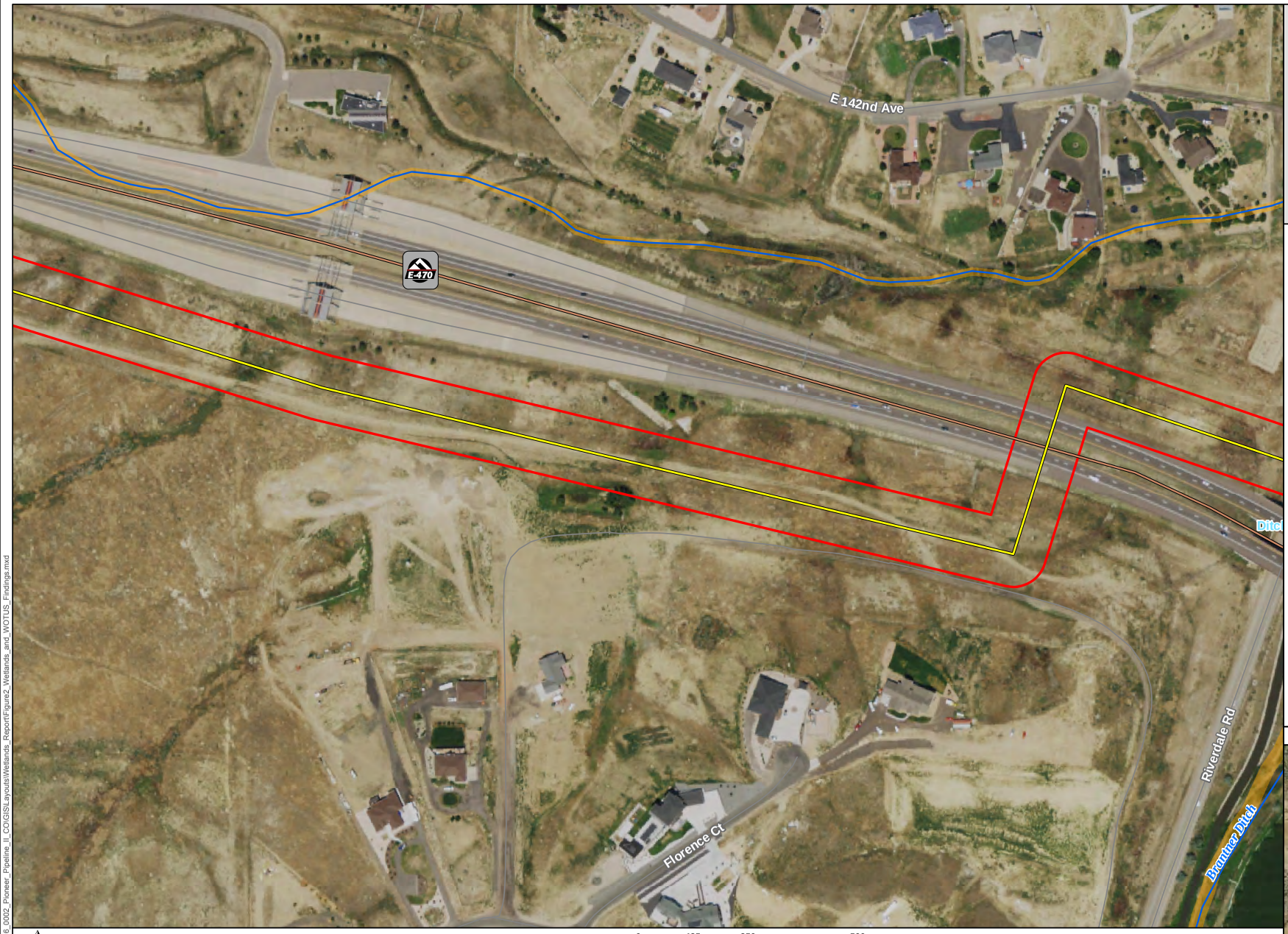


PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 10 of 11

Adams County, CO

Project Features
- Pipeline Alignment

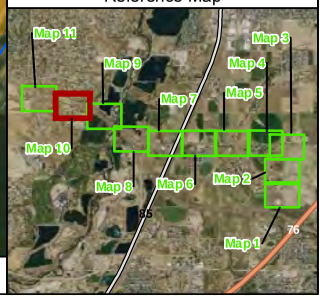
Transportation
- State Highway
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map



1:2,500 NAD 1983 StatePlane Colorado Central FIPS 0502 Feet

0 125 250 500 Feet

Source: ESRI, USDA NAIP, US CENSUS, BTS, NHD, NWI, TETRA TECH

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PDC Energy
Pioneer Water Pipeline Project
Phase 2

Figure 2
Wetland and WOTUS Findings
Map 11 of 11

Adams County, CO

Project Features
- Pad Location
- Pipeline Alignment

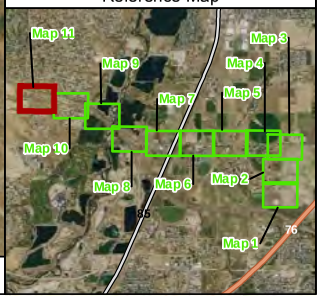
Transportation
- State Highway
- Local Road

Wetlands and WOTUS Findings
- NHD Stream/River
- Field-delineated Ditch
- NWI Wetland
- Wetlands Survey Area (75 ft)

TETRA TECH

NOT FOR CONSTRUCTION

Reference Map



1:2,500 NAD 1983 StatePlane Colorado Central FIPS 0502 Feet

0 125 250 500 Feet

Source: ESRI, USDA NAIP, US CENSUS, BTS, NHD, NWI, TETRA TECH

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Appendix A: Representative Photos

Photo 1: Earthen agricultural ditch, Ditch-01. The terminus of this feature could not be determined during the field survey due to landowner access. Unknown jurisdictional status of this feature. View is looking south.

