Finding of No Significant Impact

Final Environmental Assessment

Reclaimed Water Distribution Cheney Purple Pipe Project
Spokane County, Washington

U.S. Department of the Interior
Bureau of Reclamation
Columbia-Pacific Northwest Region

CPN FONSI # 22-08

Introduction

The Bureau of Reclamation (Reclamation) prepared an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to analyze the potential environmental impacts that could result from the Reclaimed Water Distribution Cheney Purple Pipe Project (Purple Pipe Project). This project proposes to upgrade the City of Cheney's (City or Cheney) Wastewater Treatment and Reclamation Facility (WTRF), including improvements to the existing reclaimed water distribution system, to produce and convey Class A reclaimed water. The reclaimed water will be used to irrigate turf grass and landscape at city parks, athletic fields, and school grounds.

As a reclaimed water project with a Reclamation-approved Title XVI feasibility study, the proposed project was eligible to compete for, and was ultimately awarded funds under, Reclamation's Title XVI WIIN Act Water Reclamation and Reuse Projects grant program. The money awarded through this program was appropriated through the Bipartisan Infrastructure Law. One of the stipulations of the Title XVI grant program is that environmental compliance must be completed prior to ground-disturbing activities and, as the lead agency, Reclamation is solely responsible for determining the appropriate level of NEPA compliance. As the grant applicant and to maintain eligibility to compete for Title XVI grant funds, Cheney, in partnership with Reclamation, prepared the EA to analyze potential environmental impacts that could result from the Purple Pipe Project.

Background

Reclamation's WaterSMART Program supports cooperative work with states, Tribes, and local entities as they plan for and implement actions to increase water supply through investments to

modernize existing infrastructure and avoid potential water conflicts. Title XVI of Public Law 102-575 (Title XVI) provides authority for Reclamation's water recycling and reuse program where Reclamation identifies and investigates opportunities to reclaim and reuse wastewaters and impaired ground and surface water in the 17 Western States and Hawaii. Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects in partnership with local government entities. Cheney is applying for federal funding assistance through a Fiscal Year 2022 WaterSMART Title XVI grant.

The EA examined the potential environmental impacts of the City's proposed Purple Pipe Project in Cheney, Washington. The City completed the State Environmental Policy Act (SEPA) process in 2016 with a determination of no significant impact for the first two phases of the project proposed in the EA. The City is located approximately 17 miles southwest of downtown Spokane, Washington. The pipeline route crosses through properties of the City of Cheney, Burlington Northern Santa Fe and Union Pacific railroads, and the Cheney School District. The City will obtain all required permits (see Table 4-1 in the EA).

Operation and maintenance of the collection and treatment process at the existing WTRF is performed by the Cheney Wastewater Division. The Cheney wastewater collection system consists of more than 40 miles of sewer main lines, as well as 850 manholes and 2 lift stations. Municipal wastewater is conveyed through the system to the WTRF. The WTRF is designed as an advanced secondary treatment plant, meaning that the system removes the biodegradable organic matter from the sewage while also reducing the level of impurities in the wastewater below levels that are attainable through just secondary or biological treatments. The WTRF utilizes biological removal of nutrients, solids, and organics, and secondary clarification prior to final Class B effluent (i.e., liquid waste or sewage) discharge to five wetland cells totaling more than 100 acres (see Figure 2-1 in the EA for the location of the wetlands). The wetlands serve as a tertiary (i.e., final polishing) enhancement for the Class B effluent that is discharged from the WTRF.

The current system provides for the immediate demands of the municipality, providing domestic water for all City needs, both household and irrigation. With improvements, the system has the potential to produce Class A (non-potable) reclaimed water for irrigation use, and, in turn, reduce the pumping of groundwater from the local Grande Ronde Aquifer, reducing the decline in the water table due to extraction of water from the aquifer that exceeds the speed at which the aquifer is naturally recharged (see Chapter 1 of the EA for greater detail).

Purpose and Need

Reclamation's purpose for the Proposed Action, is to fulfill the requirements of the associated WaterSMART Title XVI grant. Cheney must have NEPA coverage before it conducts ground-breaking activities to maintain eligibility for Title XVI. The City's Class A reclaimed water system is a viable long-term solution that:

1) provides a sustainable irrigation source that does not involve depleting or pumping the Grande Ronde Aquifer;

2) recharges the Grande Ronde Aquifer by allowing irrigation water to infiltrate into the groundwater sub-surface; and

3) enhances water security by freeing up water that can be used elsewhere, such as for drinking water.

The need for the Proposed Action arises from declining aquifer levels and summer irrigation demands that exceed potable water supply. Over the years, multiple planning studies have been completed to assess and support a recommendation to expand the City's reclaimed water distribution system, as detailed in Table 1-1 in the EA.

Alternatives

The range of alternatives developed for the EA is based on the purpose and need for the project. The alternatives analyzed include a No Action Alternative and the Proposed Action. The City of Cheney is funding Phases 1 and 2 of the Proposed Action (see Section 1.2 of the EA for details on previously completed environmental reviews). Reclamation proposes to provide funding via a WaterSMART Title XVI grant to the City for Phases 3 and 4.

Proposed Action/Selected Alternative

The City of Cheney is funding Phases 1 and 2 of the Proposed Action/Selected Alternative (see Section 2.2 of the EA for details on project phases). Reclamation proposes to provide funding via a WaterSMART Title XVI grant to the City for Phases 3 and 4. The Purple Pipe Project proposes to upgrade Cheney's WTRF to produce and convey Class A reclaimed water (non-potable) to irrigate turf grass and landscape at city parks, athletic fields, and school grounds. This would reduce the peak demand on the City's potable water system during the summer (see Figure 2-1 of the EA for the pipe route and delivery sites). During the irrigating months, reclaimed water would be diverted from the storage reservoir to the reclaimed water pump station and then pumped to the irrigation sites. During the non-irrigating months, the reclaimed water would be routed from the storage reservoir to the existing wetland cells.

No Action Alternative

Under the No Action Alternative, Reclamation would not provide WaterSMART Title XVI funding. Cheney would continue to operate the WTRF and reclaimed water distribution system under the current configuration and uses.

Decision and Finding of No Significant Impact

Reclamation, based upon review and evaluation of the information contained in the EA and supporting documentation, has determined that the Proposed Action/Selected Alternative – to provide funding via a WaterSMART Title XVI grant to the City of Cheney – does not constitute a major federal action that would significantly affect the quality of the human environment.

Potentially Affected Environment

In considering the potentially affected environment (Per 40 CFR § 1501.3(b)(1)), Reclamation considered the affected area and its resources as appropriate to the Proposed Action/Selected Alternative (see Table 1 and Table 2).

Table 1. Resources determined to be unaffected by the No Action Alternative and the Proposed Action

Resources Eliminated	Rationale for Why Resources are Unaffected by the Proposed Action
Geology and Soils; Mineral Resources	There are no important geological features or mineral resources in the Project Study Area. Soils would be managed following the environmental commitments identified in the EA. Therefore, there would be no impact to these resources from the No Action Alternative or the Proposed Action.
Wilderness Area; Wild and Scenic Rivers	There are no designated wilderness areas or wild and scenic rivers within the Project Study Area. The closest designated wild and scenic river is the Middle Fork of the Snoqualmie River, located over 200 miles away. Therefore, there would be no impact to these resources from the No Action Alternative or the Proposed Action.
Prime and Unique Farmland	There is no designated prime or unique farmland within the Project Study Area. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.
Floodplains	There are no Federal Emergency Management Agency (FEMA) designated floodplains within the Project Study Area. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.
Visual Resources	Many of the project components (e.g., new pump station) are adjacent to the existing WTRF, are consistent with the existing infrastructure, and would not change the viewshed or aesthetics. The remaining components (e.g., buried underground distribution pipe system) would not be visible to the public following construction. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.
Recreation	The parks and playfields are currently irrigated with potable water. Irrigation with Class A reclaimed water (non-potable water) allows for the same activities as irrigation with potable water, i.e., no change to recreational activities would occur. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.

Table 2. Summary of No Action and Proposed Action resource impacts

Resource	Summary of Impacts
Wetlands and Riparian Areas	The No Action Alternative would have no effect on wetlands or riparian areas. The Proposed Action would have no significant direct or indirect impacts on wetlands or riparian areas.
Noxious Weeds and Vegetation	The No Action Alternative would have no effect on noxious weeds or vegetation. The Proposed Action would have no significant direct impacts on noxious weeds or vegetation. The implementation of construction best management practices (BMPs) during re-seeding efforts would ensure no significant indirect impacts to vegetative communities.
Hydrology	The No Action Alternative would have no effect on surface waters. The No Action Alternative could have potential impacts to groundwater availability in the Grande Ronde Aquifer. During the construction phase of the Proposed Action, it is expected that there would be no direct impact to hydrology. However, the Proposed Action is anticipated to have a beneficial indirect impact on groundwater hydrology.
Water Rights	The No Action Alternative would have no impact on water rights. The Proposed Action would have no direct impacts to water rights during construction. However, the anticipated reduction in groundwater withdrawal (i.e., approximately 1 million gallons per day) during the irrigation season may allow the City to maintain their existing water rights for a longer period. Therefore, the Proposed Action would have potential beneficial indirect impacts on the City's water rights.
Water Quality	The No Action Alternative would have no impact on water quality. The Proposed Action would have no adverse direct impact on water quality. Reclaimed water will increase the quantity of potable groundwater; therefore, it is anticipated that the Proposed Action would have potential beneficial indirect impacts on water quality.
Cultural Resources and Sacred Sites	The No Action Alternative would have no impact on cultural resources or sacred sites. The Proposed Action would have no direct or indirect impacts on cultural resources or sacred sites.
Indian Trust Assets	The No Action Alternative would have no impact on Indian Trust Assets. The Proposed Action would have no direct or indirect impacts on Indian Trust Assets.
Paleontological Resources	The No Action Alternative would have no impact on paleontological resources. The Proposed Action would have no direct or indirect impacts on paleontological resources.
Health and Safety	The No Action Alternative would have no impact on health and safety. The Proposed Action would have no direct or indirect impacts on health and safety.
Air Quality	The No Action Alternative would have no impact on air quality. The Proposed Action would have no significant direct or indirect impacts on air quality.

Resource	Summary of Impacts
Noise	The No Action Alternative would have no impact on noise. The Proposed Action would have no significant direct impact on noise. After construction was completed, noise levels would return to normal and there would be no indirect impact to noise.
Climate	Under the No Action Alternative, the Proposed Action would have no effect on climate change. It is anticipated that the Proposed Action will have no significant direct impact to the climate. The Proposed Action plans to decrease groundwater pumping by using Class A reclaimed water for irrigation on selected parks and playfields, rather than the current use of potable groundwater. Therefore, the Proposed Action is anticipated to have an insignificant beneficial indirect impact on effects related to climate change. It is anticipated that climate change would have no direct or indirect impacts on the Proposed Action.
Fish and Wildlife Resources; Threatened, Endangered, and Sensitive Species	Under the No Action Alternative, the Proposed Action would not be implemented and therefore would have no effect on fish and wildlife resources, or on threatened, endangered, and sensitive species. The Proposed Action would have no direct or indirect impact on fish and wildlife resources, or on threatened, endangered, and sensitive species.
Environmental Justice	The No Action Alternative would have no effect on environmental justice. The Proposed Action would have no direct or indirect impact on environmental justice.
Socioeconomics	The No Action Alternative would have no effect on socioeconomics. The Proposed Action should have no direct or indirect impact on socioeconomics.
Environmental Health and Safety	The No Action Alternative would have no effect on environmental health and safety. The Proposed Action should have no direct or indirect impact on environmental health and safety risks.
Public Safety	The No Action Alternative would have no effect on public safety. The Proposed Action would have no direct or indirect impacts on the public safety of the Cheney community.
Access and Transportation	The No Action Alternative would have no effect on access or transportation. The Proposed Action would have no significant direct impact and no indirect impacts on access and transportation in the Cheney community.
System Operations	The No Action Alternative would have no effect on system operations. There may be short-term effects as a result of the Proposed Action, but they are anticipated to have no significant direct impact on system operations. The Proposed Action would have no significant indirect impact on system operations.

Cheney is located in Spokane County, approximately 17 miles southwest of downtown Spokane, Washington and has an estimated year-round population of 12,522. The project study area (19.8 acres in total) includes the WTRF, the proposed Class A Reclaimed Water Pipeline (2.5 miles in length, plus a 25 -foot buffer), and associated construction staging areas (see Figure 2-1 in the EA). The Project Study Area includes residential and commercial land use, as well as public safety facilities such as police, fire department services, and health care facilities. The Spokane Transit Authority provides access to and within the City, including two daily bus loops that run through and across portions of the project footprint. To evaluate the potential presence of cultural resources or sacred sites within the Project Study Area, an area of potential effects (APE) was defined in consultation with Washington State's Department of Archaeology and Historic Preservation and with the Spokane Tribe of Indian's Tribal Historic Preservation Officer (THPO). Beyond the facility grounds of existing WTRF, the project APE consists of a 12-foot-wide corridor centered on the proposed 2.5-mile-long distribution pipe, which generally runs along existing subsurface water mains that are adjacent to paved roads and sidewalks through downtown and residential areas of Cheney. At locations adjacent to railroad crossings, the project APE expands to 30-foot widths to accommodate exploration associated with the existing railroad infrastructure. The proposed vertical APE is approximately 6six feet below the ground surface, except at railroad crossings where borings may impact up to 15 feet in buried depth (AHS 2020). The project APE has been significantly impacted by previous development.

Degree of Effect of the Action

In considering the degree of the effects (per 40 CFR § 1501.3(b)(2)), Reclamation considered the effects identified below, as appropriate to the Proposed Action/Selected Alternative.

Short- and Long-Term Effects

Table 2 presents a summary of impacts to resources. The implementation of the Proposed Action / Selected Alternative will have no short or long-term significant impacts to analyzed resources.

Beneficial and Adverse Effects

Table 2 presents a summary of impacts to resources. The implementation of the Proposed Action/Selected Alternative would yield the following beneficial or adverse effects:

Hydrology

During the construction phase, it is expected that there would be no direct adverse impact to hydrology. However, beneficial indirect impacts on groundwater hydrology are anticipated through implementation of the Proposed Action/Selected Alternative.

Water Rights

The Proposed Action/Selected Alternative would have no direct adverse impacts to water rights during construction. However, the anticipated reduction in groundwater withdrawal (i.e., approximately 1 million gallons per day) during the irrigation season may allow the City to maintain

their existing water rights for a longer period. Therefore, the Proposed Action/Selected Alternative has potential beneficial indirect impacts on the City's water rights.

Water Quality

The Proposed Action/Selected Alternative would have no adverse direct impact on water quality. Reclaimed water would increase the quantity of potable groundwater; therefore, it is anticipated that the Proposed Action/Selected Alternative would have potential beneficial indirect impacts on water quality.

Climate

It is anticipated that the Proposed Action/Selected Alternative would have no adverse direct impact to the climate. The Proposed Action plans to decrease groundwater pumping by using Class A reclaimed water for irrigation on selected parks and playfields, rather than using potable groundwater for irrigation. Therefore, the Proposed Action/Selected Alternative is anticipated to have an insignificant beneficial indirect impact on climate change related effects. It is anticipated that climate change would have no direct or indirect impacts on the Proposed Action/Selected Alternative.

Effects on Public Health and Safety

Implementation of the Proposed Action/Selected Alternative would not modify or impact public safety, access, or transportation, nor affect minority or low-income populations, because of funding or associated construction.

Effects that would Violate Federal, State, Tribal or Local Law Protecting the Environment

Implementation of the Proposed Action/Selected Alternative would not violate any federal, state, local, or Tribal law, regulation, or policy imposed for the protection of the environment. The Washington State Department of Ecology (WSDOE) emailed scoping letters to the Spokane Tribe of Indians (STI) and the Coeur d'Alene Tribe (CDA) on September 24, 2020, as part of the cultural resources survey. As required by Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108), Reclamation consulted with the STI and CDA Tribes, as they both attach religious and cultural importance to historic properties in the project vicinity. Reclamation's agency official (Talmadge Oxford, Columbia-Cascades Area Office Manager) sent letters to the Tribal Historic Preservation Officers of both Tribes on September 25, 2022. No response was received from either Tribe following the required 30-day review period, which means that Reclamation can consider the Tribes to have no comments about this project as per 36 CFR § 800.3(c)(4). The Washington State Historic Preservation Office did respond and concurred with the Finding of No Adverse Effects, thus completing the Section 106 consultation obligations.

Cumulative Effects

40 CFR 1508.7 defines cumulative impact as an "impact on the environment which results the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions." The Proposed Action/Selected Alternative would be constructed to support the implementation of upgrades to the WTRF in the reasonably foreseeable future. These upgrades are outlined in Section 2.2 of the EA. Reclamation has confirmed with the City of Cheney that the City has no identified projects that have been through the NEPA (environmental compliance) process that are anticipated to occur over the next 5 years (2022-2027).

Therefore, when the Proposed Action/Selected Alternative is considered in combination with no anticipated new NEPA projects over the next 5 years, nothing incrementally will be added. No cumulative impacts are anticipated, as the project is consistent with the City of Cheney Comprehensive Plan (2017-2037) and the Cheney Municipal Code (July 15, 2021).

WSDOE also maintains a SEPA Register for SEPA and NEPA documents posted by WSDOE since 2000. A cursory review of the WSDOE SEPA Register export found determinations for several projects that are within or near the Project Study Area, as outlined in Section 3.11 of the EA. No cumulative impacts are anticipated when considering the Proposed Action project in combination with other recent proposals in the vicinity.

Approved:

SCOTT HOEFER Digitally signed by SCOTT HOEFER Date: 2022.10.14 07:56:49 -06'00'

Scott Hoefer
Environmental Services Manager
Columbia-Pacific Northwest Region
Bureau of Reclamation
Boise, Idaho

Date

CANDACE MCKINLEY Digitally signed by CANDACE MCKINLEY Date: 2022.10.14 13:56:59 -07'00'

Talmadge Oxford
Area Office Manager
Columbia-Cascades Area Office
Bureau of Reclamation
Yakima, Washington

Date

BUREAU OF RECLAMATION

Environmental Assessment

Final Reclaimed Water Distribution Cheney Purple Pipe Project

Title XVI – Water Reclamation and Reuse Program

Columbia-Pacific Northwest Region

U.S. Department of the Interior

October 2022

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover photograph: south-facing view of a segment of the proposed Purple Pipe Project alignment between W. Anderson Road and the Union Pacific Railroad

Prepared for Reclamation by T-O Engineers under Contract No. 200044

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Acronyms and Abbreviations

Acronym or Abbreviation	Definition
ADA	Americans with Disabilities Act
AHS	Archaeological and Historical Services
APE	Area of potential effects
Aquifer	Grande Ronde Aquifer
BLM	Bureau of Land Management
BMP	Best management practice
BNSF	Burlington Northern Santa Fe
CAA	Clean Air Act
CDA	Coeur d'Alene Tribe
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIG	Climate Impact Group
City or Cheney	City of Cheney
CO	Carbon monoxide
CRS	Cultural Resources Survey
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DAHP	Department of Archaeology and Historic Preservation
dBA	A-weighted decibel
DNS	Determination of Non-Significance
DNS-M	Mitigated Determination of Non-Significance
EA	Environmental Assessment
EDNA	Environmental designation for noise abatement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EWU	Eastern Washington University
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact

Acronym or Abbreviation	Definition
GHG	Greenhouse gases
GPM	Gallons per minute
IDP	Inadvertent Discovery Plan
IPaC	Information for Planning and Conservation
ITAs	Indian Trust Assets
MG	Million gallons
MGD	Million gallons per day
NAAQS	National Ambient Air Quality Standards
NAVD 88	North American Vertical Datum of 1988
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NWP	Nationwide Permit
PFYC	Potential Fossil Yield Classification
PHS	Priority Habitats and Species
PM_{10}	Particulate matter with a diameter of 10 microns or less
PSD	Prevention of Significant Deterioration
Purple Pipe Project	Reclaimed Water Distribution Cheney Purple Pipe Project
PVC	Polyvinyl chloride
RCW	Revised Code of Washington
Reclamation	Bureau of Reclamation
SEPA	State Environmental Policy Act
SO	Secretarial Order
SR	State Route
STA	Spokane Transit Authority
STI	Spokane Tribe of Indians
TAC	Technical Advisory Committee
THPO	Tribal Historic Preservation Officer
UP	Union Pacific
U.S.C.	United States Code

Acronym or Abbreviation	Definition
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WADNR	Washington State Department of Natural Resources
WDFW	Washington Department of Fish and Wildlife
WDOH	Washington Department of Health
WRIA	Watershed Water Resources Inventory Area
WSDOE	Washington State Department of Ecology
WTE	Waste-to-Energy Facility
WTRF	Wastewater Treatment and Reclamation Facility

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Chapter 1 Purpose and Need

1.1 Introduction

The Bureau of Reclamation (Reclamation) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). This EA analyzes the potential environmental impacts that could result from the Reclaimed Water Distribution Cheney Purple Pipe Project (Purple Pipe Project). The Washington State Department of Ecology's (WSDOE) Reclaimed Water Facilities Manual, known as "The Purple Book" (Publication No. 15-10-024), guides compliance with the Washington Administrative Code (WAC) reclaimed water regulations. WAC 173-219-360(2) specifies that all new reclaimed water piping, valves, outlets, storage facilities, and other appurtenances, in the distribution system and at use areas, must be labeled and color-coded purple (Pantone 512, 522, or other shade identified in the approved engineering report) to identify the water conveyed as non-potable reclaimed water. Therefore, the City of Cheney has named this project the Purple Pipe Project.

This project proposes to upgrade the City of Cheney's (City, or Cheney) Wastewater Treatment and Reclamation Facility (WTRF), including improvements to the existing reclaimed water distribution system, to produce and convey Class A reclaimed water. The WTRF was originally constructed in 1990 as a complete replacement to the City's lagoon secondary treatment system. WAC 173-219-010 defines reclaimed water as water derived in any part from a wastewater with a domestic wastewater component that has been adequately and reliably treated to meet the requirements of WAC 173-219 so that it can be used for beneficial purposes. Class A reclaimed water is a water resource that meets the treatment requirements of reclaimed water, including, at a minimum, oxidation, coagulation, filtration, and disinfection. The reclaimed water will be used to irrigate turf grass and landscape at city parks, athletic fields, and school grounds.

As a reclaimed water project with a Reclamation-approved Title XVI feasibility study, the proposed project is eligible to compete for funds under Reclamation's Title XVI WIIN Act Water Reclamation and Reuse Projects grant program. One of the stipulations of the Title XVI grant program is that environmental compliance must be completed prior to ground disturbing activities; as the lead agency, Reclamation is solely responsible for determining the appropriate level of NEPA compliance. As the grant applicant and to maintain eligibility to compete for Title XVI grant funds, Cheney, in partnership with Reclamation, prepared this EA to analyze potential environmental impacts that could result from the Purple Pipe Project.

Should a determination be made that the Purple Pipe Project will not result in significant environmental impacts, a Finding of No Significant Impact (FONSI) will be prepared to document the determination and provide a rationale for approving the selected alternative. If not, then a decision will be made to either select the No Action Alternative or issue a notice of intent to prepare an Environmental Impact Statement.

1.2 Background, Location, and Action Area

Reclamation's WaterSMART Program supports cooperative work with states, Tribes, and local entities as they plan for and implement actions to increase water supply through investments to modernize existing infrastructure and avoid potential water conflicts. Title XVI of Public Law 102-575 (Title XVI) provides authority for Reclamation's water recycling and reuse program where Reclamation identifies and investigates opportunities to reclaim and reuse wastewaters and impaired ground and surface water in the 17 Western States and Hawaii. Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects in partnership with local government entities. Cheney is applying for federal funding assistance through a Fiscal Year 2022 WaterSMART Title XVI grant.

This EA examines the potential environmental impacts of the City's proposed Purple Pipe Project in Cheney, Washington, as shown in Figure 1-1. The City completed the State Environmental Policy Act (SEPA) process in April 2022 with a determination of no significant impact for all four phases of the project. The City is located approximately 17 miles southwest of downtown Spokane, Washington. The pipeline route crosses through properties of the City of Cheney, Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) railroads, and the Cheney School District. The City has existing permits for the railroad crossings and is coordinating with the school district for easements where the pipeline crosses school district property.

Operation and maintenance of the collection and treatment process at the existing WTRF is performed by the Cheney Wastewater Division. The Cheney wastewater collection system consists of more than 40 miles of sewer main lines, as well as 850 manholes and 2 lift stations. Municipal wastewater is conveyed through the system to the WTRF. The WTRF is designed as an advanced secondary treatment plant, meaning that the system removes the biodegradable organic matter from the sewage while also reducing the level of impurities in the wastewater below levels that are attainable through just secondary or biological treatments. WTRF utilizes biological removal of nutrients, solids, and organics, and secondary clarification, prior to final Class B effluent (i.e., liquid waste or sewage) discharge to five wetland cells totaling more than 100 acres. The constructed wetlands were approved to be constructed without a permit from the U.S. Army Corps of Engineers (USACE) in 1992 (USACE 1992), with the approval stating that the location of the reconstruction of previous wetlands was no longer considered wetlands under Section 404 of the Clean Water Act (CWA) and was not in the jurisdiction of USACE. These wetlands were constructed in 1995 and are located within nearly 400 acres of upland and pine-forested land owned by the City. They serve as a tertiary (i.e., final polishing) enhancement for the Class B effluent that is discharged from the WTRF (Esvelt 2016). The constructed wetlands also provide densely vegetated habitat for waterfowl, upland and marsh birds, and a variety of mammals found in the region. The wetland construction was included in "Environmental Assessment: Cheney Wastewater Treatment Facility Improvement Project" (City of Cheney 1990) which received a determination of no significant impact on August 29, 1990.

The current system provides for the immediate demands of the municipality, providing domestic water for all City needs, both household and irrigation. With improvements, the system has the potential to produce Class A (non-potable) reclaimed water for irrigation use, and, in turn, reduce the pumping of groundwater from the local Grande Ronde Aquifer (aquifer) (Esvelt 2016) and, therefore, reduce the decline in the water table due to extraction of water from the aquifer that exceeds the speed at which the aquifer is naturally recharged (Buchanan 2007).

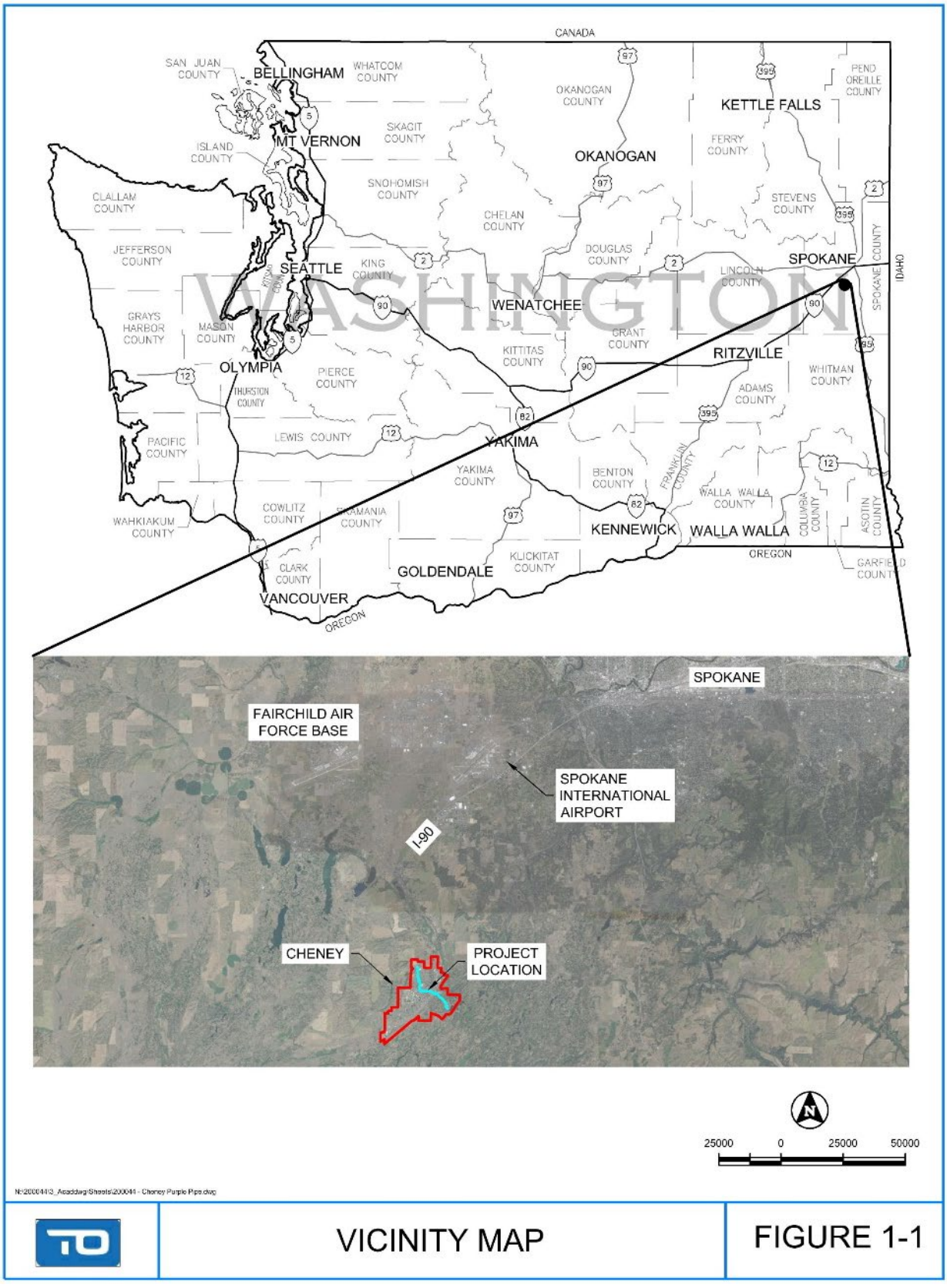

Figure 1-1. Vicinity map

1.3 Purpose and Need

Reclamation's purpose for the Proposed Action is to fulfill the requirements of the associated WaterSMART Title XVI grant. Cheney must have NEPA coverage before it conducts ground-breaking activities in order to maintain eligibility for Title XVI. The City's Class A reclaimed water system is a viable long-term solution that:

1) provides a sustainable irrigation source that does not involve depleting or pumping the aquifer (Columbia Institute 2006);
2) recharges the aquifer by allowing irrigation water to infiltrate into the groundwater sub-surface (WSDOE n.d.); and
3) enhances water security by freeing up water that can be used elsewhere, such as for drinking water (EPA 2019).

The need for the Proposed Action arises from declining aquifer levels and summer irrigation demands that exceed potable water supply. Over the years, a number of planning studies have been completed to assess and support a recommendation to expand the City's reclaimed water distribution system, as detailed in Table 1-1.

Table 1-1. Recent studies documenting declining aquifer levels and water insecurity

Report	Author	Findings
2007 Groundwater Modeling Report	Dr. John Buchanan	Concludes that groundwater is being mined from the Grande Ronde Aquifer and predicts an estimated depth and timeline of groundwater loss (Buchanan 2007).
2016 Reclaimed Water Engineering Report	Esvelt Environmental Engineering	Key planning document that quantifies a reduction in groundwater loss by introducing the use of reclaimed water for irrigation (Esvelt 2016).
2018 Cheney Water System Plan Upgrade Report	Parametrix	Concludes that the use of groundwater for irrigation has the biggest impact on groundwater/aquifer levels (Parametrix 2018).
2019 Water Conservation Plan	Varela & Associates and T-O Engineers	Recommends that the best long-term plan to accommodate anticipated municipal growth and reduce future impacts to the groundwater/aquifer is to make improvements to the existing system and infrastructure to produce and convey treated reclaimed water to irrigate city parks, playfields, and common areas (Varela and T-O 2019).

1.4 Authorities

Authority for the Proposed Action is per the Reclamation Projects Authorization and Adjustment Act of 1992, Pub. L. 102-575 (43 USC 390h et seq.).

1.5 Regulatory Compliance

The following laws, executive orders, and secretarial orders apply to the Proposed Action and compliance with their requirements, by resource, is documented in this EA.

- National Environmental Policy Act (NEPA) of 1969, as amended
- Endangered Species Act (ESA) of 1973, as amended
- National Historic Preservation Act (NHPA) of 1966
- Clean Water Act (CWA) of 1972
- Washington Administrative Code (WAC)
- Clean Air Act (CAA) of 1970 (amended 1990)
- Code of Federal Regulations (CFR) Title 40 Part 1500 – Council on Environmental Quality (CEQ) 2020
- Executive Order (EO) 11990, Protection of Wetlands
- EO 13007, Indian Sacred Sites
- EO 12898, Environmental Justice
- EO 13175, Consultation and Coordination with Tribal Governments
- Secretarial Order (SO) 3175, Department Responsibilities for Indian Trust Assets (ITAs)

1.6 City of Cheney Outreach Efforts

The City of Cheney conducted public outreach for the Purple Pipe Project to provide an opportunity for the public, governmental agencies, and Tribes to identify and make known their concerns. The following list summarizes the Purple Pipe Project outreach efforts.

- March 2019
  - A Technical Advisory Committee (TAC) was formed to explore reuse of reclaimed water for irrigation throughout the City of Cheney. The TAC included community members, City of Cheney staff, Cheney City Council members, and the consultant team.
  - TAC Meeting No. 1 (March 27, 2019)
- April 2019
  - Virtual Public Open House, "Cheney Water for Tomorrow"
  - Spokane River Forum Conference community outreach event
  - TAC Meeting No. 2 (April 17, 2019)

- May 2019
  - City of Cheney Water Survey shared with community
  - Article in Cheney Free Press discussed water reclamation information
  - Cheney Mayfest Event provided engagement and community awareness
  - TAC Meeting No. 3 (May 1, 2019)
- June 2019
  - Tri-fold water conservation informational brochure mailed to community
  - TAC Meetings No. 4 (June 5, 2019) and No. 5 (June 19, 2019)
- February 2020
  - Department of Archaeology and Historic Preservation (DAHP) letter of EO 05-05 concurrence to Washington State Department of Ecology (WSDOE)
- September 2020
  - Archaeological and Historical Services (AHS) sent a written formal request for information to the Spokane Tribe of Indians
- October 2020
  - EO 05-05 WSDOE determination of No Adverse Effects

No public comments were received during the outreach efforts. Additional details regarding these outreach efforts, including Reclamation's agency consultation, are provided in Chapter 4.

Chapter 2 Description of Alternatives

The alternatives presented in this chapter were developed based on the purpose and need for the project, as described in Section 1.3, and any comments received during the scoping and outreach efforts as detailed in Section 1.6 and further discussed in Chapter 4. The alternatives analyzed in this EA include: the No Action Alternative and the Proposed Action.

The No Action Alternative is evaluated because it provides a baseline by which the Proposed Action and any other alternatives are compared against. No additional action alternatives were considered viable other than the Proposed Action, so no other alternatives are presented. Section 2.3 briefly describes alternatives that were considered but eliminated due to viability and ability to meet the purpose and need.

2.1 No Action

Under the No Action Alternative, Reclamation would not provide WaterSMART Title XVI funding. Cheney would continue to operate the WTRF and reclaimed water distribution system under current configuration and uses.

2.2 Proposed Action

The City of Cheney is funding Phases 1 and 2 of the Proposed Action (see Section 1.2 for details on previously completed environmental reviews). Reclamation proposes to provide funding via a WaterSMART Title XVI grant to the City for Phases 3 and 4. Upon a successful grant award for the Proposed Action, Phase 3 can begin (see detailed phase descriptions below). The Purple Pipe Project proposes to upgrade Cheney's WTRF to produce and convey Class A reclaimed water (non-potable) to irrigate turf grass and landscape at city parks, athletic fields, and school grounds, thus reducing the peak demand on the City's potable water system during the summer.

The intended users of the proposed Class A reclaimed water distribution system are listed below.

- City of Cheney
- Cheney School District
- Eastern Washington University (EWU) (future project)
- Cheney Cemetery Association (future project)

Under the Proposed Action, the existing Class B wastewater treatment system would be upgraded to produce Class A reclaimed water, which will then be delivered through a new reclaimed water distribution pipe system approximately 2.5 miles in length. The distribution pipe system would start at Cheney WTRF and travel westward toward Hagelin Park (near city center) before continuing north and terminating at a playfield north of Betz Road. The distribution system would include multiple supply pipe extensions from the distribution main to the following five parks/playfields across Cheney: Hagelin Park (mentioned above), Cheney High School playfield, Crunk's Sports Complex, Cheney Middle School playfield, and the playfield north of Betz Road (mentioned above). These improvements are depicted in the construction drawings released for regulatory approval for this project (Appendix B). Diversion of the Class A effluent at the WTRF would occur at a diversion box at the outlet of the reclaimed water storage reservoir. During the irrigating months, reclaimed water would be diverted from the storage reservoir to the reclaimed water pump station and then pumped to the irrigation sites. During the non-irrigating months, the reclaimed water would be routed from the storage reservoir to the existing wetland cells.

The expected reclaimed water use areas are summarized in Table 2-1 and shown in Figure 2-1. Due to the high cost of implementation, the City intends to connect the irrigation sites to the new reclaimed water distribution system over a period of 5 years. Table 2-1 lists the use areas, customers, irrigation acreage, and projected quantities of reclaimed water to be used at each location. All the locations and customers are currently connected to the City's existing domestic water supply except for EWU, which maintains its own three wells. Figure 2-2 shows more detailed information about Phases 1-3 of the Proposed Action, including the location of the diversion box (at the outlet of the reclaimed water storage reservoir) where diversion of the Class A effluent at the WTRF will occur. Phase 4 of the Proposed Action is shown in Figure 2-3.

Table 2-1. Data for proposed reclaimed water irrigation areas

Connection Year	Reclaimed Water Irrigation Area	User/Customer	Irrigation Acreage	Maximum Day Demand (MG[1])	Peak Demand (GPM[2])
2023	Hagelin Park	City of Cheney	2.7	0.023	300
	Cheney High School	Cheney School District	14.2	0.119	750
	Crunk's Sports Complex	Cheney School District	15.1	0.127	800
	Cheney Middle School	Cheney School District	17.5	0.147	950
	City Baseball Fields	City of Cheney	8.0	0.067	450
2023 Subtotals			57.5	0.483	3,250
TBD	Centennial Park	City of Cheney	5.6	0.047	600
	Sutton Park	City of Cheney	1.8	0.015	200
	Moos Field	City of Cheney	3.0	0.025	350
	Salnave Elementary and Park	City of Cheney	11.3	0.095	600
Subtotals			21.7	0.182	1,750
TBD	EWU Main Campus and Lawns	EWU	17.1	0.144	900
	EWU Intramural Fields	EWU	12.8	0.076	650
	EWU Peripheral Campus Lawns	EWU	9.0	0.108	900
	EWU Baseball Fields	EWU	3.2	0.027	350
	Fairview Cemetery	Cheney Cemetery Association	7.4	0.062	550
Subtotals			49.5	0.417	3,350
Totals, Phases 1-3			**128.7**	**1.082**	**--[3]**
TBD	Future City Development	City of Cheney	100	0.84	1,800
	Future EWU Development	EWU	120	1.01	2,100
Subtotals			220	1.85	3,900
Totals, All Phases			**348.7**	**2.9**	**--[3]**

[1]MG = million gallons

[2]GPM = gallons per minute

[3]Peak demand will not be cumulative for each area due to implementation of a scheduling program for reclaimed water irrigation

To meet the stated need, the City has developed a four-phase Proposed Action:

- Phase 1 Motor Control Center and Standby Power System Replacement – Aging components of the motor control center and standby power system will be replaced, resulting in a more reliable treatment operation.
- Phase 2 Final Treatment System for Reclaimed Water Production – Upgrade the existing reclaimed water treatment system with a secondary effluent pump station, clarifier and chlorine contact tank covers, chemical feed systems, tertiary filtration, ultraviolet disinfection, and a tertiary treatment system building.
- Phase 3 Reclaimed Water Storage and Pump Station – A cover will be installed over an existing open storage reservoir, providing storage for treated reclaimed water, as needed. Additionally, a new pump station will provide the necessary means to distribute the reclaimed water to the irrigation destinations.
- Phase 4 Reclaimed Water Distribution Pipe System – Install a new polyvinyl chloride (PVC) water distribution pipe to convey reclaimed water to five designated parks and playfields in Cheney.

Based on the Proposed Action, the EA Project Study Area is defined as the footprint of the four project phases, as described in Section 2.2 and generally shown in Figure 2-2, which includes the alignment of the new reclaimed water distribution pipe and construction staging areas. However, some Environmental Impact Categories, such as health, safety, noise, and air, require an expanded project study area to encompass all areas directly or indirectly affected by the Proposed Action. Where applicable, these areas are described in further detail in Chapter 3.

The Project Study Area includes the new pump station building and system improvements, all located on the grounds of the existing WTRF shown in Figure 2-2. The Project Study Area also follows/includes the proposed reclaimed water distribution pipe path shown in Figure 2-3 with a buffer of 25 feet (12.5 feet on each side) along the center of the pipeline (for a total of 7.6 acres along the 2.5-mile pipeline), primarily centered along existing subsurface water main corridors and within existing right-of-way and city limits. The distribution pipe will be bored beneath the two existing railroad tracks (see Figure 2-3). The staging areas, as noted in Figure 2-1, Figure 2-2, and Figure 2-3, total 12.2 acres and are included in the Project Study Area. Staging areas will be used for construction equipment storage, pipeline materials, and gravel, dirt, and other fill materials. No clearing, grading, or other site prep is expected in any staging area. All reclaimed water will be delivered through a system of piping separate from potable (i.e., drinking) water systems and can be easily distinguished by the required purple pipe, per WAC 173-219-360(2). Table 2-2 provides the expected construction schedule and amount of ground that will be disturbed during each phase.