Photo 2. Typical oil and gas development that is observed throughout the area. View is looking north.

Photo 3: Eastern terminus of the Project looking west.

Photo 4: Evaluated potential wetland WET-01 that intersects the Survey Area. This feature is isolated in nature with no significant nexus to a WOTUS. This feature is likely non-jurisdictional. View is looking west.

Photo 5: Evaluated potential wetland WET-02 that intersects the Survey Area. WET-02 is associated with the South Platte River riparian corridor. This feature is likely jurisdictional. View is looking west.

Photo 6: Evaluated potential wetland WET-03 that intersects the Survey Area. Wetland is Isolated in nature within no significant nexus to a WOTUS. This feature is likely non-jurisdictional. View is looking west.

Photo 7: Intermittent agricultural canal/ditch, Ditch-02 (Fulton Ditch) that intersects the Survey Area. This feature is likely jurisdictional. View is looking north.

Photo 8: Concrete agricultural ditch, Ditch-03, that intersects the Survey Area. This feature terminates into upland and therefore is likely non-jurisdictional. View is looking north.

Photo 9: Intermittent agricultural ditch, Ditch-04 (Fulton Lateral Ditch), that intersects the Survey Area. This feature is likely jurisdictional. View is looking north.

Photo 10: Earthen agricultural ditch, Ditch-05, that intersects the Survey Area. This feature terminates into uplands and therefore is likely non-jurisdictional. View is looking north.

Photo 11: Intermittent ditch, Ditch-06 (Third Creek) that intersects the Survey Area This feature is likely jurisdictional. View is looking south.

Photo 12: Earthen roadside agricultural ditch, Ditch-07, that intersects the Survey Area. This feature terminates into uplands and is likely non-jurisdictional. View is looking west.

Photo 13: Earthen agricultural ditch, Ditch-08, that intersects the Survey Area. This feature terminates into uplands and therefore is likely non-jurisdictional. View is looking southwest.

Photo 14: Intermittent ditch, Ditch-09 (Second Creek), that intersects the Survey Area. This feature is likely jurisdictional. View is looking north.

Photo 15: Earthen roadside agricultural ditch, Ditch-10, that intersects the Survey Area. This feature is likely non-jurisdictional. View is looking west.

Photo 16: Earthen agricultural ditch, Ditch-11, that intersects the Survey Area. The terminus of this feature could not be determined by the field survey due to landowner access. Unknown jurisdictional status of this feature. View is looking north.

Photo 17: Intermittent agricultural ditch, Ditch-12 (Brantner Ditch), that intersects the Survey Area. This feature is likely jurisdictional. View is looking east.

Photo 18: Ephemeral ditch, Ditch-13, that intersects the Survey Area. This feature is likely non-jurisdictional. View is looking northeast.

Photo 19: Perennial stream, Stream-01 (South Platte River), that intersects the Survey Area. This feature is likely jurisdictional. View is looking northeast.

Photo 20: Western terminus of the Project. View is looking east.

Appendix B: Nationwide Permit 12

NATIONWIDE PERMIT 12
Oil or Natural Gas Pipeline Activities

Effective Date: March 15, 2021
(NWP Final Notice, 86 FR 8)

12. Oil or Natural Gas Pipeline Activities. Activities required for the construction, maintenance, repair, and removal of oil and natural gas pipelines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Oil or natural gas pipelines: This NWP authorizes discharges of dredged or fill material into waters of the United States and structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, or repair of oil and natural gas pipelines. There must be no change in pre-construction contours of waters of the United States. An "oil or natural gas pipeline" is defined as any pipe or pipeline for the transportation of any form of oil or natural gas, including products derived from oil or natural gas, such as gasoline, jet fuel, diesel fuel. heating oil, petrochemical feedstocks, waxes, lubricating oils, and asphalt.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Oil or natural gas pipeline substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities (e.g., oil or natural gas or gaseous fuel custody transfer stations, boosting stations, compression stations, metering stations, pressure regulating stations) associated with an oil or natural gas pipeline in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for above-ground oil or natural gas pipelines: This NWP authorizes the construction or maintenance of foundations for above-ground oil or natural gas pipelines in all waters of the United States, provided the foundations are the minimum size necessary.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of oil or natural gas pipelines, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize oil or natural gas pipelines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (see 33 CFR part 322). Oil or natural gas pipelines routed in, over, or under section 10 waters without a discharge of dredged or fill material may require a section 10 permit.

This NWP authorizes, to the extent that Department of the Army authorization is required, temporary structures, fills, and work necessary for the remediation of inadvertent returns of drilling fluids to waters of the United States through sub-soil fissures or fractures that might occur during horizontal directional drilling activities conducted for the purpose of installing or replacing oil or natural gas pipelines. These remediation activities must be done as soon as practicable, to restore the affected waterbody. District engineers may add special conditions to this NWP to require a remediation plan for addressing inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities conducted for the purpose of installing or replacing oil or natural gas pipelines.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the oil or natural gas pipeline activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) a section 10 permit is required; (2) the discharge will result in the loss of greater than 1/10-acre of waters of the United States; or (3) the proposed oil or natural gas pipeline activity is associated with an overall project that is greater than 250 miles in length and the project purpose is to install new pipeline (vs. conduct repair or maintenance activities) along the majority of the distance

of the overall project length. If the proposed oil or gas pipeline is greater than 250 miles in length, the pre-construction notification must include the locations and proposed impacts (in acres or other appropriate unit of measure) for all crossings of waters of the United States that require DA authorization, including those crossings authorized by an NWP would not otherwise require pre-construction notification. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: Where the oil or natural gas pipeline is constructed, installed, or maintained in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, a copy of the NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the oil or natural gas pipeline to protect navigation.

Note 2: For oil or natural gas pipeline activities crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Oil or natural gas pipeline activities must comply with 33 CFR 330.6(d).

Note 3: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the oil or natural gas pipeline must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 4: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, and may require a permit from the U.S. Coast Guard pursuant to the General Bridge Act of 1946. However, any discharges of dredged or fill material into waters of the United States associated with such oil or natural gas pipelines will require a section 404 permit (see NWP 15).

Note 5: This NWP authorizes oil or natural gas pipeline maintenance and repair activities that do not qualify for the Clean Water Act section 404(f) exemption for maintenance of currently serviceable fills or fill structures.

Note 6: For NWP 12 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, “District Engineer’s Decision.” The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

2021 Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as

breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA

section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where

"take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate

documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining

appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or

maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the

mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be

obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1⁄3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has

specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm

Appendix C: Colorado Regional Conditions

Regional Conditions Applicable to All Nationwide Permits within the State of Colorado

1. Construction of Diversions and Intakes. The permittee must submit a pre-construction notification (PCN) to the District Engineer in accordance with general condition 32 prior to commencing any activity that involves the construction of new water diversions and intakes. This regional condition does not apply to maintenance activities covered by Nationwide Permit (NWP) 3.

2. Open Trenching in Perennial Streams. The permittee must submit a PCN to the District Engineer in accordance with general condition 32 prior to commencing any activity that involves open trenching in perennial streams.

3. Peatlands. All NWPs, with the exception of 3, 5, 6, 20, 27, 32, 37, and 38, are revoked for the discharge or dredged or fill material in peatlands. For NWPs 3, 5, 6, 20, 27, 32, 37, and 38, the permittee must submit a PCN to the District Engineer in accordance with general condition 32 prior to commencing work in peatlands. The term peatland includes fens and bogs. For the purposes of this regional condition, a peatland is defined as a wetland with organic soil that is classified as a histosol in the Natural Resources Conservation Service (NRCS) guidance document entitled Field Indicators of Hydric Soils in the United States (Version 8.0, 2016). A copy of the document can be obtained from the NRCS at nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_053171.pdf.

4. Stream Stabilization. The permittee must submit a PCN to the District Engineer in accordance with general condition 32 prior to commencing any stream stabilization activity that utilizes non-native material. The permittee must also submit a PCN to the District Engineer in accordance with general condition 32 prior to commencing any stream stabilization activity that exceeds the placement of ¼ cubic yard of material per linear foot on average below the plane of the ordinary high water mark for streams with an average width of less than 20 feet (measured at the plane of ordinary high water).

Non-native materials include clean brick, broken concrete, cinder block, slab material, wire mesh, such as gabion baskets, grout, and sheet piling. The use of Regional Conditions to the 2021 Nationwide Permits in the State of Colorado broken concrete with exposed rebar and tires (loose or formed into bales), and other materials listed under general condition 3 is prohibited in all waters of the United States. Rock, rip rap, and woody debris are considered native material.

For all stream stabilization activities involving non-native material, permittees must demonstrate that alternative engineering methods utilizing native materials are not practicable (with respect to cost, existing technology, and logistics), before the use of non-native material is allowed as suitable fill.

5. Gold Medal Waters. The permittee must submit a PCN to the District Engineer in accordance with general condition 32 prior to commencing all activities located in waters identified as “Gold

Medal" by the Colorado Wildlife Commission. Upon receipt of a complete PCN, the U.S. Army Corps of Engineers (Corps) will initiate Agency Coordination with Colorado Parks and Wildlife (CPW) as outlined in the procedures under general condition 32(d) of the NWPs. Pre-application consultation with CPW is not required but highly recommended. If a pre-application consultation is conducted with CPW, providing written documentation of CPW's response to the project may satisfy the coordination requirements resulting in quicker processing times. Please visit CPW's website at cpw.state.co.us to determine the location of Gold Medal waters and the appropriate office for coordination.

6. Water Quality Certification. In accordance with 33 CFR 330.4(c), the conditions of Clean Water Act Section 401 water quality certifications are incorporated as conditions of the Section 404 NWPs. Water quality certifications are available at: spa.usace.army.mil/reg/wqc.

Regional Conditions Applicable to Specific Nationwide Permits within the State of Colorado

7. Nationwide Permit No. 27: Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

a. Net increase in aquatic resource functions and services. For projects requiring a PCN, the PCN must contain a description/assessment of the existing aquatic habitat conditions (i.e., baseline information), to be compared to proposed/post-construction conditions, and an explanation for why the project is needed (i.e., project purpose), including a description of how the project will improve aquatic habitat.

b. Fisheries enhancement. Agency Coordination with CPW is required for projects involving fisheries enhancement in perennial streams. Upon receipt of a complete PCN, the Corps will decide whether the project involves fisheries enhancement activities, regardless of whether the PCN explicitly identifies "fisheries enhancement" as the project purpose, and initiate Agency Coordination with CPW in accordance with the procedures set forth under general condition 32(d). Pre-application consultation with CPW, preferably on-site, is highly recommended for projects involving fisheries enhancement, and providing documentation of pre-application consultation with CPW and their response may satisfy the coordination requirements of this permit resulting in quicker processing times. Please visit CPW's website at cpw.state.co.us to determine the appropriate office for coordination.

c. Ecological reference. This permit authorizes activities that are planned, designed, and implemented for the purpose of restoring, establishing, and enhancing aquatic habitat to resemble an ecological reference. To demonstrate compliance with this permit requirement, the PCN must identify the ecological reference or conceptual model used for project design. This permit does not authorize projects that involve other goals, such as waterborne recreation (e.g., kayak courses) and flood control.