Table 2-2. Proposed Action, construction schedule, and ground disturbance

Element of Proposed Action	Control Center and Standby Power System Replacement	Phase 2 – Final Treatment System for Reclaimed Water Production	Phase 3 – Reclaimed Water Storage and Pump Station	Phase 4 – Reclaimed Water Distribution Pipe System
Construction Activities	Replace motor control center and standby power system.	Construct secondary effluent pump station, clarifier and chlorine contact tank covers, chemical feed systems, tertiary filtration, ultraviolet disinfection, tertiary treatment system building.	Install cover over existing open storage reservoir, construct pump station.	Install new polyvinyl chloride (PVC) water distribution pipe.
Timeline	Winter 2022 to fall of 2023	Winter 2023 to end of 2024	Winter 2024 to end of 2024	Winter 2025 to end of 2025
Duration	18 months	24 months	12 months	12 months
Area of Ground Disturbance (acres)	0.02	0.5	2.01	7.6
Staging Area (acres)	0.92			11.3

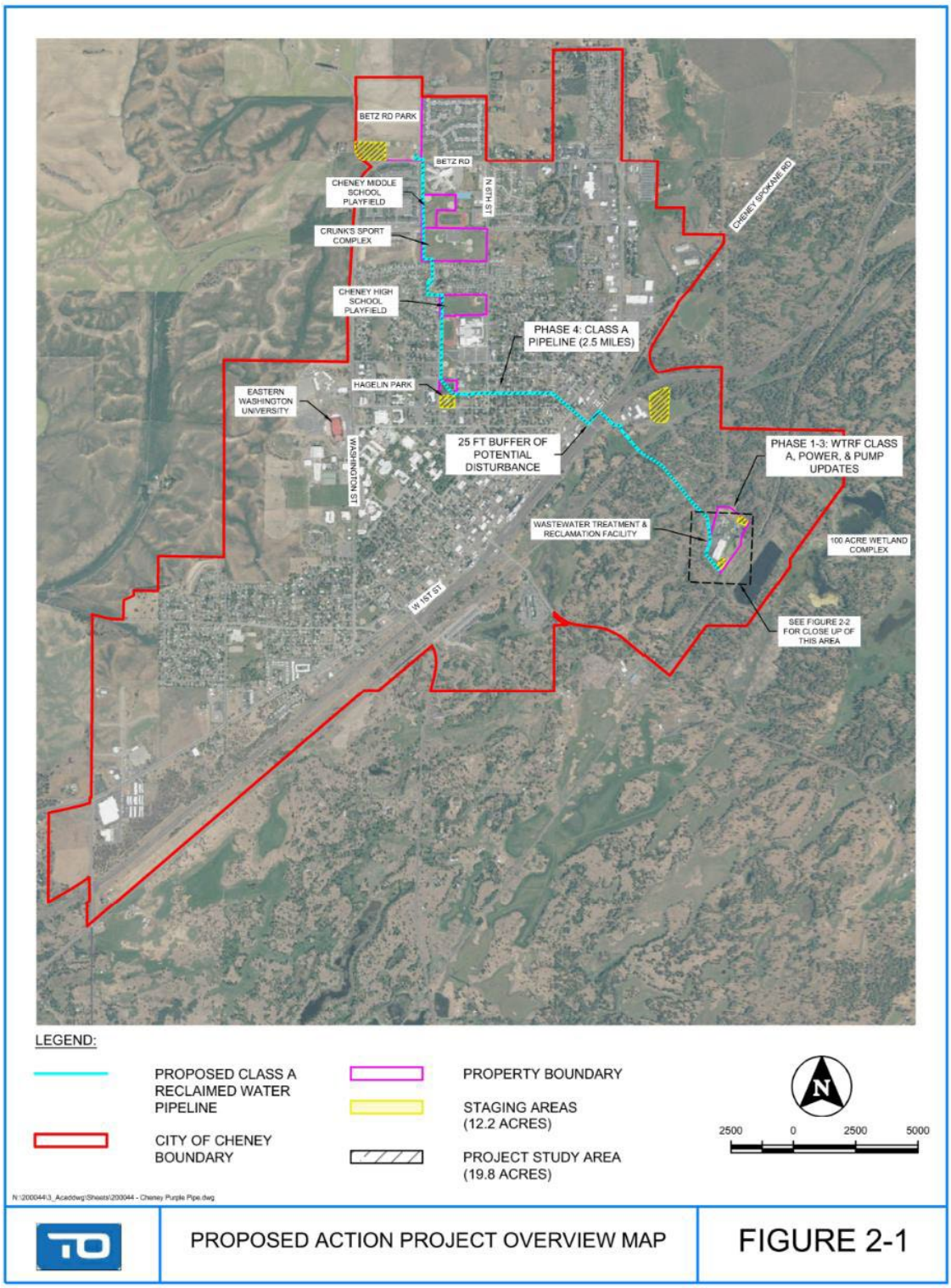

Figure 2-1. Proposed Action project overview map

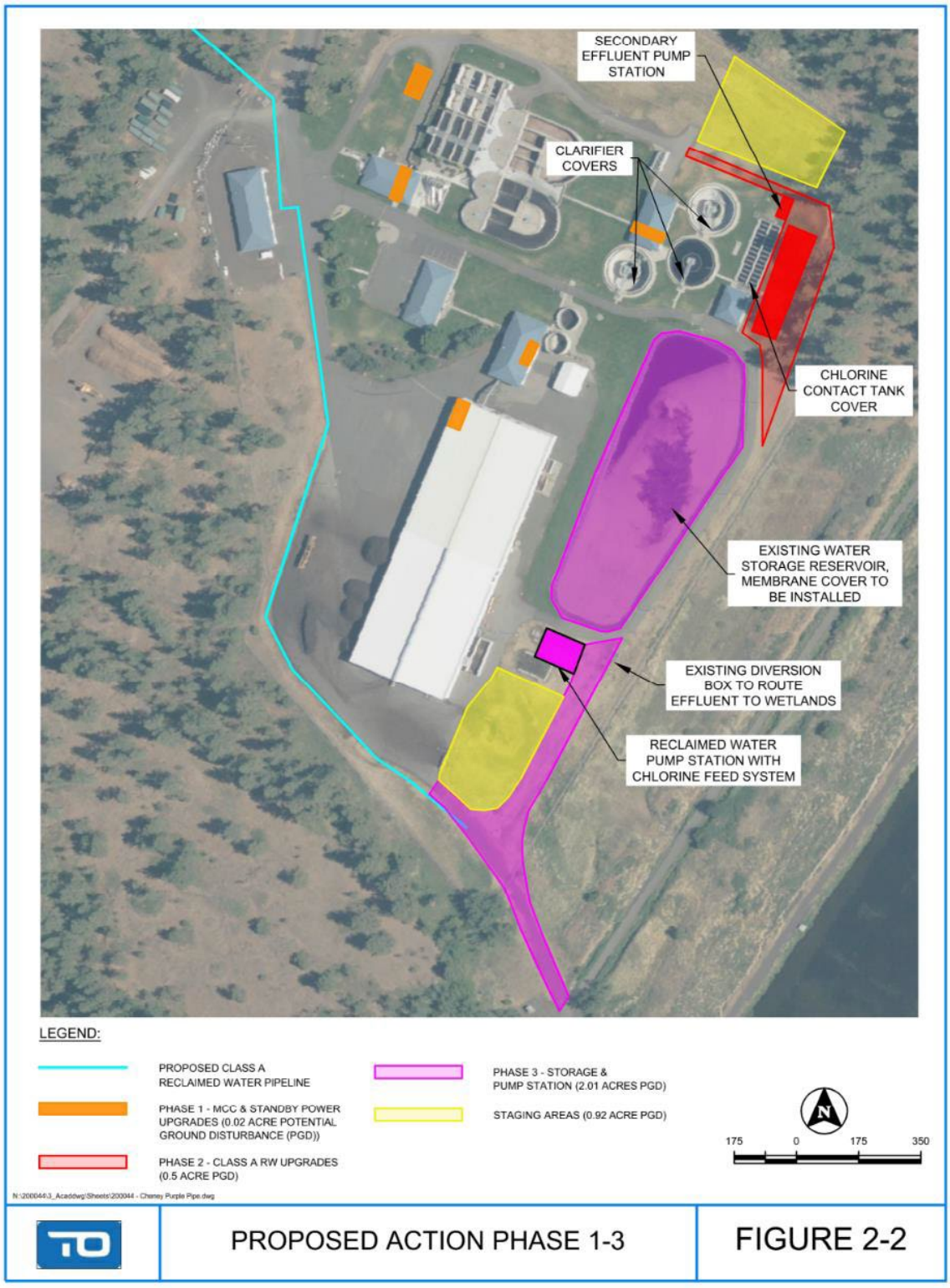

Figure 2-2. Proposed Action Phase 1-3

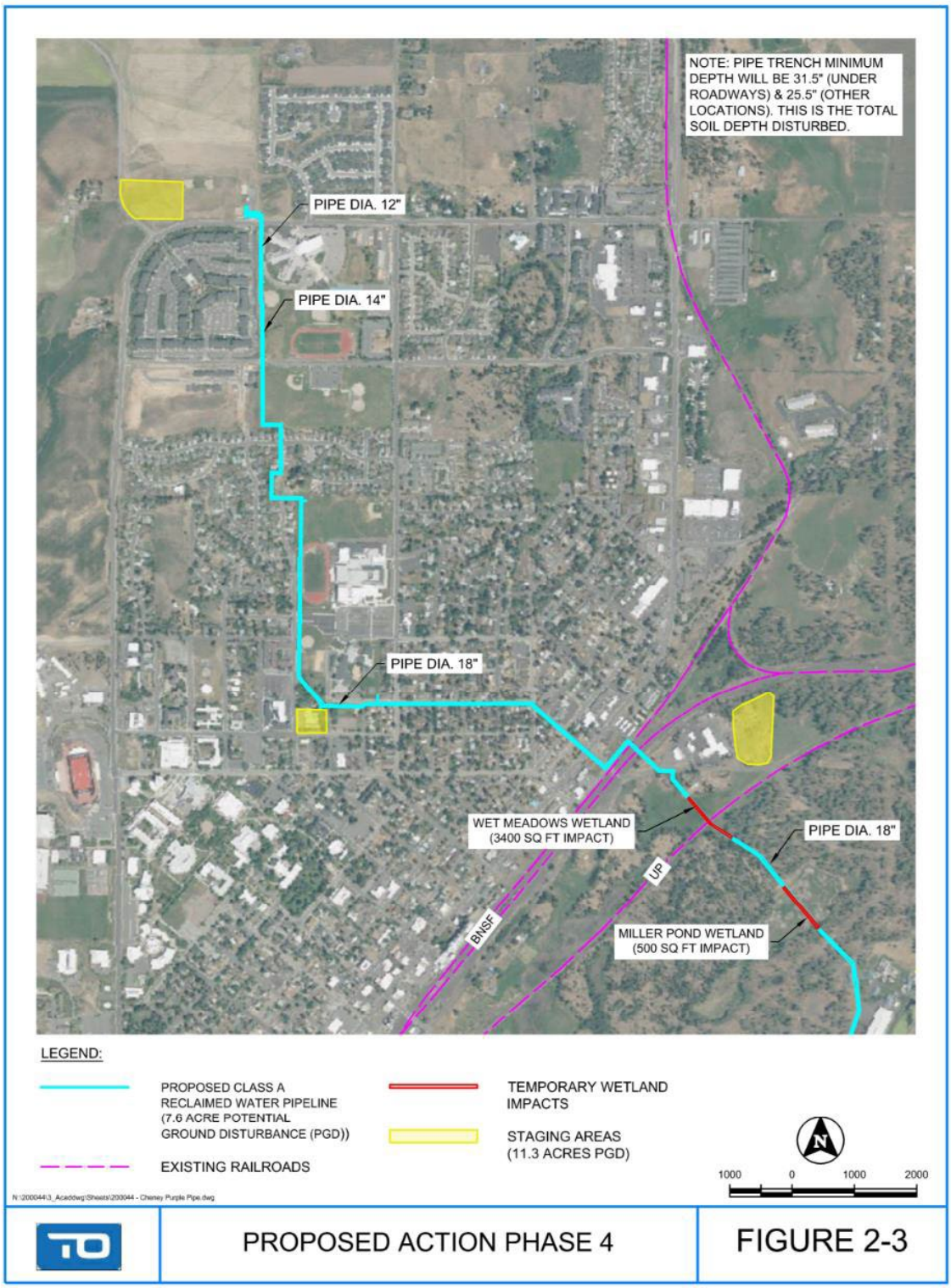

Figure 2-3. Proposed Action Phase 4

2.3 Alternatives Considered but Eliminated from Further Study

Per 40 CFR 1502.14, the City has identified two other potential alternative irrigation water sources: (1) drilling a new groundwater supply well in the City's existing groundwater supply aquifer; and (2) importing water from the City of Spokane. The first alternative, a new supply well, would not guarantee the required water supply for the 20-year planning period due to the declining water table in the City's existing groundwater supply aquifer. The new supply well would also contribute to the underlying problem of the declining water table in the City's water supply aquifer. The second alternative, importing water from the City of Spokane, is subject to use restrictions. The City of Spokane gets its water from the Spokane Valley-Rathdrum Prairie (SVRP) Aquifer which is subject to withdrawal restrictions when river levels fall below the levels required to support the river's ecosystem. These restrictions occur periodically during the summer irrigating months when the City would import the water and could occur more frequently due to increased water demand from population growth and increased frequency of drought conditions in the area. Therefore, these two alternatives were not considered viable to meet the need and were eliminated from further study.

Chapter 3 Environmental Consequences

This chapter describes the current physical, natural, and human environment within the Project Study Area (see Figure 2-1) that could be affected by the Proposed Action, including resources that were considered but eliminated from detailed study (see Section 3.1). For resources that were analyzed in detail (see Sections 3.2 through 3.9), the present condition or characteristics of each resource are first introduced in the Affected Environment subsection. A discussion of the predicted or expected impacts caused by the No Action Alternative and the Proposed Action then follows in the Environmental Consequences subsection. The level and depth of the environmental resource analysis corresponds to the degree of effects anticipated for each project component. Resources evaluated in this document and analyzed in Chapter 3 were selected based on: Reclamation requirements; compliance with laws, statutes, and executive orders; public and internal scoping and outreach; and their potential to be affected by the Proposed Action.

3.1 Resources Considered but Eliminated from Detailed Analysis

Resources that were determined to be unaffected by the Proposed Action are listed in Table 3-1.

Table 3-1. Resources determined to be unaffected by the No Action Alternative and the Proposed Action

Resources Eliminated	Rationale for Why Resources are Unaffected by the Proposed Action
Geology and Soils; Mineral Resources	There are no important geological features or mineral resources in the Project Study Area. Soils would be managed following the environmental commitments identified in Appendix A. Therefore, there would be no impact to these resources from the No Action Alternative or the Proposed Action.
Wilderness Areas; Wild and Scenic Rivers	There are no designated wilderness areas or wild and scenic rivers within the Project Study Area. The closest designated wild and scenic river is the Middle Fork of the Snoqualmie River, located over 200 miles away. Therefore, there would be no impact to these resources from the No Action Alternative or the Proposed Action.
Prime and Unique Farmland	There is no designated prime or unique farmland within the Project Study Area. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.
Floodplains	There are no Federal Emergency Management Agency (FEMA) designated floodplains within the Project Study Area. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.
Visual Resources	Many of the project components (e.g., new pump station) are adjacent to the existing WTRF, are consistent with the existing infrastructure, and would not change the viewshed or aesthetics. The remaining components (e.g., buried underground distribution pipe system) would not be visible to the public following construction. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.
Recreation	The parks and playfields are currently irrigated with potable water. Irrigation with Class A reclaimed water (non-potable water) allows for the same activities as irrigation with potable water, i.e., no change to recreational activities would occur. Therefore, there would be no impact to this resource from the No Action Alternative or the Proposed Action.

3.2 Wetlands, Riparian Areas, Noxious Weeds, and Vegetation

3.2.1 Affected Environment

The analysis area for wetlands, riparian areas, noxious weeds, and vegetation correlates to the Project Study Area depicted in Figure 2-1. The Project Study Area elevations range from approximately 2,300 feet to 2,450 feet above sea level (vertical datum NAVD 88). Northstar-Rock outcrop complex and Stutler-Springdale complex are the dominant soil types within the Project Study Area (T-O Engineers 2020).

More than half of the Project Study Area identified for the future reclaimed water distribution pipe has been previously disturbed by development activities in the city center, e.g., disturbed by existing roads, sidewalks, buildings, etc. The remainder of the pipe path crosses through an undisturbed area roughly between Front Street (i.e., east of State Route 904, the Lt. Colonel Michael P. Anderson Memorial Highway) and the City's WTRF.

Wetlands and Riparian Areas

A wetland assessment report was prepared in 2020 to determine and define any wetland areas within the Project Study Area (T-O Engineers 2020; Appendix C). The wetlands were characterized using the Washington State Department of Ecology Wetland Rating System for Eastern Washington (WSDOE 2015). The rating system is a rapid screening tool that differentiates wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the functions they provide. Wetlands are grouped into categories based on their geomorphic and hydrologic characteristics (hydrogeomorphic classification), as these characteristics significantly affect a wetland's functions. The wetland rating summary sheets are used to assess a wetland's functions and special attributes, if any, and categorize each wetland as follows (WSDOE 2015):

- Category I wetlands are those that represent a unique or rare wetland type, or are more sensitive to disturbance than most wetlands, or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime or provide a high level of functions.
- Category II wetlands are those that are difficult but not impossible to replace, provide high levels of some functions, and still need a relatively high level of protection.
- Category III wetlands are those wetlands with a moderate level of functions and can often be adequately replaced with a well-planned mitigation project.
- Category IV wetlands have the lowest levels of functions and can generally be improved through prescribed enhancements.

Based on the 2020 wetland assessment and review of the National Wetlands Inventory Map and Department of Natural Resources Map, the Project Study Area includes two wetland areas: 1) a depressional Category I wetland identified as Miller Pond, and 2) a depressional Category III wetland identified as Wet Meadow. Table 3-2 provides details on impacts to these two wetland

areas. Miller Pond was rated as a Category I wetland based on high value habitat potential due to stream proximity to the wetland and habitat for mapped WDFW priority species (Barthels 2020a). Additionally, water quality was rated high due to Miller Pond wetland being located within the Hangman Valley watershed. Although rated as a Category I wetland, the area is previously disturbed by water treatment practices and there is a lack of contiguous, undisturbed native vegetative communities, resulting in a low ecological value habitat. No additional wetland areas were observed during associated site visits. Subsurface groundwater interconnectivity currently exists between Minnie Creek and the delineated wetlands. Minnie Creek is located approximately 1,600 feet east of the wetlands, just beyond the WTRF site.

Table 3-2. Summary of the categorized wetland features that Intersect with the proposed purple pipe alignment

Wetland Name	Category[1]	Impact (ft^2)
Miller Pond	Category I	5,000
Wet Meadow	Category III	3,400

[1]Characterized using the Washington State Department of Ecology Wetland Rating System for Eastern Washington (WSDOE 2015).

WTRF currently discharges Class B effluent to five constructed wetland cells totaling more than 100 acres (see Figure 2-1 for the location of the wetlands). The constructed wetlands were built in 1995 and are located within nearly 400 acres of upland and pine-forested land owned by the City. They serve as a tertiary (i.e., final polishing) enhancement for the Class B effluent that is discharged from the WTRF (Esvelt 2016). The constructed wetlands also provide densely vegetated habitat for waterfowl, upland and marsh birds, and a variety of mammals found in the region.

Noxious Weeds

In the state of Washington, noxious weeds are defined as "a plant that when established is highly destructive, competitive, or difficult to control by cultural or chemical practices" (RCW 17.10.010). According to the 2021 Washington State Noxious Weed List, there are three classifications of noxious weeds, with 155 state-listed species. The classifications identify how widespread an infestation is distributed throughout the state and its management criteria. Noxious weeds such as creeping thistle (*Cirsium arvense*) and spotted knapweed (*Centaurea stoebe*) were observed in the Project Study Area during the June 17, 2020, field investigation site visit (Barthels 2020b). These are common roadside weedy species and herbicide may be actively used in disturbed areas to control the observed noxious weeds.

Vegetation:

In undeveloped areas, a scattered overstory of ponderosa pine (*Pinus ponderosa*) is common with limited shrub strata dominated by a mixture of species such as Woods' rose (*Rosa woodsii*) and common snowberry (*Symphoricarpos albus*). The herb strata generally includes grasses, forbs, and annual weeds. Riparian areas are located in the transitional zones around both the Miller Pond and Wet Meadow wetlands. The Biological Resources Memorandum (Appendix D), coupled

with the Wetland Assessment Report (Appendix C), identifies the hydrophytic (i.e., wetland adapted) species observed in the Project Study Area.

The Project Study Area provides marginal vegetative habitat of low ecological value for the following reasons:

1. A significant portion of the Project Study Area has been previously disturbed, paved, and/or developed, as it is located within a municipality.
2. Much of the remaining portions of the Project Study Area are previously disturbed by both agricultural and water treatment practices.
3. There is a lack of contiguous, undisturbed native vegetative communities (Barthels 2020b).

3.2.2 Environmental Consequences

No Action

Under the No Action Alternative, the Purple Pipe Project would not be implemented, and therefore, there would be no effect on wetlands, riparian areas, noxious weeds, and vegetation assemblages in the Project Study Area.

Proposed Action

Wetlands and Riparian Areas

The portion of the Project Study Area that includes the two wetlands and their respective riparian areas will be temporarily impacted by Phase 4, Reclaimed Water Distribution Pipe System (see Figure 2-3). The other three phases are located outside of wetland and riparian areas. Excavation will occur along the pipe route through both wetlands, at a width of approximately 10 feet and at depths ranging from 2 to 8 feet. The linear distance of excavation is about 500 feet through Miller Pond and 340 feet through Wet Meadow. The Proposed Action is anticipated to result in approximately 5,000 square feet of temporary direct impacts to Wet Meadow and approximately 3,400 square feet of temporary direct impacts to Miller Pond. The temporary impacts will occur during construction. The emergent wetland vegetation present should rebound to pre-construction levels within one growing season (i.e., two to three months) following construction. This would result in a no-net-loss to wetland or associated riparian areas (Barthels 2020a). This determination received concurrence from WSDOE on October 6, 2020.

Erosion and sediment best management practices (BMPs) associated with protection of wetlands include straw wattles, silt fencing, and stockpiling topsoil material excavated from wetland areas associated with the installation of the reclaimed water distribution pipe to be retained and reused when backfilling after pipe installation (Barthels 2020a).

Currently, all of the effluent from the WTRF is discharged to the 100-acre constructed treatment wetlands. However, diversion of the reclaimed water will not adversely affect the constructed wetlands as detailed in Esvelt's 2016 report. During the non-irrigating months and non-peak irrigating months, reclaimed water will be stored in the first wetland 'L' (a converted sewage pond, approximately 27 million gallons (MG)) which would act as a reservoir to supply wetland

Cells B, C, and D (in order of flow routing). Nearly all of the groundwater recharge occurs from the final Cell D and minimal leakage occurs from Cells L, B, and C. Cell A is not used to receive reclaimed water but rather is used to collect and treat stormwater runoff. A 2004 report established approximate seasonal water losses from the wetlands and recommended a plan to maintain the water depth at a minimum of 1 foot, which was determined to be acceptable for the wetlands' viability (Carr 2004). A follow-up water balance (Esvelt 2016) showed that diverting up to 1 million gallons per day (MGD) to irrigation during the summer would not cause the water level in the wetlands to drop below the minimum 1-foot level. Seepage from the wetlands to Minnie Creek would be reduced; however, seepage from the wetlands comprises only a small portion of the annual flow to Minnie Creek compared to nearby natural springs and stormwater runoff. With the exception of Wetland A, which is used to collect and treat stormwater, all of the wetlands will be fed nutrients from the reclaimed water. Filtering the effluent will remove particulate nitrogen and phosphorus from the effluent, although the dissolved forms of these nutrients will remain.

Based on the analysis described above, the Proposed Action would have no significant direct impacts on wetlands or riparian areas.

Wetland vegetation present is expected to rebound and reestablish within one growing season. No net loss is expected after construction is concluded. Therefore, there would be no indirect impacts on wetlands and riparian areas.

Noxious Weeds

Construction of the Proposed Action would have little impact on the noxious weeds and vegetation located within the Project Study Area. No known invasive species have been detected during field investigations of the Project Study Area, and there is no known method by which an invasive species could be introduced with this project. Noxious weeds such as creeping thistle (*Cirsium arvense*) and spotted knapweed (*Centaurea stoebe*) were observed in the Project Study Area during the field investigation site visit June 17, 2020 (Barthels 2020a). These are common roadside weedy species and herbicide may be applied in disturbed areas to control the observed noxious weeds. Construction BMPs designed to reduce tracking of sediment and recruitment of weedy species, such as rock construction entries and existing stormwater system protection (e.g., catch-basin filter covers, etc.), will be utilized where applicable and appropriate.

Vegetation

To offset any potential disruption to beneficial vegetative communities during construction, and to encourage re-establishment of vegetation, construction BMPs are recommended such as maintaining staging areas, minimizing unnecessary ground disturbing activities, and reseeding where appropriate. WSDOT specifications for reseeding will be followed; including loosening and cultivating disturbed soil to a minimum depth of 10 inches prior to seeding. Seeds will be certified in accordance with WAC 16-302 which prohibits any noxious weeds in the seed mix. Following construction, temporarily disturbed areas are expected to continue to function the same as before construction.

Based on the analysis described above, the Proposed Action would have no significant direct impacts on noxious weeds or vegetation.

There is a possibility for potential impacts if seeding is not properly monitored and maintained. If post-construction seeding follows construction BMPs, there should be no significant indirect impacts to vegetative communities.

3.3 Water Quality, Hydrology, and Water Rights

3.3.1 Affected Environment

The analysis area for hydrology, water rights, and water quality encompasses the distribution pipe system of the Project Study Area, as well as the extents of the Municipal Water System Area (see Figure 3-1), and the portion of the Grande Ronde Aquifer that lies beneath these areas.

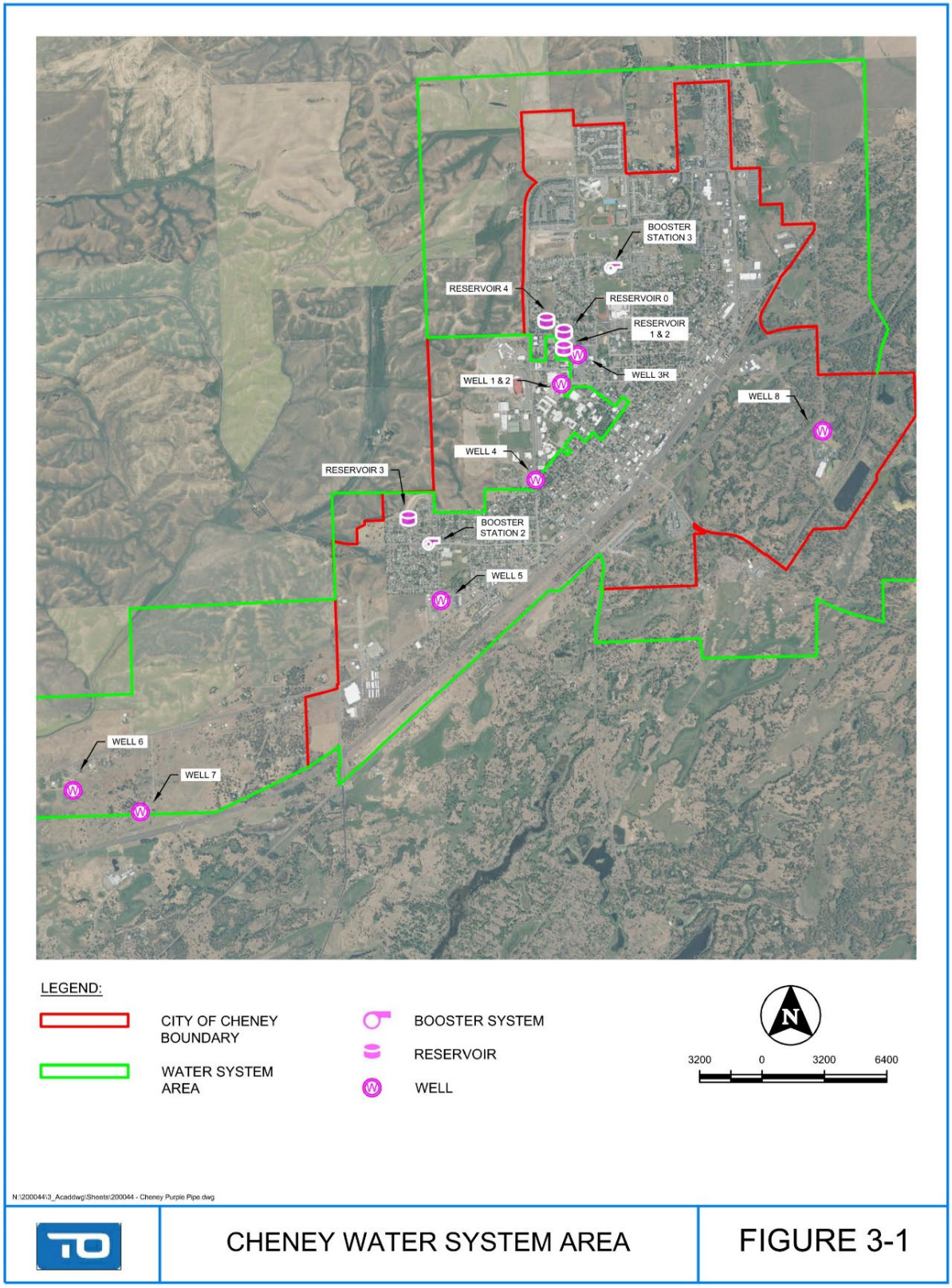

Figure 3-1. Cheney water system area (adapted from 2018 Water System Plan developed by Parametrix)

Hydrology

The hydrology within the Project Study Area includes its surface water and groundwater, along with the regional aquifer. Surface water is defined as those areas where water collects on the surface of the ground, such as streams, rivers, lakes, and ponds. The Project Study Area contains wetlands and is adjacent to an intermittent stream, Minnie Creek; wetlands are addressed in Section 3.2.

This section focuses on the groundwater and aquifer. Groundwater is defined as subsurface water that occupies the space between sand, clay, and rock. An aquifer is defined as subsurface geological layers that store and transport groundwater. Aquifers are often the main source of domestic water and may be used for drinking, irrigating, and firefighting, as is the case in Cheney. The area of the aquifer that the City draws water from is collectively termed the "Grande Ronde Formation of the Columbia River Basalts." Regionally, the aquifer is shallow and unconfined (Esvelt 2016) and is simply referred to as the Grande Ronde Aquifer (Columbia Institute 2006). Groundwater in the Project Study Area is fed by precipitation in this area instead of through interconnectivity to a lake or stream, as there are no water bodies in the Project Study Area. The City obtains its drinking water solely by pumping potable water from eight active groundwater wells that can collectively produce approximately 4.3 MGD (City of Cheney n.d.). In 2018, the rate of groundwater withdrawal demands from the aquifer for drinking water, irrigation, and firefighting used an average of 1.64 MGD during the non-irrigation season and approximately 2.95 MGD during the irrigation season (Parametrix 2018). For a number of years, water level data has indicated that groundwater pumping is occurring within the underlying aquifer due to pumping from city wells (Buchanan 2007). The reclaimed water supply for irrigation will increase with residential and commercial growth and the associated discharges to sewer. The increase in discharges to sewer will increase the treatment and production of reclaimed water at the WTRF so that additional reclaimed water will be available for irrigation in the summer.

Water Rights

Per WSDOE, waters of the state (which typically includes groundwater) belong to the public and therefore cannot be owned by an individual group. To ensure access to groundwater, a person or group may acquire a "right" to use a volume of water in a specific place. Within the area of study previously defined in Section 3.3.1, Cheney has been granted water rights for municipal use. Information relating to pertinent water rights within the defined area of study was obtained from a Water Right Assessment Form completed by the City for the Washington State Department of Health (WDOH) (see Appendix E, which is Appendix J of the 2018 Water System Plan Update). The self-assessment compares the parameters and limitations of existing water rights against current and forecasted water production to determine whether the rights are adequate to serve the City's current and future water needs. Per a letter dated December 6, 2017, from WSDOE to Daniel Ferguson, City of Cheney, the City has seven water rights for municipal supply. These water rights are attributed to the eight active groundwater wells discussed in the Hydrology section (above). The letter confirms that the City has adequate water rights to support its current operation through the 20-year projected growth period (Fu 2017). Additionally, Eastern

Washington University (EWU) has water rights to three wells, which are separate from, but intertwined with, the municipal water rights. Both the City's and EWU's water rights are groundwater rights (Esvelt 2016).

Water Quality

Required water quality sampling for Cheney's municipal drinking water is completed on a monitoring schedule that varies by analyte. Drinking water quality data and reports provided by the WDOH, Division of Environmental Health: Office of Drinking Water indicate that potable water provided by the Cheney Water Division during 2021 complied with federal health-based drinking water standards (WSDEH 2021).

The City of Cheney is in the Hangman Creek Watershed Water Resources Inventory Area (WRIA) No. 56. Chapter 173-201A WAC, Water Quality Standards for Surface Water, does not identify specific waterbody uses for the Hangman Creek watershed. The 2005 Hangman Creek Water Resources Management Plan and the 2020 Washington State Department of Ecology Water Resources Adjudication Assessment Legislative Report identify agriculture, livestock, and residential uses for the beneficial uses of the surface waters in this watershed. In the lower watershed, there is a desire to improve the surface water quality for fish habitat. Removal of the discharge will not have a significant impact on the summertime flows of the surface water bodies in this watershed. Reclaimed water will be stored in the first 27-MG wetland cell which would act as a reservoir to supply the remaining wetland cells and recharge groundwater during the summer.

The Cheney WTRF has a permitted discharge to Minnie Creek which is a tributary to Marshall Creek, which in turn, is a tributary to Hangman Creek. Hangman Creek is listed on the CWA Section 303(d) list for dissolved oxygen, bacteria, temperature, turbidity, and pH, and Marshall Creek is listed for dissolved oxygen, bacteria, and temperature. In 2011, WSDOE developed the Water Quality Implementation Plan for the Hangman (Latah) Creek Watershed (WSDOE 2011). Although Cheney received waste load allocations for fecal coliform bacteria and suspended solids, the ultimate goal is for removal of the pollutants from the surface waters.

The WTRF had two permit exceedances in 2021 and one permit exceedance in 2020 of the fecal coliform limits, and one permit exceedance of the total phosphorus limit in 2019. Other than these violations, the plant has been in compliance with its effluent water quality discharge limits during the last 5 years. Table 3-3 details the National Pollutant Discharge Elimination System (NPDES) permit limits for discharge to Minnie Creek. Table 3-4 details sampling requirements to confirm water quality of the existing Class A reclaimed water.

Table 3-3. City of Cheney WTRF NPDES permit limits for discharge to Minnie Creek

Parameter	Average Monthly Limit	Average Weekly Limit
5-day Biochemical Oxygen Demand	15 mg/L 382 lbs/day 85% removal of influent BOD5	23 mg/L 585 lbs/day
Total Suspended Solids	15 mg/L 382 lbs/day 85% removal of influent TSS	23 mg/L 585 lbs/day
Ammonia Nitrogen	2 mg/L	3 mg/L
Total Phosphorus	2 mg/L	3 mg/L
Fecal Coliform Bacteria	50/100 mL (Monthly Geometric Mean)	100/100mL (7-day Geometric Mean)
pH	Within the range of 6.0 to 9.0 S.U.	
Total Residual Chlorine	11 µg/L	19 µg/L (Maximum Daily Limit)

Table 3-4. Class A Reclaimed Water Quality Requirements

Sampled Water	Parameter	Requirement
Secondary Effluent	5-Day Biochemical Oxygen Demand (BOD)	30 mg/L monthly average 45 mg/L weekly average
	5-Day Carbonaceous BOD	25 mg/L monthly average 40 mg/L weekly average
	Total Suspended Solids	30 mg/L monthly average 45 mg/L weekly average
	Dissolved Oxygen	Not less than 0.2 mg/L
Tertiary Filter Effluent	Turbidity	2.0 NTU monthly average 5.0 NTU sample maximum
Disinfected – Reclaimed Water	Total Coliform Bacteria	2.2 MPN or CFU/100 mL 7-day median 23 MPN or CFU/100 mL sample maximum
	pH	Within the range of 6.0 to 9.0 S.U.
Distribution System	Chlorine Residual	Not less than 0.2 mg/L free or 0.5 mg/L total daily minimum

3.3.2 Environmental Consequences

No Action

Under the No Action Alternative, the Proposed Action would not be implemented. Regarding hydrology, there would be no impact to surface waters. However, the use of groundwater under the City's existing water rights would continue for all irrigation (including irrigation of the five

City parks and playfields); therefore, groundwater pumping would continue. Thus, the No Action Alternative could have potential impacts to groundwater availability in the Grande Ronde Aquifer.

A 2015 study by Budinger and Associates of the interaction between the treatment wetlands and receiving waters measured elevated levels of nitrogen, dissolved solids, fecal coliform bacteria, iron, and zinc in the groundwater downgradient of the wetlands (Budinger and Associates 2015). However, the surface water quality in Minnie Creek was in compliance with Chapter 173-201A WAC, Water Quality Standards for Surface Water, with the exception of temperature. The elevated temperature measured in Minnie Creek could be caused by a variety of factors, including natural conditions. It does not appear that Minnie Creek is or will become impaired from the current wetland discharge. However, increased discharges over time could potentially increase the likelihood of Minnie Creek becoming impaired for dissolved oxygen, pH, or temperature from the additional nutrient loading to the watershed.

The No Action Alternative would have no impact on water rights or water quality, as the Reclaimed Water Engineering Report (Esvelt 2016) has indicated the water rights are adequate through the 20-year planning period as-is, and the system is in compliance with all federal health-based drinking water standards.

Proposed Action

Hydrology

To address the groundwater pumping of the Grande Ronde Aquifer and maintain the forecasted need for potable water for future growth and development (Varela and T-O 2019), the use of Class A reclaimed water is proposed as an irrigation source for five of the City's parks and playfields. As part of the process of planning a successful reclaimed water project, several documents have been prepared, including a feasibility analysis and an engineering report, as well as design plans and specifications. According to Chapter 12 of The Purple Book (WSDOE 2019), land application of the Class A reclaimed water for irrigation may be "beneficial to maintaining a consistent sustainable yield from an aquifer, or as mitigation for other groundwater withdrawals." It is anticipated that the use of Class A reclaimed water for irrigation may reduce potable groundwater withdrawal from the aquifer by approximately 1 million gallons per day during the irrigation season (Buchanan 2007).

The Grande Ronde Aquifer would not be significantly impacted during construction. During the construction phase, it is expected that there would be no direct impact to hydrology.

The Proposed Action plans to decrease groundwater pumping by using Class A reclaimed water for irrigation on selected parks and playfields, rather than potable groundwater. Therefore, the Proposed Action is anticipated to have a beneficial indirect impact on groundwater hydrology within the defined area of interest.

Water Rights

As discussed in the Affected Environment section, the City currently has adequate water rights through the 20-year projected growth period, regardless of the implementation of the Proposed Action. There should be no direct impacts to water rights during construction. However, the

anticipated reduction in groundwater withdrawal (i.e., approximately 1 million gallons per day) during the irrigation season may allow the City to maintain their existing water rights for a longer period. Therefore, the Proposed Action would have potential beneficial indirect impacts on the City's water rights.

Water Quality

Construction of the Proposed Action would have little impact on water quality in the Project Study Area. The construction of the distribution pipe system will temporarily impact the Project Study Area, and appropriate BMPs, such as those described in Section 3.2, would be utilized to minimize temporary impacts. During the months of April through September, the ratio of treatment wetland seepage to the flow in the railroad ditch that flows into Minnie Creek is 10 percent to 30 percent (Esvelt 2016). The effect of removing 1 MGD of water from the wetlands during the peak irrigating months would be mitigated by storing the reclaimed water in the first 27 MG wetland cell during the non-irrigating months and supplying the remaining wetland cells and recharging the groundwater during the summer. Furthermore, the reclaimed water would be of higher quality than the current WTRF effluent with less suspended solids, fecal coliform bacteria, and particulate nitrogen and phosphorus.

Reclaimed water will contain various constituents at higher concentrations than groundwater, such as total dissolved solids, nitrogen, phosphorus, chloride, sulfates, and some metals. The Washington State Reclaimed Water Rule Chapter 173-219 WAC requires reclaimed water to be irrigated at agronomic rates to prevent discharge of the reclaimed water to groundwater or runoff to nearby surface waters and to allow adequate uptake of the various constituents in the reclaimed water by the landscaping turf and plants. This is restricted through practices implemented as part of mandatory site-specific user agreements. These user agreements, which include allowable application rates of the irrigation water and the various constituents, are reviewed and approved by WSDOE.

The transition from using potable groundwater for irrigation on the parks and playfields to using Class A reclaimed water is not expected to result in a significant change to water quality to groundwater (aquifer) or to potable water supply. Class A reclaimed water will be produced as a result of the Proposed Action and will result in land application for irrigation of turf grass and landscape. Application to land surface for these purposes is allowable (WSDOE 2019). The Reclaimed Water Engineering Report (Esvelt 2016) evaluates the current water quality standards met by the WTRF and identifies the changes that must be made to enable production of Class A reclaimed water for irrigation. Changes to system operations at the WTRF aimed at facilitating this production are further discussed in Section 3.9, System Operations. Due to the water quality standards set in place for public land application of Class A reclaimed water by WAC 173-219, it is expected that the Proposed Action would have no adverse direct impact on water quality within the defined area of interest.

Reclaimed water will increase the quantity of potable groundwater. Therefore, it is anticipated that the Proposed Action would have potential beneficial indirect impacts to water quality.

3.4 Cultural Resources, Sacred Sites, Indian Trust Assets, and Paleontological Resources

3.4.1 Affected Environment

The following subsections describe the cultural resources, Indian Trust Assets, sacred sites, and paleontological resources in and in the vicinity of the Project Study Area.

Cultural Resources and Sacred Sites

Cultural resources embody a variety of sites, landscapes, properties, and physical locations relating to expressions of human activity or occupation that are more than 50 years in age, including societal and cultural institutions. These resources include culturally significant past and present expressions of human culture and history in the physical environment which are important to a culture or a community. These resources can be isolated artifacts or features, Native American and other sacred places, documents of cultural and historical significance, and can include aspects of the physical environment like natural features or the plant and animal life of a particular region that are a part of the traditional ways of life associated with community values and institutions (Sacred Land 2021). A sacred site means any specific, discrete, narrowly delineated location on federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use (Indian Affairs n.d.). The "site" often encompasses the surrounding environment and goes beyond what is tangible, and can be of a spiritual realm, i.e., traditional religious and ceremonial practices of Native Americans are often inseparably bound to specific areas of land (Sacred Land 2021).

To evaluate the potential presence of cultural resources or sacred sites within the Project Study Area, an area of potential effects (APE) was defined in consultation with Washington State's Department of Archaeology and Historic Preservation (DAHP; Project No. 2020-02-01413) and with Spokane Tribe's Tribal Historic Preservation Officer (THPO), Randy Abrahamson (AHS 2020). Beyond the facility grounds of existing WTRF, the project APE consists of a 12-foot-wide corridor centered on the proposed 2.5-mile-long distribution pipe, which generally runs along existing subsurface water mains that are adjacent to paved roads and sidewalks through downtown and residential areas of Cheney. At locations adjacent to railroad crossings, the project APE expands to 30-foot widths to accommodate exploration associated with the existing railroad infrastructure. The proposed vertical APE is approximately 6 feet below the ground surface, except at railroad crossings where borings may impact up to 15 feet in buried depth (AHS 2020). The project APE has been significantly impacted by previous development.

Archaeological and Historical Services of EWU conducted the following tasks: 1) a comprehensive literature review and file search of records held at DAHP through the WISAARD database; 2) a Cultural Resources Survey (CRS), including shovel test excavation and historic building recordation, performed on August 21, 2020; 3) an informal written request for information from the Spokane Tribe of Indians; and 4) preparation of a technical report of findings (CRS Report) published in September 2020 (AHS 2020). The CRS was conducted in

compliance with Section 106 of the NHPA of 1996, as amended (see Appendix F, Cultural Resources Survey).

According to the DAHP cultural resources sensitivity model mapped on WISAARD, the APE spans an area that ranges from moderately low-risk probability for cultural resources within the City limits, to areas outside of the City having a higher probability of risk. The CRS Report for the Purple Pipe Project documents that no traditional cultural properties have been recorded in or within 1 mile of the project APE, according to DAHP/WISAARD records. Likewise, the CRS Report documents that no prehistoric cultural resources or subsurface materials were observed during the subsurface exploration, and no sacred sites were identified or reported during communications with the Spokane Tribe of Indians THPO (AHS 2020).

However, because of these investigations, three newly observed resources, all historic railroad alignments that remain active, were identified as intersecting with the APE. The 2.5-mile-long linear component of the project APE crosses under the three historical railroad resources, each of which is eligible for listing in the National Register of Historic Places (NRHP). Within the APE, these resources include the Northern Pacific Railroad Mainline, the Ayer Subdivision of the Union Pacific Railroad, and the Central Washington Branch of the historical Northern Pacific Railroad (AHS 2020).

At the time of the original cultural assessment, the reclaimed water pipeline route went around the perimeter of Hagelin Park. The final design includes the pipeline route traveling through Hagelin Park; this changes the APE of the Proposed Action. An addendum report (see Appendix F, Cultural Resources Survey) was prepared to assess potential impacts to Hagelin Park and provide the results of the following assessments: 1) research the history of Hagelin Park, review historic maps and aerial photographs to assess the potential for buried historic structural debris, or features, to be buried within the revised route within the park, and 2) summarize the results of pedestrian survey and shovel testing within the proposed new pipeline route through Hagelin Park. Additionally, the addendum discusses the potential for paleontological resources to be affected by the Purple Pipe Project within Cheney, Washington.

The historic map and aerial photograph research suggest that the revised APE path through Hagelin Park does not pass over any locations where there were once historic structures or features. Hagelin Park appears to have been undeveloped agricultural land owned by the Cheney School District prior to becoming a public park in 1962 (Emerson 2013). No cultural resources were identified within the revised pipeline route within Hagelin Park. The survey and shovel testing did not identify any evidence of previous buildings, or other cultural resources, in the revised Hagelin Park pipeline route APE. The revised pipeline route through Hagelin Park should have no adverse effects on any cultural resources eligible for inclusion in the NRHP.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian Tribes or individuals. The Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian Tribes and Tribal members, and to consult with Tribes on a government-to-government

basis whenever plans or actions affect Tribal trust resources, trust assets, or Tribal safety (Indian Affairs n.d.).

Trust assets may include lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. No Tribal trust lands are known to exist in the Project Study Area, and none were reported during communications with the Spokane Tribe of Indians THPO (AHS 2020).

Paleontological Resources

A paleontological resource is defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, which are of paleontological interest and that provide information about the history of life on earth. The Bureau of Land Management (BLM) has developed a classification system to rank the potential for landscapes to contain paleontological remains. The classification is called the "Potential Fossil Yield Classification" (PFYC; BLM 2022). The classification has been used to create a GIS-based predictive model for much of the United States. Unfortunately, Washington State has not yet been incorporated into the 2022 PFYC GIS predictive model. The author has classified the potential for paleontological remains in the vicinity of Cheney, Washington to be PFYC "Class 3," with a "moderate" risk of encountering paleontological resources. The documentation for the PFYC classification system describes "Class 3," or "moderate risk," landscapes to include, "Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Units assigned to Class 3 have some of the following characteristics: marine in origin with sporadic known occurrences of paleontological resources; paleontological resources may occur intermittently, but abundance is known to be low; units may contain paleontological resources, but these occurrences are widely scattered; the potential for an authorized land use to impact a paleontological resource is known to be low-to-moderate" (BLM 2022; www.blm.gov/sites/blm.gov/files/uploads/IM2016-124_att1.pdf). No paleontological resources were discovered within the Project Study Area during the CRS.

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, the Purple Pipe Project would not be implemented, and therefore, would have no effect on cultural resources, ITAs, sacred sites, and paleontological resources.

Proposed Action

The 2.5-mile-long linear component of the project APE crosses under the alignment of three historical railroad linear resources, each of which is eligible for listing in the NRHP. As proposed, the reclaimed water distribution pipe construction methods will allow excavation and pipe placement approximately 15 feet under each rail track corridor with no alterations or disturbances to the NRHP-eligible resources. The construction of the distribution pipe is anticipated to occur below the vertical boundary associated with each resource, leaving the

existing resource infrastructure undisturbed and intact (AHS 2020). Therefore, a determination of no adverse effect on historic properties was made for the project.

Impacts on ITAs are evaluated by assessing how the action affects the use and quality of ITAs. Any action that adversely affects the use, value, quality, or enjoyment of an ITA is considered to have an adverse impact on the resources. There are no known ITAs in the Project Study Area (see Figure 2-1) and the Spokane Tribe of Indians did not indicate the presence of any ITAs during consultation.

No paleontological resources were observed in the APE.

An Inadvertent Discovery Plan (IDP) shall be always available on-site during construction. In the case that any cultural resource, either on the surface or subsurface is discovered during construction, or if any person who knows or has reason to know that he/she has inadvertently discovered possible human remains on federal land, he/she must provide immediate telephone notification of the discovery to Reclamation's Columbia-Pacific Northwest Regional Office archeologist.

For the above-described reasons, the Proposed Action would have no direct or indirect impacts on cultural resources, sacred sites, ITAs, and paleontological resources.

3.5 Health, Safety, Air Quality, and Noise

3.5.1 Affected Environment

Health and safety, air quality, and noise resources in and adjacent to the Project Study Area are described in the following subsections.

Health and Safety

Wastewater is currently treated at the WTRF, which is owned and operated by the City. Potable water is provided by the City via groundwater wells. These systems meet U.S. Environmental Protection Agency (EPA) CWA standards. The WTRF will remain operational during the Proposed Action. The WTRF is located away from the built-out environment of the City and the public does not have direct access to the facility without WTRF-supervised assistance. Other health and safety services, such as healthcare and police/fire facilities, are described in Section 3.9.

Reclaimed water will be sampled and tested for various pollutants prior to distribution in accordance with Chapter 173-219 WAC Reclaimed Water to ensure protection of public safety and the environment. The pollutants and parameters monitored include, but are not limited to, flow, 5-day biochemical oxygen demand, total suspended solids, total dissolved solids, total nitrogen, total coliform bacteria, dissolved oxygen, pH, turbidity, and total chlorine residual.

Air Quality:

The EPA has identified and set National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants (EPA 2018). Where concentrations of these criteria air pollutants are below

(i.e., within) the threshold levels, these areas are designated as "attainment" areas. Areas where concentrations of these criteria air pollutants are above the threshold levels are designated as "nonattainment" areas. Areas with prior nonattainment status and have since transitioned to attainment are designated as "maintenance" areas. WSDOE monitors and tracks emissions to make sure levels of these pollutants meet federal and state air quality standards. Some areas of Spokane County are currently designated as maintenance areas for two pollutants of concern, carbon monoxide (CO) and particulate matter 10 (PM_{10}) (EPA 2017). This means that the levels of CO and PM_{10} were previously higher than levels that the EPA has determined to be acceptable for public and environmental health, but action was taken to reduce these pollutants and the County is now within acceptable levels for CO and PM_{10}. Although the Project Study Area is contained within Spokane County, it is located outside of the Spokane County maintenance area for both CO and PM_{10} (see Appendix G, Spokane Regional Clean Air Agency CO and PM_{10} Maintenance Boundary Maps; SRCAA 2009). The Project Study Area, as well as Spokane County as a whole, is in attainment for ozone (O_3), sulfur dioxide (SO_2), particulate matter 2.5 ($PM_{2.5}$), lead (Pb), and nitrogen dioxide (NO_2). Historic, current, and forecast air quality data in Spokane County can be obtained from the U.S. Air Quality Index, AirNow (www.airnow.gov) ,or Washington's Air Monitoring Network (https://enviwa.ecology.wa.gov/home/map).

The EPA has also established a list of 187 hazardous air pollutants that are regulated through federal and state permitting programs. Washington State regulates over 430 criteria and toxic air pollutants through Chapters 173-400, General Regulations for Air Pollution Sources, and 173-460, Controls for New Sources of Toxic Air Pollutants, of the WAC. The closest protected Class I Area is Mount Rainier National Park, located approximately 200 miles from Cheney, indicating there is no potential impact to a Class I Area. The WTRF is exempt from greenhouse gas reporting requirements per 40 CFR 98 and WAC 173-441-030.

The EPA maintains the National Emissions Inventory (NEI) (https://www.epa.gov/air-emissions-inventories) database. The NEI is a detailed estimate of air emissions that includes criteria pollutants and hazardous air pollutants. Estimates are based on emissions data received from state, local, and Tribal air agencies and incorporate EPA generated emissions, including on-road sources like passenger cars and heavy-duty vehicle emissions. The NEI reports emissions in Spokane County for the emission sources that are associated with the Proposed Action (e.g., construction dust, diesel and gas heavy-duty trucks, etc.) in the thousands of tons/year.

Noise

The levels and types of noise within the Project Study Area are typical of those found within a mixed commercial and residential city center. In addition to supporting full-time residents, Cheney also contains the EWU campus and associated housing and sports facilities. Current noise observed is predominantly related to the operation of single occupancy vehicles, local delivery trucks, trains (UP Railroad and BNSF Railroad), and public transit (e.g., bus, cab). Local traffic is west of State Route (SR) 904 and the two railroads are east of SR 904. Other seasonal event-related noise observed within the Project Study Area comes from EWU football games on Roos Field, other school-related outside sporting events, band practice, etc. on the Cheney High School grounds, and recreational noise from middle/elementary schools.

A noise-sensitive area is defined as an area where noise could interfere with normal activities associated with its use. These types of areas can include indoor locations such as residential, educational, medical, and religious structures or outdoor sites such as parks and recreational areas, wilderness areas, or cultural and historical sites within the Project Study Area.

WAC 173-60-030 establishes environmental designation for noise abatement (EDNA) zones within which maximum permissible noise levels are established. The Project Study Area includes all three zones (Class A, B, and C). Class A EDNA includes lands where humans reside and sleep. Class B EDNA includes lands that require protection against noise that interferes with speech, such as commercial living and dining establishments, retails, banks, recreational facilities, and other services not for human living. Class C EDNA include lands where high noise levels are anticipated, such as warehouse and distribution facilities, industrial properties, and agricultural properties. WAC 173-60-040 identifies maximum permissible environmental noise levels for each class as shown in Table 3-5.

Table 3-5. Maximum permissible environmental noise levels

EDNA of Receiving Property[1]	Allowable Noise (dBA)	Nighttime (10:00 p.m. to 7:00 a.m.) Allowable Noise (dBA)	Construction (7:00 a.m. to 10:00 p.m.) Allowable Noise (dBA)
Class A	60	50	No limit
Class B	65	65	No limit
Class C	70	70	No limit

[1]WAC 173-60-040 set permissible noise levels based on the EDNA class of the noise source and the EDNA class of the receiving property. The WTRF EDNA zone is Class C; therefore, the EDNA of the noise source is reflective of the Class C values in WAC 173-60-040 for each of the receiving properties.

As shown in Figure 3-2, approximately 12,755 feet (2.4 miles) of the pipeline alignment are contained within EDNA Class A zones, approximately 712 feet (0.14 miles) are contained within EDNA Class B zones, and approximately 2,600 feet (0.5 miles) are contained within EDNA Class C zones. During the hours between 10:00 p.m. and 7:00 a.m., the noise levels are required to be reduced by 10 dBA for EDNA Class A zones. The noise levels in Table 3-5 may be exceeded for short durations as defined by WAC 173-60-040(2)(c). During the proposed action construction activities, WAC 173-60-050(3)(a) would allow exceedance of the stated dBA thresholds contained within WAC 173-60-040 for sounds originating from temporary construction sites, except for EDNA Class A zones during the hours between 10:00 p.m. and 7:00 a.m.

The Proposed Action would produce noise from operation of construction equipment. Construction equipment noise outputs are between 80 and 120 dBA at the source. Project equipment will include a front-end loader, skid steer loader, water truck, walk-behind saw, paver, and asphalt roller. The construction equipment would be operated daily during standard working hours, following City code and Washington State regulations.

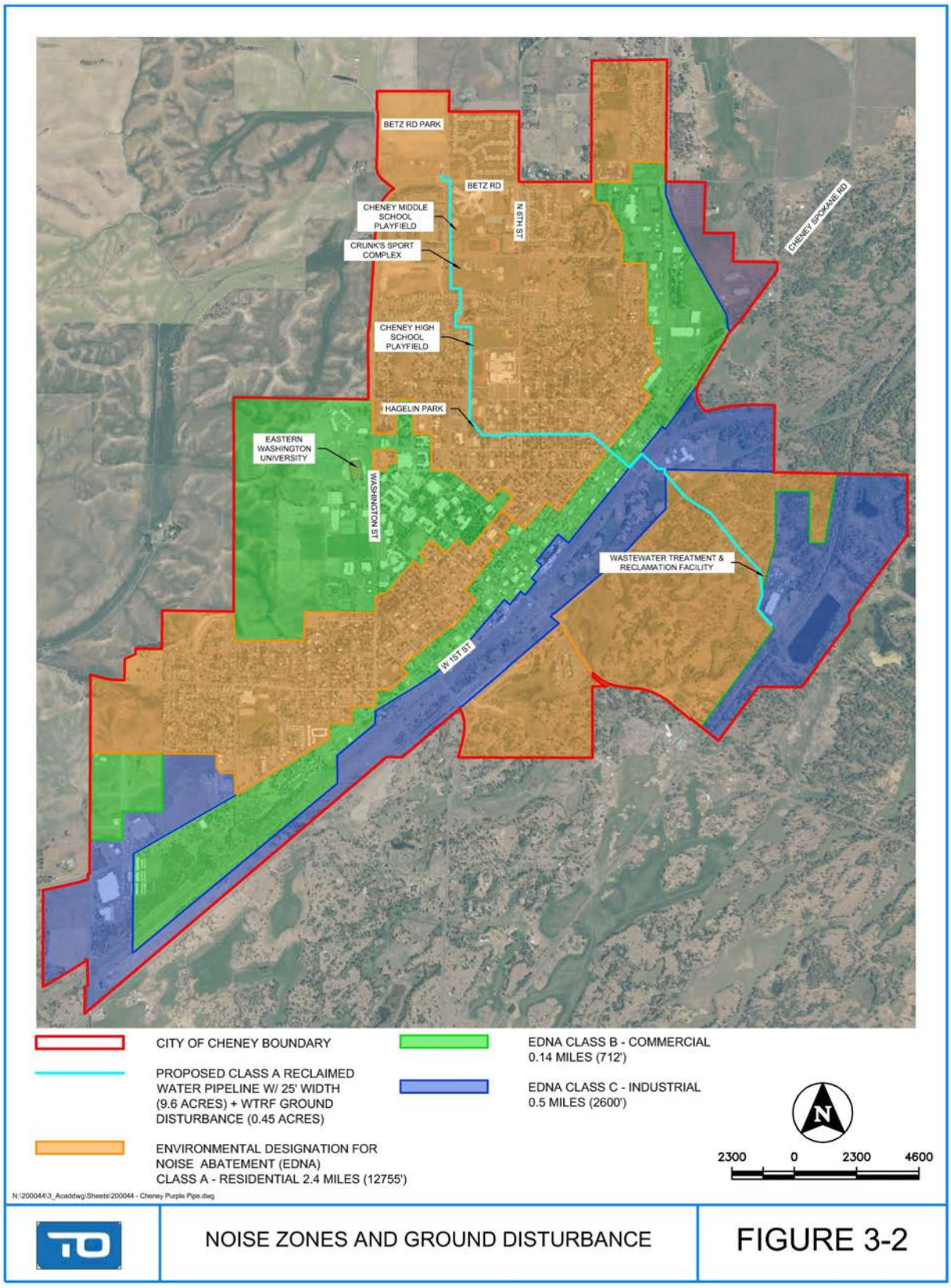

Figure 3-2. Noise zones and ground disturbance

3.5.2 Environmental Consequences

No Action

Under the No Action Alternative, the Purple Pipe Project would not be implemented and therefore would have no effect on health and safety, air quality, and noise.

Proposed Action

Health and Safety

The Proposed Action is anticipated to have no long-term impact on health or safety as the project components are either buried underground (purple reclaimed water distribution pipe) or located on the existing WTRF facility site, and the use of reclaimed water for irrigation in publicly accessible areas is a safe and acceptable practice per The Purple Book (WSDOE 2019) due to the water quality standards associated with Class A reclaimed water. The distribution of potable water supply to serviced customers will not be impacted by the project; therefore, no health or safety impacts would be expected. The Proposed Action will have no impact on potable water supply or distribution. It is assumed that construction operations will adhere to Purple Book standards and will therefore have no perceived impact.

For the above-described reasons, the Proposed Action would have no direct or indirect impacts on health and safety.

Air Quality

The Proposed Action would generate temporary emissions related to construction during the planned construction years of 2022, 2023, 2024, and 2025. Criteria pollutant construction emissions were calculated to determine whether the Proposed Action has the potential to cause or contribute to a violation of the NAAQS. Proposed Action construction activities include construction of a pump house building, tertiary treatment system building, and the reclaimed water distribution pipe system. An emissions inventory was developed for each year of construction. The type of construction equipment included in the emissions inventory is provided in Table 3-6.

Table 3-6. Days per year of construction equipment usage assumed for each project component

Equipment Type	Sector	Pump House Building and Tertiary Treatment Building; 2022[1]	Reclaimed Water Distribution System		
			2023[1]	2024[1]	2025[1]
Concrete/Industrial Saws	Mobile - Non-Road Equipment - Gasoline	10	20	20	20
Plate Compactors		10	20	20	20
Signal Boards/Light Plants		10	20	20	20
Tampers/Rammers		10	10	10	10
Bore/Drill Rigs	Mobile - Non-Road Equipment - Diesel	2	10	1	1
Cement and Mortar Mixers		3	4	4	4

Equipment Type	Sector	Pump House Building and Tertiary Treatment Building; 2022[1]	Reclaimed Water Distribution System		
			2023[1]	2024[1]	2025[1]
Cranes		10	4	4	4
Crawler Tractor/Dozers		5	0	0	0
Crushing/Processing Equip.		2	4	4	4
Dumpers/Tenders		2	4	4	4
Excavators		2	2	2	2
Graders		20	30	30	30
Off-highway Tractors		5	3	3	3
Off-highway Trucks		2	0	0	0
Pavers		10	10	10	10
Paving Equipment		5	5	5	5
Rollers		5	5	5	5
Rough Terrain Forklifts		20	15	15	15
Scrapers		20	30	30	30
Skid Steer Loaders		10	5	5	5
Surfacing Equipment		15	30	30	30
Tractors/Loaders/Backhoes		5	5	5	5
Trenchers		10	10	10	10

[1]Estimated construction year

Emissions were also calculated for fugitive dust related to dirt work and travel on dirt roads, vehicle emissions from on-road construction equipment, and passenger vehicle emissions from workers commuting to and from the construction site. It is estimated that a total of 9.6 acres (2.5-mile-long pipeline with a 25-foot-wide buffer of potential disturbance) of dirt will be disturbed during each of the 3 years of pipeline construction, and that 0.45 acres of dirt will be disturbed during upgrades at the WTRF (see Figure 3-2 for the location of ground disturbance). Additionally, a total of approximately 12.22 acres will be utilized within the project footprint as staging areas as discussed in Section 2.2. Post-project vehicle emissions were not calculated as the Proposed Action is not expected to increase daily traffic in the area.

Table 3-7 contains the construction-related emissions inventory of each criteria pollutant for the years 2023 to 2025. The inventory includes all direct and indirect emissions. The emission rates for the criteria air pollutants are calculated in short tons per year (see Appendix G, Spokane Regional Clean Air Agency Pollutant Maintenance Area Maps & Emissions Calculations Spreadsheets).

Table 3-7. Construction-related emissions for each criteria air pollutant in short tons/year

Parameter	CO	NO_2	PM_{10}	$PM_{2.5}$	SO_2	VOC
Emissions, Year 2022	12.38	13.14	5.04	2.24	0.02	2.42
Emissions, Year 2023	18.16	18.48	4.80	2.83	0.03	3.6
Emissions, Year 2024	18.02	18.04	4.78	2.80	0.03	3.57
Emissions, Year 2025	18.02	18.04	2.82	2.39	0.03	3.57
EPA Attainment Status[1]: Are any annual emissions above the Prevention of Significant Deterioration threshold?	No	No	No	No	No	No

[1]Spokane County is in maintenance for CO and PM_{10}, but the City of Cheney is outside the defined maintenance boundary per Spokane County's State Implementation Plan.

Based on the EPA-designated attainment status for the Project Study Area, lasting impacts to existing air quality in the area from temporary construction activities are considered insignificant. The criteria pollutant air quality emissions inventory concluded that the increase of pollutant emissions from construction of the Proposed Action would be temporary and below the thresholds for the Prevention of Significant Deterioration program; therefore, the emissions are assumed be below the levels which would cause a significant deterioration of the air quality in the area. Additionally, since the Project Study Area is located outside of the Spokane County maintenance area for both CO and PM_{10} (see Appendix G), an air quality permit for CO or PM_{10} maintenance requirements is not needed from the Spokane Regional Clean Air Agency (SRTC n.d.). The construction of the Proposed Action would have no significant impact on air quality.

To provide a quantified comparison of the Proposed Action's estimated emissions to a local facility's emissions, the actual emissions from the City of Spokane Waste-to-Energy (WTE) Facility were compared to the emissions in Table 3-7. In 2020, the WTE emitted 27 tons/year of CO, 324 tons/year of NOx, 7.5 tons/year of SO_2, 6.7 tons/year of PM_{10}, and 5.4 tons/year of $PM_{2.5}$. Total VOC emissions were not reported. As the Proposed Action's PM emissions include fugitive dust, the emissions are near the WTE. However, the CO, NOx, and SO_2 estimated emissions are well below the WTE facility's annual emissions.

WAC 173-400-110(4)(a) exempts construction activities (e.g., paving application and concrete application) from the state's air quality permitting program, indicating the emissions are insignificant and do not pose a potential impact to air quality. However, under Washington State air quality regulations, equipment used during construction of the Proposed Action may be or become portable or stationary sources, such as portable asphalt plants for paving or non-road engines that remain onsite over 12 months. Current construction plans do not include the use of a portable asphalt plant or the need to use an engine to support construction activities for more than 12 months. If the construction company determines that a portable or stationary source is required for the construction of the Proposed Action, necessary permits will be obtained. Any required permitting will minimize impacts to the public from construction emissions.

Wastewater treatment plants have the possibility to generate emissions (i.e., volatile organic compounds, greenhouse gases) throughout the life of the facility. A New Source Review of the Proposed Action would need to be completed and evaluated against applicable permitting thresholds to determine if an air quality permit is required. If permitting is required to regulate these emissions, the state will manage the emissions at acceptable limits through the state's air quality permitting program. If no air quality permit is required, then emissions are assumed to be insignificant. The impacts during construction are considered to have no significant direct impact.

In addition to the air pollution control BMPs from the project-specific construction specifications (listed below), the City permit will require BMPs such as using water or chemical dust suppressants and covering loose material to keep dust down during excavation, grading, and construction equipment movement, and encouraging the practice of not letting equipment or vehicles idle when not in use. Additionally, all gasoline and diesel fuel consumed during the construction of the Proposed Action will meet federal fuel standards by using ultra low sulfur diesel of gasoline as a standard BMP. The project-specific construction specifications include the BMPs listed below.

- The Contractor shall not discharge smoke, dust or other contaminants into the atmosphere that violate the regulations of any legally constituted authority.
- The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent his operation from producing dust or air pollution in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity.
- The Contractor shall comply with specific requirements of air quality control laws.
- The Contractor shall be responsible for any damage resulting from any dust or air pollution originating from his operations.
- The dust and air pollution abatement measures shall be continued until the Contractor is relieved of responsibility by the Owner.
- All streets in the construction area used by Contractor's trucks or any other equipment hauling material to and from the area whether within the Contract limits or adjacent thereto shall be kept clean and shall be serviced by continuous use of sprinkling trucks to allay dust.
- Unsurfaced roads and streets may receive an application of dust oil to allay dust.
- Dust control shall continue until streets are accepted by the public agency responsible for maintenance or the Contractor is relieved of responsibility by such agency.
- Sprinkling and dust oiling shall be at the Contractor's expense.

For the above-described reasons, the Proposed Action would have no significant indirect impact on air quality.

Noise

Construction-related noise for the Proposed Action within the Project Study Area would be typical of a construction site and temporary in nature. Construction noise due to the operation of heavy equipment and contractor vehicles for the installation of the new distribution pipe is expected to occur during a typical Monday through Friday work week and during a typical work hour window, such as 7:00 a.m. to 5:00 p.m. Construction times and allowable noise levels will comply with WAC 173-60-040 and 173-60-050 and City of Cheney noise ordinances prohibiting construction during the hours between 10:00 p.m. and 7:00 a.m. (see Affected Environment for more information).

The WSDOT Biological Assessment Preparation Manual (WSDOT 2020), Part Two – Construction Noise Impact Assessment, contains the average maximum noise levels at 50 feet from common construction equipment. Based on the project's anticipated construction equipment, the top three maximum noise levels are: front end loader = 81 dBA, paving and dump truck = 83 dBA, and roller = 82 dBA. It is anticipated that more than one piece of equipment will be operating at one time. The WSDOT Manual includes a rule for decibel addition to determine the noise level of a construction project. The maximum difference between the three highest decibel levels (81, 82, 83 dBA) is 2 dBA. The rules for combining noise levels requires determining the difference of the two lowest pieces of equipment: 82 - 81 = 1 dBA, which in this case (i.e., a difference of 1) requires the addition of 3 dBA to the highest of the two levels, for a total of 85 dBA. Then the difference between the highest equipment level, 83 dBA, is compared to the calculated 85 dBA, with a difference of 2 dBA, for an additional adder of 2 dBA based on the rules for combing noise levels. Thus, the total noise level for all equipment combined is 85 dBA.

Noise-sensitive areas and facilities (e.g., school associated with the park and/or playfields) do exist within the Project Study Area and will be in close proximity to construction-related activities (See Figure 3-2). During construction activities, BMPs will be implemented that minimize noise impacts, such as encouraging the practice of no equipment idling when not in use, utilizing noise mufflers as allowed, performing known construction activities that may be louder than normal (e.g., actions that create loud booms, crashes, etc.) during non-school hours, and prohibiting construction activities between the hours of 10:00 p.m. and 7:00 a.m. Construction specifications require the following noise control BMPs:

- Comply with state and local requirements as to allowable noise levels during construction
- Equip all internal combustion engines in vehicles and construction equipment with effective mufflers
- Prevent noise disturbance to adjoining property owners and the public
- Construction operations shall be restricted as required in the Supplementary Conditions without specific approval by the Owner, except in emergencies

Table 3-8 summarizes the distance to anticipated construction equipment relative to noise-sensitive areas and facilities, along with standard and sensitive receptor BMPs.

Table 3-8. Distance of Project Study Area to noise-sensitive areas and facilities; maximum noise emission at 50 feet = 85 dBA (WSDOT 2020)

Noise-Sensitive Areas and Facilities	Nearest Distance to Project Action Area	At or less than 50 feet from Operating Equipment	BMP in addition to Standard Noise BMPs based on Proximity to Project Noise[1]
Playfield north of Betz Road	15 feet	Yes	Contractor to minimize noise when kids outside on school grounds
Cheney Middle School Building	50 feet	Yes	Contractor to minimize noise when kids outside on school grounds
Cheney Middle School Playfield	400 feet	No	Standard
Crunk's Sports Complex	50 feet	Yes	Signage and barriers to prevent close proximity to equipment
Cheney High School Building	250 feet	No	Standard
Cheney High School Track/Field	20 feet	Yes	Contractor to minimize noise when kids outside on school grounds
Hagelin Park	Adjacent	Yes	Signage and barriers to prevent close proximity to equipment
Betz Elementary Building	60 feet	No	Standard
Betz Elementary Playfield	10 feet	Yes	Contractor to minimize noise when kids outside on school grounds
Tennis Courts	150 feet	No	Standard
Cheney Community Church	20 feet	Yes	Standard - no construction expected on Sunday; no noise level impact expected
MultiCare Rockwood Cheney Clinic	500 feet	No	Standard
Cheney Assisted Living	1,000 feet	No	Standard
Cheney Care Center	1,200 feet	No	Standard
Church of Jesus Christ of the Latter-Day Saints	80 feet	No	Standard
Cheney Congregational Church	850 feet	No	Standard
St. Rose of Lima Church	1,300 feet	No	Standard

[1]BMPs per City of Cheney construction contract

The calculated maximum noise level for the project is 85 dBA, which is greater than the maximum allowed noise level across EDNAs per WAC 173-60-040 from 7:00 a.m. to 10:00 p.m., assuming no temporary construction activities are occurring. Although construction is exempt from WAC 173-60-040 noise levels during the construction hours, BMPs will be followed to reduce exposure to these higher-than-normal noise levels. Based on Table 3-8, more than half of the sensitive receptors are greater than the 50 feet measured level, which would receive less than the maximum construction project 85 dBA noise level. However, several of the receptors within 50 feet are Class B receptors (e.g., schools). Although the City does not require a noise abatement plan for construction projects, Table 3-8 contains additional BMPs for sensitive receptors that are closer to the equipment than the 50 feet WSDOT measured levels.

Based on the temporary nature of the construction project and the BMPs to minimize exposure during maximum operating noise levels, the Proposed Action would have no significant direct impact on noise. After construction is completed, noise levels would return to normal and there would be no indirect impact to noise.

3.6 Climate

3.6.1 Affected Environment

Climate Change as a Global Phenomenon

The levels of greenhouse gases (GHGs) in the atmosphere have increased due to increased human activities that emit these pollutants. GHG emissions are defined as carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride (EO 13693; 2015) by the President's Council on Environmental Quality (CEQ). The presence of these pollutants in the atmosphere is causing the earth's climate system to warm, which is contributing to rising sea levels, melting of snow and ice, acidification of the ocean, intense droughts, and increased wildfires (IPCC 2018). In 2009, the EPA determined that changes in our climate caused by GHG concentrations in the atmosphere are anticipated to negatively impact public health and public welfare (74 Fed Reg 66496 2009). In 2015, the EPA determined that addressing the increased CO_2 concentrations in the atmosphere was critical to reversing the effects of climate change. The rate at which climate change occurs is directly related to the amount of GHG emissions in the atmosphere and how the climate responds to those emissions.[1] The warming of the climate system is predicted to continue over the next several decades even if GHG emissions were drastically decreased because the pollutants currently in the atmosphere will remain there for long periods of time. It is projected that GHG emissions will continue to increase over the next couple of decades; thus, existing trends in climate change are predicted to continue well beyond 2050 (Mote et al. 2013).

[1]United States Environmental Protection Agency. https://www.epa.gov/climate-indicators/greenhouse-gases. Accessed August 2, 2022.

GHG emissions and climate change evaluation is required by federal agencies when evaluating proposed federal actions in accordance with NEPA. The CEQ does not establish a GHG emissions quantity to determine a project's environmental impact because climate change occurs from the collective addition of GHG emissions from individual sources around the world. Thus, every source emitting GHGs negatively impacts climate change, although some much more than others. The CEQ guides agencies and the authorized decision maker to look at the project alternatives and determine the best option based on its impact on climate change by looking at GHG emissions and climate change impact on the project, both directly, indirectly, and cumulatively.

Climate Change in Washington State

The University of Washington's Climate Impacts Group (CIG) authored a State of the Knowledge Report in 2013 called Climate Change Impacts and Adaptation in Washington State, which provides details on climate change observations and projections. The Cascade Mountain range runs north-south through Washington State and lies west of the center of the state. The range creates two very distinct climates in the state. In comparison to the western side of the state, Eastern Washington has warmer summers, cooler winters, and less precipitation during the defined wet season of October to March. According to the CIG, although these climate characteristics are unique, when climate change is analyzed and non-normal climate trends are seen, the climate indicator (i.e., temperature, streamflow, etc.) that has departed from the normal state is seen across the state. Ultimately, this means that climate change is seen consistently across Washington State regardless of the sub-climates that exist within the state.

The CIG has noted several long-term changes from human-caused climate change within the Pacific Northwest and Washington State, including increasing temperatures, a longer frost-free season, decreased glacial area and spring snowpack, earlier peak streamflow in many rivers, and rising sea level at most locations. Between 1895 and 2011, the Pacific Northwest warmed by about 1.3°F (Kunkel et al. 2013). As a result of this warming, the frost-free season (and associated growing season) has lengthened by 35 days from 1895 to 2011. Various regions in Washington State are also experiencing measurable changes in streamflow patterns based on the decline of snow and ice in the mountain regions. Washington State contains 174 out of 266 square miles (65 percent) of glaciers found in the lower 48 states. Glacier area declines in the state range from 7 percent (study from 1958-1998 in the North Cascades) to 49 percent (study from 1904-2006 on Mt. Adams) (Granshaw and Fountain 2006; Sitts et al. 2010). Resulting streamflow from snow and ice melt has experienced a decrease in volume and, coupled with the longer frost-free season, occurs earlier in the year than normal climate trends for the state. Mote et al. (2013) projected continued rapid warming of the Pacific Northwest, and thus, Eastern Washington, over the next several decades. Although the predictions indicate less warming with a global lowering of GHG emissions, temperatures are still predicted to rise an average of approximately 5.5°F by 2050 from today's temperature trends.

The CIG determined that changes in annual average precipitation are attributable to natural variability and not climate change, based on their review of several climate change and precipitation studies. However, climate change models have shown that although there is no significant change in annual average precipitation in Washington State, there is a noticeable

change in the model's seasonal projections (CIG 2013). According to the CIG, trends have shown drier summers with up to a 6-8 percent decrease in precipitation and wetter spring, fall, and winter months with an increase from 2-8 percent on average. The projection includes a higher frequency of intense precipitation events with an increase of up to 13 percent of daily precipitation events that yield greater than 1 inch of precipitation per day.

The EPA gives WSDOE full authority to implement the Clean Air Act regulations in Washington State. GHG emissions are exempt from new source review requirements under WAC 173-400-110(b); however, WAC 173-400-720, Prevention of Significant Deterioration (PSD), requires application and reporting of GHGs.

Climate Change in Cheney, Washington

Climate change is contributing to drought conditions (based on the decrease of precipitation during the summer months) and frequency and size of forest fires in the City of Cheney. Cheney experienced extreme and exceptional drought conditions caused by climate change in the years 2015 and 2021, leading to the area being designated as a drought disaster area in 2021. The area is experiencing routine fire threats to homes and businesses, poor air quality due to increased particulate matter in the atmosphere due to forest fires, dry soils resulting in dry vegetation that is highly susceptible to burn, and forests infested with pests and diseases (Esvelt 2016). Cheney is surrounded by agricultural land, mostly to the west and north of the City. Drought due to climate change is projected to continue to reduce summer precipitation and thus reduce available water for irrigation and reduce crop yields and agricultural incomes in the area.

The increased need for irrigation of agricultural fields, parks, school playfields, and residential landscaping, as well as water needs for firefighting due to warming temperatures, drought conditions, and wildfires have resulted in a decrease in the groundwater levels and thus a decrease in water available to City municipal water users (Parametrix 2018). Cheney draws water from the Grande Ronde Aquifer which is fed by precipitation in this area instead of through interconnectivity to a lake or stream (Esvelt 2016). Although experts agree (Mote et al. 2013) that annual average precipitation is not impacted by climate change, the hotter and drier summer months, and thus the increased need for irrigation and water to fight wildfires, are a direct result of climate change. The Washington State Department of Natural Resources (WADNR) released their *20-Year Forest Health Strategic Plan – Eastern Washington* in 2017 outlining goals and strategies to reduce wildfire hazards to public and private lands. WADNR cites episodic droughts that increase competition among trees for available moisture as one of the primary causes of the decline in forest health in Washington State over the last several decades, thus causing an increase in available fuel for wildfires. The hotter and drier summer months typically result in increased use of groundwater, which is predicted to continue to increase along with the predicted decrease in summer precipitation over the next several decades (Esvelt 2016).

3.6.2 Environmental Consequences

No Action

Under the No Action Alternative, groundwater availability will continue to decline (Buchanan 2007; Esvelt 2016; Parametrix 2018) and the City of Cheney will continue to face municipal

water shortages. Cheney will not provide infrastructure to facilitate expansion of the system and will not be able to provide a drought-resistant source of water that will grow with development and associated discharges to sewer. Cheney would have a limited ability to combat the increasing frequency and size of forest fires in the area resulting from drought conditions associated with climate change. Cheney would have less ability to support the conservation of land for public parks by providing a new source of irrigation water for greenspaces.

Proposed Action

Potential Effects of Climate Change on the Proposed Action

As discussed above, climate change trends are projected to continue for several decades, even with a projected decrease in GHG emissions. These continued trends could have a direct impact on the Proposed Action during project construction or an indirect impact on the completed project during operations in the future. The effects (e.g., rising sea levels, melting of snow and ice, acidification of the ocean, intense droughts) of the warming atmosphere are continuing to increase, impacting frequency and duration of forest fires. The Proposed Action could potentially be directly impacted by an active fire in the area, resulting in damage to construction equipment and infrastructure progress on the WTRF upgrades. Although a wildfire directly impacting the Proposed Action can be reasonably drawn based on current effects seen in the area, climate change directly impacting the Proposed Action is unlikely based on the short duration and urban location of the construction project.

If extreme drought were to occur in the future, or the current climate trends were to continue, there could be future water restrictions on households, including daily usage which would impact laundry, bathing, dishwashing, and other household water usage activities. This decline in daily use would affect the volume of wastewater to Cheney's wastewater treatment facility, thus decreasing the available wastewater for the facility's proposed Class A reclamation process. Therefore, volume of processed Class A reclaimed water could be less than estimated and water available for irrigation for the parks and schools may be lower than needed to keep the spaces green. These potential indirect impacts from increased climate change effects are projected to be offset by the Proposed Action operation and elimination of the need to use groundwater for irrigation of schools, city parks, and playfields in the short-term, and eventually other large irrigation water usage areas in the City of Cheney. If the City continues to see increased drought conditions, the decreased annual groundwater pumping each year as a result of the Proposed Action would allow the aquifer to continue to recharge more efficiently each year (Esvelt 2016), compounding the increased groundwater levels, which would be available to municipal users in the event of an extreme drought situation.

Potential Effects of the Proposed Action on Climate Change

As discussed above, GHG emissions in the atmosphere directly impact climate change and its associated effects, and the CEQ recommends calculating the project's GHG emissions to assess the potential effects of the Proposed Action on climate change. The Proposed Action will generate temporary GHG emissions related to construction of a pump house building, tertiary treatment system building, and the reclaimed water distribution pipe system during the planned construction years of 2022, 2023, 2024, and 2025. To determine the Proposed Action's potential

effects on climate change, the project's estimated GHG emissions were calculated. As shown in Table 3-9, the project is estimated to emit between 56.64 and 58.99 metric tons of CO_2 equivalent (CO_2e) GHG emissions per construction year (see Section 3.5.2 for information on the project's construction equipment operations). In 2014, the estimated global carbon emissions from fossil fuels were approximately 10 billion metric tons CO_2e (Boden 2017). In 2014, the estimated carbon emissions in Washington State were 94.1 million metric tons CO_2e (WSDOE 2018).

Table 3-9. Project, Washington State, and global greenhouse gas emissions (metric tons/year)

Construction Year	CO_2e by Construction Year	Project's Annual Average	Washington State CO_2e	Global CO_2e
2022	58.99	57.88	$94.1x10^6$	$10x10^9$
2023	58.39			
2024	57.51			
2025	56.64			

Note: CO_2e = carbon dioxide equivalent; represents a unit of measure that is used to standardize the climate effects of various greenhouse gases based on the global warming potential of each pollutant

Construction activities are exempt from air permitting in Washington State. The GHG emissions and other regulated pollutants from construction activities are considered de minimis and the state does not need to permit or quantify the emissions for impact on human health or the environment (see Section 3.5 for more information). Additionally, the project will implement construction BMPs to further minimize GHG emissions. Although climate change is caused by millions of emissions sources around the globe contributing to the concentration of CO_2 in the atmosphere, including the emissions from the construction of the Proposed Action, the project would not generate GHG emissions that would have a significant impact on the global concentration of atmospheric CO_2 (see Table 3-9).

Biogenic, naturally-occurring emissions (e.g., vegetation, soil, volcanic emissions, lightning) contain GHG emissions that are released during natural events like wildfires and insect infestations. Climate change has caused dry forest vegetation resulting in insect infestations and wildfires; thus, resulting in periodic increased biogenic GHG emissions. The Proposed Action aims to reduce the prevalence of dry vegetation by providing a drought-resistance irrigation source for greenspaces in Cheney. Irrigated greenspaces will reduce dry vegetation and fires, insect infestations, and, indirectly, the release of GHG emissions from these events. Additionally, vegetation is a source of carbon sequestration, as plants, including grasses, capture CO_2 from the atmosphere. Therefore, it can be assumed that capture of CO_2 in healthy parks, greenspaces, and vegetation in the 100-acre manmade wetlands that receive that Class A reclaimed water when not used for irrigation, will directly remove GHG emissions from the atmosphere that are causing climate change.

The Proposed Action will directly increase the resiliency of the groundwater from the effects of climate change (Esvelt 2016). The increased use of the City water for irrigation due to frequent

drought conditions has caused the groundwater level to decrease to levels that are unable to provide an adequate supply of water to municipal customers. By processing the wastewater to Class A reclaimed water, the Proposed Action is removing some of the need to use City water for irrigation and reducing the amount of groundwater removed from the aquifer.

During the construction phase, the Proposed Action will emit GHG emissions, these emissions will be temporary, are not required to be permitted under the Clean Air Act, and will be controlled by construction BMPs; therefore, it is anticipated that the Proposed Action will have no significant direct impact to the climate. Climate change has increased the prevalence of wildfire in the area, thus the project may see a construction delay or infrastructure damage due to a wildfire, although considered unlikely; therefore, it is anticipated that climate change will have no direct impact on the Proposed Action.

The Proposed Action plans to decrease groundwater pumping by using Class A reclaimed water for irrigation on selected parks and playfields, rather than potable groundwater. Therefore, the Proposed Action is anticipated to have an insignificant beneficial indirect impact on climate change related effects. Climate change could potentially impact the project by limiting available water for municipal use, and thus wastewater generation, if extreme drought impacts are seen in the future. However, as this scenario is an extreme projection of future events, it can be reasonably assumed that there would be no indirect impact to the Proposed Action from climate change.

3.7 Fish and Wildlife Resources, and Threatened, Endangered, and Sensitive Species

3.7.1 Affected Environment

The Project Study Area for analysis of the biological resources includes all four Proposed Action project footprints and construction staging areas (see Figure 2-1). Within the Project Study Area, elevations range from 2,300 feet to 2,450 feet above sea level (NAVD88). A portion of the proposed reclaimed water distribution pipe alignment transects undeveloped upland containing scattered ponderosa pine, shrubs, grasses, and herbs, as well as low-quality wetlands described in Section 3.2. The remaining pipe alignment passes through Cheney's municipal environment before terminating at a playfield north of Betz Road. The municipal area is predominantly disturbed, paved, and developed; the area is of low ecological value due to a lack of contiguous, undisturbed native vegetative communities, pre-existing agricultural and water treatment practices, and urban city built-out status.

To evaluate the presence of potential biological resources within the Project Study Area, a Biological Resources Memorandum (Barthels 2020b) was prepared as a technical report for the Purple Pipe Project, as required by Section 7(c) of the ESA. A qualified biologist, Vince Barthels, conducted a site review and pedestrian survey of the project area on June 17, 2020. The Biological Resources Memorandum cites the sources for all species-related discussion (see Appendix D.)

To determine the ESA-listed species and designated or proposed critical habitats that may be present within the Project Study Area, a species list was obtained from the United States Fish and Wildlife Service (USFWS) Information, Planning, and Consultation (IPaC) database (see USFWS IPaC Species List in Appendix D, Biological Memorandum). According to the IPaC report, five threatened ESA-listed species may exist in the Project Study Area. To determine the state sensitive or Priority Habitats and Species (PHS) that may be impacted by the Proposed Project, a PHS report was obtained from the Washington Department of Fish and Wildlife (WDFW) (see WDFW PHS Report in Appendix D). The PHS report did not list any additional species or priority habitats with federal or state status that may exist in the Project Study Area. A combined species list was derived from compiling the information from the IPaC database and the PHS report and is summarized in Table 3-10.

Table 3-10. Summary of ESA species that may occur in the Project Study Area

Common Name	Scientific Name	ESA or State Status
Bull Trout	*Salvelinus confluentus*	ESA - Threatened
Spalding's Silene	*Silene spaldingii*	ESA - Threatened
Water Howellia	*Howellia aquatilis*	ESA - Threatened
Yellow-billed Cuckoo	*Coccyzus americanus*	ESA - Threatened
Monarch Butterfly	*Danaus plexippus*	ESA - Candidate

Information about each threatened ESA-listed species is found below:

Bull Trout

Bull trout are salmonids that are members of the char family. Bull trout require unpolluted cold-water streams with clean gravel and cobble substrate, with gentle slopes, in order to spawn. There is no flowing water in the Project Study Area.

Spalding's Silene

Spalding's silene, sometimes called Spalding's catchfly, is an herbaceous perennial. Spalding's silene generally occurs in native grasslands that are in reasonably good ecological condition, typically dominated by Idaho fescue (*Festuca idahoensis*) and have sparse cover of snowberry, but also observed on sites that include ponderosa pine forest or on the bluebunch wheatgrass fescue association (*Pseudoroegneria spicata*). Spalding's silene has a preference for north-facing slopes and soils that include productive silts/loams (loess) that are moderately deep and sometimes gravelly.

Water Howellia

Water howellia is an aquatic plant with flowers that emerge from the water's surface, only visible typically from late May to early June. Water howellia may be found in two general types of wetland/riparian habitats: 1) small isolated (vernal or seasonal) ponds, and 2) river oxbows that may be abandoned or hydrologically linked to an adjacent river system.

Yellow-Billed Cuckoo

The yellow-billed cuckoo is a long, slim bird with a flat head, long tail, and large yellow bill. The yellow-billed cuckoo requires thick, closed canopy riparian forest with an understory of dense brush at a minimum of 50 acres in size. These riparian forests are usually composed of various species of willows and cottonwoods.

Monarch Butterfly

Monarch butterflies have an ESA candidate species status. Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily *Asclepias* spp.) and larvae emerge after 2 to 5 days. Larvae develop through five larval instars (i.e., intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately 2 to 5 weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live 6 to 9 months.

3.7.2 Environmental Consequences

No Action

Under the No Action Alternative, the Purple Pipe Project would not be implemented and therefore would have no effect on fish and wildlife resources, or on threatened, endangered, and sensitive species.

Proposed Action

The majority of the defined Project Study Area (see Figure 2-1) is in a pre-disturbed or pre-developed setting. Justifications of the individual no-effect determinations are summarized below. The Proposed Action will have no effect on state-listed priority habitats or species, as they do not occur in the Project Study Area according to the PHS report (Barthels 2020b).

Bull Trout

There is no flowing water in the Project Study Area and therefore no viable habitat for bull trout. The Proposed Action activities would have no effect on the bull trout identified as an ESA-listed threatened species because neither the species nor its habitat is found in the Project Study Area.

Spalding's Silene

Although habitat requirements are marginally present within the Project Study Area, the specific habitat plant material, slopes, and soils are not dominant, and no Spalding's silene was observed

within the vicinity of the Project Study Area. The Proposed Action activities would have no effect on Spalding's silene identified as an ESA-listed threatened species because the species was not found within the Project Study Area and the habitat characteristics are insufficient.

Water Howellia

While the small, permanently flooded, pond habitat that is suitable for water howellia does exist within the Project Study Area, known associated aquatic species are not present. Additionally, the isolated quality of ponds where water howellia typically occur is arguably not present in the Project Study Area due to the influence of wastewater treatment practices and the constructed outflow of the designated Miller's Pond wetland. The other wetland in the Project Study Area is a wet meadow historically used as a hayfield; this wetland does not contain suitable habitat for water howellia. During the site visit, water howellia was not present within the Project Study Area. The Proposed Action would have no effect on water howellia identified as an ESA-listed threatened species because the species was not found within the Project Study Area and suitable habitat characteristics are insufficient.

Yellow-Billed Cuckoo

Suitable habitat conditions to support the yellow-billed cuckoo include riparian areas near water containing dense stands of mature trees (minimum 50 acres in size), which do not exist within or adjacent to the Project Study Area. Activities associated with the Proposed Action would have no effect on the yellow-billed cuckoo identified as an ESA-listed threatened species due to lack of suitable habitat within the Project Study Area.

Monarch Butterfly:

Due to a lack of milkweed, the project footprint does not contain habitat areas suitable for use by monarch butterflies. The Proposed Action activities would have no effect on the monarch butterfly identified as an ESA-listed candidate species due to lack of suitable habitat within the Project Study Area.

Determination

A "no effects" determination is warranted for all the species listed in Table 3-10, based on the suitability or quality of the habitat available, as well as the scope and nature of the Proposed Action (Barthels 2020b). For the above-described reasons, the Proposed Action would have no direct or indirect impact on fish and wildlife resources, or on threatened, endangered, and sensitive species.

wildlife resources, or on threatened, endangered, and sensitive species.

3.8 Environmental Justice, Socioeconomics, and Environmental Health and Safety Risks

3.8.1 Affected Environment

The following subsections provide an overview of the demographics of the region as it relates to environmental justice, socioeconomics, and environmental health and safety risks in and adjacent to the Project Study Area.

Environmental Justice

EO 12898 established Environmental Justice as a federal agency priority to ensure that no groups of people, particularly minority and low-income groups or Indian Tribes, should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies, or be adversely affected by federal actions. EO 14008 reemphasized the federal government's commitment to environmental justice. According to the EPA, environmental justice is the fair treatment and meaningful involvement of all people regardless of race color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (EPA 2021).

An environmental justice analysis evaluates how minority and low-income populations might be affected by a No Action Alternative or Proposed Action (CEQ 1997): "Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis."

Low-income populations can be identified with poverty statistics (CEQ 1997). A low-income population is present if the statistic is equal to more than the reference community (IWG 2016, VI. Identifying Low-Income Populations, Specific Steps, B. 7-8). Alternately the statistic for the selected geographic area may be compared to a threshold for the statistic.

The EPA EJScreen: Environmental Justice Screening and Mapping Tool uses demographic factors as indicators of potential susceptibility to environmental pollution. The generated Environmental Justice Indices is a value compiled through consideration of environmental indicators, demographic indicators, and population size. The tool contains six demographic indicators as percentage of individuals: low-income, people of color, less than high school education, linguistic isolation, individuals under age 5, and individuals over age 64. The tool also includes a demographic index based solely on percent low-income and percent minority. EJScreen was developed by the EPA as a first step in considering environmental justice for current and future planning and environmental analysis.

The EJScreen Tool was consulted on June 8, 2022, to develop a list of demographic indicators present in the Project Study Area that may indicate the presence of a susceptible population with a greater chance of being impacted by environmental pollution. An EJScreen Report is provided in Appendix H. The report region (Appendix H, Figure 1) encompasses the City of Cheney with

a 0.25-mile buffer and approximates the affected environment. Results indicate that the low-income population (defined as households that are at or below twice the federal poverty level) in the report region is 46 percent, which is in the 86th percentile in the State of Washington. The people of color population for the report area are 25 percent, which is the 47th percentile in the State of Washington. The unemployment rate is reported at 10 percent, which is in the 86th percentile in Washington State. All Environmental Justice Indices within the identified region were greater than the 50th percentile in Washington State and the United States, with traffic proximity, lead paint, hazardous waste proximity, and underground storage tanks indices greater than the 75th percentile in Washington State.

Cheney has an estimated year-round population of 12,522 (U.S. Census Bureau, 2019 Estimates, Cheney city, Washington; accessed on 11/14/2021). Detailed Race and Hispanic Origin statistics for Cheney indicate the absence of a minority population of environmental justice concern. Table 3-11 contains the City of Cheney population statistics from the 2019 U.S. Census Bureau. White alone, not Hispanic or Latino, account for 73.0 percent of the population. Hispanic or Latino account for 12.5 percent of the population. Cheney has a higher percentage of the White alone, not Hispanic or Latino population than the State of Washington and United States as a whole.