To assist in Agency Coordination with CPW for projects involving fisheries enhancement, drawings must also include the following:

(1) Plan view of all work clearly identifying types and locations of structures/impacts, along with dimensions, and approximate extents of aquatic resources within the project area, including wetlands and riffle-pool complexes. To aid in visual understanding, this plan can be overlaid on a recent aerial image of the project site. The plan should also include information such as the existing and proposed bank slopes, width-to-depth ratio of the channel, and sinuosity.

(2) Cross-sectional and longitudinal profile views to scale of the existing stream channel and the proposed channel modifications, including dimensions (length, width and height of the structures or work).

Failure to include the information required for Agency Coordination with CPW, when applicable, may result in delays and/or withdrawal of the PCN due to incompleteness.

d. As-built drawings. For projects requiring a PCN with a design-build or fisheries enhancement component, the permittee shall submit a complete set of as-built drawings to the Corps within 90 days following the completion of work.

e. Use of concrete and grout. The use of concrete/grouting is not allowed in perennial streams unless the Corps determines on a case-by-case basis that the impacts will result in minimal adverse effects to the aquatic resource.

Exhibit G
Development Agreement

DEVELOPMENT AGREEMENT

THIS DEVELOPMENT AGREEMENT ("Agreement") is made and entered into by and between the **COUNTY OF ADAMS**, a political subdivision of the State of Colorado, hereinafter called ("County"), and **PIONEER WATER PIPELINE, LLC**, a Delaware limited liability company, 1099 18th Street, Granite Tower, Suite 1500, Denver, CO 80202, hereinafter called ("Developer"). County and Developer may be referred to in this Agreement collectively as “Parties” or singularly as “Party.”

WITNESSETH:

WHEREAS, Developer desires to construct approximately 4 miles of 6- to 12 inch-diameter high- density-polyethylene (HDPE) and steel produced water gathering pipeline and associated appurtenances in Adams County, Colorado, as shown in the alignment sheets in Exhibit A (“Project”); more particularly described in that certain Conditional Use Permit (“CUP”) Application dated October 30, 2023; and

WHEREAS, on October 30, 2023, Developer submitted an application for a CUP to Adams County in accordance with the requirements outlined in Chapter 2 of the Adams County Development Standards and Regulations (" Regulations"); and

WHEREAS, Developer will acquire, if it has not already done so, all necessary right-of-way easements and temporary construction easements to utilize certain real property in the County of Adams, State of Colorado; and

WHEREAS, the County has designated its future road expansion plans in the Adams County Transportation Plan adopted November 2012 ("Transportation Plan"); and

WHEREAS, the County and Developer have planned and designed the Project, so it will not prohibit future development, and so that it will not add cost to the County's future infrastructure plans to support development.

NOW, THEREFORE, in consideration of the foregoing, the parties hereto promise, covenant, and agree as follows:

I. DEVELOPER'S OBLIGATIONS:

1. Pre-Construction Activities. Prior to site disturbance and commencing construction for each Segment of the Pipeline within the County, Developer shall:

    a. Provide the County a summary of the permits necessary from all applicable jurisdictions for the construction and installation of the subject Segment; the summary shall include the permit name, permit number (if applicable), date of application for permit, permit status (if not approved and the anticipated timing of such approval), and date of approval (if required for the subject permit).

    b. Apply for the applicable construction permits for the subject Segment.

    c. Prepare a Storm Water Management Plan. Storm Water Best Management Practices (“ BMPs”) will be implemented for the construction phase to capture and treat onsite Storm Water runoff

in accordance with the requirements for the Storm Water Management Plan for the subject Segment of the Project.

d. Secure applicable local, state, and federal permits for the subject Segment of the Project and submit copies of these permits to the County.

e. Secure Adams County Right-of-Way permits prior to constructing crossings for the subject Segment, which shall not be unreasonably withheld or delayed.

f. Record all executed easements and property deeds for the subject Segment of the Project with the County.

g. Contact and use commercially reasonable efforts to work with Xcel Energy and United Power regarding any possible encroachment the subject Segment of the Project may have on Xcel Energy's or United Power's pipeline(s) or related facilities.

h. Submit evidence (e.g. permit number) of approved Colorado Department of Transportation ("CDOT") Utility Permit for the Crossing of U.S. Highway 85 to the County.

i. Submit evidence (e.g. permit number) of the approved Union Pacific Railroad Crossing/Encroachment Permit for utilities that cross or follow along the ROW.

j. Submit engineering plans for an approximately 10-foot-wide permanent easement plus up to an additional 60-foot-wide temporary easement for a total construction corridor of up to 70 feet in width to be designed and constructed in accordance with Chapter 7 of the Adams County Development Standards and Regulations.