Table 3-11. Population statistics for Cheney, the State of Washington, and the United States as a whole

Population Statistic	Cheney	Washington	United States
Population	12,522	7,614,893	328,239,523
White alone, not Hispanic or Latino	73%	67.5%	60.1%
Hispanic or Latino	12.5%	13.0%	18.5%
Two or more races	6.7%	4.9%	2.8%
Black or African American alone	5.0%	4.4%	13.4%
Asian alone	3.0%	9.6%	5.9%
American Indian and Alaska Native alone	1.7%	1.9%	1.3%
Native Hawaiian and Other Pacific Islander alone	0.3%	0.8%	0.2%

Source: U.S. Census Bureau, 2019 estimates, https://www.census.gov/quickfacts/fact/table/cheneycitywashington,WA,US/RHI125219

Socioeconomics

A socioeconomic analysis evaluates how elements of the human environment such as income, poverty, employment, population, and housing, might be affected by the No Action Alternative and the Proposed Action. Table 3-12 provides a quick snapshot comparison of U.S. Census socioeconomics data for Cheney, the State of Washington, and the United States as a whole. As shown below, Cheney's poverty rate (34.4 percent) is higher than for Washington State (9.8 percent) or the United States as a whole (11.4 percent). The unemployment rate in Cheney is 10 percent, which is double the rate of Washington State and the United States.

Table 3-12. Socioeconomics statistics for Cheney, the State of Washington, and United States as a whole

Socioeconomic Statistic	Cheney	Washington	United States
Median Household Income (2019 dollars)	$40,573	$73,775	$62,843
Poverty Rate	34.4%	9.8%	11.4%
Bachelor's Degree or Higher	44.2%	36.0%	32.1%
Number of Households	4,535	2,848,396	120,756,048
Unemployment	10%	5%	5%

Source: U.S. Census Bureau, 2019 estimates, https://www.census.gov/quickfacts/fact/table/cheneycitywashington,WA,US/RHI125219

Environmental Health and Safety Risks

Areas of concern for environmental health and safety risks include schools, daycares, health clinics, and recreational facilities. Cheney High School, Cheney Middle School, and Betz Elementary School, several private daycare centers, and public/community parks are located in the Project Study Area.

3.8.2 Environmental Consequences

No Action

Under the No Action Alternative, the Project would not be implemented, and therefore, would have no effect on environmental justice and socioeconomics, or on environmental health and safety risks.

Proposed Action

Environmental Justice

The Proposed Action does not occur on an Indian reservation nor within majority or meaningfully greater Tribal or minority populations; the data does indicate that Cheney has a greater than average low-income population. However, the Proposed Action is not expected to adversely impact low-income populations. Therefore, no disproportionately high and adverse impacts are expected on minority, Tribal, or low-income populations. The Proposed Action is likely to improve climate resiliency for Cheney. Historically marginalized and overburdened communities may be disproportionately impacted by climate-related risks. The low-income population may disproportionately benefit from the improvement in water security. The Proposed Action would not involve population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. Therefore, the actions should have no direct or indirect impact on environmental justice.

Socioeconomics

While the Proposed Action would result in the short-term employment of construction workers, construction activity would be temporary, with construction workers likely already employed in the local or regional industry. Therefore, project related employment is anticipated to have no

impact on the region's economic activity. The temporary construction employment could result in minor positive impacts to the local economy because of increased expenditures on local services and materials. However, the economic effect would not be great enough to result in a significant impact to the local tax base. It is anticipated that at least one additional employee would be needed at the facility. No significant increase in income would be anticipated with the Proposed Action nor would it cause a shift in population growth or change population growth patterns. Construction of the Proposed Action is not expected to impact community cohesion, religious institutions, or otherwise disrupt the local community; therefore, it should have no direct or indirect impact on socioeconomics.

Environmental Health and Safety Risks

The long-term operation of the Proposed Action is expected to have no impact on environmental health or safety. Any effects of the Proposed Action would only be short-term and related to temporary construction activities. Construction of the Proposed Action would not require the acquisition or relocation of any schools, daycares, health clinics, recreation facilities, or similar resources. The use of reclaimed water for irrigation in publicly accessible areas is a safe and acceptable practice per The Purple Book (WSDOE 2019) due to the water quality standards associated with Class A reclaimed water. Therefore, the Proposed Action would not increase environmental health or safety risks or lead to unacceptable exposure of environmental contaminants to people living in the community. Construction emissions resulting from the Proposed Action would be temporary, follow state and federal regulations for allowable emissions, adhere to strict dust suppression practices, and only occur during the years of construction. Therefore, the Proposed Action would have no direct or indirect impact on environmental health and safety risks.

3.9 Public Safety, Access, and Transportation

3.9.1 Affected Environment

The Project Study Area includes residential and commercial land use, as well as public safety facilities such as police and fire department services. The Cheney Police Department is located at 215 G Street and the fire station is located at 611 4th Street. Health-related facilities within the Project Study Area include the CHAS Cheney Medical Clinic (1720 2nd Street), MultiCare Cheney Medical Clinic (19 N 7th Street), and Liberty Clinic (507 1st Street). Access to, and transportation within, the city is provided by Spokane Transit Authority (STA). There are several STA bus routes, including snow detour routes, servicing the city and EWU. There are two daily loops that run through and across portions of the project footprint, as well as service from the city of Spokane and outlying areas to Cheney and EWU.

3.9.2 Environmental Consequences

No Action

Under the No Action Alternative, the Project would not be implemented and therefore would have no effect on public safety, access, and transportation.

Proposed Action

Public Safety

The Cheney Police Department and fire station facilities are located outside of the immediate Project Study Area, approximately ½ to ¾ mile to the south; therefore, these public safety services will not be impacted by the Proposed Action.

Construction-related BMPs and controls that are in place for public safety are reviewed and approved by the City of Cheney as part of the project's permitting process and must follow Cheney Municipal Code Chapter 12.44 Excavations, including 12.44.080 Routing of Traffic and 12.44.100 Protection of Traffic. The public would be protected from construction activities by delineated and demarcated work zones, covered or backfilled trenches (when not in use), and restricted access to active work areas. Open trench safety standards, per City of Cheney codes and regulations, would be implemented during installation of the proposed distribution pipeline, and these areas would be protected from public access as they occur. OSHA trenching and excavation safety standards, per 29 CFR 1926.651 and 1926.652, would be followed, providing an additional layer of safety to the public in the event of an inadvertent access to a work area.

Class A water operations would be carried out with regard to Purple Book safety requirements.

The Proposed Action would have no direct or indirect impacts on the public safety of the Cheney community.

Access and Transportation

All three health-related facilities, CHAS Clinic, Multi-Care Clinic, and Liberty Clinic, are outside the Project Study Area. As discussed above, public safety services are also outside of the Project Study Area. Maintaining access to health and public safety facilities during construction may involve temporary detours. However, there are many alternative route opportunities throughout Cheney and any temporary detours are not expected to significantly impact travel time based on the small footprint of the construction area and the construction method to only close those portions of the construction route that are actively being worked on. The STA does have routes that could be temporarily impacted by the Proposed Action during construction within the road and pedestrian access areas. STA has procedures to coordinate temporary bus stops/routes while work in the road is being completed, if necessary. While there may be a temporary inconvenience, the area would still be serviced throughout the duration of project construction. Figure 3-3 contains the STA route and provides several potential options for detours.

The excavated trenches are expected to be backfilled as the pipeline is installed to limit disruption to the public and associated facilities. In most cases, access would likely be achievable through temporarily closing one lane of a road during active construction. When the pipeline

crosses SR-904/1st Street in Cheney, signed detour routes, likely diverting traffic to 2nd Street, would be clearly marked as necessary so that emergency services, as well as residential and business access, is maintained. Access detours would be temporary in nature, and only during construction.

If a sidewalk is required to be closed to maintain public safety during excavation, City of Cheney Municipal Code requires Americans with Disabilities Act (ADA) compliant access to be maintained; thus, any pedestrian detours would meet ADA compliance requirements of the temporarily-closed bus stop.

The Proposed Action would have no significant direct impact on access and transportation to medical or public safety resources, access to homes or businesses in the project vicinity, or on access for pedestrians, including ADA compliant access, detoured during construction activities.

During construction, temporary impacts to residents and commercial businesses may occur, but these disruptions would be minimal and short-term in nature. Following construction, long-term impacts are not anticipated, as access to public safety facilities and the transportation system would return to pre-construction conditions. Therefore, the Proposed Action would have no indirect impact on access and transportation.

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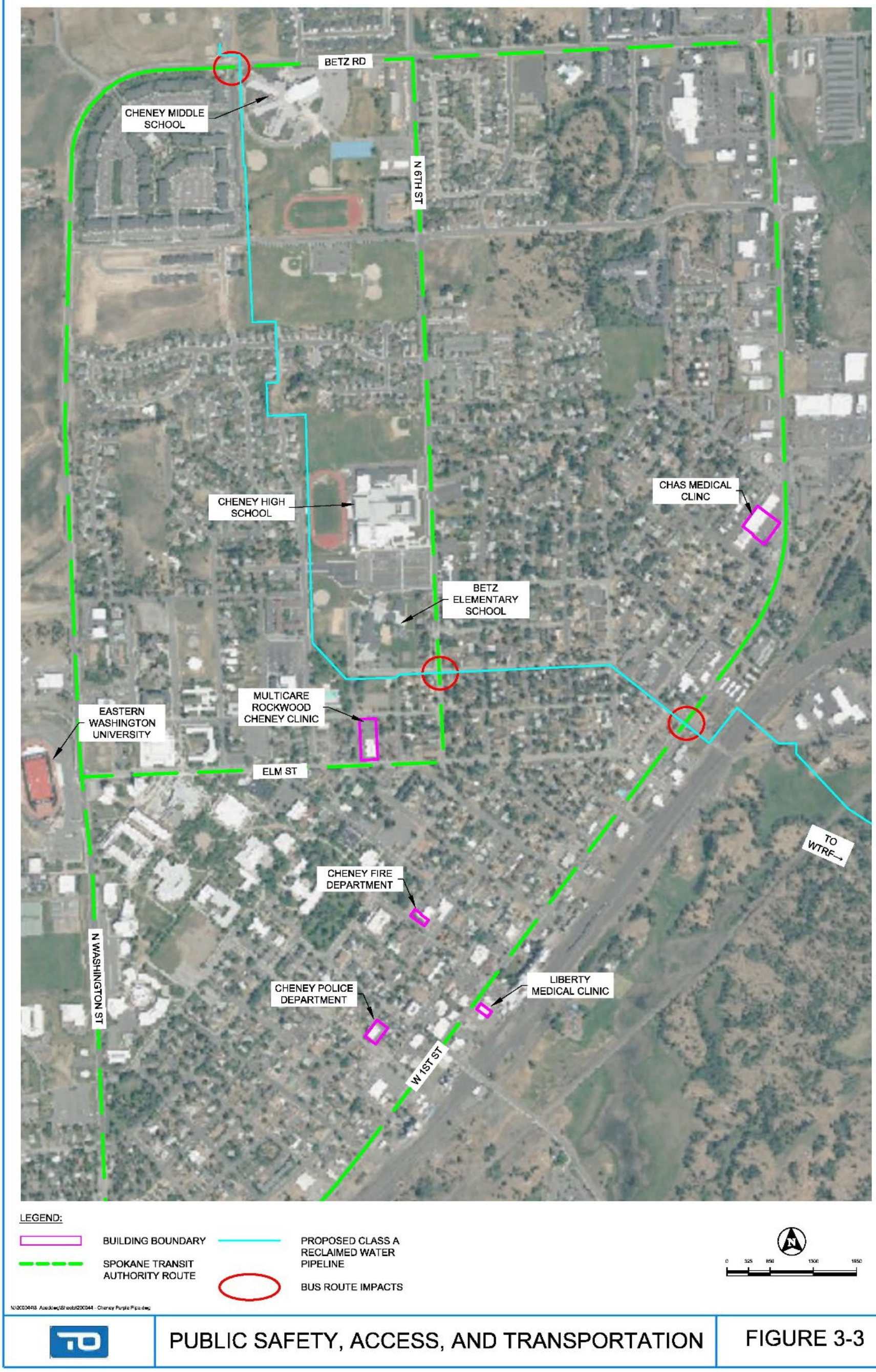

Figure 3-3. Public safety, access, and transportation

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3.10 System Operations

3.10.1 Affected Environment

This section describes the existing system operations. The existing WTRF is located in the southeast corner of the Project Study Area. The City's WTRF is a secondary treatment facility that uses wetlands for final polishing prior to discharge to the City's three permitted outfalls that empty into a State Park Trail ditch that flows into Minnie Creek. The WTRF was last upgraded in 2009, at which time the facility's capacity was increased to treat a higher design flow (Esvelt 2016). In summary, the WTRF consists of a wastewater and reclamation system that currently discharges to an adjacent lagoon and enhanced wetland area.

The WTRF currently produces Class B reclaimed water (City of Cheney n.d.). According to The Purple Book, Class B reclaimed water has, at minimum, undergone treatment that includes biological oxidation and advanced disinfection (WSDOE 2019). Additionally, Class B reclaimed water must meet the water quality requirements listed in WAC 173-219. In general, Class B reclaimed water is approved for land application in settings in which the general public does not have access; land applications for plants and animals that may be consumed by humans are conditionally allowed.

As previously addressed in Section 3.3, the City has been experiencing a decline in aquifer water levels over several years as a result of groundwater pumping. Section 4.3 of The Purple Book discusses the potential for degradation of water quality due to a decrease in groundwater volume that may result in impairment of water rights. While the City currently has secured enough water rights to support growth through the 20-year planning period, it is possible that continued depletion of groundwater volume in the Grande Ronde Aquifer may impact water quantity.

3.10.2 Environmental Consequences

No Action

Under the No Action Alternative, the Project would not be implemented and therefore would have no effect on system operations.

Proposed Action

The Proposed Action includes upgrades to the City of Cheney's WTRF and construction of a new reclaimed water distribution pipe system to produce and convey Class A reclaimed water for irrigation use at City parks, athletic fields, and school grounds. Class A reclaimed water is defined in The Purple Book (WSDOE 2019) as "a water resource that meets the treatment requirements of WAC 173-219, including, at a minimum, oxidation, coagulation, filtration, and disinfection." Class A technology-based standards apply to all uses where public contact is likely. Chapter 9 of The Purple Book describes the regulations, parameters, and considerations for land application and irrigation uses (see Table 3-13). Per The Purple Book, landscape irrigation of open access areas such as parks, playgrounds, and common areas is permitted.

Table 3-13. Class of reclaimed water required for landscape and agricultural irrigation uses (abbreviated from Table 9.1 of The Purple Book)

Area of Landscape Irrigation Use	Allowed Classes of Reclaimed Water	
	Class A	Class B
Restricted Access areas (e.g., freeway landscapes, fenced industrial areas)	Yes	Yes
Open access areas (e.g., golf courses, parks, playgrounds, common areas, and private property including residential landscapes	Yes	No

The Proposed Action includes the following system improvements:

1. Installation of a new filter pump station.
2. Construction of a new filter building to house coagulation system, filtration, and UV disinfection system.
3. Installation of a new filter feed and building drain pump stations.
4. Installation of sodium hypochlorite injection system.
5. Conversion of the existing plant re-aeration lagoon to a reclaimed water storage reservoir with a floating HDPE cover.
6. Installation of a new pump station to pump from the new storage reservoir to the reclaimed water distribution system.
7. Installation of approximately 2.5 miles of new underground transmission main and new reclaimed water irrigation distribution main from the WTRF to the designated irrigation sites, terminating approximately at the Betz Road playfield. This element of the project includes restoration due to the construction of distribution system.
8. Installation of associated field pipe connections, electrical controls, excavation, and site improvements.

While improvements related to the Proposed Action are expected to result in an increased demand in energy associated with equipment operation, there are several anticipated positive effects. Primarily, the system operations change from producing Class B to Class A reclaimed water at the WTRF would allow irrigation water to be supplied as reclaimed water rather than potable groundwater. In turn, this would result in a reduction in groundwater pumping from the Grande Ronde Aquifer (see Section 3.3). By lowering water extraction from aquifer volume, the Proposed Action could potentially protect a downstream water right holder's ability to safely use their water. The potential for water right impairment, as it relates to reclaimed water, has been addressed during the Proposed Action planning efforts (Esvelt 2016).

There may be short-term effects a result of the Proposed Action but they are anticipated to have no significant direct impact on system operations. For the above-described reasons, the Proposed Action would have no significant indirect impact on system operations.

3.11 Cumulative Impacts

The NEPA process requires federal agencies, specifically under 40 CFR 1508, to define the environmental effects or impacts resulting from the Proposed Action or alternatives. Environmental effects or impacts are changes to the human environment. Environmental effects or impacts are generally divided into three categories: direct effects, indirect effects, and cumulative impacts. Direct effects are effects that are caused by the Proposed Action and occur at the same time and place. An example of a direct effect would be construction activities yielding fill materials placed in a wetland. Indirect effects are effects that are caused by the Proposed Action and are expected to occur later in time or are further removed in distance but are still reasonably foreseeable. An example of an indirect effect would be if a project action contributes to the conversion of land use (e.g., agricultural to industrial) in the general area and several years following construction. A cumulative impact is defined as the impact on the environment which results from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such an action. This EA presents a cumulative impact for the Proposed Action by taking into account the individual resources collectively.

The Proposed Action would be constructed to support the implementation of upgrades to the WTRF in the reasonably foreseeable future. These upgrades are outlined in Section 2.2. The City of Cheney has stated that there are no identified projects that have been through the NEPA (environmental compliance) process that are anticipated to occur over the next 5 years (2022-2027).

Therefore, when the Proposed Action project is considered in combination with no anticipated new NEPA projects over the next 5 years, nothing incrementally will be added. No cumulative impacts are anticipated as the project is consistent with the City of Cheney Comprehensive Plan (2017-2037) and the Cheney Municipal Code (July 15, 2021).

WSDOE also maintains a State Environmental Policy Act (SEPA) Register for SEPA and NEPA documents posted by WSDOE since 2000. A January 19, 2022, search of the register produced 7,801 entries from Spokane County, of which 117 were identified with an address in Cheney and 40 with no address were described to be about, within, or related to Cheney. Projects occurring within similar time frames or in similar locations may result in cumulative impacts. A cursory review of the WSDOE SEPA Register export found determinations for several projects that are within or near the Project Study Area, as listed below:

- Cheney Wastewater Treatment Plant Expansion Project (SEPA# 200600351, determination of non-significance [DNS] issued 1/12/2006).
- Design/construction of Crunk's Hill Sports Field (SEPA# 201101816, optional DNS and notice of application issued 4/15/2011).
- Remove and replace topsoil of the Betz Park site (SEPA# 201102210, mitigated DNS [DNS-M] issued 5/11/2011).
- Design/construction of a reclaimed water treatment/distribution system for landscape irrigation within the City limits (SEPA# 201605165, DNS issued 9/19/2016).

- Renovation of an existing high school building into apartments (SEPA# 201605313, DNS-M issued 9/28/2016).
- Cheney High School Expansion (SEPA# 201800256, DNS-M issued 1/19/2018).

The SEPA lead agency for SEPA# 201605165, which encompasses the Project Study Area, determined that the proposal did not have a probable significant adverse impact on the environment. The other projects have occurred over two decades. No cumulative impacts are anticipated when considering the Proposed Action project in combination with other recent proposals in the vicinity.

Table 3-14. Summary of anticipated direct effects, indirect effects, and cumulative impacts

Environmental Resource	Direct Effect	Indirect Effect	Cumulative Impact
Wetland And Riparian	No Significant Impact	No Impact	No Impact
Noxious Weeds and Vegetation	No Significant Impact	No Significant Impact	No Significant Impact
Hydrology	No Impact	Insignificant Beneficial Impact	Insignificant Beneficial Impact
Water Rights	No Direct Impacts	Potential Insignificant Beneficial Impacts	Potential Insignificant Beneficial Impacts
Water Quality	No Direct Impacts	Potential Insignificant Beneficial Impacts	Potential Insignificant Beneficial Impacts
Cultural Resources and Sacred Sites	No Impact	No Impact	No Impact
Indian Trust Assets	No Impact	No Impact	No Impact
Paleontological Resources	No Impact	No Impact	No Impact
Historic Properties	No Impact	No Impact	No Impact
Health And Safety	No Impact	No Impact	No Impact
Air Quality	No Significant Impact	No Significant Impact	No Significant Impact
Noise	No Significant Impact	No Impact	No Impact
Climate	No Impact	Potential Insignificant Beneficial Impacts	Potential Insignificant Beneficial Impacts
Fish and Wildlife Resources	No Impact	No Impact	No Impact

Environmental Resource	Direct Effect	Indirect Effect	Cumulative Impact
Threatened, Endangered, and Sensitive Species	No Impact	No Impact	No Impact
Environmental Justice	No Impact	No Impact	No Impact
Socioeconomics	No Impact	No Impact	No Impact
Children's Environmental Health and Safety Risks	No Impact	No Impact	No Impact
Public Safety	No Impact	No Impact	No Impact
Access And Transportation	No Significant Impact	No Impact	No Impact
System Operations	No Significant Impact	No Significant Impact	No Significant Impact

Chapter 4 Consultation and Coordination

To comply with 40 CFR 1501.6, Reclamation will post the Final EA, and anticipated FONSI, at the following location (www.usbr.gov/pn/programs/ea/index.html#washington).

4.1 Public Involvement

Scoping documents, including a letter, project information and map, have been sent to agencies, Indian Tribes, organizations, and individuals, as applicable, soliciting their help in identifying any issues and concerns related to the Proposed Action.

Comments from DAHP, WSDOE, and the relevant Tribes were received. An email dated October 13, 2020, from WSDOE to the City, documents that Section 106 of the NHPA has been completed, with a determination of No Adverse Effects to NRHP-eligible historic resources (see Appendix F).

A variety of mechanisms were used to inform the public about the project and to encourage residents to engage in activities and attend public meetings during an outreach effort led by the City of Cheney. Efforts included a mailed information package, a notice in the local newspaper, and a public website with current project information. In addition to these outreach efforts, an open house meeting for the public is planned in 2022.

4.2 Agency Consultation and Coordination

4.2.1 National Historic Preservation Act

WSDOE initiated consultation with DAHP for this project on February 19, 2020, because the project itself was initiated in the WSDOE Water Quality Combined Funding Program. DAHP provided concurrence with the APE that same day. On October 13, 2020, consultation concluded, and WSDOE provided a final determination of no adverse effects to NRHP-eligible historic resources.

4.2.2 Endangered Species Act

The following ESA-listed and candidate species were identified to potentially occur in the Project Study Area (see Figure 2-1) following consultation of the USFWS IPaC list: bull trout (*Salvelinus confluentus*), Spalding's silene (*Silene spaldingii*), water howellia (*Howellia aquatilis*), yellow-billed cuckoo (*Coccyzus americanus*), and monarch butterfly (*Danaus plexippus*). As addressed in the Biological Memorandum (see Appendix D) and Section 3.6, due to a lack of suitable habitat and/or observed presence in the Project Study Area, all five ESA-listed species received a no effects determination in relation to implementation of the Proposed Action. A copy of this discussion has been circulated to WDFW and USFWS.

4.2.3 Clean Water Act

NPDES Construction Stormwater General Permit

Prior to start of construction, the contractor will acquire a National Pollutant Discharge Elimination System Construction Stormwater General Permit (CSWGP) from WSDOE. This permit regulates the stormwater runoff from construction sites to help control and reduce water pollution. As part of the CSWGP, a stormwater pollution prevention plan will be developed, and a sediment, erosion, and pollution prevention control measures will be implemented.

Section 401 Water Quality Certification

A Section 401 Water Quality Certification will be required prior to construction. This permit is coordinated with WSDOE and is required for activities that may result in any discharge into waters of the U.S.

Nationwide Permit

Nationwide Permit (NWP) 58, Utility Line Activities for Water and Other Substances, will be required from the USACE prior to start of construction. This permit is related to the construction maintenance, repair, and removal of utility lines for water and other substances, excluding oil, natural gas, products derived from oil or natural gas, and electricity.

4.2.4 Critical Areas Ordinance

Critical Area Ordinance Compliance concurrence will be required from Cheney. Cheney Code 10.36.020, Critical Areas, designates critical areas under the standards of WAC 197-11-908, Critical Areas and in accordance with the Washington Growth Management Act (RCW 36.70A).

4.3 Tribal Consultation and Coordination

WSDOE emailed scoping letters to the Spokane Tribe of Indians (STI) and the Coeur d'Alene Tribe (CDA) on September 24, 2020, as part of the CRS (Appendix F). No responses or concerns from the Tribes were brought forward during the scoping period.

As required by Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108), Reclamation consulted with the STI and CDA Tribes, as they both attach religious and cultural importance to historic properties in the project vicinity. Reclamation's agency official (Talmadge Oxford, Columbia-Cascades Area Office Manager) sent letters to the Tribal Historic Preservation Officers of both Tribes on September 25, 2022. No response was received from either Tribe following the required 30-day review period, which means that Reclamation can consider the Tribes to have no comments about this project, as per 36 CFR § 800.3(c)(4). The Washington State Historic Preservation Office did respond and concurred with the Finding of No Adverse Effects, thus completing the Section 106 consultation obligations.

4.4 Required Permits

Table 4-1. List of permits required for the Proposed Action

Agency/Department	Purpose & Responsibility for Obtaining Permits
WSDOE	WSDOE Construction Stormwater General Permit. The Project Proponent is responsible for obtaining this permit.
WSDOE	Section 401 Water Quality Certification. The Project Proponent is responsible for obtaining this permit.
USACE	NWP 58 authorizing the discharge of reclaimed water. Per NWP 58, examples of activities authorized by this NWP include utility lines that convey water, sewage, stormwater, wastewater, brine, irrigation water, and industrial products that are not petrochemicals. The Project Proponent is responsible for obtaining this permit.
City of Cheney, Washington	Critical Area Ordinance Compliance concurrence. The Project Proponent is responsible for obtaining this permit.
DAHP	Concurrence of No Adverse Effects to Historic Properties.
Railroads – BNSF & UP	Railroad crossing permits and approvals.

Chapter 5 References

Parenthetical Reference	Bibliographic Citation
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Appendix A

Environmental Commitments

The following environmental commitments relevant to resources addressed in this Environmental Assessment (EA) have been developed and would be followed to avoid or lessen the minimal potential effects on the human and natural environment that could occur if the Proposed Action is implemented.

Best Management Practices (BMPs), derived from Reclamation and/or City of Cheney standards, would be applied during construction activities to minimize environmental effects and would be implemented by construction forces or included in construction specifications. Such practices or specifications include sections in the present EA on public safety, dust abatement, air pollution, noise abatement, water pollution abatement, waste material disposal, erosion control, archaeological and historical resources, vegetation, fish and wildlife, and threatened and endangered species. The project would comply with all requirements set forth in the formal Section 7 consultation with U.S. Fish and Wildlife Services (USFWS) and/or NMFS. Excavated material and construction debris may not be wasted in any stream or river channel in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutant. Excess materials must be wasted at a Reclamation/City of Cheney-approved upland site well away from any channel. Construction materials, bedding material, excavation material, etc. may not be stockpiled in riparian, wetland, or water channel areas. Silt fencing would be appropriately installed and left in place until after revegetation becomes established, at which time the silt fence can then be carefully removed. Machinery must be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances offsite prior to construction.

1. Additional Analyses: If the Proposed Action were to change significantly from that described in this EA because of additional or new information, or if other spoil, or work areas beyond those outlined in this analysis are required outside the defined project construction area, additional environmental analyses may be necessary. Reclamation and the City of Cheney will coordinate and work together if additional analysis or permit modifications are required.
2. NPDES Permit (to discharge treated wastewater): An amendment to the existing National Pollutant Discharge Elimination System (NPDES) Permit will be required.
3. Cultural Resources: An Inadvertent Discovery Plan (IDP) shall be always available on-site during construction. Further, in the case that any cultural resource, either on the surface or subsurface are discovered during construction, or if any person who knows or has reason to know that he/she has inadvertently discovered possible human remains on federal land, he/she must provide immediate telephone notification of the discovery to Reclamation's Columbia-Pacific Northwest Regional Office archeologist.
4. All work shall cease in the area of the inadvertent discovery until the proper authorities are able to assess the situation onsite. This action would promptly be followed by written confirmation to the responsible federal agency official, with respect to federal lands. The

applicable State Historic Preservation Officer and interested Native American Tribal representatives shall also be promptly notified. Consultation would begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10); and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).

5. Paleontological Resources: Should vertebrate fossils be encountered during ground-disturbing actions; project activity must be suspended until a qualified paleontologist can be contacted to assess the find.
6. Fugitive Dust Control: Water trucks are to be used for dust abatement. Reasonable precautions to prevent fugitive dust from becoming airborne must be implemented on applicable dirt or gravel construction areas and material stockpiles which may produce airborne dust particles.
7. Noise Control: To reduce noise pollution in relation to the Proposed Action, limit idling of contractor vehicles and construction equipment.
8. Fish and Wildlife Resources: In the case that bald and/or golden eagles are observed within the project area and vicinity, Reclamation's Columbia-Pacific Northwest Regional Office wildlife biologist shall be notified and construction in the area shall cease until an assessment of eagle presence can be made by a professional wildlife biologist. The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" eagles, including their parts, nests, or eggs. The Act defines "take" as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. "Disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.
9. Wetland Resources: Surveys have been conducted to delineate and assess function and values of wetlands. Construction activities would be conducted in accordance with an issued Army Corps of Engineers per a Section 404 Clean Water Act permit (presumably Nationwide Permit #58), if required.
10. Previously Disturbed Areas: Construction activities would be confined to previously disturbed areas where possible for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas. Vegetation disturbance would be minimized as much as possible.
11. Public Access: Construction sites would be closed to public access. Temporary fencing, along with signs, would be installed to prevent public access. The City would coordinate

with landowners or those holding special permits and other authorized parties regarding access to or through the project area.

12. Disturbed Areas: All disturbed areas resulting from the project would be smoothed, shaped, contoured, and rehabilitated to as near the pre-project construction condition as practicable. After completion of the construction and restoration activities, disturbed areas would be seeded at appropriate times with weed-free, native seed mixes having a variety of appropriate species (especially woody species where feasible) to help hold the soil around structures, prevent excessive erosion, and to help maintain other riverine and riparian functions. The composition of seed mixes would be coordinated with the City of Cheney and/ or Reclamation biologists. Weed control on all disturbed areas would be required. Successful revegetation efforts must be monitored and reported to Reclamation, along with photos of the completed Project.

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Appendix B

Construction Drawings

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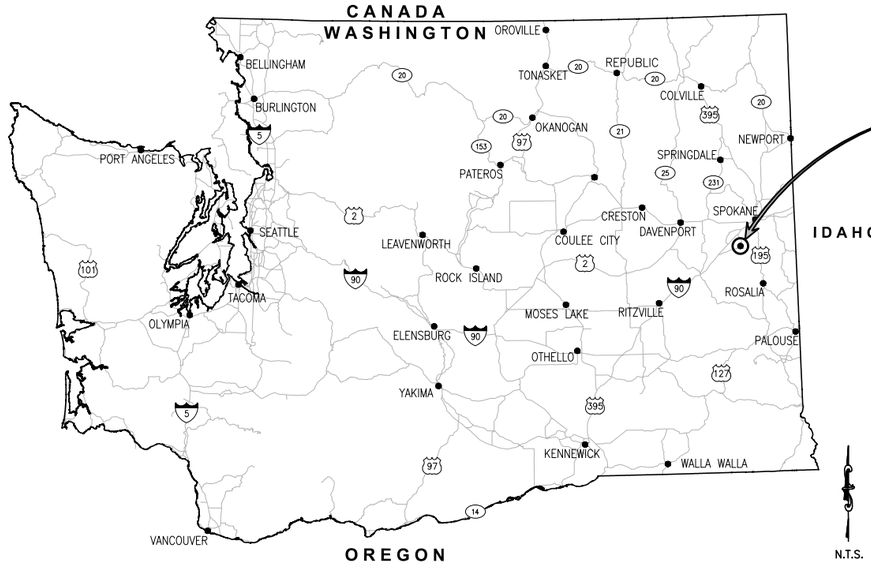
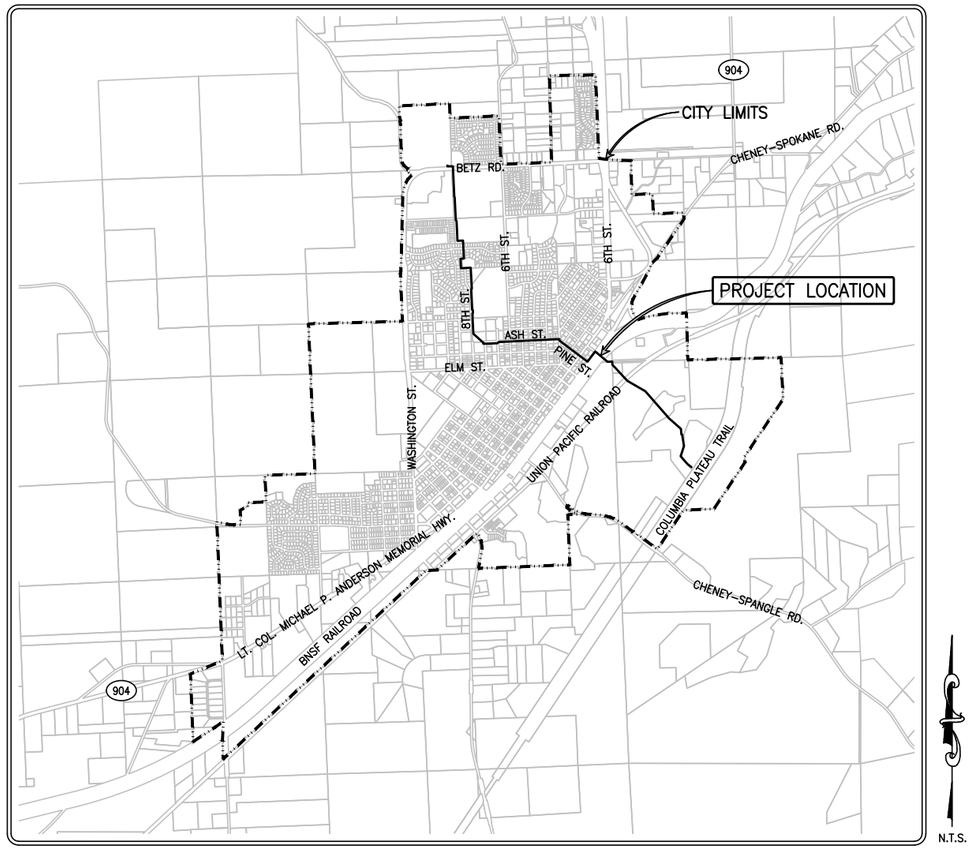
CITY OF CHENEY, WASHINGTON

RECLAIMED WATER DISTRIBUTION
CHENEY PURPLE PIPE PROJECT

October 1, 2020

Issued For Regulatory Review





CITY OF CHENEY

CITY OF CHENEY OFFICIALS

MAYOR
Chris Grover

CITY ADMINISTRATOR
Mark Schuller

PUBLIC WORKS DIRECTOR
Todd Ableman

TOWN COUNCIL
Vincent Barthels
Ryan Gaard
Dan Hilton
Teresa Overhauser
Paul Schmidt
John Taves
Jill Weiszmann

1860206–Cover

Designer:
VARELA
Engineering & Management
601–A W Mallon Ave.
Spokane, Washington 99201
Ph:(509)328–6066

Project Engineer:
ESVELT ENVIRONMENTAL ENGINEERING LLC
6908 East Dalton Avenue
Spokane, Washington 99212
Ph:(509)926–3049

COVER SHEET, PROJECT LOCATION

Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

revisions
ISSUE FOR REVIEW
drawing status
FINAL
released for
REGULATORY REVIEW
release date
5/19/2021
sheet
01
OF 40

ABBREVIATIONS

PIPE	AC	ASBESTOS CONCRETE
	CONC	CONCRETE
	CMP	CORRUGATED METAL PIPE
	CI	CAST IRON
	DI	DUCTILE IRON
	FM	FORCE MAIN
	GS	GALVANIZED STEEL
	PVC	POLYVINYL CHLORIDE PIPE
	RCP	REINFORCED CONCRETE PIPE
	STL	STEEL PIPE
JOINTS	FL	FLANGED
	MJ	MECHANICAL JOINT
	PE	PLAIN END
	RJ	RESTRAINED JOINT
VALVES	BFV	BUTTERFLY VALVE
	CV	CHECK VALVE
	GV	GATE VALVE
	RSGV	RESILIENT SEAT GATE VALVE
	BACKFV	BACKFLOW PREVENTION VALVE
FITTINGS	CPLG	COUPLING
	EL	ELBOW
	FCA	FLANGED COUPLING ADAPTER
	LR	LONG RADIUS
	RED	REDUCER
	TH	THREADED

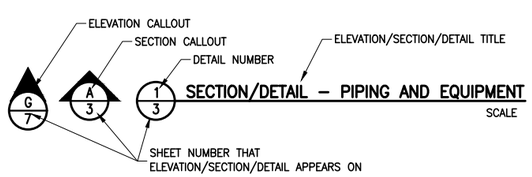
MISC	A.C.	ASPHALT CONCRETE
	B	BASEMENT
	C	CONCRETE
	CB	CATCH BASIN
	C.F.S.	CUBIC FEET PER SECOND
	CL.	CENTERLINE
	C.O.	CLEAN OUT
	CONC.	CONCRETE
	CSBC	CRUSHED SURFACING BASE COURSE
	CSTC	CRUSHED SURFACING TOP COURSE
	C.Y.	CUBIC YARD
	D	DIRT
	DEC.	DECIDUOUS
	DET.	DETAIL
	DIA.	DIAMETER
	DIM.	DIMENSION
	DR	DRAIN PIPE
	DW	DRYWELL
	DWG	DRAWING
	E	EAST
	EG	EXISTING GRADE
	ELEV.	ELEVATION
	EP	EDGE OF PAVEMENT
	EXIST.	EXISTING
	FF	FINISH FLOOR
	FG	FINISH GRADE
	FH	FIRE HYDRANT
	FT.	FOOT OR FEET
	GR	GRADE
	HORIZ.	HORIZONTAL
	HP	HIGH PRESSURE
	HWY	HIGHWAY
	I.E.	INVERT ELEVATION
	IN.	INCHES
	LF	LINEAL FEET

MAX.	MAXIMUM
MH	MANHOLE
MIN.	MINIMUM
N	NORTH
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
P	PAVED
PP	POWER POLE
P.S.I.	POUNDS PER SQUARE INCH
Q.C.	FULL PIPE CAPACITY
Q.D.	DESIGN FLOW
REV.	REVISED
REQ'D	REQUIRED
RD	ROAD
RR	RAILROAD
R/W	RIGHT-OF-WAY
RW	RECLAIMED WATER
S	SOUTH
S=	SLOPE
SD	STORM DRAIN
SHT.	SHEET
SR	STATE ROUTE
SS	SANITARY SEWER
ST.	STREET
STA	STATION
STD.	STANDARD
SW	SIDEWALK
SY	SQUARE YARD
T.B.M.	TEMPORARY BENCH MARK
T.O.P.	TOP OF PIPE
T.O.W.	TOP OF WALL
TYP.	TYPICAL
VERT.	VERTICAL
W	WEST

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY		
CONTROL NUMBER	△12	
SURVEY MONUMENT	●	
STORM SEWER		
CATCH BASIN	□	
DRYWELL	◎	
CULVERT	⊨==⊨	
SANITARY SEWER		
MANHOLE	Ⓢ	
CLEAN OUT	○	
WATER		
VALVE	⋈	
FIRE HYDRANT		
METER	⊞	
WATER MANHOLE	Ⓦ	
IRRIGATION		
VALVE	⋈	
AIR VALVE		
SPRINKLER		
UTILITIES		
GAS VALVE	◫	
PAD MOUNTED TRANSFORMER	△	
LIGHT POLE	✳	
UTILITY POLE	⊸	
UTILITY POLE ANCHOR	⟵	
TELEPHONE RISER	TR	
TELEPHONE MANHOLE	Ⓣ	
JUNCTION BOX	◪	
TRAFIC SIGN		
SIGN	⫠	
MISC.		
TEST BORING LOCATION	⊗TB	

DESCRIPTION	EXISTING	PROPOSED
SURFACE		
ASPHALT-EDGE		
BUILDING		
GRAVEL/DIRT-EDGE		
CONCRETE-EDGE (EX)		
TREE/SHRUB		
CURB		
SIDEWALK		
FENCE	— — —X— — —X—	
RAILROAD		
SURVEY		
SURVEY CENTERLINE	——— - ——— - ———	
CONTOUR		
CONTOUR (INDEX)	— — —2010— — —	
EASEMENT	— — — — —	
LOTS LINE		
RIGHT-OF-WAY	——— — — ———	
UTILITIES		
STORM DRAINAGE	— —8"PVC— —D— —	
GRAVITY SEWER	— —8"PVC— —S— —	
WATER	— —8"PVC— —W— —	
TELEPHONE (BURIED)	— — — —BT— — —	
POWER (BURIED)	— — — —BP— — —	
GAS (LIST SIZE)	— — — —2"G— — —	
IRRIGATION	— — — —IR— — —	
TV	— — — —BTV— — —	
RECLAIMED WATER	——— RW ———	



GENERAL NOTES

1. WHERE KNOWN, EXISTING UTILITIES ARE SHOWN ON THE PLANS FOR THE CONVENIENCE OF THE CONTRACTOR. LOCATIONS SHOWN ARE APPROXIMATE AND DEPTHS ARE NOT KNOWN. OTHER UTILITIES MAY EXIST IN THE WORK AREAS THAT ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION, NATURE AND DEPTH OF THE EXISTING UTILITIES IN THE WORK AREA PRIOR TO CONSTRUCTION BY CONTACTING ALL UTILITY OWNERS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND REPAIR ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION. NOT ALL UTILITIES OR SERVICES ARE SHOWN. OVERHEAD UTILITIES ARE GENERALLY NOT SHOWN.
2. PRIOR TO CLOSING ANY STREET OR PORTION THEREOF, THE CONTRACTOR SHALL NOTIFY THE ADJACENT PROPERTY OWNERS, CITY OF CHENEY PUBLIC WORKS DEPARTMENT, SPOKANE COUNTY, AND ANY OTHER PARTIES REQUIRED BY LOCAL AND STATE LAW.
3. WHERE THE POTENTIAL FOR CONFLICT WITH AN EXISTING UTILITY CROSSING EXISTS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXPOSE, AS NECESSARY, THE EXISTING UTILITY ADEQUATELY IN ADVANCE OF HIS TRENCHING AND PIPE LAYING ACTIVITIES SO THAT IF NECESSARY AN ADJUSTMENT TO GRADE FOR THE NEW PIPELINE CAN BE PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
4. RIGHT-OF-WAYS WHERE SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY.
5. THE CONTRACTOR SHALL PROTECT EXISTING DRYWELLS AND DRAINAGE STRUCTURES FROM SOIL INFILTRATION. THE CONTRACTOR SHALL CLEAN ALL EXISTING DRAINAGE STRUCTURES SUBJECT TO SOIL INFILTRATION AS A RESULT OF THE CONTRACTORS WORK AND SUCH CLEANING SHALL BE INCIDENTAL TO OTHER BID ITEMS.
6. WHERE EXISTING PIPE, NOT TO BE ABANDONED IN THIS PROJECT, IS EXPOSED DURING THE CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL SUPPORT THE EXISTING PIPE AND INSTALL AND COMPACT BEDDING MATERIAL AS SPECIFIED IN SECTION 31 23 00.
7. THE CONTRACTOR SHALL MAINTAIN ON SITE A SET OF PLANS FOR THE SOLE PURPOSE OF ACCURATELY AND PROMPTLY RECORDING ALL CHANGES AND MODIFICATIONS IN THE WORK AS IT PROCEEDS. THE LOCATION, DEPTH AND DESCRIPTION OF ALL EXISTING UTILITIES, STRUCTURES AND IMPROVEMENTS ENCOUNTERED IN THE WORK SHALL ALSO BE ACCURATELY RECORDED. MONTHLY AND FINAL PAYMENTS MAY BE WITHHELD UNTIL RECORD DRAWING INFORMATION IS BROUGHT UP TO DATE. FINAL PAYMENT WILL NOT BE RELEASED UNTIL THE CONTRACTOR'S RECORD DRAWINGS ARE SUBMITTED TO THE ENGINEER AND ACCEPTED.

RECLAIMED WATER MAIN NOTES

1. UNLESS SPECIFICALLY CALLED OUT OTHERWISE, ALL NEW RECLAIMED WATER MAIN PIPE SHALL BE MINIMUM C-900 CLASS 235 PVC (DR 18) BETWEEN STATIONS 0+00 AND 75+13.30 AND MINIMUM C-900 CLASS 250 (DR 17) BETWEEN STATIONS 75+13.30 AND 131+21.22. ALL NEW RECLAIMED WATER PIPE SHALL BE PURPLE IN COLOR.
2. TEST PRESSURE FOR THE RECLAIMED WATER MAINS SHALL BE 150 PSI BETWEEN STATION 0+00 AND 75+13.30 MEASURED AT THE HIGHEST POINT ALONG THE PORTION OF THE ALIGNMENT BEING TESTED. TEST PRESSURE FOR THE RECLAIMED WATER MAIN SHALL BE 250 PSI BETWEEN STATION 75+13.30 AND 131+21.22 MEASURED AT THE LOWEST POINT ALONG THE PORTION OF THE ALIGNMENT. IN ALL CASES, MINIMUM TESTING DURATION SHALL BE 2 HOURS. SEE SECTION 33 14 01.
3. PRIOR TO INSTALLATION OF THE RECLAIMED WATER MAIN, THE CONTRACTOR SHALL SUBMIT AS PART OF THE CONSTRUCTION SCHEDULE, A SPECIFIC PIPE TESTING PLAN. THE PURPOSE OF THE PIPE TESTING PLAN IS TO DEMONSTRATE ADEQUATE PIPE RESTRAINT FOR THE PROPOSED TESTING, INCLUDING, BUT NOT LIMITED TO TEMPORARY THRUST RESTRAINT.
4. RECLAIMED WATER MAIN ALIGNMENTS SHOWN ARE GENERALLY APPROXIMATE. THEY HAVE BEEN CHOSEN TO LIMIT THE EXTENT OF PAVEMENT OR OTHER PERMANENT RESTORATION AND/OR TO AVOID EXISTING UTILITIES, TREES OR OTHER FEATURES, IF POSSIBLE. IN MOST CASES, THE CONTRACTOR MAY, WITH ENGINEER'S APPROVAL, ADJUST ALIGNMENTS TO REDUCE PAVEMENT REPLACEMENT OR AVOID CONFLICTS WITH EXISTING UTILITIES, OR OTHER FEATURES. IN ANY CASE THE CONTRACTOR SHALL STAKE THE ALIGNMENT FOR ENGINEER'S REVIEW AND APPROVAL AFTER UTILITY LOCATES AND PRIOR TO BEGINNING WORK IN THE AREA.
5. ALL TRENCHING, BEDDING, BACKFILLING AND COMPACTION FOR NEW PIPING AND APPURTENANCES SHALL BE DONE IN CONFORMANCE TO THE REQUIREMENTS OF SECTION 31 23 00 OF THE SPECIFICATIONS AND THE PLAN DETAILS.
6. ALL PIPE SHALL BE LAID ON A STRAIGHT GRADE IN SUCH A MANNER AS TO AVOID INTERMEDIATE HIGH POINTS EXCEPT AS SHOWN ON THESE DRAWINGS. FINAL RECLAIMED WATER MAIN ALIGNMENTS SHALL MAINTAIN MINIMUM SLOPE IN ACCORDANCE WITH TABLE C1-4.4 OF THE ECOLOGY CRITERIA FOR SEWAGE WORKS DESIGN IN ORDER TO ENSURE ADEQUATE DRAINAGE OF THE RECLAIMED WATER MAIN WHEN NOT IN USE.
7. ALL NEW PIPE SHALL HAVE A MINIMUM BURY DEPTH OF 4' TO THE TOP OF PIPE UNLESS OTHERWISE SHOWN OR NECESSITATED BY FIELD CONDITIONS WITH ENGINEER'S APPROVAL. DEPTH OF EXISTING MAINS MAY VARY FROM DEPTHS SHOWN ON THE PLANS. VERTICAL AND/OR HORIZONTAL ADJUSTMENTS USING ELBOW(S) AND PIPE SPOOL(S) ARE ANTICIPATED BUT NOT SHOWN ON THE DETAILS. ALL FITTINGS SHOWN IN THE DETAILS SHALL BE INCLUDED IN THE BID ITEM FOR THAT DETAIL. FITTINGS NOT SHOWN IN THE DETAILS WILL BE PAID FOR UNDER SEPARATE BID ITEMS.
8. THRUST RESTRAINT SHALL BE PROVIDED BY RESTRAINED JOINTS, VALVES AND FITTINGS DETERMINED BY THE ENGINEER IN THE FIELD. THRUST BLOCKS ARE NOT ALLOWED EXCEPT WHERE SHOWN ON THE PLANS WHERE THEY ARE MANDATORY. SEE SECTION 33 14 01.
9. CONTRACTOR SHALL DISPOSE OF ALL EXISTING VALVES, PIPES, FITTINGS, ETC. REMOVED AS PART OF THE WORK, OR IF REQUESTED BY THE OWNER THE CONTRACTOR SHALL DELIVER REMOVED ITEMS SELECTED BY THE OWNER TO CITY'S SHOP.
10. THE LOCATION AND SIZE OF ANY EXISTING THRUST BLOCKS IS UNKNOWN. THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING THRUST BLOCKS INCLUDING AVOIDING DISTURBANCE OF THE SOIL BEHIND THEM. WHERE THIS IS NOT POSSIBLE THE CONTRACTOR SHALL REQUEST THAT THE CITY DEPRESSURIZE THE EXISTING MAIN UNTIL THE NEW MAIN IS INSTALLED, BACKFILLED AND COMPACTED. THE CONTRACTOR SHALL PLAN HIS WORK SUCH THAT THE EXISTING MAIN IS DEPRESSURIZED FOR NO MORE THAN TWO HOURS.
11. WHENEVER MULTIPLE ELBOWS ARE USED TO ACHIEVE A SINGLE BEND THEY SHALL BE FLANGED TOGETHER.
12. ALL NEW RECLAIMED WATER MAINS SHALL BE INSTALLED A MINIMUM HORIZONTAL DISTANCE OF 10 FT. FROM ANY EXISTING PARALLEL SEWER MAINS AND/OR PARALLEL WATER MAINS UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS OR DIRECTED OTHERWISE BY THE ENGINEER. REFER TO PIPE SLEEVING DETAIL ON SHEET 18.
13. RECLAIMED WATER MAINS OR RECLAIMED WATER SERVICES CROSSING SEWER MAINS OR SEWER SERVICES SHALL BE INSTALLED ABOVE THE SEWER AND PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE RECLAIMED WATER PIPE AND THE OUTSIDE OF THE SEWER PIPE. AT CROSSINGS, ONE FULL LENGTH OF RECLAIMED WATER PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF THIS VERTICAL SEPARATION IS NOT POSSIBLE OR WHERE THE RECLAIMED WATER MAIN OR SERVICE MUST CROSS UNDER A SEWER MAIN THE CONTRACTOR SHALL FURNISH AND INSTALL A SLEEVE AROUND THE RECLAIMED WATER PIPE. REFER TO PIPE SLEEVING DETAIL ON SHEET 18.
14. RECLAIMED WATER MAINS OR RECLAIMED WATER SERVICES CROSSING WATER MAINS OR WATER SERVICES SHALL BE INSTALLED BELOW THE WATER PIPE AND PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE RECLAIMED WATER PIPE AND THE OUTSIDE OF THE WATER PIPE. AT BOTH CROSSINGS, ONE FULL LENGTH OF RECLAIMED WATER PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER PIPE AS POSSIBLE. IF THIS VERTICAL SEPARATION IS NOT POSSIBLE OR WHERE THE RECLAIMED WATER MAIN OR SERVICE MUST CROSS ABOVE A WATER PIPE OR SERVICE THE CONTRACTOR SHALL FURNISH AND INSTALL A SLEEVE AROUND THE RECLAIMED WATER PIPE. REFER TO SLEEVING DETAIL ON SHEET 18.
15. PIPE SLEEVES SHALL BE CONSTRUCTED OF DR 18 AWWA C-900 PVC OR DR17 AWWA C-906 HDPE WATER PIPE AND OF SUFFICIENT DIAMETER TO FULLY ENCASE THE SLEEVED PIPE, JOINTS AND RESTRAINT DEVICES.
16. AT PERPENDICULAR CROSSINGS THE SLEEVE SHALL EXTEND 10 FT. ON EACH SIDE OF THE CROSSING AND SHALL BE SEALED AT EACH END WITH A MIN. 12-INCH CONCRETE PLUG.

SURFACE REPLACEMENT NOTES

1. ALL PAVEMENT CUTS FOR UTILITY WORK AND PATCHES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE SPOKANE REGIONAL PAVEMENT CUT POLICY, THE CITY OF CHENEY ENGINEERING DESIGN STANDARDS, AND SECTIONS 32 10 00 AND 32 90 00 OF THE SPECIFICATIONS.
2. CONTRACTOR SHALL RECONSTRUCT ASPHALT AREAS AND LANDSCAPE AREAS TO THEIR ORIGINAL LINE, GRADE AND WIDTH. LANDSCAPE AREAS SHALL BE RESTORED TO PRECONSTRUCTION STATE. THE ENGINEER AND OWNER SHALL APPROVE THE GRADING PRIOR TO APPLICATION OF HMA. HMA SECTION SHALL MATCH EXISTING UNLESS SHOWN OTHERWISE.
3. EXISTING STRIPING IS NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL REPLACE EXISTING STRIPING AFTER PAVEMENT REPLACEMENT. SEE SECTION 32 10 00. THE CONTRACTOR SHALL MAKE SITE VISITS AS NECESSARY PRIOR TO BID TO DETERMINE THE AMOUNT AND EXTENT OF THE STRIPING TO BE REPLACED. RESTRIPING SHALL BE CONSIDERED INCIDENTAL AND PAYMENT INCLUDED IN OTHER BID ITEMS OF WORK.
4. PAVING SECTION SHALL MATCH EXISTING IN PAVED AREAS, AND SHALL BE IN ACCORDANCE WITH THE CITY OF CHENEY ENGINEERING DESIGN STANDARDS, BUT SHALL NOT BE LESS THAN 3" HMA OVER 6" CSTC.
5. ALL PAVEMENT TO BE REMOVED SHALL BE SAWCUT OR WHEEL CUT PRIOR TO REMOVAL. AS DIRECTED IN THE FIELD BY THE ENGINEER ALL JAGGED PAVING EDGES SHALL BE SAWCUT PRIOR TO FINAL ASPHALT RESTORATION. ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO THE ROADWAY.
6. THE CONTRACTOR SHALL PLACE TEMPORARY SURFACING AT ALL ROAD CROSSINGS TO THE SAME ELEVATION AS THE EXISTING ASPHALT BY THE END OF EACH DAY AFTER BACKFILL UNTIL PERMANENT SURFACING CAN BE PLACED. THE TEMPORARY SURFACE CAN BE COLD MIX ASPHALT, STEEL PLATES OR GRAVEL AT THE CONTRACTORS OPTION. THE CONTRACTOR SHALL MAINTAIN THE TEMPORARY SURFACING UNTIL THE PERMANENT SURFACING IS PLACED.
7. THE CONTRACTOR SHALL RE-ESTABLISH THE ROADWAYS DISTURBED BY HIS OPERATION TO THEIR ORIGINAL GRADES, LOCATION AND WIDTH UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED IN THE FIELD BY THE ENGINEER. THE COMPLETED SURFACE OF ALL COURSES SHALL BE OF UNIFORM TEXTURE, SMOOTH UNIFORM CROWN AND GRADE.
8. GRAVEL SURFACE REPLACEMENT OF EXISTING GRAVEL SURFACES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SECTION 32 10 00. DEPTH OF GRAVEL SHALL MATCH EXISTING BUT SHALL NOT BE LESS THAN 4". COST OF GRAVEL SURFACE PLACEMENT SHALL BE INCIDENTAL TO THE PROJECT.
9. CONTRACTOR SHALL SOD LAWN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. ALL OTHER DISTURBED BARE GROUND SHALL BE COVER CROP OR PASTURE GRASS SEEDED AS DIRECTED BY THE CITY.
10. CONTRACTOR MAY, WHERE FEASIBLE, CUT, STORE, AND RE-LAY EXISTING SOD IN ACCORDANCE WITH SECTION 32 90 00. COST FOR REMOVAL, STORAGE, AND REPLACEMENT OF SOD SHALL BE INCLUDED IN THE SOD BID ITEM.
11. PRIOR TO CONSTRUCTION CONTRACTOR SHALL PROPOSE AND MARK IN THE FIELD PAVEMENT REMOVAL/REPLACEMENT LIMITS FOR OWNER REVIEW. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY OF CHENEY PRIOR TO CUTTING OR REMOVING PAVEMENT.

SHEET INDEX

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LEGEND, ABBREVIATIONS, NOTES, INDEX

Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

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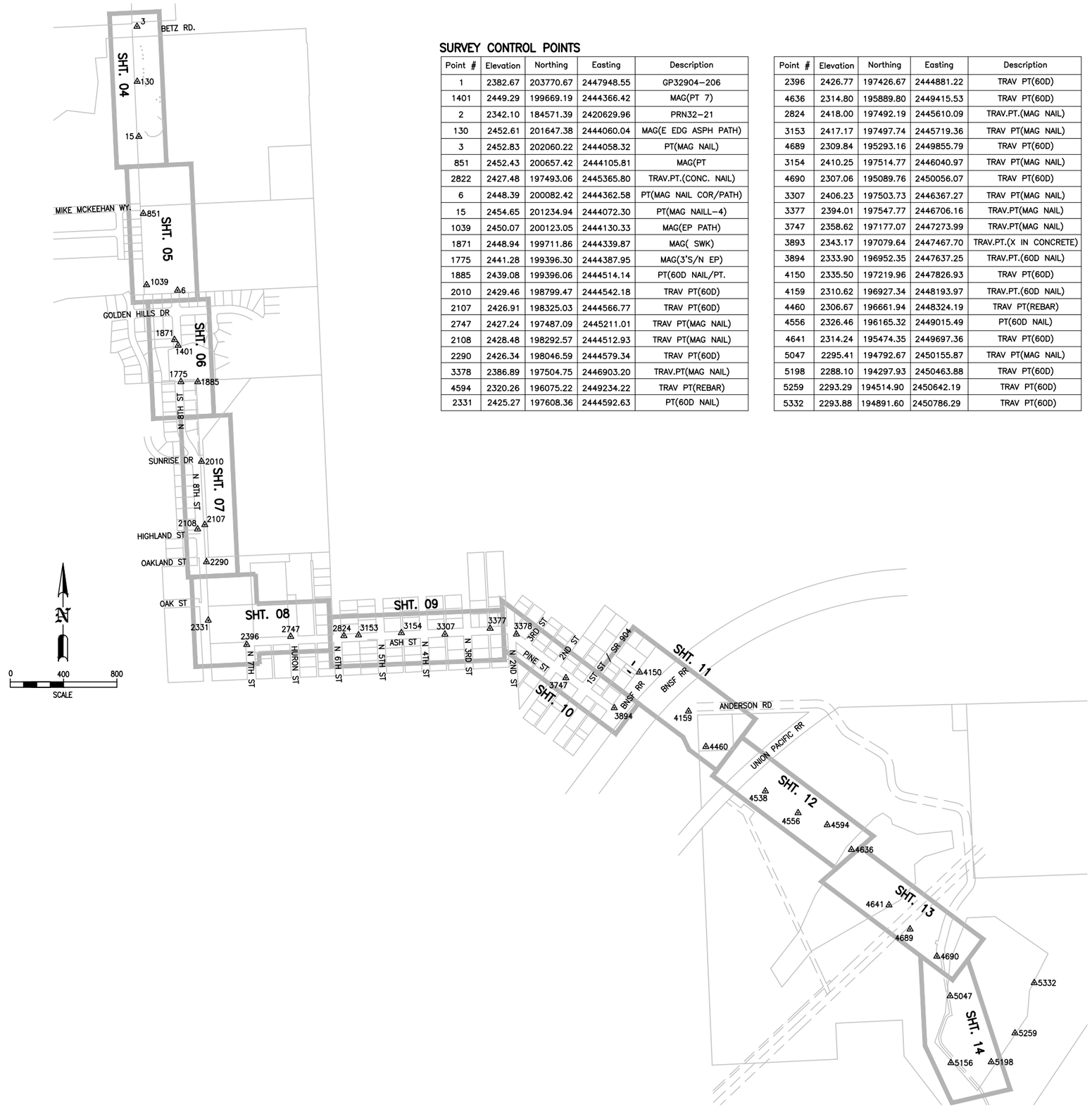

SURVEY CONTROL POINTS

Point #	Elevation	Northing	Easting	Description
1	2382.67	203770.67	2447948.55	GP32904-206
1401	2449.29	199669.19	2444366.42	MAG(PT 7)
2	2342.10	184571.39	2420629.96	PRN32-21
130	2452.61	201647.38	2444060.04	MAG(E EDG ASPH PATH)
3	2452.83	202060.22	2444058.32	PT(MAG NAIL)
851	2452.43	200657.42	2444105.81	MAG(PT
2822	2427.48	197493.06	2445365.80	TRAV.PT.(CONC. NAIL)
6	2448.39	200082.42	2444362.58	PT(MAG NAIL COR/PATH)
15	2454.65	201234.94	2444072.30	PT(MAG NAILL-4)
1039	2450.07	200123.05	2444130.33	MAG(EP PATH)
1871	2448.94	199711.86	2444339.87	MAG(SWK)
1775	2441.28	199396.30	2444387.95	MAG(3'S/N EP)
1885	2439.08	199396.06	2444514.14	PT(60D NAIL/PT.
2010	2429.46	198799.47	2444542.18	TRAV PT(60D)
2107	2426.91	198325.03	2444566.77	TRAV PT(60D)
2747	2427.24	197487.09	2445211.01	TRAV PT(MAG NAIL)
2108	2428.48	198292.57	2444512.93	TRAV PT(MAG NAIL)
2290	2426.34	198046.59	2444579.34	TRAV PT(60D)
3378	2386.89	197504.75	2446903.20	TRAV.PT(MAG NAIL)
4594	2320.26	196075.22	2449234.22	TRAV PT(REBAR)
2331	2425.27	197608.36	2444592.63	PT(60D NAIL)

Point #	Elevation	Northing	Easting	Description
2396	2426.77	197426.67	2444881.22	TRAV PT(60D)
4636	2314.80	195889.80	2449415.53	TRAV PT(60D)
2824	2418.00	197492.19	2445610.09	TRAV.PT.(MAG NAIL)
3153	2417.17	197497.74	2445719.36	TRAV PT(MAG NAIL)
4689	2309.84	195293.16	2449855.79	TRAV PT(60D)
3154	2410.25	197514.77	2446040.97	TRAV PT(MAG NAIL)
4690	2307.06	195089.76	2450056.07	TRAV PT(60D)
3307	2406.23	197503.73	2446367.27	TRAV PT(MAG NAIL)
3377	2394.01	197547.77	2446706.16	TRAV.PT(MAG NAIL)
3747	2358.62	197177.07	2447273.99	TRAV.PT(MAG NAIL)
3893	2343.17	197079.64	2447467.70	TRAV.PT.(X IN CONCRETE)
3894	2333.90	196952.35	2447637.25	TRAV.PT.(60D NAIL)
4150	2335.50	197219.96	2447826.93	TRAV PT(60D)
4159	2310.62	196927.34	2448193.97	TRAV.PT.(60D NAIL)
4460	2306.67	196661.94	2448324.19	TRAV PT(REBAR)
4556	2326.46	196165.32	2449015.49	PT(60D NAIL)
4641	2314.24	195474.35	2449697.36	TRAV PT(60D)
5047	2295.41	194792.67	2450155.87	TRAV PT(MAG NAIL)
5198	2288.10	194297.93	2450463.88	TRAV PT(60D)
5259	2293.29	194514.90	2450642.19	TRAV PT(60D)
5332	2293.88	194891.60	2450786.29	TRAV PT(60D)

PROJECT SURVEYOR

COMPANY: SIMPSON ENGINEERS, INC.
CONTACT: ED SIMPSON, P.E.
PHONE: 509-926-1322

HORIZONTAL DATUM

WSDOT GPS MONUMENTS POINT-1 "GP32904-206", POINT-2 "PRN32-21"

VERTICAL DATUM

NAVD 88

1860206-Survey Ctrl-Sht Layout

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SURVEY CONTROL, SHEET LAYOUT

Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

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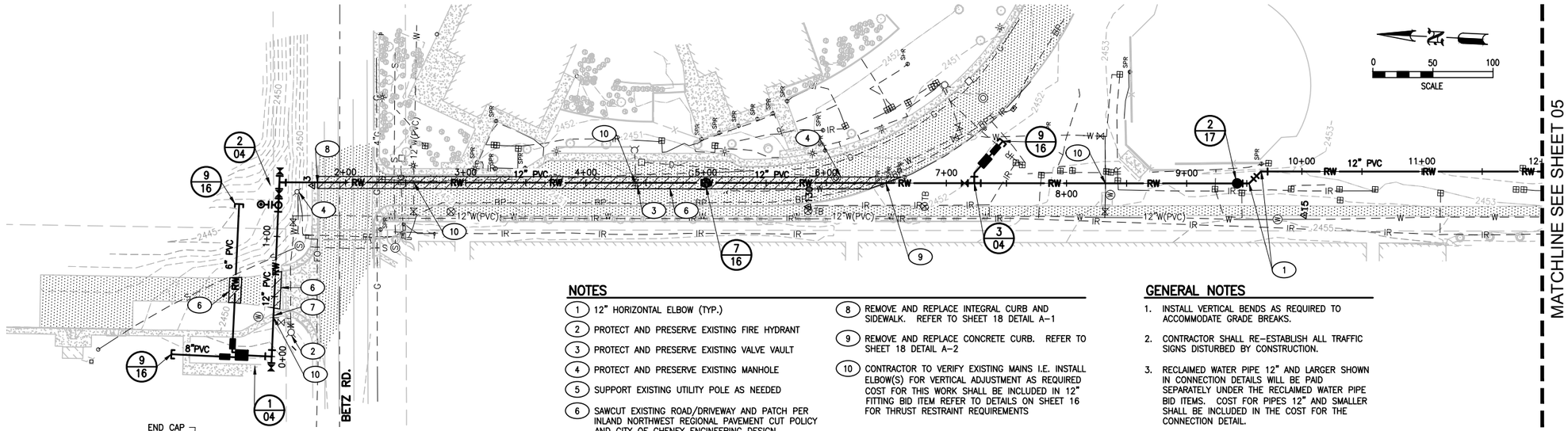
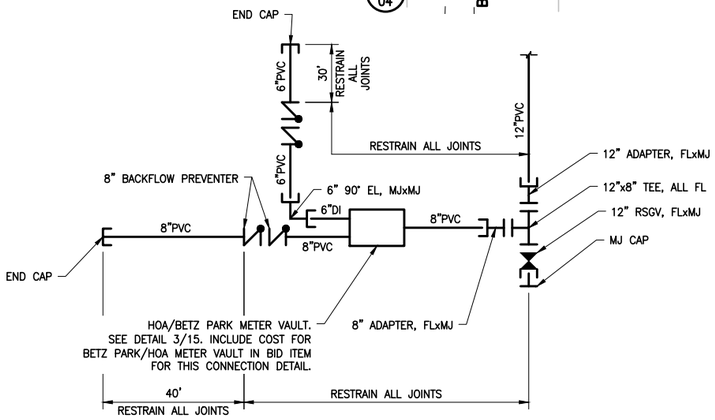


NOTES

1. 12" HORIZONTAL ELBOW (TYP.)
2. PROTECT AND PRESERVE EXISTING FIRE HYDRANT
3. PROTECT AND PRESERVE EXISTING VALVE VAULT
4. PROTECT AND PRESERVE EXISTING MANHOLE
5. SUPPORT EXISTING UTILITY POLE AS NEEDED
6. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS
7. REMOVE AND REPLACE CONCRETE FLATWORK. REFER TO SHEET 18 DETAIL A–3
8. REMOVE AND REPLACE INTEGRAL CURB AND SIDEWALK. REFER TO SHEET 18 DETAIL A–1
9. REMOVE AND REPLACE CONCRETE CURB. REFER TO SHEET 18 DETAIL A–2
10. CONTRACTOR TO VERIFY EXISTING MAINS I.E. INSTALL ELBOW(S) FOR VERTICAL ADJUSTMENT AS REQUIRED COST FOR THIS WORK SHALL BE INCLUDED IN 12" FITTING BID ITEM REFER TO DETAILS ON SHEET 16 FOR THRUST RESTRAINT REQUIREMENTS

GENERAL NOTES

1. INSTALL VERTICAL BENDS AS REQUIRED TO ACCOMMODATE GRADE BREAKS.
2. CONTRACTOR SHALL RE–ESTABLISH ALL TRAFFIC SIGNS DISTURBED BY CONSTRUCTION.
3. RECLAIMED WATER PIPE 12" AND LARGER SHOWN IN CONNECTION DETAILS WILL BE PAID SEPARATELY UNDER THE RECLAIMED WATER PIPE BID ITEMS. COST FOR PIPES 12" AND SMALLER SHALL BE INCLUDED IN THE COST FOR THE CONNECTION DETAIL.
4. CONTRACTOR SHALL COORDINATE INSTALLATION OF RECLAIMED WATER PIPE WITH CITY PARKS AND RECREATION AND/OR CHENEY SCHOOL DISTRICT TO MINIMIZE IMPACT ON EXISTING IRRIGATION SYSTEM.



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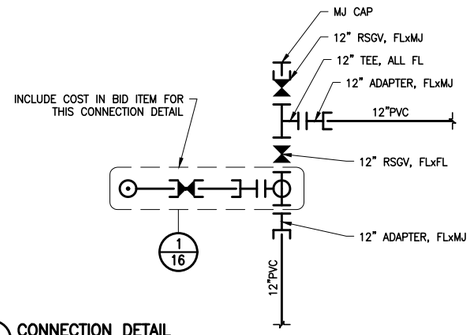

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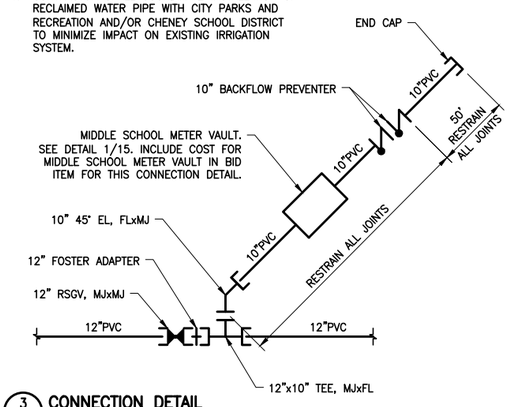

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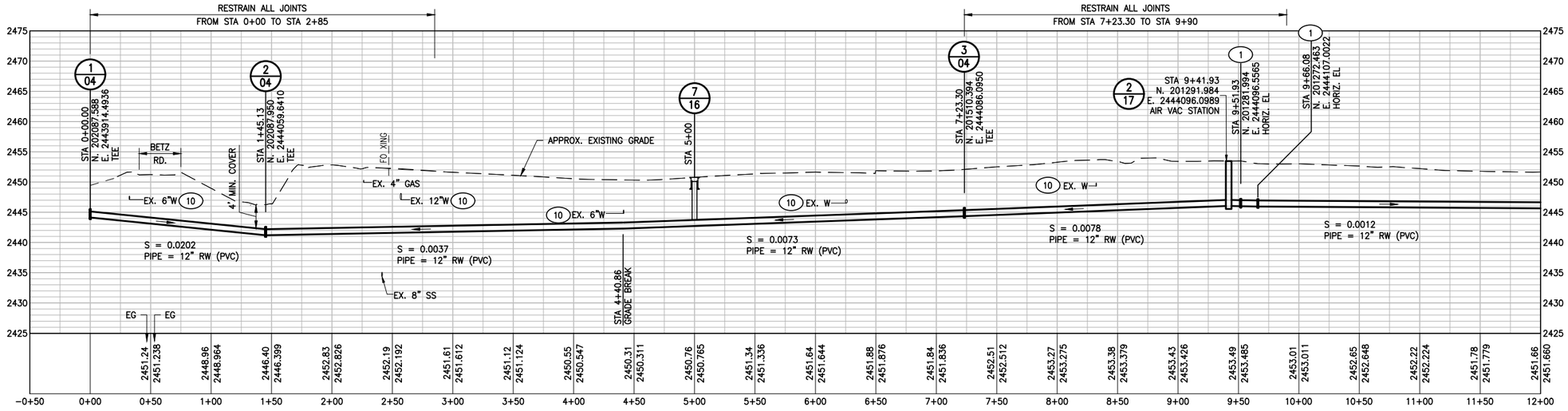

1860206–Plan & Profile

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Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

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NOTES

1. 12" HORIZONTAL ELBOW (TYP)
2. 14"x12" HORIZONTAL REDUCING ELBOW (TYP)
3. 14" HORIZONTAL ELBOW (TYP)
4. PROTECT AND PRESERVE EXISTING MANHOLE
5. PROTECT AND PRESERVE EXISTING VALVE
6. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS
7. REMOVE AND REPLACE HMA SHARED USE PATH. REFER TO SHEET 18 DETAIL A-9
8. REMOVE AND REPLACE INTEGRAL CURB AND SIDEWALK. REFER TO SHEET 18 DETAIL A-1
9. CONTRACTOR TO VERIFY EXISTING MAINS I.E. INSTALL ELBOW(S) FOR VERTICAL ADJUSTMENT AS REQUIRED COST FOR THIS WORK SHALL BE INCLUDED IN 12" AND 14" FITTING BID ITEMS REFER TO DETAILS ON SHEET 16 FOR THRUST RESTRAINT REQUIREMENTS

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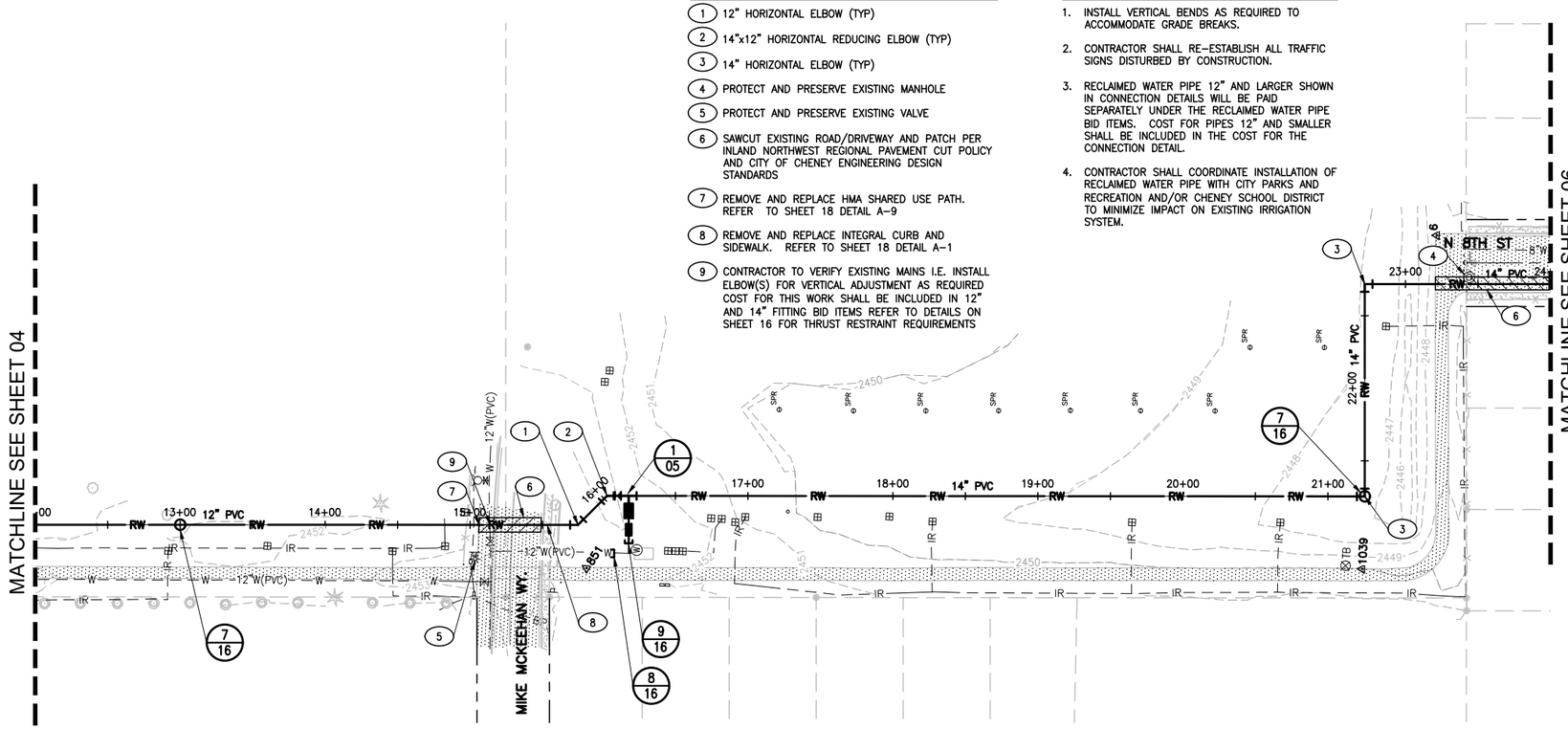

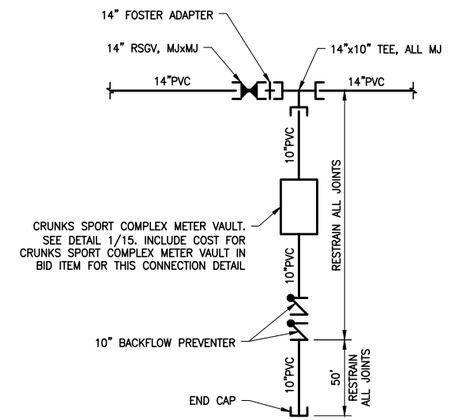

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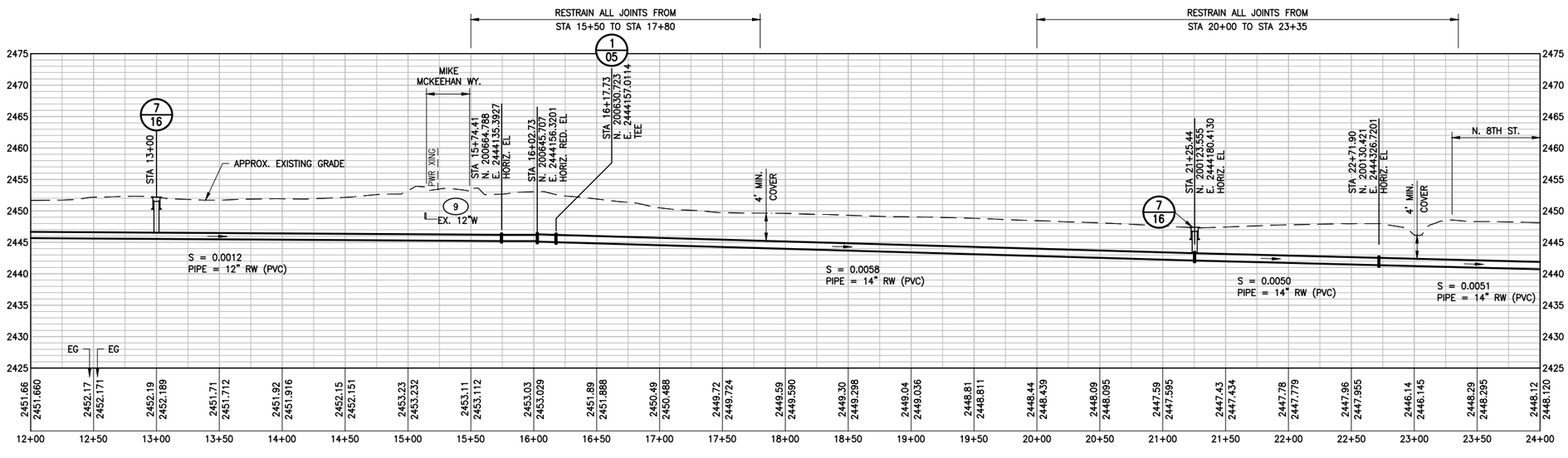

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Reclaimed Water Distribution
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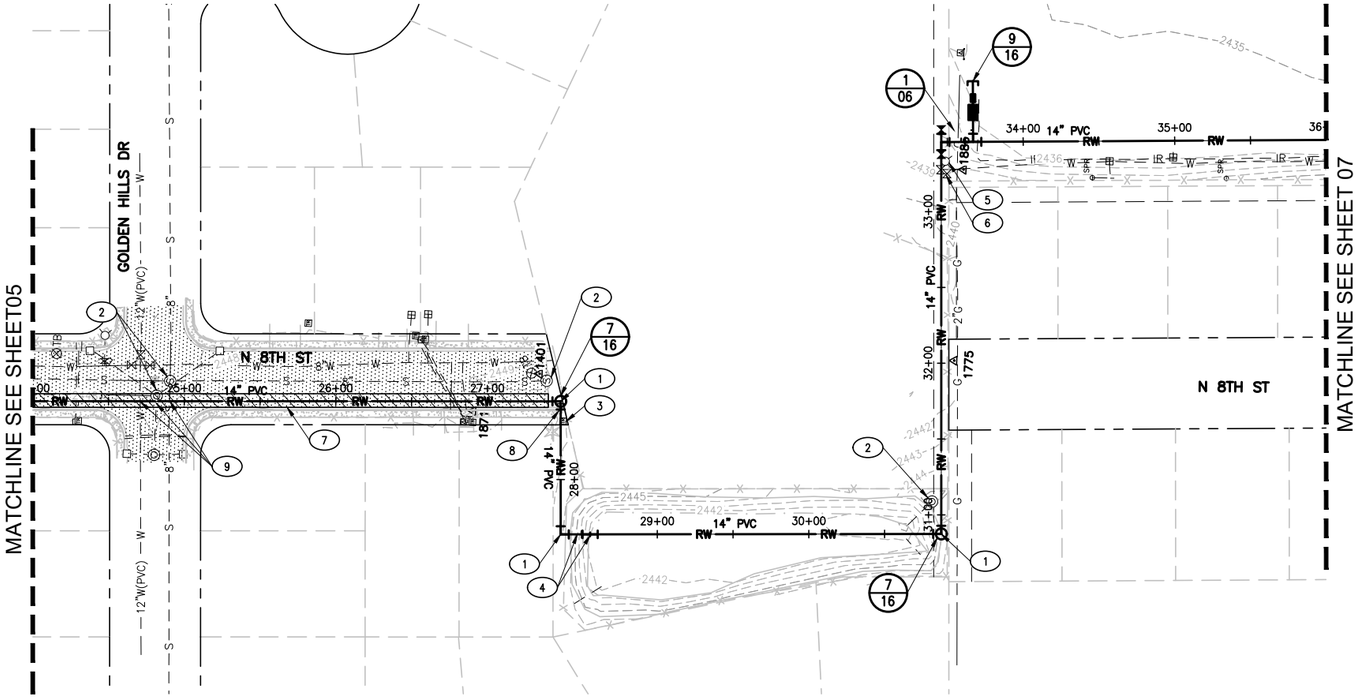

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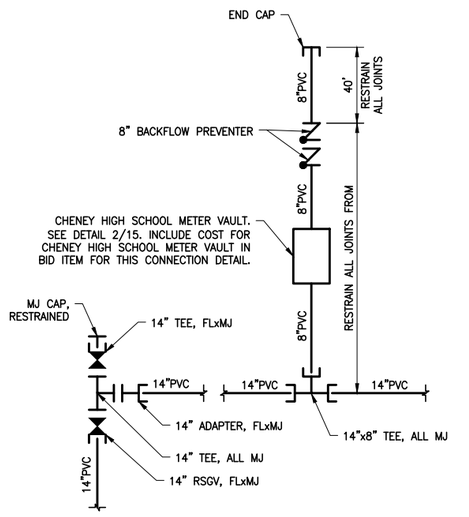
NOTES

1. 14" HORIZONTAL ELBOW (TYP)
2. PROTECT AND PRESERVE EXISTING MANHOLE
3. PROTECT AND PRESERVE EXISTING TELEPHONE RISER
4. 14" VERTICAL ELBOW (AS NECESSARY)
5. PROTECT AND PRESERVE EXISTING FIRE HYDRANT
6. PROTECT AND PRESERVE EXISTING VALVE
7. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS
8. REMOVE AND REPLACE INTEGRAL CURB AND SIDEWALK. REFER TO SHEET 18 DETAIL A-1
9. CONTRACTOR TO VERIFY EXISTING MAINS I.E. INSTALL ELBOW(S) FOR VERTICAL ADJUSTMENT AS REQUIRED COST FOR THIS WORK SHALL BE INCLUDED IN 14" FITTING BID ITEM REFER TO DETAILS ON SHEET 16 FOR THRUST RESTRAINT REQUIREMENTS



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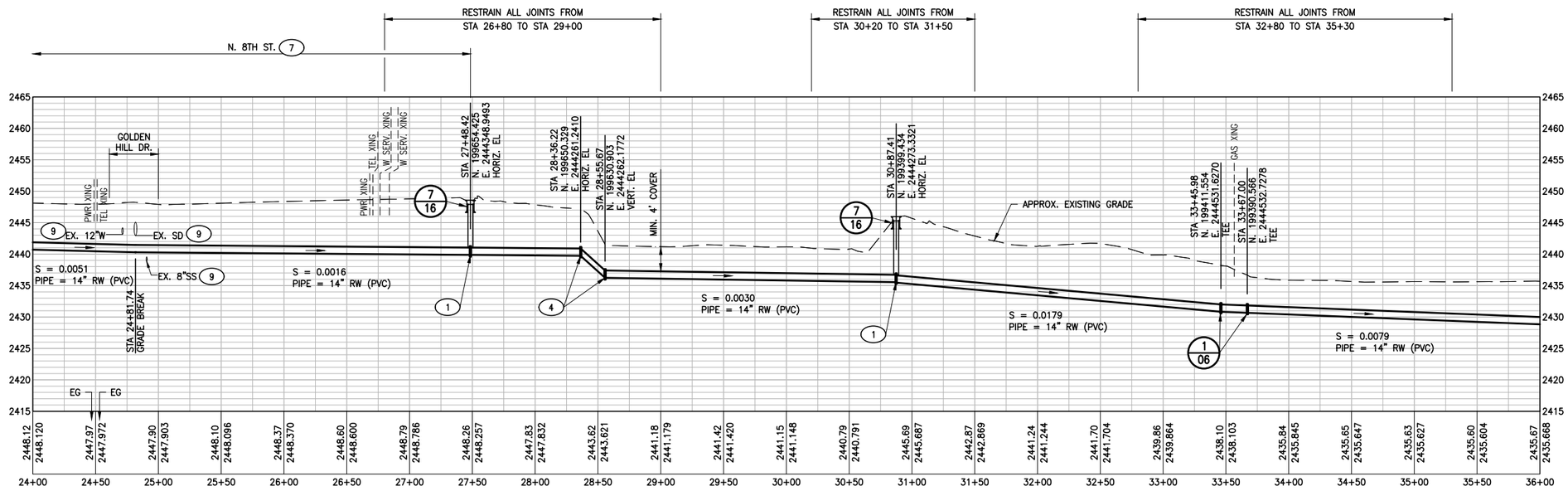

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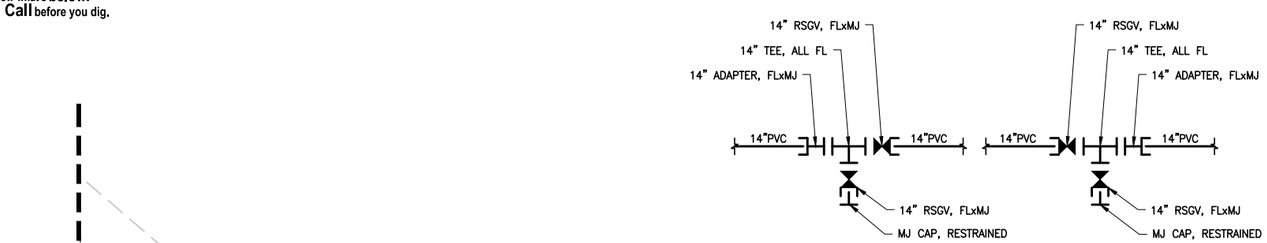

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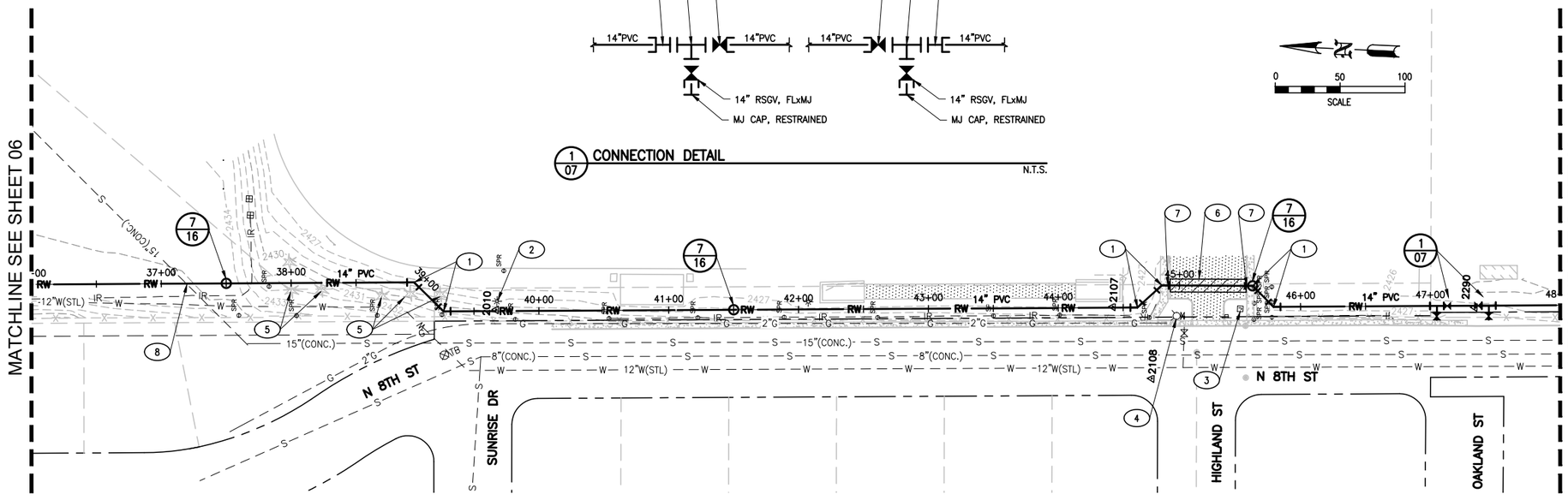