2. Construction Activities. During construction, Developer shall:

a. Construct the Project in accordance with the CUP.

b. Manage Stormwater in accordance with a stormwater management plan (“SWMP”) prepared under the Colorado Department of Public Health and Environment ("CDPHE") Colorado Discharge Permitting System ("CDPS") Permit and in accordance with the Clean Water Act National Pollution Discharge Elimination System ("NPDES") regulations and Adams County's Grading Erosion and Sediment Control standards. Stormwater BMPs will be implemented for the construction phase to capture and treat onsite Storm Water runoff in accordance with the requirements for the SWMP.

c. Operate at the Project site only from 7:00 AM to 7:00 PM, Monday through Saturday. Construction may occur on Sundays and other hours outside 7:00 AM to 7:00 PM timeframe on an as-required basis during inclement weather, during hydrostatic testing, horizontal directional drilling ("HDD"), and emergency situations that would cause Developer to be out of compliance with any applicable local, state, or federal permit. The County Director of Community and Economic Development may extend the hours and days of operation if Developer makes a request in writing and demonstrates sufficient need.

d. Comply with guidelines of Section 106 of the National Historic Preservation Act of 1966 in locations that have been identified as federally regulated within t h e County. Comply with State of Colorado Historical, Paleontological, and Archeological Resources Act of 1973 (C.R.S. §§ 24-80-

401 to 410) on all identified state lands within the County. All best management practices and avoidance measures proposed within the approved CUP on lands that are state and federally regulated by the above listed laws will be enforced.

e. Comply with the terms of the Project's Air Pollution Emissions Notice ("APEN") issued by CDPHE, if an APEN is required.

f. Comply with C.R.S. § 42-4-1407, covering loads for all hauling/construction trucks.

g. Be responsible for the cleanliness and safety of roadways adjacent to the Project in the event there are any issues related to the Project during construction. If at any time these roadways are found to be dangerous or not passable due to debris or mud caused by Project activities, the County may require the Developer to cease Project operations immediately in the affected area and clear the roadway of any and all debris or mud. If required by the County, the Project shall not resume until the County deems the roadway conditions acceptable. If the Developer fails to keep the adjacent roadways clean and free from debris, Adams County Transportation Department has the option to perform the required clean up and bill clean up charges directly to the Developer.

h. Be responsible for repairing County infrastructure that is damaged as a result of the construction from the Project. County will make a reasonable effort to provide any locations of County infrastructure to Developer within 30 days of CUP approval. Repairs shall occur as soon as possible, but no later than six (6) months following construction completion, unless an extension is granted by the County for extenuating circumstances. The Developer may submit evidence of the condition of the County's infrastructure at the start and completion of construction in order to demonstrate the pre-construction condition and the post-construction condition of the infrastructure.

i. Remove and dispose of fluid spills caused by the project if applicable, such as hydraulic oil from maintenance of equipment, at a facility permitted for such disposal.

j. Convey complaints Developer receives concerning off-site impacts and the resolution of those complaints to the Adams County Community and Economic Development Department. Off-site impacts shall be responded to and resolved by Developer. The Adams County Community and Economic Development Department will be the final decision maker regarding the resolution of noise complaints or any other off-site impacts, provided that Developer is provided notice and given an opportunity to be heard. Excessive complaints that are not resolved to the satisfaction of the County may be justification for a Show Cause Hearing before the Adams County Board of County Commissioners.

k. Ensure that construction vehicles have a backup alarm that complies with Occupational Safety and Health Administration requirements, 29 CFR 1926.601(b)(4) and 1926.602(a)(9), and/or other remedies (such as flagmen) to minimize noise as approved by the County.

l. Notify the County prior to commencing snow removal operations within the County's right-of-way. The Developer shall be responsible for damages to the right-of-way caused by these activities and shall repair damages at its expense within 60 days of receiving notice from the County.

m. Screen storage or staging areas from adjacent residential properties within 100 feet.

n. Comply with all applicable local, state, and federal requirements during the course of the Project.

o. Implement the following BMPs outlined in the Biological Resources Assessment:

I. Horizontal directional drilling shall be used to avoid impacts to wetlands and waterbodies to the extent practicable and in accordance with U.S. Army Corps of Engineers requirements.
II. Raptor and bald eagle surveys should be conducted by a qualified biologist prior to disturbance.
III. If initial land disturbance is anticipated from March 15th to September 31st, a survey for potential burrowing owl habitat will be conducted. If potential habitat is found, surveys will be conducted in accordance with the Colorado Parks and Wildlife (CPW) protocols prior to the start of construction.
IV. If construction is planned to occur between April 1st to July 31st, field reconnaissance of potential mountain plover habitat should be conducted prior to disturbance.
V. In areas of trenching, trenches left overnight shall be covered or a means of egress provided for any wildlife that may enter the trench. Trenches should be checked for wildlife daily and if a species listed as Federal- or State- threatened or endangered is found or suspected, work should stop while a qualified biologist is contacted to relocate the animal.

p. Implement the following Adams County water well mitigation measures:

I. If trench dewatering is necessary, the water will be pumped and discharged to alluvial/colluvial sediments close to the stream channel.
II. If discharge of groundwater is necessary during construction, Developer agrees to obtain a discharge permit from CDPHE, Water Quality Control Division.

3. Design Requirements.

a. The Project will be designed to meet or exceed the minimum safety standards contained the Colorado Energy & Carbon Management ("ECMC") Commission 1100 Series Rules, as applicable, and national engineering design codes for pipelines set forth by the American Society of Mechanical Engineers.

b. Pipeline burial depths will meet or exceed federal, state, and applicable engineering standards. The pipelines will be buried with a minimum of 48-inches of cover where practical.

c. Ensure the pipeline is located in easements on private property or County owned property and County road crossings shall be as near as possible to right angles. This effective placement of the pipeline complies with required structure setbacks per 2012 Transportation Plan.

4. Operational Requirements.

a. The Project will be operated in accordance with the safety standards contained the Colorado ECMC 1100 Series Rules.

b. The Project will be operated in accordance with all applicable local, state, and federal codes, laws, and regulations, including but not limited to CDOT and CDPHE.

c. The Project will utilize an integrity management program as detailed in the ECMC 1100 Series Rules.