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NOTES

1. 14" HORIZONTAL ELBOW (TYP)
2. SUPPORT EXISTING LIGHT POLE AS NEEDED
3. PROTECT AND PRESERVE EXISTING JUNCTION BOX
4. PROTECT AND PRESERVE EXISTING FIRE HYDRANT
5. PROTECT AND PRESERVE EXISTING TREE
6. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS
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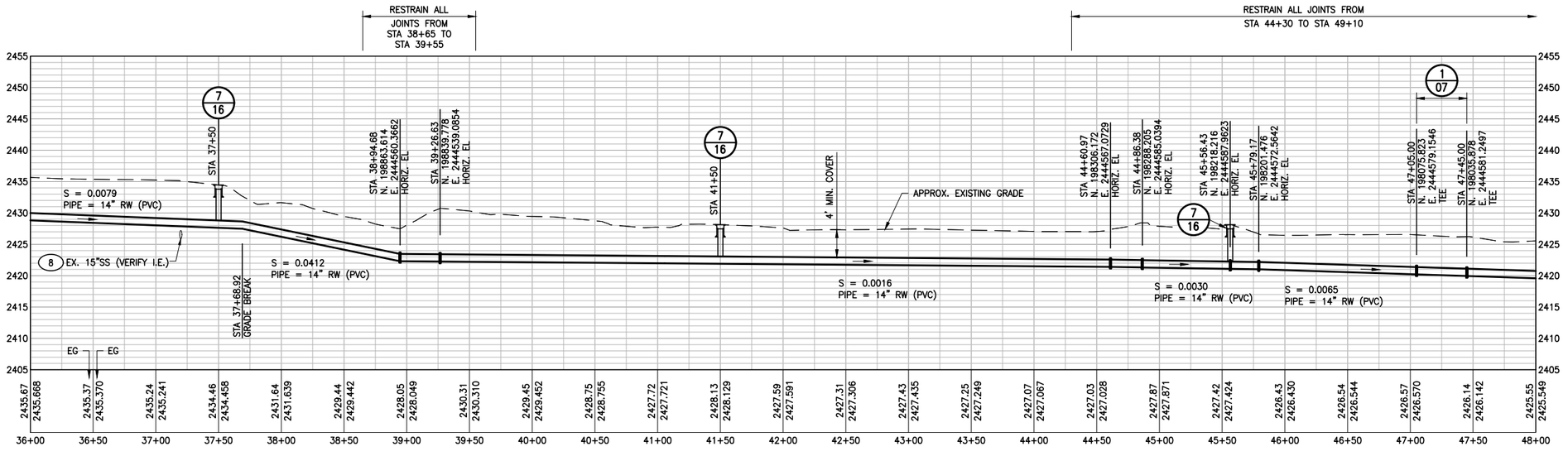

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Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

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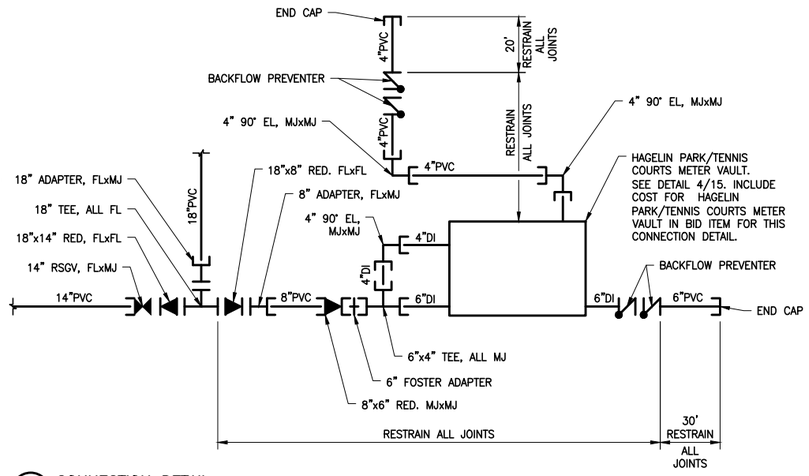

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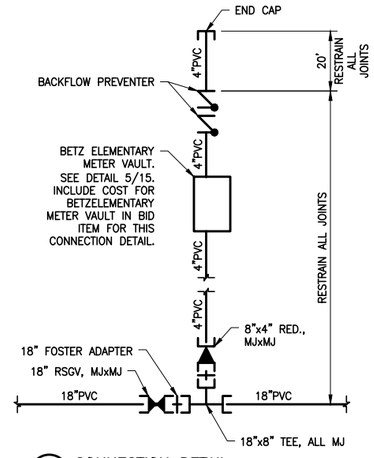

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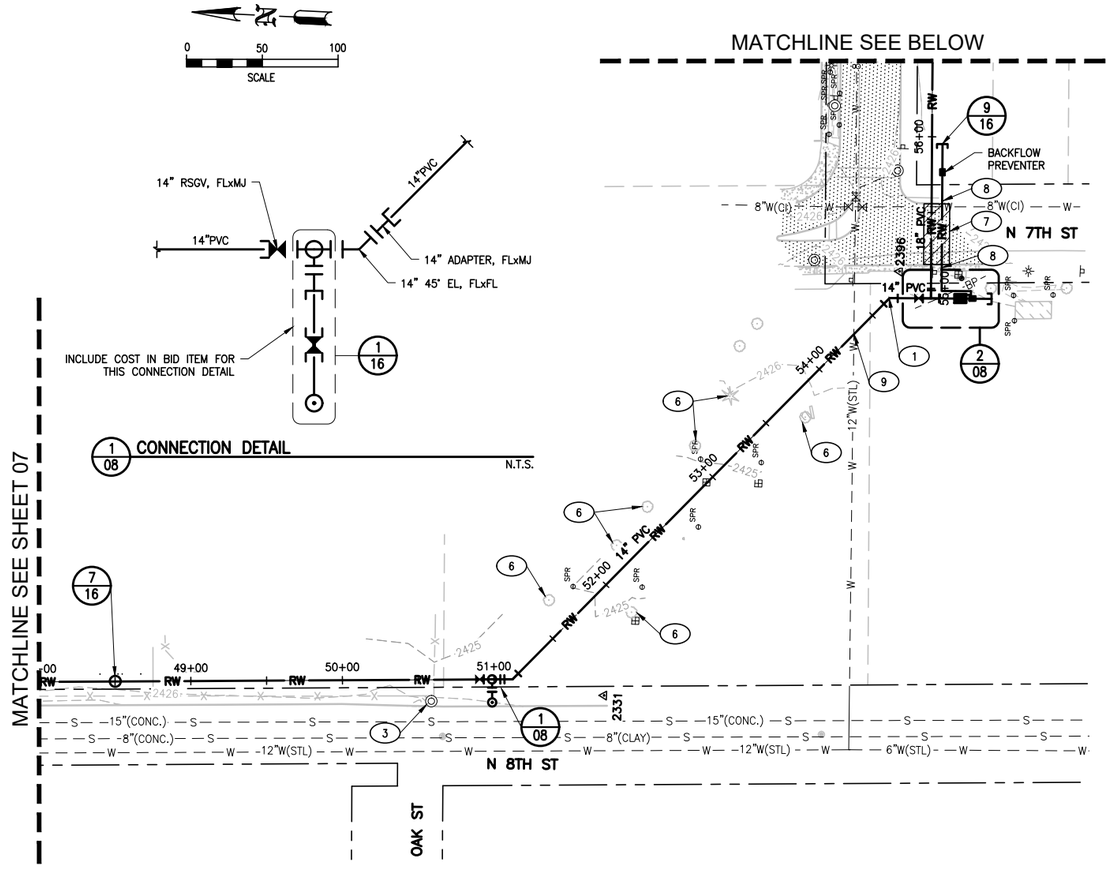

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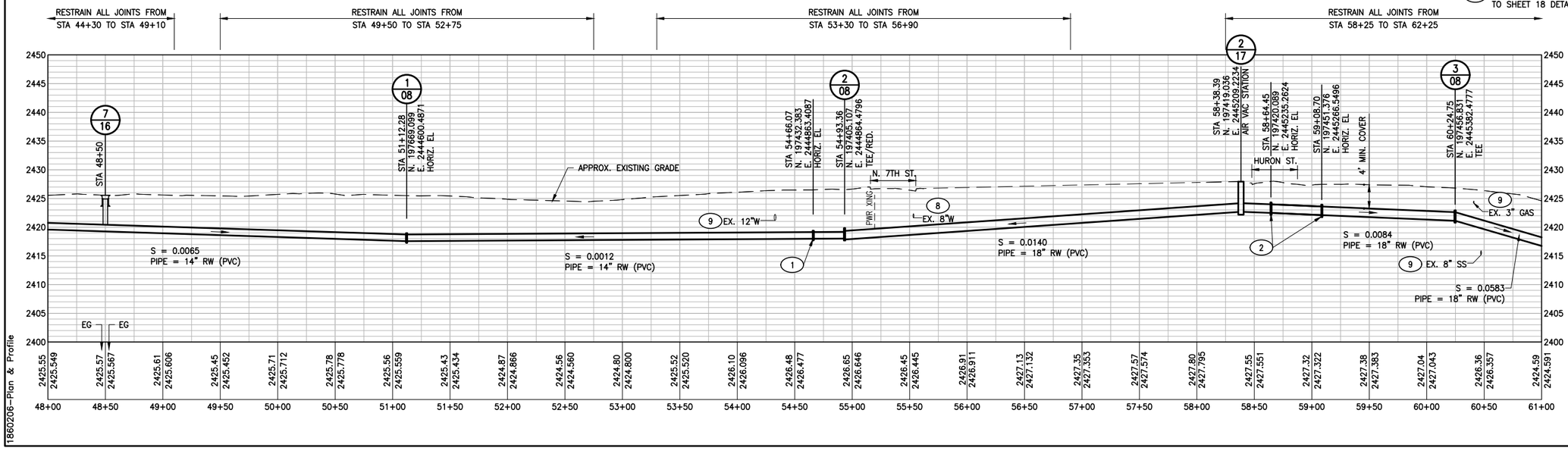
NOTES

1. 14" HORIZONTAL ELBOW (TYP)
2. 18" HORIZONTAL ELBOW (TYP)
3. PROTECT AND PRESERVE EXISTING MANHOLE
4. SUPPORT EXISTING LIGHT POLE AS NEEDED
5. SUPPORT EXISTING UTILITY POLE AS NEEDED
6. PROTECT AND PRESERVE EXISTING TREE
7. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS
8. REMOVE AND REPLACE INTEGRAL CURB AND SIDEWALK. REFER TO SHEET 18 DETAIL A-1
9. CONTRACTOR TO VERIFY EXISTING MAINS I.E. INSTALL ELBOW(S) FOR VERTICAL ADJUSTMENT AS REQUIRED COST FOR THIS WORK SHALL BE INCLUDED IN 14" AND 18" FITTING BID ITEMS REFER TO DETAILS ON SHEET 16 FOR THRUST RESTRAINT REQUIREMENTS



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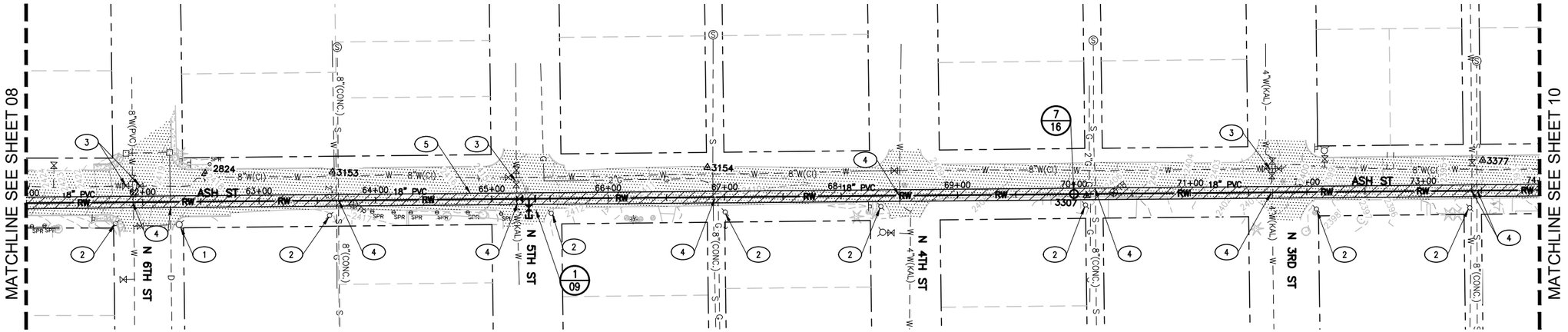

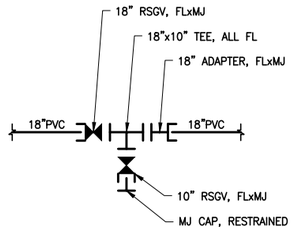

GENERAL NOTES

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3. RECLAIMED WATER PIPE 12" AND LARGER SHOWN IN CONNECTION DETAILS WILL BE PAID SEPARATELY UNDER THE RECLAIMED WATER PIPE BID ITEMS. COST FOR PIPES 12" AND SMALLER SHALL BE INCLUDED IN THE COST FOR THE CONNECTION DETAIL.

NOTES

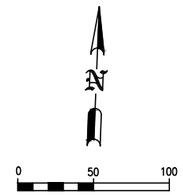
(1) PROTECT AND PRESERVE EXISTING FIRE HYDRANT

(2) SUPPORT EXISTING UTILITY POLE AS NEEDED

(3) PROTECT AND PRESERVE EXISTING VALVE

(4) CONTRACTOR TO VERIFY EXISTING MAINS I.E. INSTALL ELBOW(S) FOR VERTICAL ADJUSTMENT AS REQUIRED COST FOR THIS WORK SHALL BE INCLUDED IN 18" FITTING BID ITEM REFER TO DETAILS ON SHEET 16 FOR THRUST RESTRAINT REQUIREMENTS

(5) SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS



1/09 CONNECTION DETAIL

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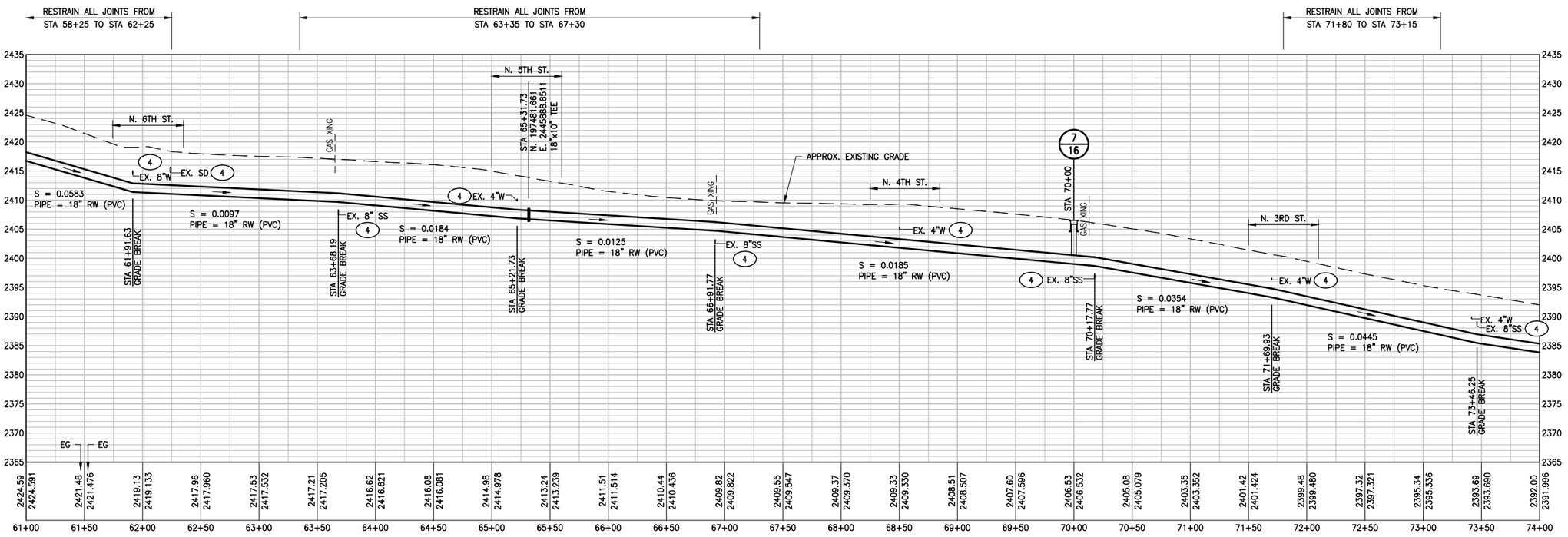

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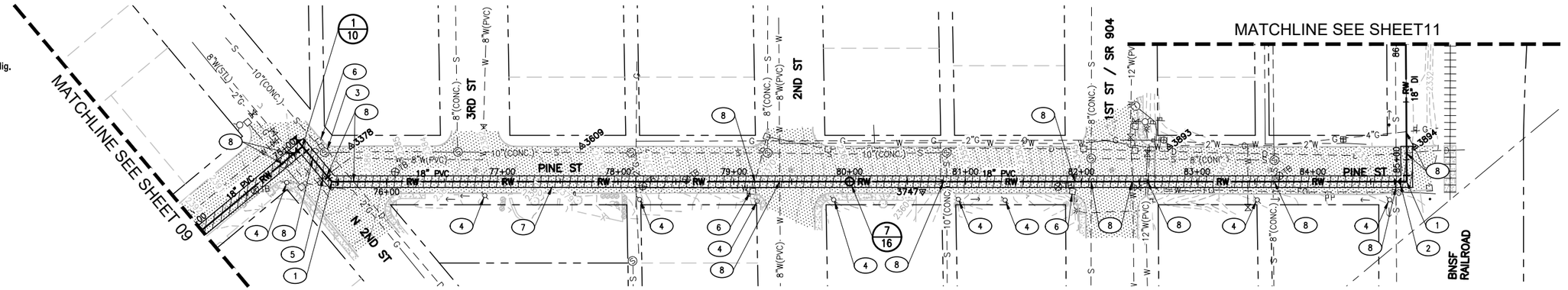

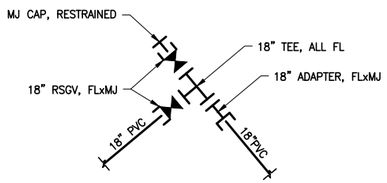

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NOTES

1. 18" HORIZONTAL ELBOW (TYP)
2. STA 84+80 INSTALL 18" RSGV
3. PROTECT AND PRESERVE EXISTING MANHOLE
4. SUPPORT EXISTING UTILITY POLE AS NEEDED
5. PROTECT AND PRESERVE EXISTING VALVE
6. PROTECT AND PRESERVE EXISTING CATCH BASIN
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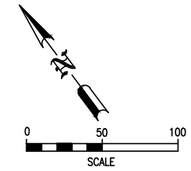

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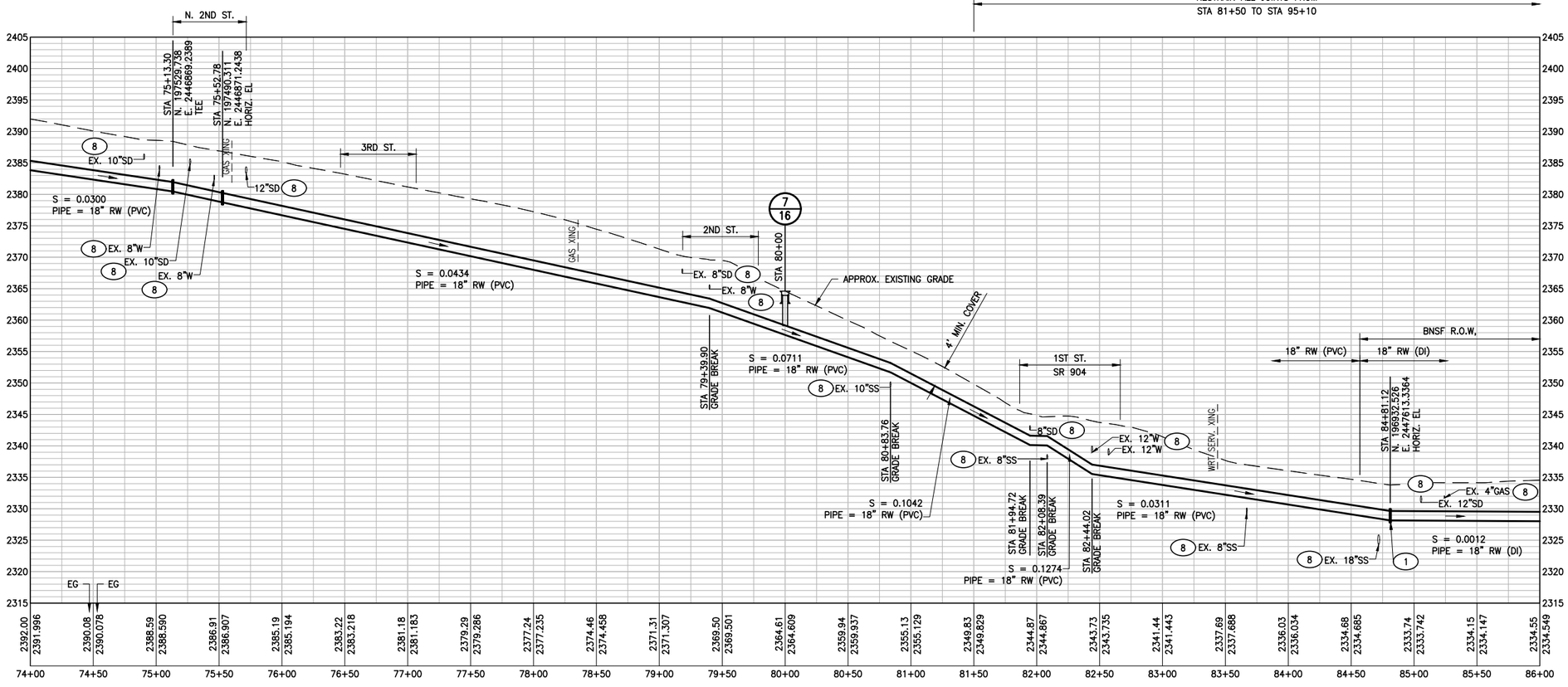

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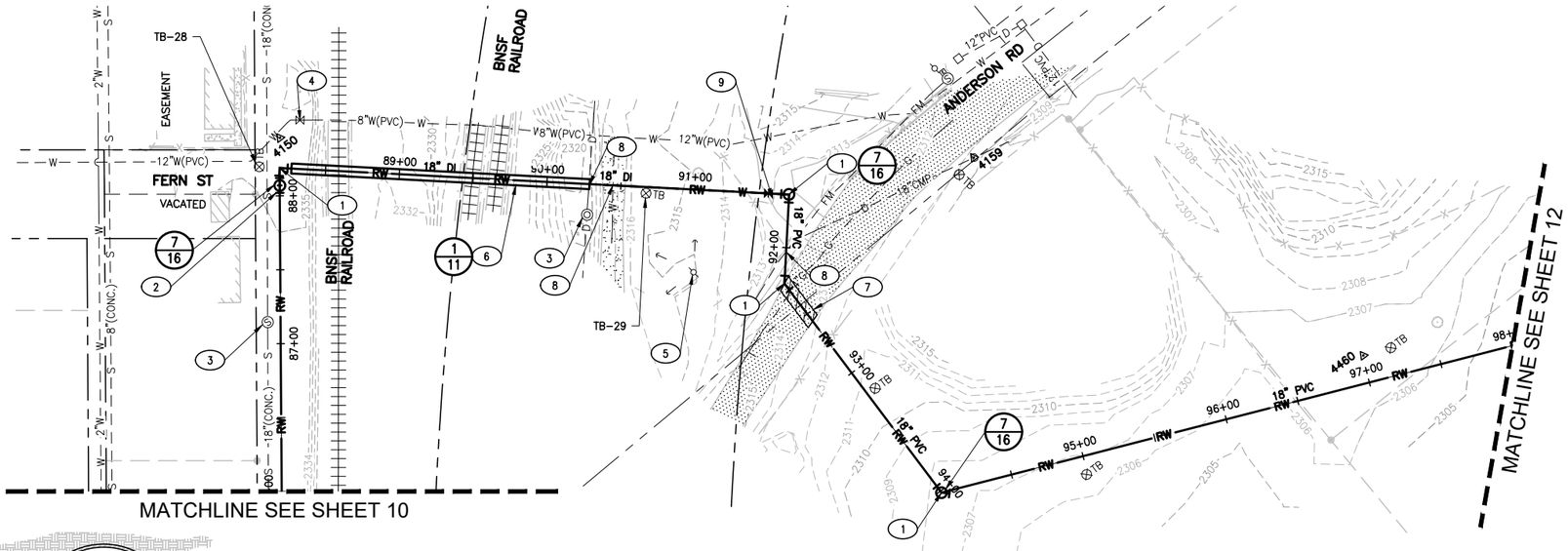
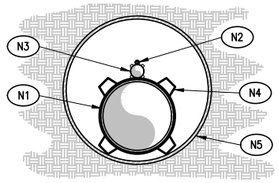




GENERAL NOTES:

1. SEAL EACH END OF CASING WITH 36" LEAN GROUT PLUG.
2. INSTALL CATHODIC PROTECTION PER DETAIL 2/16 AND 3/16.
3. ALTERNATIVE SUPPORT METHODS MAY BE ACCEPTABLE. METHODS SHALL BE SUBMITTED TO THE ENGINEER.
4. SEE SPECIFICATIONS SECTION 01 01 00.

NOTES:

(N1) 18" DI CARRIER PIPE. PIPE SHALL BE OF THE WALL THICKNESS SPECIFIED IN AWWA C-151/A21.51 FOR MINIMUM PRESSURE CLASS 350 PSI

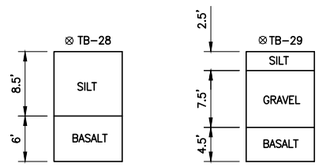
(N2) CONTINUOUS LOCATING WIRE (NO SPLICES ALLOWED) THROUGH ENTIRE LENGTH OF CASING

(N3) FIBER OPTIC BUNDLE

(N4) CALPICO INC. CASING INSULATOR MODEL M SERIES (MINIMUM 12" WIDE BAND) OR APPROVED EQUAL. ONE AT EACH BELL WITH MAXIMUM SPACING @ 60" O.C.

(N5) 36" STEEL CASING. CASING SHALL BE OF THE WALL THICKNESS SPECIFIED IN TABLE 1-5-5, PART 5 OF THE AREMA MANUAL

TEST PIT SOIL PROFILE



(1/11) CASING/CARRIER PIPE – RECLAIMED WATER PIPE

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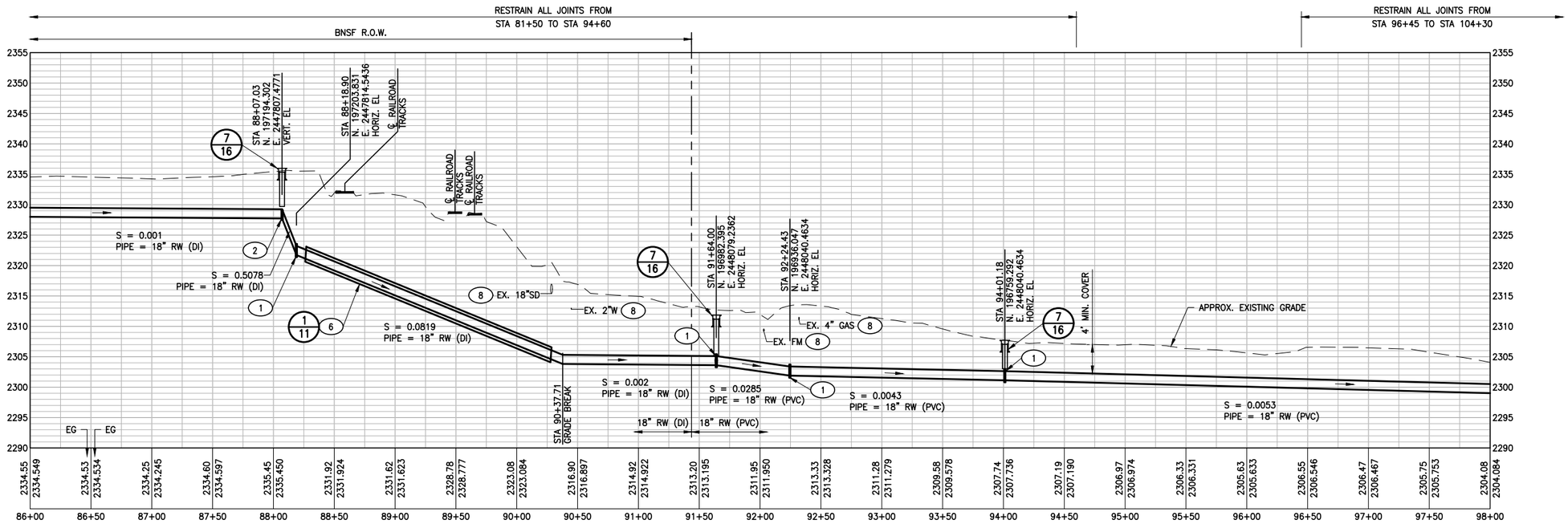

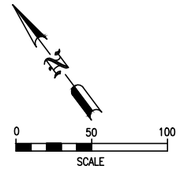

GENERAL NOTES

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NOTES

(1) 18" HORIZONTAL ELBOW (TYP)

(2) 18" VERTICAL ELBOW (TYP)

(3) PROTECT AND PRESERVE EXISTING MANHOLE

(4) PROTECT AND PRESERVE EXISTING VALVE

(5) SUPPORT EXISTING UTILITY POLE AS NEEDED

(6) 36" DIA. STEEL CASING, PAID FOR IN BID ITEM FOR AUGER BORING CROSSING (BNSF STA 89+00)

(7) SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS

(8) CONTRACTOR TO VERIFY EXISTING MAINS I.E. INSTALL ELBOW(S) FOR VERTICAL ADJUSTMENT AS REQUIRED COST FOR THIS WORK SHALL BE INCLUDED IN 18" FITTING BID ITEM REFER TO DETAILS ON SHEET 16 FOR THRUST RESTRAINT REQUIREMENTS

(9) STA 91+50 INSTALL 18" RSGV

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PLAN AND PROFILE STA 86+00 - STA 98+00

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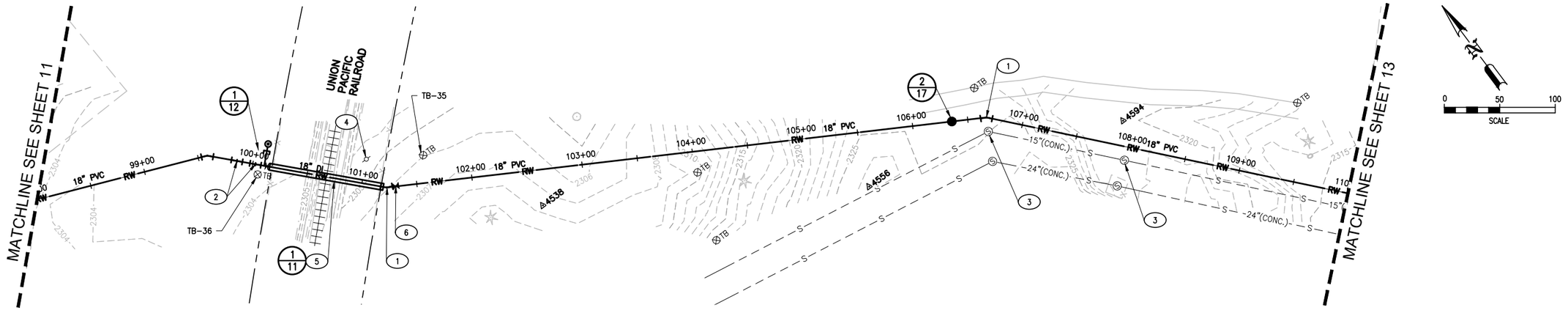

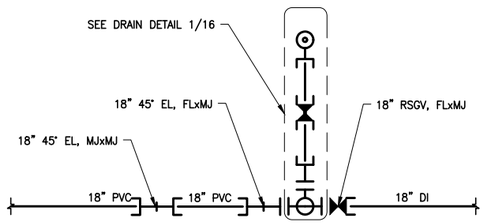

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NOTES

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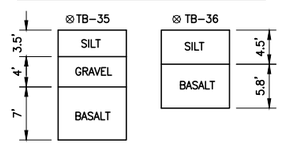
2. 18" VERTICAL ELBOW (TYP)
3. PROTECT AND PRESERVE EXISTING MANHOLE
4. SUPPORT EXISTING UTILITY POLE AS NEEDED
5. 36" DIA. STEEL CASING, PAID FOR IN BID ITEM FOR AUGER BORING CROSSING (UNION PACIFIC – STA 100+00)
6. STA 100+38 INSTALL 18" RSGV

TEST PIT SOIL PROFILE



1/12 CONNECTION DETAIL

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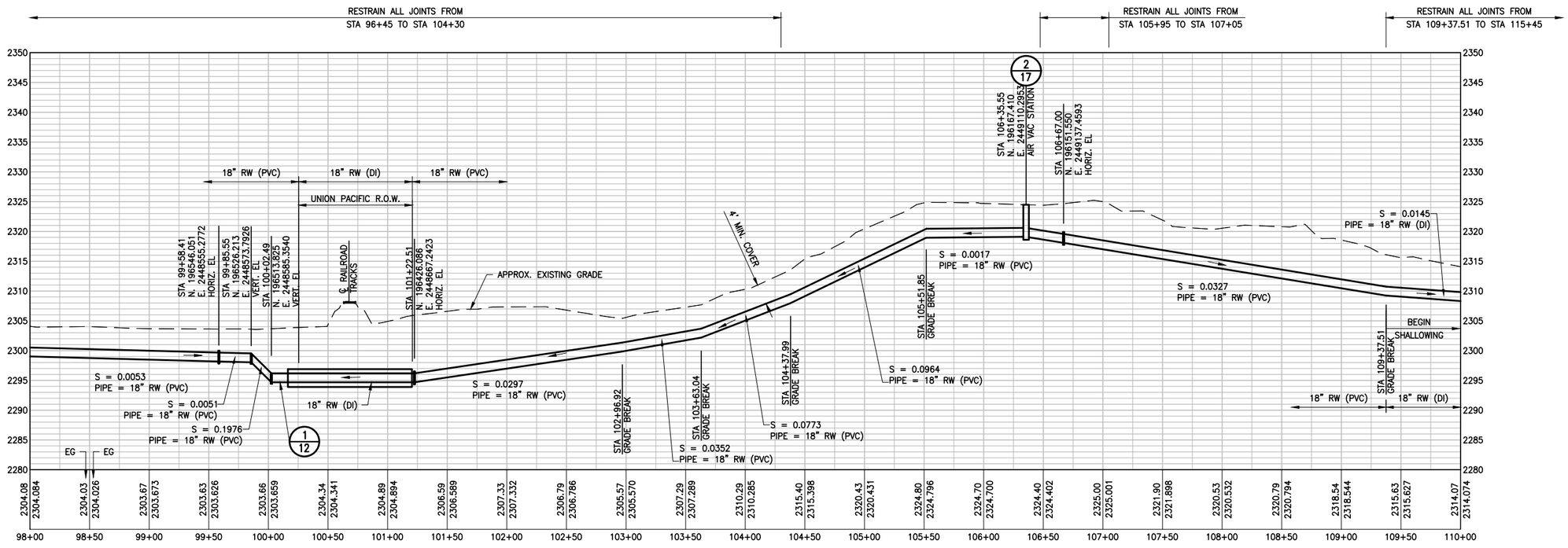

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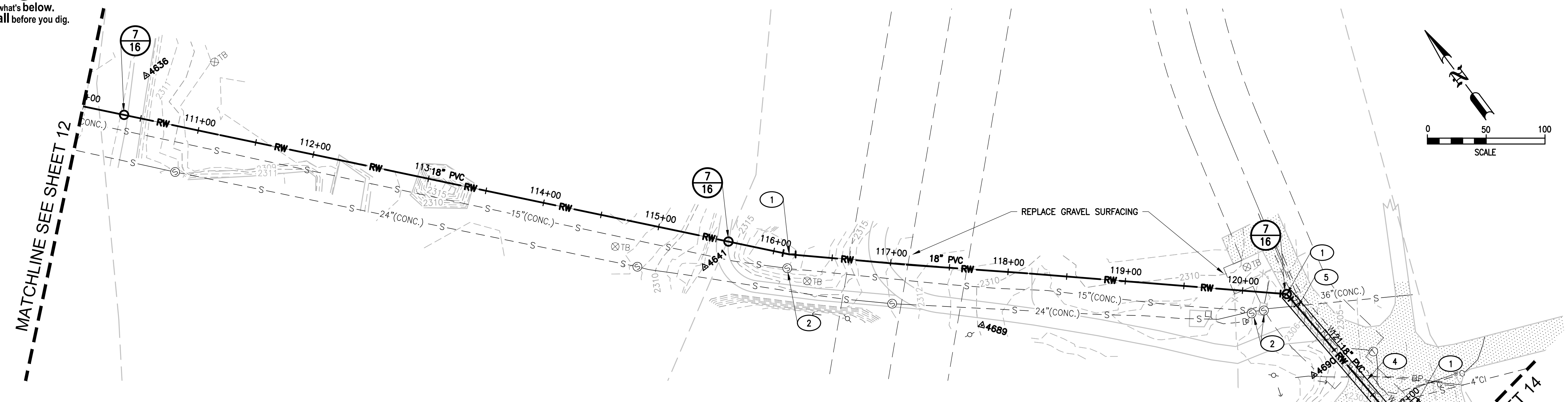

NOTES

1. 18" HORIZONTAL ELBOW (TYP)
2. PROTECT AND PRESERVE EXISTING MANHOLE
3. INSTALL PRECAST ANCHOR BLOCKS PER DETAIL 4/16 BETWEEN LAGOON WALLS
4. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS
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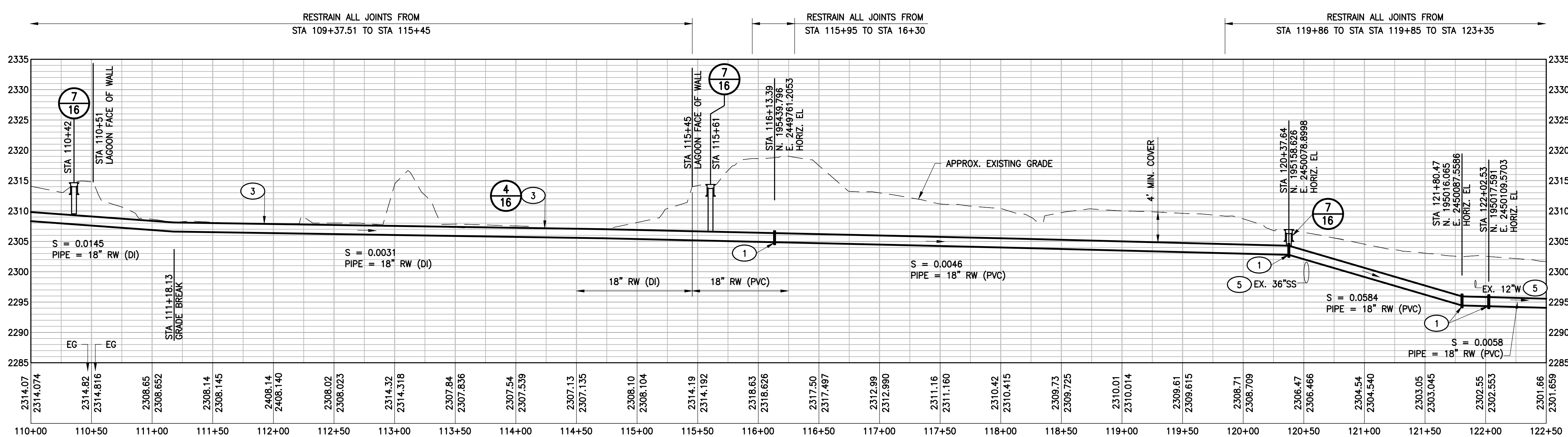

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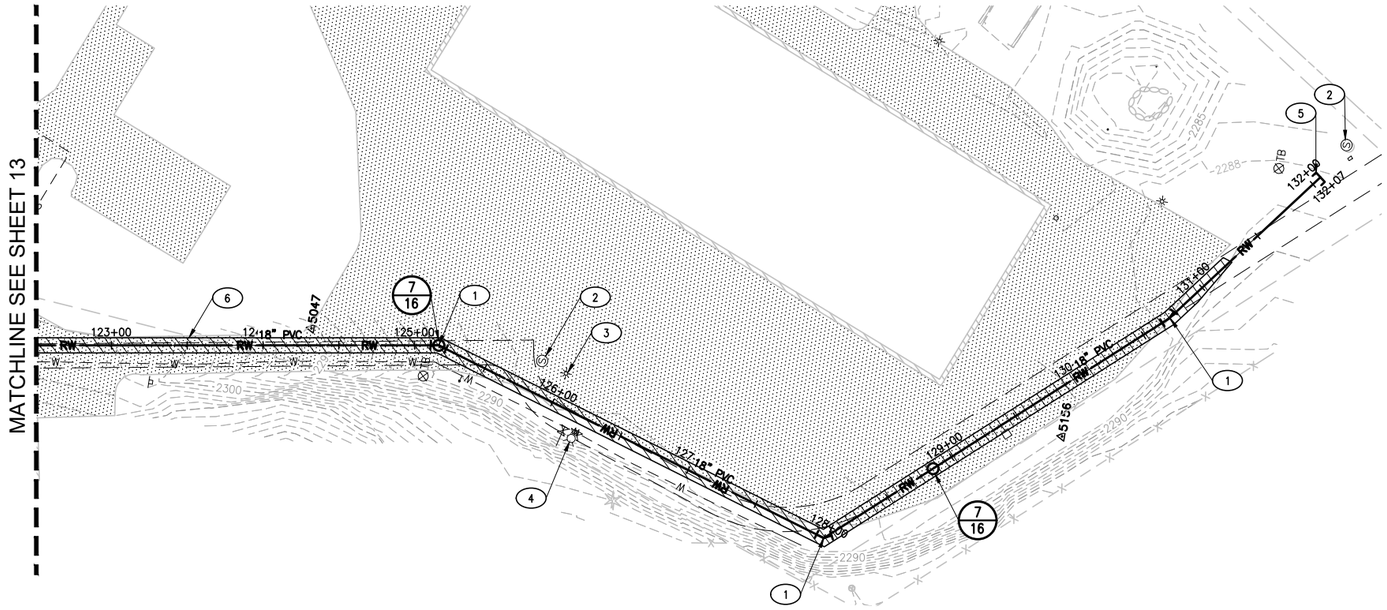

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NOTES

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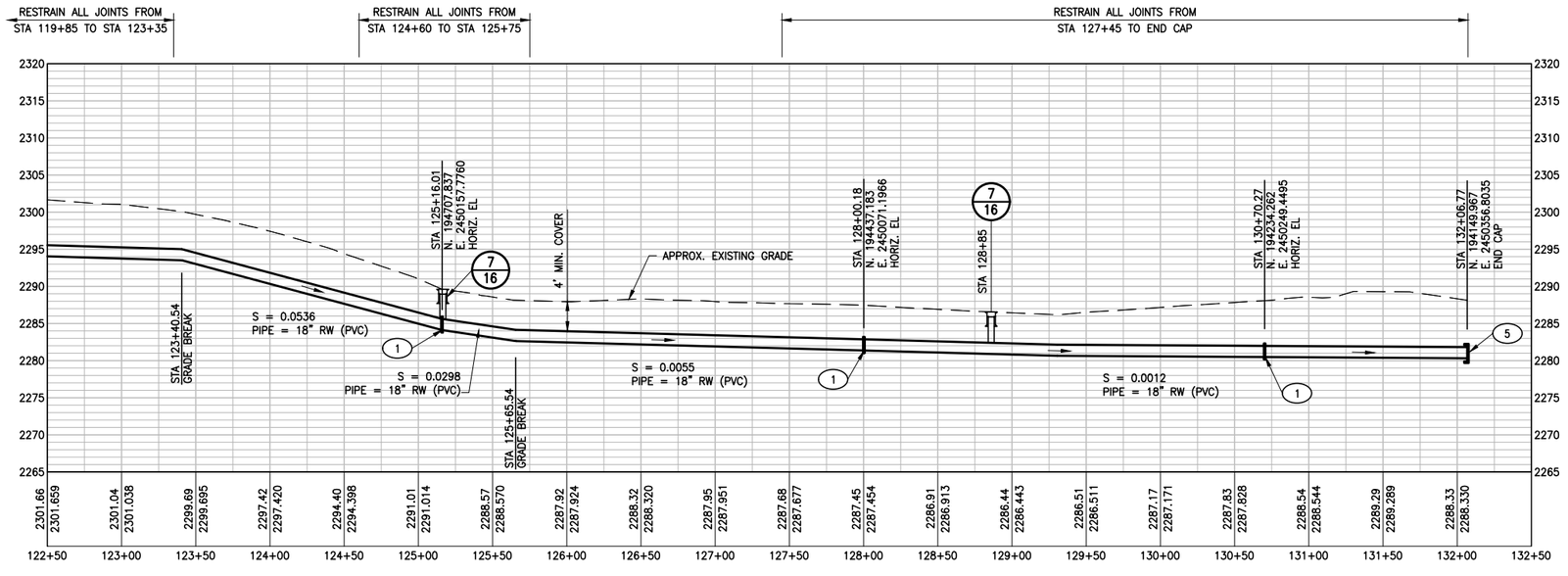
2. PROTECT AND PRESERVE EXISTING MANHOLE
3. SUPPORT EXISTING LIGHT POLE AS NEEDED
4. PROTECT AND PRESERVE EXISTING FIRE HYDRANT
5. 18" MJ CAP
6. SAWCUT EXISTING ROAD/DRIVEWAY AND PATCH PER INLAND NORTHWEST REGIONAL PAVEMENT CUT POLICY AND CITY OF CHENEY ENGINEERING DESIGN STANDARDS



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Appendix C

Wetland Assessment Report

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APPENDIX C

WETLAND ASSESSMENT REPORT

Wetland Assessment Report

City of Cheney – Reclaimed Water Distribution Purple Pipe Project

Encompassing portions of Spokane County Parcels # 23182.0006 (4.72 acres), 23185.0016 (97.3 acres) and 23182.0009 (12.6 acres)

Located in the northwest ¼ of Section 18, Township 23 North, Range 42 East

September 2020

Prepared for: **City of Cheney**
Todd Ableman, Director of Public Works
(509) 498-9293
tablemen@cityofcheney.org

Prepared by: **Vincent Barthels, Biologist**
121 W. Pacific Avenue, Suite 200
Spokane, WA 99201
(509) 951-9564 (Cell)
vbarthels@to-engineers.com

T-O ENGINEERS

Contents

Attachments

Introduction

This wetland assessment report was authorized by Todd Ableman with the City of Cheney Public Works Department to properly determine and define the wetland areas contained within the portions of Spokane County parcel numbers 23182.0006, 23185.0016, and 23182.0009, where the proposed Reclaimed Water Distribution Purple Pipe alignment is planned to be installed. Combined, these three identified parcels equate to approximately 114.62 acres. These parcels are irregularly shaped and are located between Front St. (east of State Route 904, the Lt. Col. Michael P. Anderson Memorial Hwy), and the City's Wastewater Treatment and Reclamation Plant (WTRP), located at 112 Anderson Road. The boundary of parcel 23182.0009 roughly follows the edges of most of Miller Pond. The defined study area is located within the northwest 1/4 of Section 18, Township 23 North, Range 42 East, Spokane County, Washington.

The City of Cheney's Reclaimed Water Distribution Purple Pipe Project (Proposed Project or Purple Pipe) proposes to design and construct a reclaimed water treatment and distribution system for landscape irrigation within the City limits. Cheney Parks and Recreation (for City Parks), Cheney School District (for school and sports centers), and Eastern Washington University (for the campus grounds) are the target end users. The proposed pathway for the transmission main would travel from the WTRP on the eastern most side of the study area westward toward the intended destination, crossing two identified wetland areas along the way. The proposed development plans have prompted this wetland assessment report to document and categorize identified wetland areas along the footprint of the Purple Pipe to inform project design in accordance with Cheney Municipal Code Chapter 21.70 – Conservation of Critical Areas.

Methods

The field investigation linked to this assessment was conducted on June 17, 2020 by Vincent Barthels, qualified wetlands biologist with T-O Engineers. Field conditions were observed, during the middle of the growing season, during an average water year. Photographs were taken to document the habitat conditions and pertinent features along the Purple Pipe alignment (see Attachment 1, Photo Inventory).

No professional surveying services were provided by T-O Engineers. An exhibit was developed by T-O Engineers using AutoCAD 3D 2019, an aerial image obtained from Google Earth, a base map obtained off of the Spokane County Assessor's website, and the collected measurements in the field (see Attachment 2, Wetland Assessment Exhibit). The exhibit illustrates the size and extent of the identified wetland features and linear length of anticipated encroachment. In concert with the design of the Purple Pipe Project, Budinger and Associates completed a Geotechnical Engineering Report. Relevant test pits associated with the Budinger's Report are shown on the Wetland Assessment Exhibit (see Attachment 2).

Two depressional wetlands, identified as Cheney Purple Pipe Miller Pond (CPPMP), and Cheney Purple Pipe Wet Meadow (CPPWM), were scored, and characterized using the Washington State Department of Ecology (DOE) Eastern Washington wetland rating forms, which reflect the conditions assessed in the field (see Attachment 3, Department of Ecology Wetland Rating Forms for Eastern Washington). A 1-kilometer radius aerial figure, produced in Google Earth, is also included at the end of Attachment 3.

Other sources of information used for this investigation include:

1. The U.S. Department of Agriculture (USDA)/ Natural Resources Conservation Service (NRCS) Web based Hydric Soils Information (see Attachment 4);

2. The National Wetlands Inventory (NWI) Map (see Attachment 5);
3. The Department of Natural Resources (DNR) Water Type Map (see Attachment 6);
4. *The National Wetland Plant List* (Lichvar et al. 2016); and,
5. The web-based Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) generated list (see Attachment 7).

Discussion

Topography:

The study area elevation ranges from approximately 2,300' to 2,350' above sea level (NAVD 88). The lowest elevation is located within parcel 23182.0006 toward the northeast corner, on the border of the wet meadow along the parcel boundary. The highest elevation in the vicinity is located within the western central portion of parcel number 23185.0016.

Climate:

The climate data used for this report was collected from the Spokane International Airport weather station (KGEG). Based on the climate data collected, the study area has an average annual temperature of 48 degrees Fahrenheit. The average annual rainfall is 16.5 inches, whereas, the average annual snowfall is 45 inches. The growing season typically falls between April 21 and October 14, 176 days (NRCS 2020).

Plant Communities:

Plant communities observed in the study area consisted of assorted herbaceous plants and various clusters of trees and shrubs. The following table lists the vegetative assemblages that were encountered within the study area and provides the applicable wetland indicator status (Lichvar et al. 2016), within the Arid West Region (USACE 2008).

Table 1. Observed vegetation within the study area.

Common Name	Scientific Name	Wetland Indicator Status
Baltic rush	*Juncus balticus*	OBL
Bulrush	*Scirpus acutus*	OBL
Bull thistle	*Cirsium vulgare*	FACU
Cattail	*Typha latifolia*	OBL
Common wormwood	*Artemisia vulgaris*	UPL
Creeping thistle	*Cirsium arvense*	FACU
Curly dock	*Rumex crispus*	FACW
Dandelion	*Taraxacum officinale*	FACU
Douglas hawthorn	*Crataegus douglasii*	FAC
Field bindweed	*Convolvulus arvensis*	FACU
Field horsetail	*Equisetum arvense*	FAC
Field mint	*Mentha arvensis*	FAC

Common Name	Scientific Name	Wetland Indicator Status
Flix-weed	*Descurainia sophia*	FACU
Horseweed	*Conyza canadensis*	FACU
Idaho fescue	*Festuca idahoensis*	FACU
Intermediate wheatgrass	*Thinopyrum intermedium*	FACU
Kentucky bluegrass	*Poa pratensis*	FACU
Meadow Foxtail	*Alopecurus pratensis*	FACW
Mullein	*Verbascum thapsus*	UPL
Plantain	*Plantago major*	FAC
Ponderosa pine	*Pinus ponderosa*	FACU
Prickly lettuce	*Lactuca serriola*	FACU
Quaking aspen	*Populus tremuloides*	FACU
Reed canary grass	*Phalaris arundinacea*	FACW
Smooth brome	*Bromus inermis*	FACU
Snowberry	*Symphoricarpos albus*	FACU
Toadflax	*Comandra umbellata*	UPL
Tumble mustard	*Sisymbrium altissimum*	FACU
Wood's rose	*Rosa woodsii*	FACU

Soils:

There are three primary mapped soil types for the subject parcels, which include: Saltese Muck, 0 to 3 percent slopes (Map Unit 8001), Cocolalla ashy silt loam, 0 to 3 percent slopes (Map Unit 1020), and Northstar-Rock outcrop complex, 3 to 15 percent slopes (Map Unit 3115) (see Attachment 4, U.S. Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS) Hydric Soils Information). Saltese Muck and Cocolalla ashy silt loam have a hydric rating of 90 and 82, respectively. Northstar-Rock outcrop complex has a rating of 4. The higher hydric rating is indicative of a higher probability of wetland soils.

Hydrology:

The primary source of wetland hydrology within the subject parcels is derived from shallow groundwater augmented with seasonal precipitation in the form of spring and fall rains and winter snowfall. The area's hydrology is also supplemented by stormwater discharge. It is possible that runoff from the higher elevation area between both depressional wetland areas also contributes to hydrology.

NWI Map and DNR Water Type Wetland Classifications:

Within the study area, the NWI Map identifies a Freshwater Pond (PUBH) on parcel 23182.0009, a semi-permanently flooded, Palustrine Emergent Wetland (PEM1F) on parcel 23185.0016, and a seasonally flooded, Palustrine Emergent Wetland (PEM1C) on parcel 23182.0006 (see Attachment 5, National Wetlands Inventory (NWI) Map). The DNR Water Type Map identifies water features that

align with those identified by the NWI map in parcels 23182.0009 and 23185.0016 (see Attachment 6, Department of Natural Resources (DNR) Water Type Map). The transmission main for the Purple Pipe crosses the NWI identified Freshwater Pond and the seasonally flooded PEM1C feature.

WDFW PHS Data:

The PHS Report lists Rocky Mountain Elk as occurring within a ¼-mile of the study area (see Attachment 7, Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) List). The PHS data is carried forward into the wetland rating forms – Habitat scoring (see Attachment 3).

Findings

The DOE Wetland Rating Forms reflect the conditions assessed in the field (see Attachment 3). The Wetland Assessment Exhibit identifies locations of intersecting wetland features and the proposed pathway for the Purple Pipe (see Attachment 2). The following table and subsection summarize the findings and further discuss the classification and functionality of the depressional wetlands situated within the defined study area.

Table 2. Summary of the Categorized Wetland Features that intersect with the proposed Purple Pipe alignment.

Wetland Id	Type or Wetland Class	Wetland Category per DOE Rating	Cowardin Class	Area of Temporary Impact
CPPMP	Depressional	I	PUBH	500 LF (or 5,000 SF)
CPPWM	Depressional	III	PEM1C	340 LF (or 3,400 SF)

Note: PEM1C = Palustrine, Emergent, Persistent, Seasonally Flooded; PUBH = Palustrine, Unconsolidated Bottom, Permanently Flooded.

Depressional wetlands and their associated buffers share several important functions and values that include: the ability to protect and improve water quality, groundwater recharge, and provide wildlife habitat.

The wetland identified as CPPMP on the Wetland Assessment Exhibit is classified as a Depressional Category I wetland and the wetland identified as CPPWM is classified as a Depressional Category III wetland. (see Attachment 2 and Attachment 3). The identified wetlands were rated using the DOE wetland rating system for Eastern Washington.

The Proposed Project footprint results in 500 linear feet, or 5,000 square feet of temporary impacts to CPPMP, assuming a 10' width. Still assuming a 10' width, the Proposed Project footprint results in 340 linear feet, or 3,400 square feet of temporary impacts to CPPWM (see Attachment 2).

During installation of the pipeline, the upper 10" to 12" topsoil layer should be salvaged and reclaimed, thereby preserving the existing seed bank through the identified wetlands. Given the project scope and magnitude, no additional compensatory mitigation measures are recommended because the hydrophytic vegetation (mainly cattails, reed canary grass and meadow foxtail) should re-establish within a 2-3-month period post construction. After one full growing season, the installed pipeline trench should be indiscernible.

Conclusion

The proposed Purple Pipe Project contains a depressional Category III wetland and a depressional Category I wetland (see Attachment 2). The proposed project design incorporates Best Management Practices that will result in a no-net-loss to wetland areas. Anticipated temporary wetland vegetative community impacts should be restored in a 2-3-month duration following construction, given the existing vegetative community. No compensatory mitigation measures are recommended because the wetland impacts are believed to be short-lived and the wetland emergent vegetative community present should rebound to pre-construction aerial coverages in one growing season. It should be noted, however, that final authority rests with the appropriate regulatory agencies.

Respectfully submitted by:

Vincent J. Barthels, Biologist

T-O ENGINEERS

References

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Photo Inventory

The following six photos were taken on June 17, 2020.

Photo 1: Budinger and Associates, soil test pit 38 on the east side of Miller Pond.

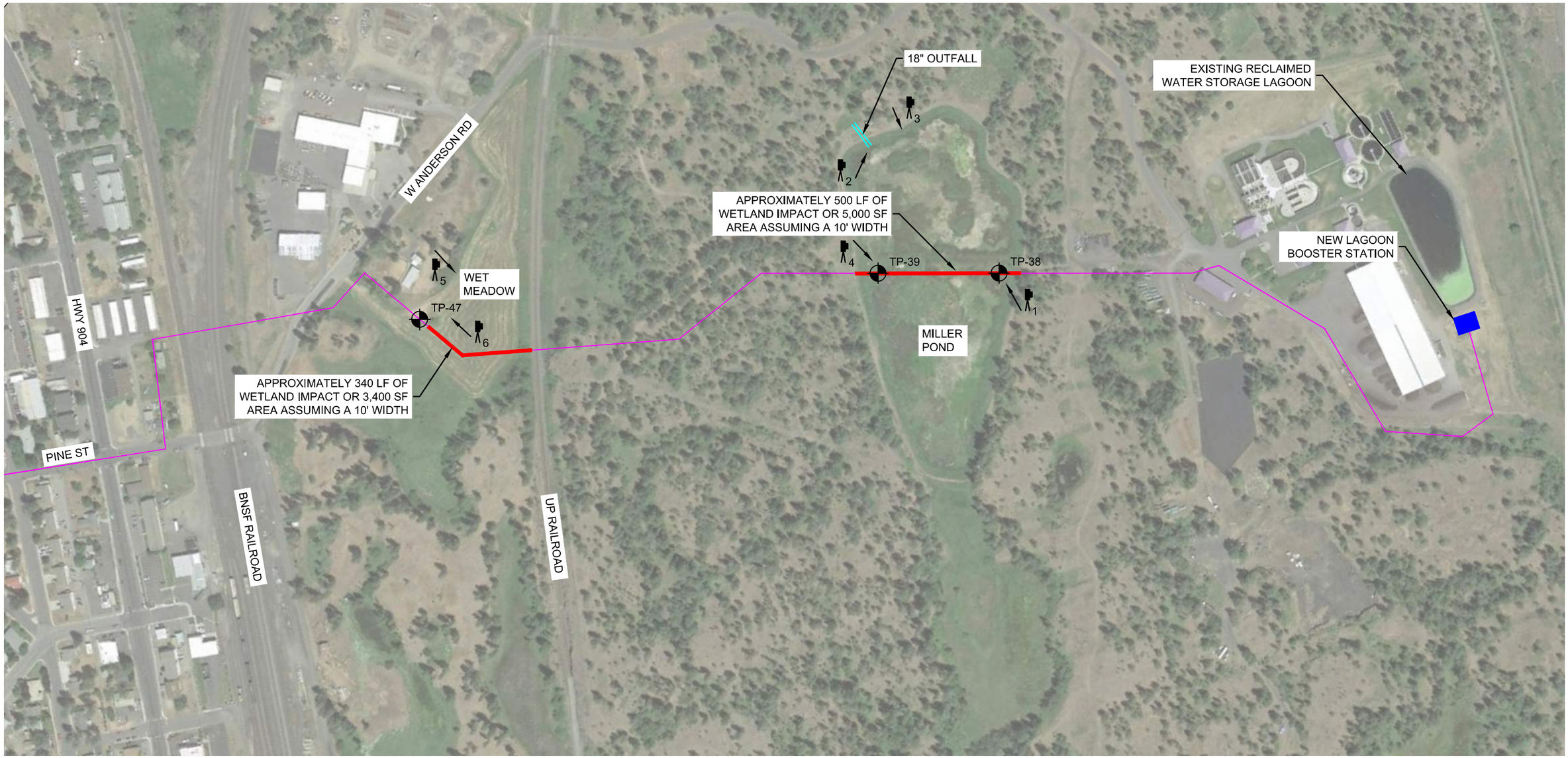
Photo 2: 18” outfall of Miller Pond, flowing northerly.

Photo 3: Overview of Miller Pond, staff gauge near outfall on northern end.

Photo 4: Budinger and Associates, soil test pit 39 on west side of Miller Pond.

Photo 5: Overview of wet meadow, looking southeast.

Photo 6: The northwest corner, or tip, of the wet meadow extends to this apple tree.



LEGEND

- 18" PVC MAIN
- IMPACTED WETLAND
- TP-38 — TEST PIT (PREFORMED BY BUDINGER)
- CULVERT
- 1 — PHOTO POINT (6)

CITY OF CHENEY PURPLE PIPE TO PARKS AND PLAYFIELDS PROJECT
WETLAND ASSESSMENT EXHIBIT

N

250 0 250 500

T-O ENGINEERS
121 W. PACIFIC AVENUE SUITE 200
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E-FILE: 200044 Wetland Exhibit.dwg DATE: 8/31/20 JOB: 200044

Wetland name or number Cheney Purple Pipe Miller Pond (CPPMP)

RATING SUMMARY – Eastern Washington

Spokane County Parcels #23182.0006 and 23185.0016 and 23182.0009

Name of wetland (or ID #): within City of Cheney Date of site visit: 6/17/2020

Rated by Vince Barthels Trained by Ecology? X Yes ___ No Date of training 10/30/08

HGM Class used for rating depressional Wetland has multiple HGM classes? ___ Y X N

See Wetland Assessment Exhibit (Figure 1)

NOTE: Form is not complete without the figures requested (*figures can be combined*).

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY I (based on functions ✓ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

- X **Category I** – Total score = (22)-27
- ___ **Category II** – Total score = 19-21
- ___ **Category III** – Total score = 16-18
- ___ **Category IV** – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	(H) M L	H (M) L	H (M) L	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	(H) M L	H (M) L	(H) M L	TOTAL
Score Based on Ratings	8	6	8	22

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY *Circle the appropriate category*
Vernal Pools	II III
Alkali	I
Wetland of High Conservation Value	I
Bog and Calcareous Fens	I
Old Growth or Mature Forest – slow growing	I
Aspen Forest	I
Old Growth or Mature Forest – fast growing	II
Floodplain forest	II
None of the above	X

8-31-20

Wetland name or number CPPMP

DEPRESSIONAL WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality		Points (only 1 score per box)
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet Wetland has an intermittently flowing outlet Wetland has a highly constricted permanently flowing outlet Wetland has a permanently flowing, unconstricted, surface outlet	points = 5 points = 3 (points = 3) points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions of soils)* Mapped as Saltese muck, 0 to 3% slopes (Map Id 8001)	YES = 3 NO = 0	3
D 1.3. Characteristics of persistent vegetation (Emergent, Scrub-shrub, and/or Forested Cowardin classes) Wetland has persistent, ungrazed, vegetation for > 2/3 of area Wetland has persistent, ungrazed, vegetation from 1/3 to 2/3 of area Wetland has persistent, ungrazed vegetation from 1/10 to < 1/3 of area Wetland has persistent, ungrazed vegetation < 1/10 of area	(points = 5) points = 3 points = 1 points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is ¼ - ½ total area of wetland 33% Area seasonally ponded is < ¼ total area of wetland	points = 3 (points = 1) points = 0	1
Total for D 1	Add the points in the boxes above	12

Rating of Site Potential If score is: (X) **12- 16 = H** ___ **6- 11 = M** ___ **0- 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	(Yes = 1) No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 (No = 0)	0
D 2.3. Are there septic systems within 250 ft of the wetland?	(Yes = 1) No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source_____	Yes = 1 (No = 0)	0
Total for D 2	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 or 4 = H** (X) **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	(Yes = 1) No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	(Yes = 1) No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the drainage or basin in which the wetland is found*)?	(Yes = 2) No = 0	2
Total for D 3	Add the points in the boxes above	4

Rating of Value If score is: (X) **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number CPPMP

DEPRESSIONAL WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion.

Points (only 1 score per box)

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

Wetland has no surface water outlet	points = 8
Wetland has an intermittently flowing outlet	points = 4
Wetland has a highly constricted permanently flowing outlet	points = 4
Wetland has a permanently flowing unconstricted surface outlet	points = 0

(If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")

4

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).*

Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding	points = 8
Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding	points = 6
The wetland is a headwater wetland	points = 4
Seasonal ponding: 1 ft - < 2 ft	points = 4
Seasonal ponding: 6 in - < 1 ft	points = 2
Seasonal ponding: < 6 in or wetland has only saturated soils	points = 0

6

Total for D 4 — Add the points in the boxes above: **10**

Rating of Site Potential If score is: ___12-16 = H X 6-11 = M ___0-5 = L — *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___3 = H X 1 or 2 = M ___0 = L — *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The wetland is in a landscape that has flooding problems.

Choose the description that best matches conditions around the wetland being rated. *Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND

Flooding occurs in sub-basin that is immediately down-gradient of wetland	points = 2
Surface flooding problems are in a sub-basin farther down-gradient	points = 1

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.

Explain why _____	points = 0
There are no problems with flooding downstream of the wetland	points = 0

1

D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 — **0**

Total for D 6 — Add the points in the boxes above: **1**

Rating of Value If score is: ___2-4 = H X 1 = M ___0 = L — *Record the rating on the first page*

Wetland name or number CPPMP

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	(only 1 score per box)
H 1.0. Does the wetland have the potential to provide habitat for many species?	
H 1.1. Structure of the plant community: *Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is >= ¼ ac or >= 10% of the wetland if wetland is < 2.5 ac.* ____Aquatic bed ____Emergent plants 0-12 in (0-30 cm) high are the highest layer and have > 30% cover X Emergent plants >12-40 in (>30-100 cm) high are the highest layer with >30% cover X Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% cover ____Scrub-shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) 4 or more checks: points = 3 3 checks: points = 2 2 checks: points = 1 1 check: points = 0	1
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 No = 0	0
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least ¼ ac **OR** 10% of its area during the March to early June **OR** in August to the end of September? ***Answer YES for Lake Fringe wetlands.*** Yes = 3 points & go to H 1.4 No = go to H 1.3.2 H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least ¼ ac or 10% of its area? *Answer yes only if H 1.3.1 is No.* Yes = 3 No = 0	3
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold. You do not have to name the species.* *Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)* # of species 2 Cattails, night shade Scoring: > 9 species: points = 2 4-9 species: points = 1 < 4 species: points = 0	0
H 1.5. Interspersion of habitats Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. *Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.* **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **High** = 3 points Riparian braided channels with 2 classes	Figure 1 1

Wetland name or number CPPMP

H 1.6. Special habitat features *Check the habitat features that are present in the wetland. The number of checks is the number of points.* X Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. X Cattails or bulrushes are present within the wetland. X Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ___ Emergent or shrub vegetation in areas that are permanently inundated/ponded. ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ___ Invasive species cover less than 20% in each stratum of vegetation *(canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)*	3
Total for H 1 — Add the points in the boxes above	8

Rating of Site Potential If score is: ___ **15-18 = H** (X) **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: *Calculate:* % undisturbed habitat _____ + [(% moderate and low intensity land uses)/2] ____ =_____% > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1km Polygon 25% — points = 2 10-19% of 1km Polygon — points = 1 <10% of 1km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. *Calculate:* % undisturbed habitat _____ + [(% moderate and low intensity land uses)/2] ____ =_____% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches 35% — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of Polygon — points = 0	2
H 2.3. Land use intensity in 1 km Polygon: high intensity > 50% of Polygon is high intensity land use — points = (-2) Does not meet criterion above — points = 0	0
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. *Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs* — Yes = 3 No = 0	0
Total for H 2 — Add the points in the boxes above	4

Rating of Landscape Potential If score is: (X) **4-9 = H** ___ **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose the highest score that applies to the wetland being rated* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) X It is mapped as a location for an individual WDFW species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100 m (see Appendix B) — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If score is: (X) **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number Cheney Purple Pipe Wet Meadow (CPPWM)

RATING SUMMARY – Eastern Washington

Spokane County Parcel # 23182.0006
Name of wetland (or ID #): in City of Cheney Date of site visit: 6/17/20

Rated by Vince Barthels Trained by Ecology? X Yes ___ No Date of training 10-30-08

HGM Class used for rating depressional Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth
see Wetland Assessment Exhibit

OVERALL WETLAND CATEGORY III (based on functions ✓ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

___ **Category I** – Total score = 22-27
___ **Category II** – Total score = 19-21
X **Category III** – Total score = 16-18
___ **Category IV** – Total score = 9-15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	(H) M L	(H) M L	H M (L)	
Value	H M (L)	H M (L)	(H) M L	TOTAL
Score Based on Ratings	6	6	5	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY *Circle the appropriate category*
Vernal Pools	II III
Alkali	I
Wetland of High Conservation Value	I
Bog and Calcareous Fens	I
Old Growth or Mature Forest – slow growing	I
Aspen Forest	I
Old Growth or Mature Forest – fast growing	II
Floodplain forest	II
None of the above	(I)

8-25-20

Wetland name or number CPPWM

DEPRESSIONAL WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality		Points (only 1 score per box)
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland has no surface water outlet Wetland has an intermittently flowing outlet Wetland has a highly constricted permanently flowing outlet Wetland has a permanently flowing, unconstricted, surface outlet	points = 5 points = 3 points = 3 points = 1	5
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions of soils)* Cocolalla ashy silt loam	YES = 3 NO = 0	0
D 1.3. Characteristics of persistent vegetation (Emergent, Scrub-shrub, and/or Forested Cowardin classes) Wetland has persistent, ungrazed, vegetation for > $^2/_3$ of area Wetland has persistent, ungrazed, vegetation from $^1/_3$ to $^2/_3$ of area Wetland has persistent, ungrazed vegetation from $^1/_{10}$ to < $^1/_3$ of area Wetland has persistent, ungrazed vegetation < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is ¼ - ½ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 3 points = 1 points = 0	0
Total for D 1	Add the points in the boxes above	10

Rating of Site Potential If score is: ___**12- 16 = H** X **6- 11 = M** ___**0- 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	1
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1- D 2.3? Source_____	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	3

Rating of Landscape Potential If score is: X **3 or 4 = H** ___**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the drainage or basin in which the wetland is found*)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	0

Rating of Value If score is: ___**2-4 = H** ___**1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number CPPWM

DEPRESSIONAL WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion.

Points (only 1 score per box)

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland has no surface water outlet — points = 8 (circled)
- Wetland has an intermittently flowing outlet — points = 4
- Wetland has a highly constricted permanently flowing outlet — points = 4
- Wetland has a permanently flowing unconstricted surface outlet — points = 0

(If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing")

8

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).*

- Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding — points = 8
- Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding — points = 6
- The wetland is a headwater wetland — points = 4
- Seasonal ponding: 1 ft - < 2 ft — points = 4
- Seasonal ponding: 6 in - < 1 ft — points = 2 (circled)
- Seasonal ponding: < 6 in or wetland has only saturated soils — points = 0

2

Total for D 4 — Add the points in the boxes above: **10**

Rating of Site Potential If score is: ___12-16 = H X 6-11 = M ___0-5 = L — *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 (circled) No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in a land use that generates runoff?	Yes = 1 (circled) No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses? rail + ag	Yes = 1 (circled) No = 0	1
Total for D 5	Add the points in the boxes above	3

Rating of Landscape Potential If score is: X 3 = H ___1 or 2 = M ___0 = L — *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The wetland is in a landscape that has flooding problems.

Choose the description that best matches conditions around the wetland being rated. *Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND

- Flooding occurs in sub-basin that is immediately down-gradient of wetland — points = 2
- Surface flooding problems are in a sub-basin farther down-gradient — points = 1

The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood.

- *Explain why* _____ — points = 0
- There are no problems with flooding downstream of the wetland — points = 0 (circled)

0

D 6.2. Has the site has been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 (circled)

0

Total for D 6 — Add the points in the boxes above: **0**

Rating of Value If score is: ___2-4 = H ___1 = M X 0 = L — *Record the rating on the first page*

Wetland name or number CPPWM

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	(only 1 score per box)
H 1.0. Does the wetland have the potential to provide habitat for many species?	
H 1.1. Structure of the plant community: *Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is >= ¼ ac or >= 10% of the wetland if wetland is < 2.5 ac.* ____Aquatic bed ____Emergent plants 0-12 in (0-30 cm) high are the highest layer and have > 30% cover __X__Emergent plants >12-40 in (>30-100 cm) high are the highest layer with >30% cover __X__Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% cover ____Scrub-shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) 4 or more checks: points = 3 3 checks: points = 2 2 checks: points = 1 1 check: points = 0	1
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 No = 0	0
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least ¼ ac **OR** 10% of its area during the March to early June **OR** in August to the end of September? *Answer YES for Lake Fringe wetlands.* Yes = 3 points & go to H 1.4 No = go to H 1.3.2 H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least ¼ ac or 10% of its area? *Answer yes only if H 1.3.1 is No.* Yes = 3 No = 0	0
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold. You do not have to name the species.* *Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)* # of species 3 baltic rush, curly dock, meadow foxtail Scoring: > 9 species: points = 2 4-9 species: points = 1 < 4 species: points = 0	0
H 1.5. Interspersion of habitats Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. *Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.* **None** = 0 points **Low** = 1 point **Moderate** = 2 points All three diagrams in this row are **High** = 3 points Riparian braided channels with 2 classes	Figure 1 1

Wetland name or number CPPWM

H 1.6. Special habitat features *Check the habitat features that are present in the wetland. The number of checks is the number of points.* X Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. ____ Cattails or bulrushes are present within the wetland. X Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ____ Emergent or shrub vegetation in areas that are permanently inundated/ponded. ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ____ Invasive species cover less than 20% in each stratum of vegetation *(canopy, sub-canopy, shrubs, herbaceous, moss/ground cover)*	2
Total for H 1 — Add the points in the boxes above	4

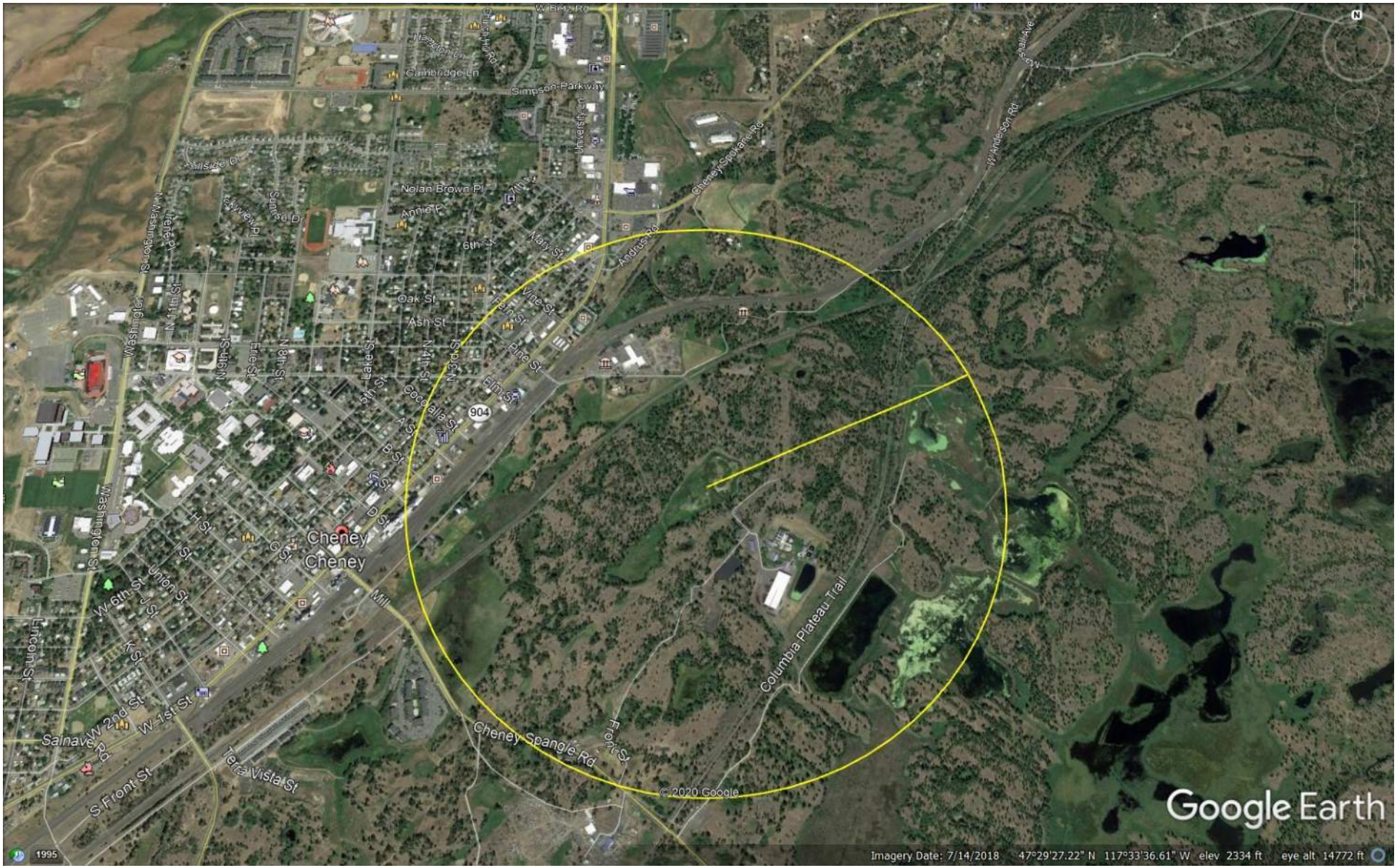
Rating of Site Potential If score is: ___ **15-18 = H** ___ **7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1. Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: *Calculate:* % undisturbed habitat _____ + [(% moderate and low intensity land uses)/2] ____ =_____% > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1km Polygon — points = 2 10-19% of 1km Polygon — points = 1 <10% of 1km Polygon — points = 0 5%	0
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. *Calculate:* % undisturbed habitat _____ + [(% moderate and low intensity land uses)/2] ____ =_____% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of Polygon — points = 0 30%	2
H 2.3. Land use intensity in 1 km Polygon: > 50% of Polygon is high intensity land use — points = (- 2) Does not meet criterion above — points = 0 60% = high intensity	-2
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. *Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs* — Yes = 3 No = 0	0
Total for H 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___ **4-9 = H** ___ **1-3 = M** X **< 1 = L** *Record the rating on the first page*

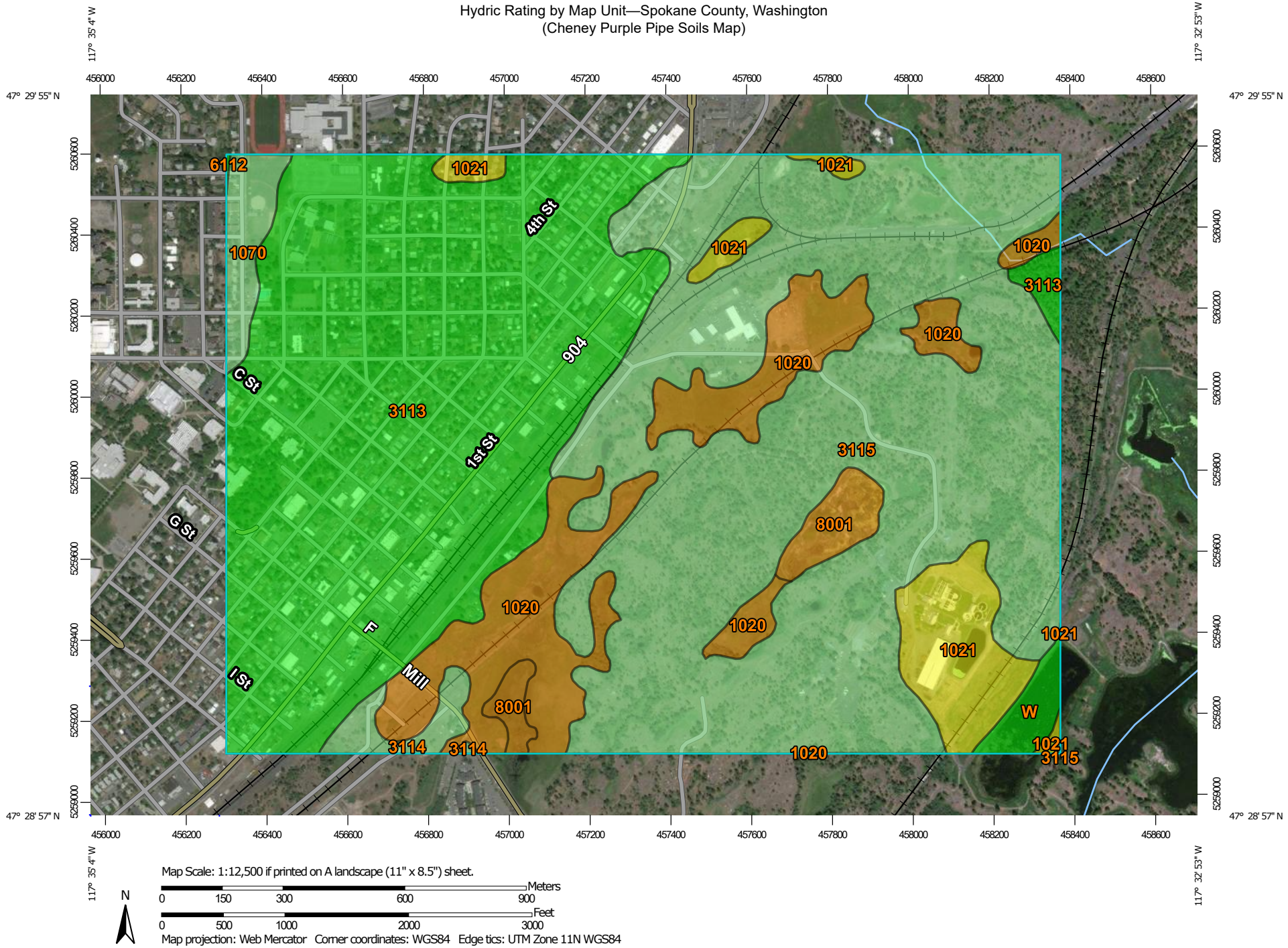
H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose the highest score that applies to the wetland being rated* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see Appendix B) — It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) X It is mapped as a location for an individual WDFW species elk — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats within 100 m (see Appendix B) — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If score is: X **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*



1 KM radius from wetland impacts, Cheney Purple Pipe Reclaimed Water System

Hydric Rating by Map Unit—Spokane County, Washington
(Cheney Purple Pipe Soils Map)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 12, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 18, 2014—Sep 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1020	Cocolalla ashy silt loam, 0 to 3 percent slopes	82	77.4	10.2%
1021	Cocolalla-Hardesty complex, 0 to 3 percent slopes	53	35.0	4.6%
1070	Mondovi silt loam, 0 to 8 percent slopes	5	11.9	1.6%
3113	Stutler-Springdale complex, 3 to 15 percent slopes	0	277.2	36.6%
3114	Rockly-Fourmound complex, 0 to 15 percent slopes	4	8.6	1.1%
3115	Northstar-Rock outcrop complex, 3 to 15 percent slopes	4	327.8	43.2%
6112	Broadax silt loam, 15 to 30 percent slopes	0	0.1	0.0%
8001	Saltese muck, 0 to 3 percent slopes	90	13.2	1.7%
W	Water	0	6.9	0.9%
Totals for Area of Interest			**757.9**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map for Purple Pipe

August 27, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Forest Practices Activity Map - Application #_____

Map Symbols

- Harvest Boundary
- Road Construction
- Stream
- RMZ / WMZ Buffers
- Rock Pit
- Landing
- Waste Area
- Clumped WRTS/GRTS
- Existing Structure

Additional Information

Legal Description

S07 T23.0N R42.0E, S13 T23.0N R41.0E
S12 T23.0N R41.0E, S18 T23.0N R42.0E

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.

0 0.25 Miles

Date: 8/28/2020 Time: 8:56:49 AM

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic Query ID: P200514143601
REPORT DATE: 05/14/2020 2.36

Common Name / Scientific Name / Notes	Site Name / Source Dataset / Source Record / Source Date	Priority Area / Occurrence Type / More Information (URL) / Mgmt Recommendations	Accuracy	Federal Status / State Status / PHS Listing Status	Sensitive Data / Resolution	Source Entity / Geometry Type
Freshwater Emergent	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Rocky Mountain elk Cervus elaphus nelsoni	TOWER MOUNTAIN/MICA PHSREGION 918601	Regular Concentration Regular concentration http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons

WDFW Test Map

May 14, 2020

PHS Report Clip Area
PT
LN
AS MAPPED
SECTION
QTR-TWP
TOWNSHIP

1:19,842

0 0.15 0.3 0.6 mi
0 0.275 0.55 1.1 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Appendix D

Biological Resources Memorandum

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APPENDIX D

BIOLOGICAL RESOURCES MEMORANDUM

To: Todd Ableman, Public Works Director, City of Cheney

Copy: Allison Esvelt, P.E., Project Manager, Esvelt Environmental Engineering, LLC

From: Vince Barthels, Biologist, T-O Engineers

Project: City of Cheney – Reclaimed Water Distribution Purple Pipe

Date: September 2, 2020

RE: Biological Resources Memorandum – No Effects Determination

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This Biological Resources Memorandum has been prepared as a technical report for the proposed City of Cheney Reclaimed Water Distribution Purple Pipe Project (hereafter referred to as the Proposed Project, or Purple Pipe Project), as required by Section 7(c) of the Endangered Species Act (ESA). Cheney is roughly centrally located in Spokane County (**see Attachment A, Vicinity Map**)**.** The Purple Pipe Project proposes to construct a reclaimed water treatment and distribution system for landscape irrigation (non-potable water) within the City of Cheney limits. The targeted end users are Cheney Parks and Recreation Department (for City Parks), Cheney School District (for school and sports centers/fields), and Eastern Washington University (for the campus grounds). The approximately 3-mile proposed piping alignment of 18" transmission main would travel from the Cheney Wastewater Treatment and Reclamation Plant (WTRP) on the eastern most side of the study area westward toward the intended destination, Hagelin Park, near the center of the City of Cheney, with approximately 12 acres of anticipated ground disturbance. The Proposed Project footprint, including associated utility improvements and staging areas, constitutes the study area for this report (**see Attachment B, Alternative #3 Phase I Improvements Exhibit**). The more detailed 50% design level plan set is enclosed within **Attachment C, 50% Design Drawings.**

This technical report will serve as the Effects Analysis linked to potential impacts to species listed as endangered, threatened, proposed or candidate, and designated or proposed critical habitats protected under ESA. In addition, state sensitive species that could potentially be affected by the Proposed Project are also analyzed in this report. This technical report is intended to demonstrate that the Proposed Project will have **No Effect** to listed species. Vince Barthels, a Qualified Biologist, conducted a site review and pedestrian survey of the study area on June 17, 2020.

To determine the ESA-listed species and designated or proposed critical habitats that may be impacted by the Proposed Project, a species list was obtained from the USFWS Information, Planning, and Consultation (IPaC) database (see **Attachment D, USFWS IPaC Species List**). According to the IPaC report, four (4) threatened ESA-listed species may exist in the Proposed Project vicinity. To determine the state sensitive or Priority Habitats and Species (PHS) that may be impacted by the Proposed Project, a PHS report was obtained from the Washington

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Department of Fish and Wildlife (WDFW) (see **Attachment E, WDFW PHS Report**). According to the PHS report, there are no further species or Priority Habitats with a State Status that may exist in the Proposed Project vicinity.

The species list, summarized in **Table 1**, was derived from the compiling information from the IPaC database and the PHS report.

Table 1. Summary of ESA and WDFW PHS species that may occur in the Proposed Project vicinity (dated: 9-2-2020).

Common Name	Scientific Name	ESA or State Status
Bull Trout	*Salvelinus confluentus*	ESA - Threatened
Spalding's Silene	*Silene spaldingii*	ESA-Threatened
Water Howellia	*Howellia aquatilis*	ESA- Threatened
Yellow-billed Cuckoo	*Coccyzus americanus*	ESA - Threatened

General Project Location and Environmental Setting

The City of Cheney Reclaimed Water Distribution Purple Pipe Project will provide water from the Cheney WTRP (southeast of Cheney) to the center of Cheney, near Hagelin Park. The proposed 18" wide pipe will stretch from a newly built Lagoon Booster Station at the WTRP to the northwest towards Cheney. The proposed Purple Pipe will then follow Pine Street northwest before angling west to follow Ash Street until the pipe reaches Hagelin Park (**see Attachment B, and Attachment C).** The Purple Pipe would supply multiple pipes distributing water to five (5) parks/playfields across Cheney (Hagelin Park, Cheney High School playfield, Crunk's Sports Complex, Cheney Middle School playfield, and a Cheney playfield north of Betz Road).

From east to west, the proposed Purple Pipe originates at the WTRP and crosses low-quality wetland and upland areas. Upland areas are a mix of scrub-shrub and forested ponderosa woodlands. The proposed footprint crosses two identified wetland features identified as Category I and Category III depressional wetlands. The Category I wetland has a history of influence by the WTRP, most directly by the wastewater treatment lagoon system that existed prior to the current facility in 1994. The Category III wetland has history of use for agricultural purposes as a hay field. As the Proposed Project alignment progresses, it continues northwest into the City of Cheney's municipal environment along pre-established, asphalt-covered roads, through a mix of commercial and residential use areas, to reach Hagelin Park -a centralized community park.

The project footprint elevation ranges from approximately 2,300 feet to 2,450 feet above sea

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level (NAVD 88). Northstar-Rock outcrop complex (Soil Map Unit 3115), 3 to 15 percent slopes, and Stutler-Sprindale complex (Soil Map Unit 3113) 3 to 15 percent slopes, are the dominant soil types along the proposed pipe alignment (**see Attachment F, Soils Map Purple Pipe**). Tree stratum representative species mainly includes Ponderosa Pine (*Pinus ponderosa*) and some Quaking Aspen (*Populus tremuloides*). Shrub strata are marginally represented by Wood's rose (*Rosa woodsii*) and snowberry (*Symphoricarpus albus*). A composite of grasses and forbs, including annual weeds, constitutes the herb strata. Representative species include: smooth brome (*Bromus inermis*), intermediate wheatgrass (*Thinopyrum intermedium*), Kentucky bluegrass (*Poa pratensis*), prickly lettuce (*Lactuca serriola*), creeping thistle (*Cirsium arvense*), tumble mustard (*Sisymbrium altissimum*), flix-weed (*Descurainia sophia*), and mullein (*Verbascum thapsus*), among others. Wetland plants include cattails (*Typha lattifolia*), bulrush (*Scirpus acutus*), reed canary grass (*Phalaris arundinacea*), meadow foxtail *(Alopecurus pratensis)* and curly dock (*Rumex crispus*). Various ornamental and landscaping varieties of all strata are present in the municipal setting of the proposed Project footprint. Photos of both wetlands found within the study area are included in **Attachment G, Photo Inventory.**

The study area as a whole contains very low ecological value habitat due to the following three reasons: (1) a significant portion the study area is pre-developed and contained within a municipality with much of the proposed project footprint aligning with pre-existing, asphalt-covered roads; (2) remaining portions of the study area are pre-disturbed by both agricultural and water treatment practices; and (3) there are a lack of contiguous, undisturbed native vegetative communities.

Proposed Project Components -Phase One

While the Proposed Project is expected to develop as the City grows over time, the Purple Pipe Project, Phase One is the subject of this report and consists of the following improvements:

1. Installation of a new filter pump station.
2. Construction of a new filter building to house coagulation system, granular media filtration, UV disinfection system and associated items.
3. Install new sump pump and drain system.
4. Installation of sodium hypochlorite injection system for chlorine residual.
5. Conversion of the existing plant reaeration lagoon to a reclaimed water storage lagoon with a floating HDPE cover.
6. Installation of a new pump station to pump out of the lagoon to a Cheney's Reservoir #0 to be used for equalization storage.
7. Improvements to Reservoir #0, including electrical, controls, and telemetry for level and pump station control.
8. Installation of new pump station at Reservoir #0 to pump from the reservoir through three (3) irrigation distribution mains to four (4) reuse irrigation sites planned for Phase One.
9. Install approximately three (3) miles of new underground transmission main and reuse irrigation distribution main from the treatment plant to the City Reservoir #0 and from Reservoir #0 to the reuse irrigation sites, and complete associated restoration.