5. Post-Construction and Maintenance Requirements.

a. Developer agrees to restore disturbed County-owned lands in compliance with the requirements of applicable easement agreements. In the event that reseeding is unsuccessful in the first growing season, Developer agrees to comply with the terms of the easement agreements during the subsequent growing season. The County may grant an extension for good cause, in writing, in the event of unforeseen circumstances.

b. Developer agrees to restore disturbed private property in accordance with the applicable easement agreements. In the event that reseeding is unsuccessful in the first growing season, Developer agrees to comply with the terms of the easement agreements to restore the land. The County may grant an extension for good cause, in writing, in the event of unforeseen circumstances.

c. The Developer also agrees that the approval of encroachment agreement requests for parking lots and driveways on private property shall not be unreasonably or arbitrarily withheld, in accordance with the terms of the easement agreements for the Project, so long as such encroachment requests do not affect Developer's ability to safely operate its pipeline.

d. Developer agrees that it will not disrupt or damage the functionality of existing drainage facilities.

e. Developer agrees to submit "as built" construction drawings to the Adams County Community and Economic Development Department and Public Works Department within 180 days of construction completion in accordance with the procedures established by the County.

f. Developer agrees to submit emergency contact information, emergency response plans, and final maps of the Project, including associated pipeline components, to the local fire districts encompassing the Project and to the Adams County Office of Emergency Management before commencing operation of the pipeline. The Developer shall comply with other requests for information from the Adams County Office of Emergency Management in accordance with local, state, and federal law.

g. Maintenance of the Project will follow guidelines set forth in Developer's operations and maintenance procedures, which meet or exceed regulatory requirements. Maintenance activities associated with the pipeline and permanent easement include, the following:
   - Implement a damage prevention program, including observation of any construction activities by others on or near the permanent easement;
   - Participate in the State of Colorado's one-call program and responding to one-calls;
   - Install and maintain pipeline markers;
   - Inspect isolation valves;
   - Inspect crossings by other pipelines, highways, railroads, and utilities;
   - Inspect and maintain safety, control, mechanical, and electrical equipment;
   - Maintain communication equipment.

6. Development Impact Fees. There are no development impact fees associated with this Project.

7. Guarantee of Compliance. Developer hereby agrees that, should it fail to comply with the terms of

this Agreement through no fault of Adams County, the County is entitled to obtain from the Colorado State District Court for the Seventeenth Judicial District a mandatory injunction requiring said Developer to comply with the terms of this Agreement. Prior to the County seeking such an injunction, Developer will be provided the opportunity to cure any default in accordance with the terms set forth herein. Developer further agrees that failing to comply with the requirements set forth in this Agreement may be justification for a Show Cause Hearing where the CUP Permit may be revoked.

8. Successors and Assigns. The rights granted herein may be assigned in whole or in part, and the terms, conditions, and provisions of this Agreement shall be deemed a covenant running with the real property in perpetuity and shall be binding upon the heirs, executors, personal representatives, successors, and assigns of Developer and of the County.

II. COUNTY'S OBLIGATIONS:

Except as expressly set forth herein, the County shall have no obligations associated with this Agreement.

Ill. GENERAL PROVISIONS:

1. No Third-Party Beneficiaries. This Agreement is intended to describe and determine such rights and responsibilities only as between the Parties hereto. It is not intended to and shall not be deemed to confer rights or responsibilities to any person or entities not named hereto.

2. Notices. Any and all notices, demands or other communications desired or required to be given under any provision of this Agreement shall be given in writing and delivered personally or sent by registered or certified mail, return receipt requested, postage prepaid or by email address as follows:

To Developer:
PIONEER WATER PIPELINE, LLC
Attn: Land Manager
1099 18th Street, Granite Tower
Suite 1500
Denver, CO 80202

To Adams County:
Director, Adams County Community and Economic Development
4430 South Adams County Parkway
1st Floor, Suite W2000A
Brighton, CO 80601

With a copy to:
Adams County Attorney
4430 South Adams County Parkway
5th Floor, Suite C500B
Brighton, CO 80601

3. Amendments. Should any changes to the CUP be proposed by Developer before, during or after completion of the Project, Developer shall submit the details of those changes to the Adams County Community and Economic Development Director for a determination as to whether those changes constitute a Major or Minor Amendment in accordance with the Regulations.

   This Agreement may only be modified amended, changed, or terminated in whole or in part by a separate agreement in writing duly authorized and executed by the Parties hereto with the same formality, and subject to the same statutory and regulatory requirement, as this Agreement.

4. Controlling Law. This Agreement and its application shall be construed in an accordance with the laws of the State of Colorado.

5. Default. If either party is in default under this Agreement, the non-defaulting party shall provide written notice to said defaulting party at the address provided in Section 2 immediately above. The defaulting party shall have 30 days to cure the default, unless an extension is granted in writing by the non- defaulting party for good cause. The non-defaulting party may seek all remedies available pursuant to the Agreement and under the law.

6. Costs and Fees. In the event of any litigation arising out of this Agreement, the parties agree that each party will pay its own costs and fees.

DEVELOPER

PIONEER WATER PIPELINE, LLC
a Delaware limited liability Company

By: _____
Name
Title

ACKNOWLEDGMENT

STATE OF COLORADO)
) SS.
COUNTY OF WELD)

The foregoing instrument was acknowledged before me this _____ day of _____, 2023, by _____ for Pioneer Water Pipeline, LLC.

Witness my hand and official seal.

_____
Notary Public
State of Colorado

APPROVED BY resolution at the meeting of _____, 2023.

ATTEST:

BOARD OF COUNTY COMMISSIONERS
ADAMS COUNTY, COLORADO

_____

Clerk of the Board

_____

Chairperson

Exhibit H
Emergency Response Plan

Pioneer Water Pipeline LLC

Ponderosa Water Gathering System

Emergency Response Plan

3/7/2023

Overview and Pioneer Water Pipeline Detailed Emergency Response Plan

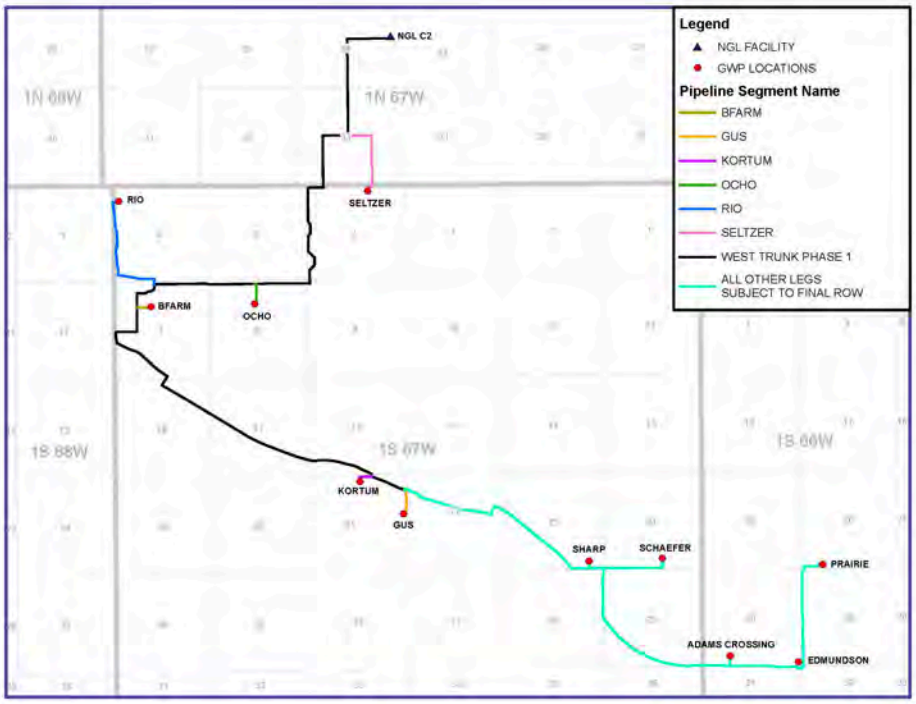
Weld County's Office of Emergency Management, Adams County Office of Emergency Management, Thornton Fire Department, the Adams/Jeffco Hazardous Materials Response Authority ("hazmat team") and The City of Thornton's emergency and safety administrator Brighton District Fire Department, and North Metro District Fire Department has been, or will be, provided a copy of PDC Energy field-wide Emergency Response Plan ("ERP"), which details how PDC personnel will respond in the event of an emergency.

This document provides site specific information for the Pioneer Water Pipeline LLC's Ponderosa Water Gathering Pipeline. Pioneer Water Pipeline LLC is owned and operated by PDC Energy ("PDC") and for the purposes of this document should be considered the same. As such, this document will complement the field wide ERPs on file from PDC. The information in this document relates specifically to the time during the construction and operation of the pipeline network that will be ~25 miles in length upon completion, to be built over multiple years. The pipeline handles produced water from oil and gas production via 4"-12" buried HDPE pipe constructed per applicable codes and COGCC 1100 Series rules. This system is classified as a Produced Water Transfer System with the COGCC per the 1100 Series rules and 100 Series definitions. Liquid balance on the system as well as regular surveillance of the pipeline's routes will be used to identify any leaks. Additionally, an annual pressure test per the COGCC 1100 Series rules will be completed.

Ponderosa Water Gathering Pipeline Specifics

The pipeline network is being built in segments with a portion in Weld County and the majority in Adams County as outlined below. Note that the current active segments are outlined below in color; the remaining segments will be built over the coming years. This ERP will be updated accordingly has these segments are placed in service. The pipeline occupies easements granted by a number of private and public entities, some of which are adjacent to access and roadways, others are cross country in nature.

The pipeline varies in size from 4" to 12" and will carry produced water at 250 psig or less, no appreciable hydrocarbons or gas will be present and no known H2S will be entrained in the water.



Schools and Other High Occupancy Buildings

There are no schools or other high occupancy buildings within 3,400 feet of the location.

Nearby Residences and High Occupancy Buildings

There are 16 residences within 1000 feet of the edge of pipeline easement. No apparent threat exists due to this proximity as the line contains negligible hydrocarbons and is incompressible liquid. No known H2S exists.

Nearby Waterways

The easement does cross the Yaxall ditch (a private irrigation ditch) two times and is bored at these locations. No other waterways are nearby.

Nearby Hospitals and Medical Facilities

Platte Valley Medical, 1600 Prairie Center Pkwy, Brighton, CO 80601
Ground Travel Time Varies Depending on Location Along the Pipeline.

St. Anthony North Health Campus, 14300 Orchard Pkwy, Westminster, CO 80023
Ground Travel Time Varies Depending on Location Along the Pipeline.

North Suburban Medical Center, 12793 Holly St, Thornton, CO 80241
Ground Travel Time Varies Depending on the Location Along the Pipeline

Contact Information

For any emergency related incident, First Responders or Weld/Adams County's Office of Emergency Response should contact the following phone numbers:

Contact	Phone
24-Hour Field Monitoring Room	970-313-5595
Corporate Office: 1775 Sherman Street, Suite 3000 Denver, CO 80203	303-860-5800 (Main) 877-350-0169 (Emergency/Cell)
Field Office: 4000 Burlington Ave, Evans, CO 80620	970-506-9272 (Main) 877-350-0169 (Emergency/Cell)
EHS Safety/Environmental - Manager: Jason Thron	303-831-3900 (Emergency/Cell)

First Responders

The Ponderosa Water Gathering Pipeline has the following First Responders and Emergency Management Offices that will be contacted in the case of an emergency. ALL EMERGENCY CALLS SHOULD GO THROUGH 911 FIRST.

Contact	Phone
North Metro Fire Rescue District	303-452-9910
Brighton Fire Rescue District	303-288-1535
Adams County Sheriff	303-654-1850
Adams County OEM	720-523-6600
Weld County Sheriff	970-356-4015
Weld County OEM	970-304-6540
Weld County Regional Communication Center	970-350-9600 - Option 4
Thornton Fire Department	303-538-7424
Adams/Jeffco Hazardous Materials Response Authority ("hazmat team")	303-271-4905
The City of Thornton's Emergency and Safety Administrator	720-977-5150

Government Agencies

The Ponderosa Water Gathering System has the following government agencies and local contacts that will be contacted in the event of an emergency:

Contact	Phone
COGCC	303-894-2100

CDPHE	877-518-5608
CPW	303-291-7227
Weld County (Jason Maxey)	970-400-3579
Adams County (Greg Dean)	720-523-6891
The City of Thornton's Emergency and Safety Administrator	720-977-5150

Pipeline Safety Requirements

Personal Protective Equipment

All personnel on pipeline routes and easements are required to be equipped with appropriate personal protective equipment (PPE) that complies with OSHA requirements for typical oil and gas operations. The minimum PPE to perform work on pipeline routes and easements includes hard hat, safety glasses, safety toe boots, and fire-resistant clothing (FRC) when not in a vehicle. All contractors and visitors are responsible for providing their employees with the appropriate PPE while on routes and easements. In addition, all contract personnel entering the location to perform work must understand and abide by PDC contractor expectations relating to environmental, health, and safety requirements.

Depending on the operations taking place on location, chemicals stored on-site may vary. In accordance with 49 CFR 1910.1200, Safety Data Sheets (SDS) will be made available for site personnel performing work and for first responders in a centralized location onsite.

Emergency Muster/Assembly Points

Based on the distributed nature of the pipeline, lack of surface facilities as well as lack of hydrocarbons and gas specifically, it is not practical to have muster points along the pipeline routes and easements.

Location of Emergency Equipment and Supplies

- Gas monitors are worn by all PDC company personnel.
- During the day, there is an operator available at all times; however, during evenings and weekends. PDC utilizes a 24-hour response number located on all signs posted throughout our locations.
- In case of an emergency, the pumps transferring water to the pipeline can be shut-in remotely. Additionally, isolation valves exist along the ROW to isolate and contain any pipeline breach or spill as a result of pipe failure.

Spills

All spills will be reported to the COGCC, Weld County and/or Adams County as required per COGCC rules and immediately cleaned up per PDC's field-wide ERP.

- CTEH (James Panasiuk) at 866-869-2834 and Tasman 303-487-1228 provide PDC with services in case of major spills or major hazmat incidents.

Coordination with First Responders and Office of Emergency Management

Upon request, PDC staff will meet with personnel from any first responder agency listed above and the Weld/Adams County Office of Emergency Management regarding operations along the pipeline. The purpose of the meeting would be to review PDC's emergency response plan and discuss planned facilities.

Reimbursement of Costs Associated with Emergency Response

PDC will reimburse the appropriate emergency response service providers for costs incurred as a result of emergencies associated with PDC's facilities when fault is assigned (in accordance with Colorado State Statutes). PDC reserves the right to investigate the fault so the appropriate party can be responsible for said costs. PDC will also maintain the right to seek indemnification from responsible parties.

Potential Hazards

Minor Spills	• Assess the situation. • Eliminate all ignition sources (no smoking, flares, sparks or flames) in immediate area. • Stop release IF IT IS SAFE TO DO SO using available resources including a shutdown of all water entering the gathering line and the closure of any applicable isolation valves surrounding the spill. • Secure area prevent entry into waterways. • If the event poses immediate threat to health, safety, or environment contact the fire department at 911. • Contact PDC EHS – Environmental at 970-509-9272 (Main) and/or 303-831-3900 (Emergency/Cell) • EHS contacts COGCC, NRC, and CDPHE as required
Major Spills	• Eliminate all ignition sources (no smoking, flares, sparks or flames) in immediate area

	• Stop release IF IT IS SAFE TO DO SO using available resources including a shutdown of all water entering the gathering line and the closure of any applicable isolation valves surrounding the spill. • Major spill releases require verbal notification within 24 hrs • Any spill that has potential to leave the pipeline route or easement and poses a threat to water supplies of the city or state shall be reported to local emergency dispatch and the COGCC Director in accordance with COGCC regulations. In the event of a large incident requiring outside assistance/cascading resources, PDC Energy, Inc. has contracted with a Consulting Spill Management Team (SMT) CTEH. Consulting SMT CTEH possesses a working knowledge of oil and gas operations, emergency response and the Incident Command System (ICS). Once notified CTEH personnel can be on location within 12 hours. • If event poses immediate threat to health and safety, or environment contact the fire department at 911 • Contact PDC EHS – Environmental at 970-509-9272 (Main) and/or 303-831-3900 (Emergency/Cell) • EHS contacts COGCC, NRC, and CDPHE
Hydrogen Sulfide	• Not applicable due to a lack of appreciable H2S in received fluids.
Accident/Injury	• Any accidents/injuries that requires more than first aid contact EMS or 911 • Contact PDC EHS at 303-831-3900 (Emergency/Cell) • EHS to notify COGCC and OSHA as required