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10. Installation of groundwater monitoring wells to monitor groundwater nitrate concentrations at or near the reuse sites.
11. Associated field piping, excavation, electrical controls, and site improvements.

Future phases will incorporate additional reuse irrigation areas to be served by the system and will include additional underground distribution main installation and potential reservoir and pumping systems.

Construction is proposed to begin in the fall of 2021 and may span over the next few years.

Species Specific Descriptions, Habitat Requirements, and Impact Assessment

The majority of the defined Proposed Project footprint is in a pre-disturbed or pre-developed setting. A "**no effects**" determination is warranted for all the species listed in **Table 1**, based on the suitability or quality of the habitat available as well as the scope and nature of the Proposed Project. The following is a description of the individual species listed in **Table 1**, their habitat requirements, and a justification of the individual no effect determinations.

Bull Trout

Bull trout are listed as threatened under the ESA. Bull trout are salmonids that are members of the char family. They have grayish to dark green sides with white to pinkish spots. The fish is recognized by the white margins on its pectoral, ventral, and anal fins (Eddy and Underhill 1998). The dorsal fin also lacks the spots that cover the back and sides of the body.

Bull trout spawn in the fall in streams with cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes (USFWS 1998). Bull trout eggs require a long incubation period, hatching in late winter or early spring. Some may live near areas where they were hatched; however, others migrate from streams to lakes or reservoirs a few weeks after emerging from the gravel. Bull trout habitat consists mainly of oligotrophic lakes and deep pools of pristine cold fluvial habitats in mountainous regions, mainly 45 to 55 °F (USFWS 1998).

There is no flowing water in the Proposed Project footprint that provides viable habitat for bull trout. The Proposed Project activities will have **no effect** on the bull trout identified as an ESA-listed threatened species because neither the species nor its habitat are found in the Proposed Project area.

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Spalding's Silene

Spalding's silene (sometimes called Spalding's catchfly) is an herbaceous perennial, 8-24 inches tall, typically with one stem, bearing 4 to 7 pairs of leaves 2 to 3 inches in length (Hitchcock et al. 1964). The light green foliage and stem are lightly to more typically densely covered with sticky hairs. The cream-colored flowers are arranged in a spiral at the top of the stem. The species begins to flower in mid to late July, with some individuals still flowering by early September. Spalding's silene generally occurs in native grasslands that are in reasonably good ecological condition. It is found most commonly in sites that are typically dominated by Idaho fescue (Festuca idahoensis) and have sparse cover of snowberry (Symphoricarpos albus) (Washington National Heritage Program 2001). Some of these sites occur in a mosaic of grassland and ponderosa pine forest. On drier sites, the species can be found on the bluebunch wheatgrass (Agropyron spicatum)/Idaho fescue association. Associated species include prairiesmoke (Geum triflorum), sticky geranium (Geranium viscosissimum), Wood's rose (Rosa woodsii), white stoneseed (Lithospermum ruderale), yarrow (Achillea millefolium), northwest cinquefoil (Potentilla gracilis), and hawkweed (Hieracium sp.) (Washington National Heritage Program 2001). Populations have been found on all aspects, although there seems to be a preference for slopes which face north. Soils are almost always productive silts/loams (loess) that are moderately deep and sometimes gravelly (Gamon 1991).

Habitat requirements for Spalding's silene are marginally present within the Proposed Project area. While Idaho fescue and snowberry presence are documented, it is not dominant and Plant assemblages found in association with Spalding's silene do not align with those found in the study area. Additionally, the soils in the study area do not fit the habitat profile for Spalding's silene. During the site visit, Spalding's silene was not present within the vicinity of the Proposed Project area. The Proposed Project activities will have **no effect** on Spalding's silene identified as an ESA-listed threatened species because the species was not found within the Proposed Project area and habitat characteristics are insufficient.

Water Howellia

Water howellia is an aquatic plant that grows 4-24 inches in height. It has extensively branched, submerged or floating stems with narrow leaves. Two types of flowers are produced: small, inconspicuous flowers beneath the water's surface, and emergent, white, 5-lobed flowers 0.08-0.11 inches in length. The flowers that emerge from the water's surface are usually visible form late May until June. The plant is predominantly self-pollinating, and each fruit contains up to five large brown seeds (Shelly and Moseley 1988). One population, occupying three ponds on private land, in Latah County was discovered in 1967 and has been monitored annually since 1999 (Lichthardt and Gray 2005). Extensive surveys during 1994 and several other years have failed to locate any additional occurrences (USFWS 1996). Water howellia may be found in two general types of wetland/riparian habitats: 1) small isolated ponds (also known as vernal or seasonal ponds or potholes, and 2) river oxbows that may be abandoned or hydrologically linked to the adjacent river system (USFWS 1996). In Idaho, associated aquatic species include hemlock water-parsnip (Sium suave), water plantain (Alisma plantago-aquatica), beaked sedge

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(Carex rostrata), duckweed (Lemna minor), spikerush (Eleocharis spp.) and water-starwort (Callitriche heterophylla) (Shelly and Moseley 1988). This species does not compete well with invasive species and is adversely affected by modification of riparian and wetland habitats.

The small, permanently flooded pond habitat suitability component for water howellia does exist within the Proposed Project area, however, known associated aquatic species are not present. Additionally, the isolated quality of typical ponds where water howellia is located is arguably not present in this study area due to the influence of wastewater treatment practices and the small, constricted outflow point at the northern end of the freshwater pond designated wetland in the study area. The other designated wetland area is a wet meadow that has historically been used as a hayfield. During the site visit, water howellia was not present within the vicinity of the study area. The Proposed Project will have **no effect** on water howellia identified as an ESA-listed threatened species because the species was not found within the Proposed Project area and habitat characteristics are insufficient.

Yellow-billed Cuckoo

The yellow-billed cuckoo is listed as threatened under the ESA. The yellow-billed cuckoo is a long, slim bird with a flat head, long tail and large yellow bill. The upper body is grey-brown, and the underside is white; the tail also has white spots at the end of the central tail feathers (Halterman et al. 2016). This neotropical migrant historically occupied riparian ecosystems across the western United States. Yellow-billed cuckoos arrive in the United States in late May or early June and breed in late June through July. Cuckoos typically start their southerly migration by late August or early September (Parrish et al. 1999). The yellow-billed cuckoo requires thick, closed canopy riparian forest with an understory of dense brush at a minimum of 50 acres in size (Hughes 1999 & USFWS 2014). These riparian forests are usually composed of various species of willows and cottonwoods.

Suitable habitat conditions do not exist within or adjacent to the Proposed Project area for the ESA-listed yellow-billed cuckoo, which primarily use riparian areas near water that contain dense stands of mature trees, such as cottonwoods. Stands of mature trees within the Proposed Project area near wetland features do not reach the minimum 50-acre requirement and consist mainly of Ponderosa Pine of a less dense nature than willow or cottonwood. There are no suitable conditions within the municipal portion of the Purple Pipe Project footprint. Activities associated with the Proposed Project will have **no effect** on the yellow-billed cuckoo identified as an ESA-listed threatened species because neither the species nor its habitat are found in the Proposed Project area.

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Conclusion

The City of Cheney Reclaimed Water Distribution Purple Pipe Project will have **no effect** on the identified ESA listed species contained within **Table 1** of this memo. The Proposed Project area does not contain viable or suitable habitat for the Bull trout, Spalding's silene, water howellia, or the yellow-billed cuckoo. If you have any questions regarding this memo, please contact me at (509) 319-2580 or via email at vbarthels@to-engineers.com.

List of Attachments

Attachment A – Vicinity Map

Attachment B – Alternative #3 Phase I Improvements Exhibit

Attachment C – 50% Design Drawings

Attachment D – USFWS IPaC Species List

Attachment E – WDFW PHS Report

Attachment F – Soils Map Purple Pipe

Attachment G – Photo Inventory

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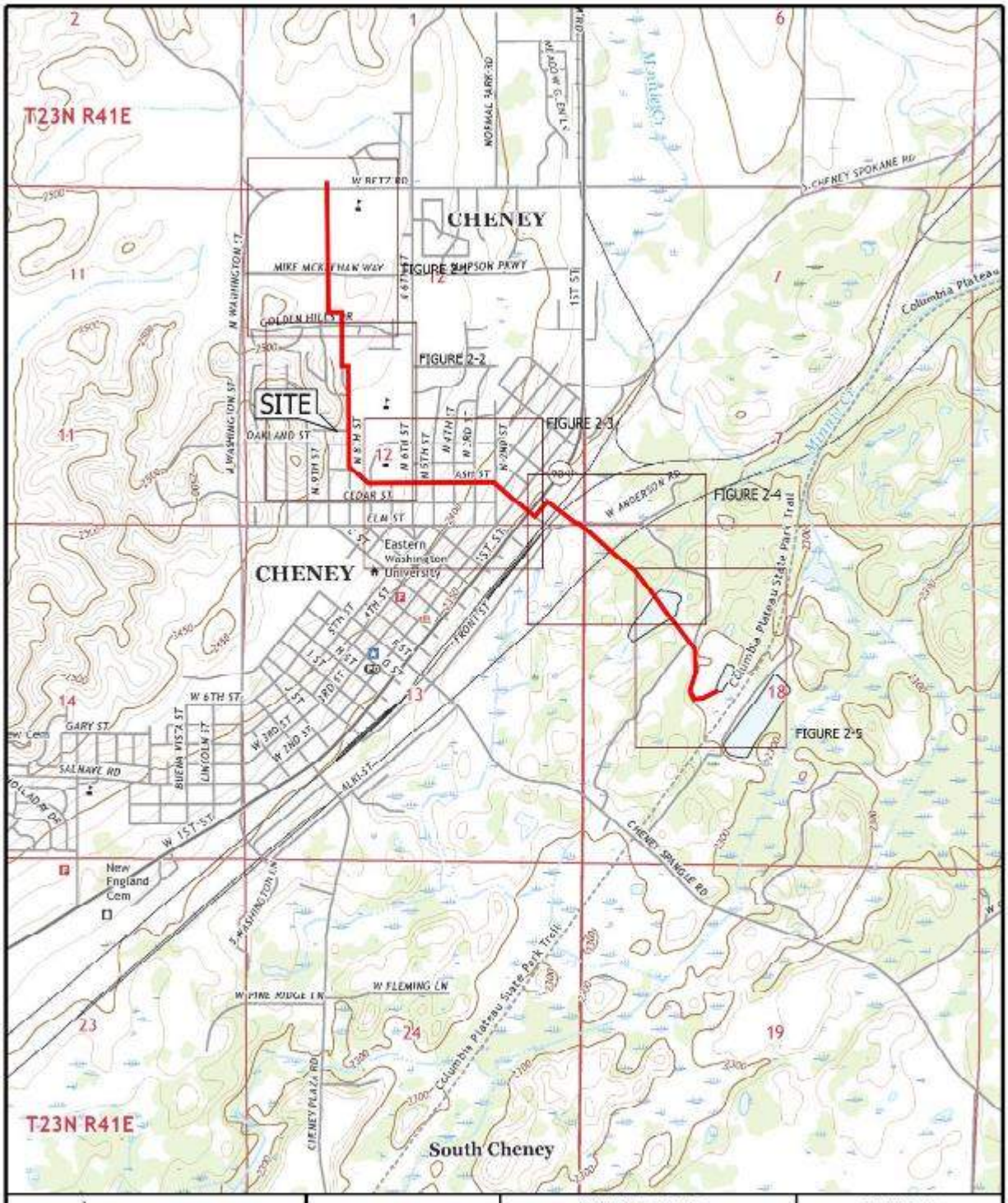


N SCALE: 1"=2000' 0 1000 2000	SECTIONS 1, 12 & 18 T 23 N R 41 E USGS 2017	Budinger & Associates	VICINITY MAP CHENEY PURPLE PIPE CHENEY, WASHINGTON	FIGURE 1 PROJECT NUMBER S19416 DATE: 4/2020

GENER-L NOTES

1. PH-SE 1 M-IN LOC-TIONS PROVIDED BY THE CITY OF CHENEY

LEGEND

- 6" PVC M-IN
- 8" PVC M-IN
- 10" PVC M-IN
- 12" PVC M-IN
- 14" PVC M-IN
- 16" PVC M-IN
- 18" PVC M-IN

N

0 600 1200

SC-LE

8"
12"
8"
10"
8"
14"
8"
10"
18"
6"
18"
6"
18"

MURPHY RD.
BETZ RD.
MIKE MCKEEHAN WAY
HIGHWAY 904
CHENEY-SPOKANE RD.
GOLDEN HILLS DR.
8TH ST.
6TH ST.
WASHINGTON ST.
ASH ST.
PINE ST.
LAKE ST.
ELM ST.
HIGHLAND ST.
O-KLAND ST.
9TH ST.
ERIE ST.
EXISTING RESERVOIR #0
EXISTING RECL-IMED W-TER STOR-GE L-GOON
NEW L-GOON BOOSTER ST-TION
CHENEY-SPANGLE RD.
SALNAVE RD.
PRESLEY DR.

18602002-Fig 3

SC-LE: -S SHOWN
DESIGNED: NVH
DR- N: TVP
CHECKED:
-PPROVED:
PROJ. NO.: 186-02-02
D-TE: 1/8/20

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF CHENEY, WASHINGTON
TECHNICAL MEMORANDUM NO.1

ALTERNATIVE #3 PHASE 1 IMPROVEMENTS

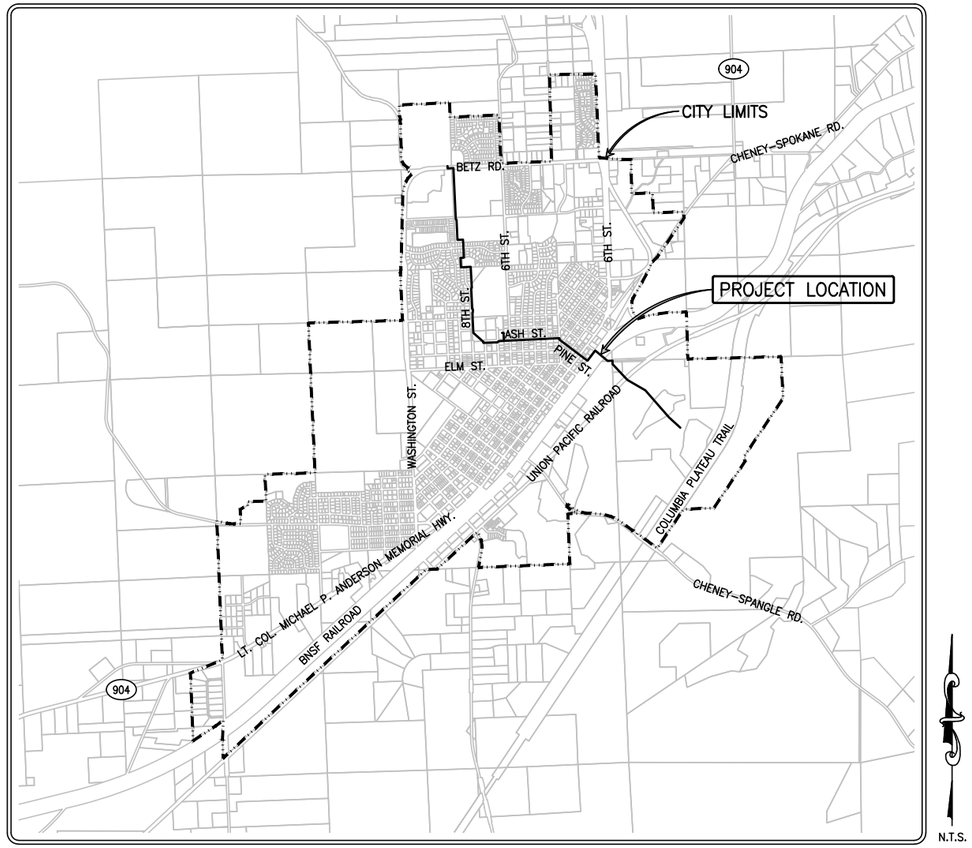
FIGURE
3

CITY OF CHENEY, WASHINGTON

RECLAIMED WATER DISTRIBUTION

CHENEY PURPLE PIPE PROJECT

July 22, 2020



CITY OF CHENEY

CITY OF CHENEY OFFICIALS

MAYOR
Chris Grover

CITY ADMINISTRATOR
Mark Schuller

PUBLIC WORKS DIRECTOR
Todd Ableman

TOWN COUNCIL
Vincent Barthels
Ryan Gaard
Dan Hilton
Teresa Overhauser
Paul Schmidt
John Taves
Jill Weiszmann

1860206–Cover

REVIEW SET
NOT FOR CONSTRUCTION

Designer:
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ENGINEERING AND MANAGEMENT
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Spokane, Washington 99201
Ph:(509)328–6066

Project Engineer:
ESVELT ENVIRONMENTAL ENGINEERING LLC
6908 East Dalton Avenue
Spokane, Washington 99212
Ph:(509)926–3049

COVER SHEET, PROJECT LOCATION

Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

revisions	ISSUE FOR REVIEW
drawing status	REVIEW SET
released for	CITY REVIEW
release date	7/20/2020
sheet	01
OF	14

ABBREVIATIONS

PIPE	AC	ASBESTOS CONCRETE
	CONC	CONCRETE
	CMP	CORRUGATED METAL PIPE
	CI	CAST IRON
	DI	DUCTILE IRON
	FM	FORCE MAIN
	GS	GALVANIZED STEEL
	PVC	POLYVINYL CHLORIDE PIPE
	RCP	REINFORCED CONCRETE PIPE
	STL	STEEL PIPE
JOINTS	FL	FLANGED
	MJ	MECHANICAL JOINT
	PE	PLAIN END
	RJ	RESTRAINED JOINT
VALVES	BFV	BUTTERFLY VALVE
	CV	CHECK VALVE
	GV	GATE VALVE
	RSGV	RESILIENT SEAT GATE VALVE
	BACKFV	BACKFLOW PREVENTION VALVE
FITTINGS	CPLG	COUPLING
	EL	ELBOW
	FCA	FLANGED COUPLING ADAPTER
	LR	LONG RADIUS
	RED	REDUCER
	TH	THREADED

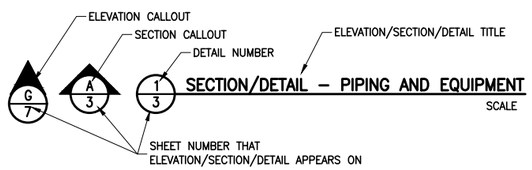
MISC	A.C.	ASPHALT CONCRETE
	B	BASEMENT
	C	CONCRETE
	CB	CATCH BASIN
	C.F.S.	CUBIC FEET PER SECOND
	CL.	CENTERLINE
	C.O.	CLEAN OUT
	CONC.	CONCRETE
	CSBC	CRUSHED SURFACING BASE COURSE
	CSTC	CRUSHED SURFACING TOP COURSE
	C.Y.	CUBIC YARD
	D	DIRT
	DEC.	DECIDUOUS
	DET.	DETAIL
	DIA.	DIAMETER
	DIM.	DIMENSION
	DR	DRAIN PIPE
	DW	DRYWELL
	DWG	DRAWING
	E	EAST
	EG	EXISTING GRADE
	ELEV.	ELEVATION
	EP	EDGE OF PAVEMENT
	EXIST.	EXISTING
	FF	FINISH FLOOR
	FG	FINISH GRADE
	FH	FIRE HYDRANT
	FT.	FOOT OR FEET
	GR	GRADE
	HP	HIGH PRESSURE
	HWY	HIGHWAY
	I.E.	INVERT ELEVATION
	IN.	INCHES
	LF	LINEAL FEET

MAX.	MAXIMUM
MH	MANHOLE
MIN.	MINIMUM
N	NORTH
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
P	PAVED
PP	POWER POLE
P.S.I.	POUNDS PER SQUARE INCH
Q.C.	FULL PIPE CAPACITY
Q.D.	DESIGN FLOW
REV.	REVISED
REQ'D	REQUIRED
RD.	ROAD
R.R.	RAILROAD
R/W	RIGHT-OF-WAY
S	SOUTH
S=	SLOPE
SD	STORM DRAIN
SHT.	SHEET
SL	SURVEY LINE
SS	SANITARY SEWER
ST.	STREET
STA	STATION
STD.	STANDARD
SW	SIDEWALK
SY	SQUARE YARD
T.B.M.	TEMPORARY BENCH MARK
T.O.P.	TOP OF PIPE
T.O.W.	TOP OF WALL
TYP.	TYPICAL
W	WEST

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SURVEY		
CONTROL NUMBER	△12	
SURVEY MONUMENT	●	
STORM SEWER		
CATCH BASIN	□	
DRYWELL	◎	
CULVERT	⊨=⊨	
SANITARY SEWER		
MANHOLE	Ⓢ	
CLEAN OUT	○	
WATER		
VALVE	⋈	
FIRE HYDRANT		
METER	⊞	
WATER MANHOLE	Ⓦ	
IRRIGATION		
VALVE	⋈	
AIR VALVE		
SPRINKLER		
UTILITIES		
GAS VALVE		
PAD MOUNTED TRANSFORMER	△	
LIGHT POLE	✳	
UTILITY POLE	-○-	
UTILITY POLE ANCHOR	⟵	
TELEPHONE RISER	TR	
TELEPHONE MANHOLE	Ⓣ	
JUNCTION BOX	J	
TRAFIC SIGN		
SIGN		
MISC.		
TEST BORING LOCATION	⊗TB	

DESCRIPTION	EXISTING	PROPOSED
SURFACE		
ASPHALT-EDGE		
BUILDING		
GRAVEL/DIRT-EDGE		
CONCRETE-EDGE (EX)		
TREE/SHRUB		
CURB		
SIDEWALK		
FENCE	— — —X— — —X—	
RAILROAD		
SURVEY		
SURVEY CENTERLINE	——— - ——— - ———	
CONTOUR		
CONTOUR (INDEX)	— — —2010— — —	
EASEMENT	— — — — —	
LOTS LINE	— — — — —	
RIGHT-OF-WAY	——— — — ———	
UTILITIES		
STORM DRAINAGE	— —8"PVC— —D— —	
GRAVITY SEWER	— —8"PVC— —S— —	
WATER	— —8"PVC— —W— —	
TELEPHONE (BURIED)	— — —BT— — —	
POWER (BURIED)	— — —BP— — —	
GAS (LIST SIZE)	— — —2"G— — —	
IRRIGATION	— — — —IR— — —	——— IR ———
TV	— — —BTV— — —	



1860206-Notes

GENERAL NOTES

1. WHERE KNOWN, EXISTING UTILITIES ARE SHOWN ON THE PLANS FOR THE CONVENIENCE OF THE CONTRACTOR. LOCATIONS SHOWN ARE APPROXIMATE AND DEPTHS ARE NOT KNOWN. OTHER UTILITIES MAY EXIST IN THE WORK AREAS THAT ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE EXISTENCE, LOCATION, NATURE AND DEPTH OF THE EXISTING UTILITIES IN THE WORK AREA PRIOR TO CONSTRUCTION BY CONTACTING ALL UTILITY OWNERS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND REPAIR ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION. SEE SECTION 01020. NOT ALL UTILITIES OR SERVICES ARE SHOWN. OVERHEAD UTILITIES ARE GENERALLY NOT SHOWN.
2. PRIOR TO CLOSING ANY STREET OR PORTION THEREOF, THE CONTRACTOR SHALL NOTIFY THE ADJACENT PROPERTY OWNERS, CITY OF CHENEY PUBLIC WORKS DEPARTMENT, SPOKANE COUNTY, AND ANY OTHER PARTIES REQUIRED BY LOCAL AND STATE LAW.
3. WHERE THE POTENTIAL FOR CONFLICT WITH AN EXISTING UTILITY CROSSING EXISTS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXPOSE, AS NECESSARY, THE EXISTING UTILITY ADEQUATELY IN ADVANCE OF HIS TRENCHING AND PIPE LAYING ACTIVITIES SO THAT IF NECESSARY AN ADJUSTMENT TO GRADE FOR THE NEW PIPELINE CAN BE PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
4. RIGHT-OF-WAYS WHERE SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY.
5. THE CONTRACTOR SHALL PROTECT EXISTING DRYWELLS AND DRAINAGE STRUCTURES FROM SOIL INFILTRATION. THE CONTRACTOR SHALL CLEAN ALL EXISTING DRAINAGE STRUCTURES SUBJECT TO SOIL INFILTRATION AS A RESULT OF THE CONTRACTORS WORK AND SUCH CLEANING SHALL BE INCIDENTAL TO OTHER BID ITEMS.
6. WHERE EXISTING PIPE, NOT TO BE ABANDONED IN THIS PROJECT, IS EXPOSED DURING THE CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL SUPPORT THE EXISTING PIPE AND INSTALL AND COMPACT BEDDING MATERIAL AS SPECIFIED IN SECTION 02221.
7. THE CONTRACTOR SHALL MAINTAIN ON SITE A SET OF PLANS FOR THE SOLE PURPOSE OF ACCURATELY AND PROMPTLY RECORDING ALL CHANGES AND MODIFICATIONS IN THE WORK AS IT PROCEEDS. THE LOCATION, DEPTH AND DESCRIPTION OF ALL EXISTING UTILITIES, STRUCTIONS AND IMPROVEMENTS ENCOUNTERED IN THE WORK SHALL ALSO BE ACCURATELY RECORDED. MONTHLY AND FINAL PAYMENTS MAY BE WITHHELD UNTIL RECORD DRAWING INFORMATION IS BROUGHT UP TO DATE. FINAL PAYMENT WILL NOT BE RELEASED UNTIL THE CONTRACTOR'S RECORD DRAWINGS ARE SUBMITTED TO THE ENGINEER AND ACCEPTED.

IRRIGATION MAIN NOTES

1. UNLESS SPECIFICALLY CALLED OUT OTHERWISE, ALL NEW IRRIGATION MAIN PIPE SHALL BE C-900 CLASS 235 PVC (DR 18).
2. TEST PRESSURE FOR IRRIGATION MAINS SHALL BE 150 PSI. MINIMUM DURATION SHALL BE 2 HOURS. SEE SECTION 02560.
3. IRRIGATION MAIN ALIGNMENTS SHOWN ARE GENERALLY APPROXIMATE. THEY HAVE BEEN CHOSEN TO LIMIT THE EXTENT OF PAVEMENT OR OTHER PERMANENT RESOTRATION AND/OR TO AVOID EXISTING UTILITIES, PERMANENT SURFACE RESTORATION AND/OR TO AVOID EXISTING UTILITIES, TREES OR OTHER FEATURES, IF POSSIBLE. IN MOST CASES, THE CONTRACTOR MAY, WITH ENGINEER'S APPROVAL, ADJUST ALIGNMENTS TO REDUCE PAVEMENT REPLACEMENT OR AVOID CONFLICTS WITH EXISTING PIPELINES, OR OTHER FEATURES. IN ANY CASE THE CONTRACTOR SHALL STAKE THE ALIGNMENT FOR ENGINEER'S REVIEW AND APPROVAL AFTER UTILITY LOCATES AND PRIOR TO BEGINNING WORK IN THE AREA.
4. ALL PIPE SHALL BE LAID ON A STRAIGHT GRADE IN SUCH A MANNER AS TO AVOID INTERMEDIATE HIGH POINTS EXCEPT AS SHOWN ON THESE DRAWINGS. FINAL IRRIGATION MAIN ALIGNMENTS SHALL MAINTAIN MINIMUM SLOPE IN ACCORDANCE WITH TABLE C1-4.4 OF THE ECOLOGY CRITERIA FOR SEWAGE WORKS DESIGN IN ORDER TO ENSURE ADEQUATE DRAINAGE OF THE IRRIGATION MAIN WHEN NOT IN USE.
5. ALL NEW PIPE SHALL HAVE A MINIMUM BURY DEPTH OF 4' TO THE TOP OF PIPE UNLESS OTHERWISE SHOWN OR NECESSITATED BY FIELD CONDITIONS WITH ENGINEER'S APPROVAL. DEPTH OF EXISTING MAINS MAY VARY FROM DEPTHS SHOWN ON THE PLANS. VERTICAL AND/OR HORIZONTAL ADJUSTMENTS USING ELBOW(S) AND PIPE SPOOL(S) TO CONNECT TO EXISTING MAINS ARE ANTICIPATED BUT NOT SHOWN ON THE DETAILS. ALL FITTINGS SHOWN IN THE DETAILS SHALL BE INCLUDED IN THE BID ITEM FOR THAT DETAIL. FITTINGS NOT SHOWN IN THE DETAILS WILL BE PAID FOR UNDER SEPARATE BID ITEMS.
6. THRUST RESTRAINT SHALL BE BY THRUST BLOCKS OR RESTRAINED JOINTS, VALVES AND FITTINGS AT CONTRACTOR'S OPTION OR AS DETERMINED BY THE ENGINEER IN THE FIELD. THRUST BLOCKS ARE NOT SHOWN EXCEPT WHERE THEY ARE MANDATORY. THE IRRIGATION MAIN SHALL BE ENTIRELY MECHANICALLY RESTRAINED. SEE SECTION 02560.
7. CONTRACTOR SHALL DISPOSE OF ALL EXISTING VALVES, PIPES, FITTINGS, ETC. REMOVED AS PART OF THE WORK, OR IF REQUESTED BY THE OWNER THE CONTRACTOR SHALL DELIVER REMOVED ITEMS SELECTED BY THE OWNER TO CITY'S SHOP.
8. THE LOCATION AND SIZE OF ANY EXISTING THRUST BLOCKS IS UNKNOWN. THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING THRUST BLOCKS INCLUDING AVOIDING DISTURBANCE OF THE SOIL BEHIND THEM. WHERE THIS IS NOT POSSIBLE THE CONTRACTOR SHALL DEPRESSURIZE THE EXISTING MAIN UNTIL THE NEW MAIN IS INSTALLED, BACKFILLED AND COMPACTED. THE CONTRACTOR SHALL PLAN HIS WORK SUCH THAT THE EXISTING MAIN IS DEPRESSURIZED FOR NO MORE THAN TWO HOURS.
9. WHENEVER MULTIPLE ELBOWS ARE USED TO ACHIEVE A SINGLE BEND THEY SHALL BE FLANGED TOGETHER.
10. ALL NEW IRRIGATION MAINS SHALL BE INSTALLED A MINIMUM HORIZONTAL DISTANCE OF 10 FT. FROM ANY EXISTING PARALLEL SEWER MAINS AND/OR PARALLEL WATER MAINS UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS OR DIRECTED OTHERWISE BY THE ENGINEER.
11. IRRIGATION MAINS OR IRRIGATION SERVICES CROSSING SEWER MAINS OR SEWER SERVICES SHALL BE INSTALLED ABOVE THE SEWER AND PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE IRRIGATION PIPE AND THE OUTSIDE OF THE SEWER PIPE. AT BOTH CROSSINGS, ONE FULL LENGTH OF IRRIGATION PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF THIS VERTICAL SEPARATION IS NOT POSSIBLE OR WHERE THE IRRIGATION MAIN OR SERVICE MUST CROSS UNDER A SEWER THE CONTRACTOR SHALL FURNISH AND INSTALL A SLEEVE AROUND THE IRRIGATION PIPE.
12. IRRIGATION MAINS OR IRRIGATION SERVICES CROSSING WATER MAINS OR WATER SERVICES SHALL BE INSTALLED BELOW THE WATER AND PROVIDE A MINIMUM VERTICAL DISTANCES OF 18 INCHES BETWEEN THE OUTSIDE OF THE IRRIGATION PIPE AND THE OUTSIDE OF THE WATER PIPE. AT BOTH CROSSINGS, ONE FULL LENGTH OF IRRIGATION PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF THIS VERTICAL SEPARATION IS NOT POSSIBLE OR WHERE THE IRRIGATION MAIN OR SERVICE MUST CROSS ABOVE A WATER MAIN OR SERVICE THE CONTRACTOR SHALL FURNISH AND INSTALL A SLEEVE AROUND THE IRRIGATION PIPE.

IRRIGATION MAIN NOTES

1. PIPE SLEEVES SHALL BE CONSTRUCTED OF DR 18 AWWA C-900 PVC OR DR17 AWWA C-906 HDPE WATER PIPE AND OF SUFFICIENT DIAMETER TO FULLY ENCASE THE SLEEVED PIPE, JOINTS AND RESTRAIN DEVICES.
2. AT PERPENDICULAR CROSSINGS THE SLEEVE SHALL EXTEND 10 FT. EACH SIDE OF THE CROSSING AND SEAL EACH END WITH MIN. 12-INCH CONCRETE PLUG.

SURFACE REPLACEMENT NOTES

1. ALL PAVEMENT CUTS FOR UTILITY WORK AND PATCHES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE SPOKANE REGIONAL PAVEMENT CUT POLICY AND THE CITY CHENEY ENGINEERING DESIGN STANDARDS.
2. CONTRACTOR SHALL RECONSTRUCT ASPHALT AREAS AND LANDSCAPE AREAS TO THEIR ORIGINAL LINE, GRADE AND WIDTH. LANDSCAPE AREAS SHALL BE RESTORED TO PRECONSTRUCTION STATE. THE ENGINEER AND OWNER SHALL APPROVE THE GRADING PRIOR TO APPLICATION OF HMA. HMA SECTION SHALL MATCH EXISTING UNLESS SHOWN OTHERWISE.
3. EXISTING STRIPING IS NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL REPLACE EXISTING STRIPING AFTER PAVEMENT REPLACEMENT. SEE SECTION 02617. THE CONTRACTOR SHALL MAKE SITE VISITS AS NECESSARY PRIOR TO BID TO DETERMINE THE AMOUNT AND EXTENT OF THE STRIPING TO BE REPLACED. RESTRIPING SHALL BE CONSIDERED INCIDENTAL AND PAYMENT INCLUDED IN OTHER BID ITEMS OF WORK.
4. PAVING SECTION SHALL MATCH EXISTING IN PAVED AREAS, BUT SHALL NOT BE LESS THAN 2" ACP OVER 6" CSBC. BID SHALL BE BASED ON SAID PAVING SECTION.
5. ALL PAVEMENT TO BE REMOVED SHALL BE SAWCUT OR WHEEL CUT PRIOR TO REMOVAL. AS DIRECTED IN THE FIELD BY THE ENGINEER ALL JAGGED PAVING EDGES SHALL BE SAWCUT PRIOR TO FINAL ASPHALT RESTORATION. ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO THE ROADWAY.
6. THE CONTRACTOR SHALL PLACE TEMPORARY SURFACING AT ALL ROAD CROSSINGS TO THE SAME ELEVATION AS THE EXISTING ASPHALT BY THE END OF EACH DAY AFTER BACKFILL UNTIL PERMANENT SURFACING CAN BE PLACED. THE TEMPORARY SURFACE CAN BE COLD MIS ASPHALT, STEEL PLATES OR GRAVEL AT THE CONTRACTORS OPTION. THE CONTRACTOR SHALL MAINTAIN THE TEMPORARY SURFACING UNTIL THE PERMANENT SURFACING IS PLACED.
7. THE CONTRACTOR SHALL RE-ESTABLISH THE ROADWAYS DISTURBED BY HIS OPERATION TO THEIR ORIGINAL GRADES, LOCATION AND WIDTH UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED IN THE FIELD BY THE ENGINEER. THE COMPLETED SURFACE OF ALL COURSES SHALL BE OF UNIFORM TEXTURE, SMOOTH UNIFORM CROWN AND GRADE.
8. GRAVEL SURFACE REPLACEMENT OF EXISTING GRAVEL SURFACES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SECTION 02617. DEPTH OF GRAVEL SHALL MATCH EXISTING BUT SHALL NOT BE LESS THAN 4".
9. CONTRACTOR SHALL SEED LAWN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.
10. PRIOR TO CONSTRUCTION CONTRACTOR SHALL PROPOSE AND MARK IN THE FIELD PAVEMENT REMOVAL/REPLACEMENT LIMITS FOR OWNER REVIEW. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY OF CHENEY PRIOR TO CUTTING OR REMOVING PAVEMENT.

SHEET INDEX

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LEGEND, ABBREVIATIONS, NOTES, INDEX

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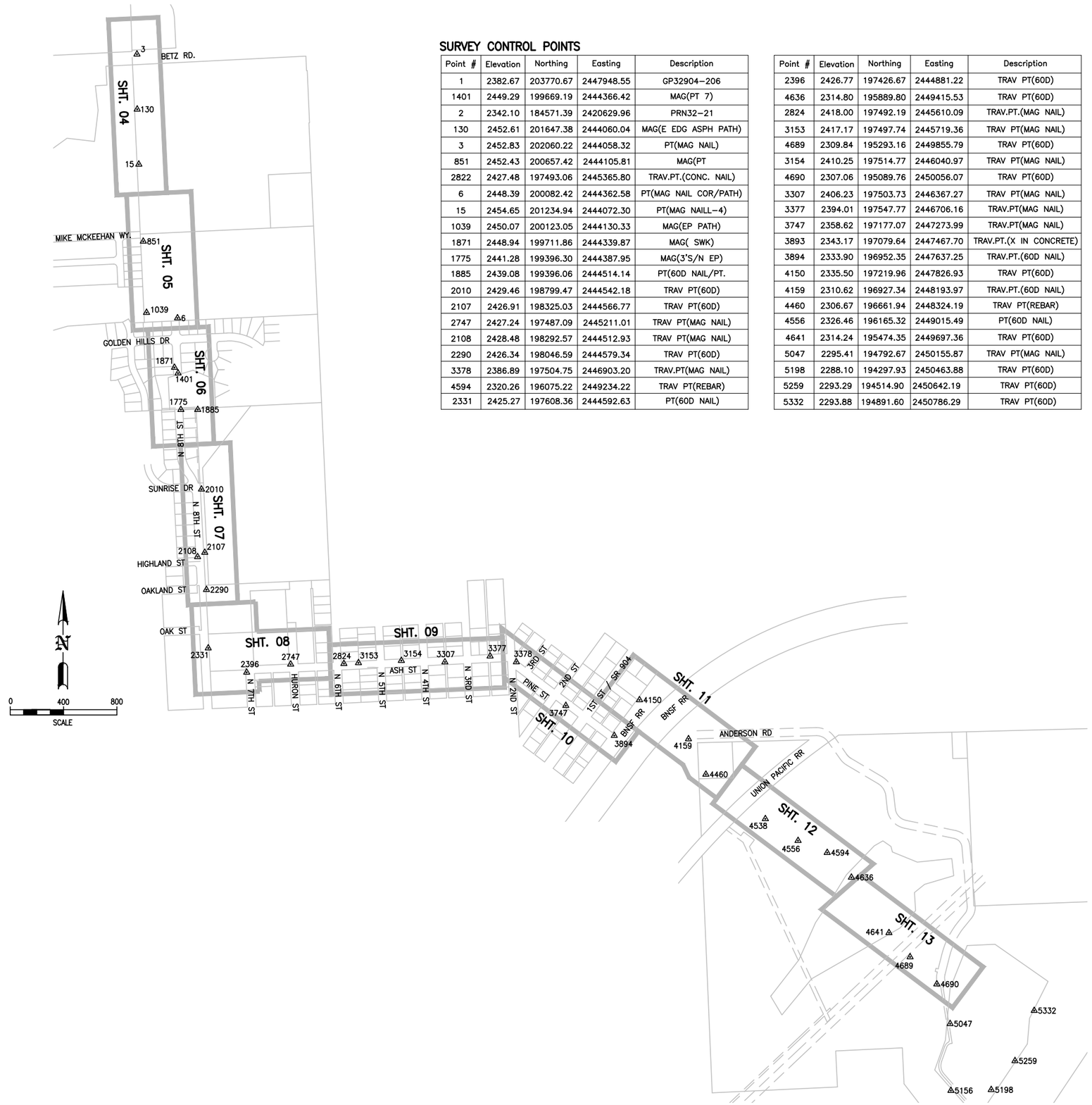

SURVEY CONTROL POINTS

Point #	Elevation	Northing	Easting	Description
1	2382.67	203770.67	2447948.55	GP32904–206
1401	2449.29	199669.19	2444366.42	MAG(PT 7)
2	2342.10	184571.39	2420629.96	PRN32–21
130	2452.61	201647.38	2444060.04	MAG(E EDG ASPH PATH)
3	2452.83	202060.22	2444058.32	PT(MAG NAIL)
851	2452.43	200657.42	2444105.81	MAG(PT
2822	2427.48	197493.06	2445365.80	TRAV.PT.(CONC. NAIL)
6	2448.39	200082.42	2444362.58	PT(MAG NAIL COR/PATH)
15	2454.65	201234.94	2444072.30	PT(MAG NAILL–4)
1039	2450.07	200123.05	2444130.33	MAG(EP PATH)
1871	2448.94	199711.86	2444339.87	MAG(SWK)
1775	2441.28	199396.30	2444387.95	MAG(3'S/N EP)
1885	2439.08	199396.06	2444514.14	PT(60D NAIL/PT.
2010	2429.46	198799.47	2444542.18	TRAV PT(60D)
2107	2426.91	198325.03	2444566.77	TRAV PT(60D)
2747	2427.24	197487.09	2445211.01	TRAV PT(MAG NAIL)
2108	2428.48	198292.57	2444512.93	TRAV PT(MAG NAIL)
2290	2426.34	198046.59	2444579.34	TRAV PT(60D)
3378	2386.89	197504.75	2446903.20	TRAV.PT(MAG NAIL)
4594	2320.26	196075.22	2449234.22	TRAV PT(REBAR)
2331	2425.27	197608.36	2444592.63	PT(60D NAIL)

Point #	Elevation	Northing	Easting	Description
2396	2426.77	197426.67	2444881.22	TRAV PT(60D)
4636	2314.80	195889.80	2449415.53	TRAV PT(60D)
2824	2418.00	197492.19	2445610.09	TRAV.PT.(MAG NAIL)
3153	2417.17	197497.74	2445719.36	TRAV PT(MAG NAIL)
4689	2309.84	195293.16	2449855.79	TRAV PT(60D)
3154	2410.25	197514.77	2446040.97	TRAV PT(MAG NAIL)
4690	2307.06	195089.76	2450056.07	TRAV PT(60D)
3307	2406.23	197503.73	2446367.27	TRAV PT(MAG NAIL)
3377	2394.01	197547.77	2446706.16	TRAV.PT(MAG NAIL)
3747	2358.62	197177.07	2447273.99	TRAV.PT(MAG NAIL)
3893	2343.17	197079.64	2447467.70	TRAV.PT.(X IN CONCRETE)
3894	2333.90	196952.35	2447637.25	TRAV.PT.(60D NAIL)
4150	2335.50	197219.96	2447826.93	TRAV PT(60D)
4159	2310.62	196927.34	2448193.97	TRAV.PT.(60D NAIL)
4460	2306.67	196661.94	2448324.19	TRAV PT(REBAR)
4556	2326.46	196165.32	2449015.49	PT(60D NAIL)
4641	2314.24	195474.35	2449697.36	TRAV PT(60D)
5047	2295.41	194792.67	2450155.87	TRAV PT(MAG NAIL)
5198	2288.10	194297.93	2450463.88	TRAV PT(60D)
5259	2293.29	194514.90	2450642.19	TRAV PT(60D)
5332	2293.88	194891.60	2450786.29	TRAV PT(60D)

PROJECT SURVEYOR

COMPANY: SIMPSON ENGINEERS, INC.
CONTACT: ED SIMPSON, P.E.
PHONE: 509–926–1322

HORIZONTAL DATUM

WSDOT GPS MONUMENTS POINT–1 "GP32904–206", POINT–2 "PRN32–21"

VERTICAL DATUM

NAVD 88

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SURVEY CONTROL, SHEET LAYOUT

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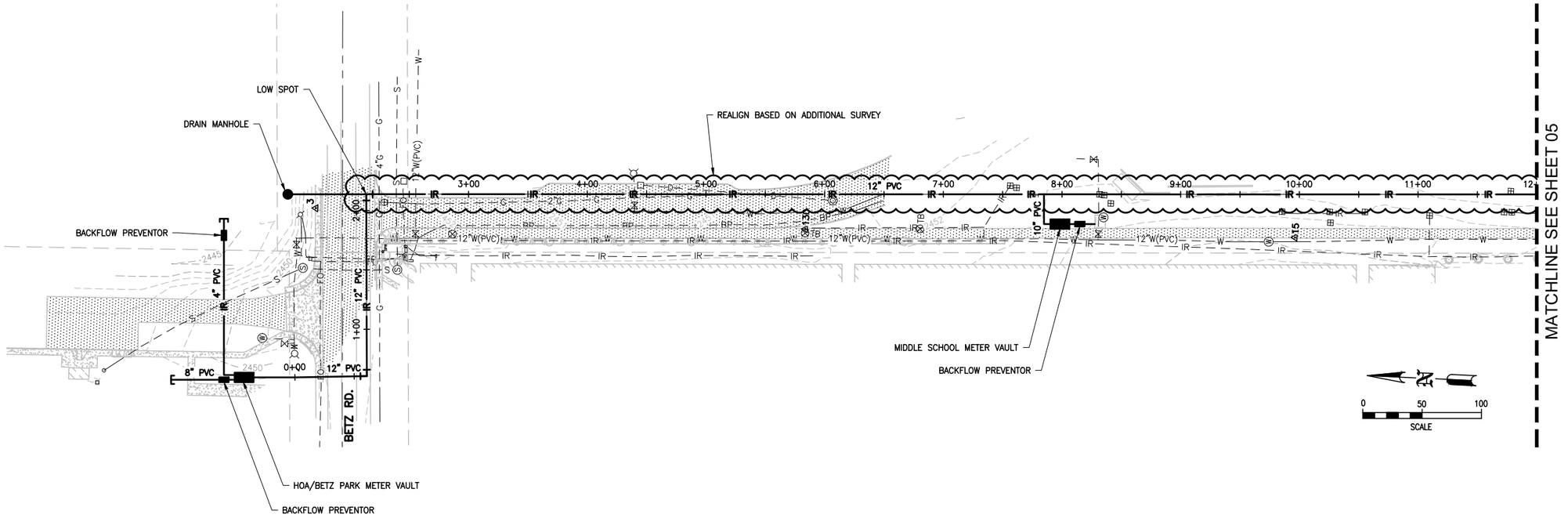

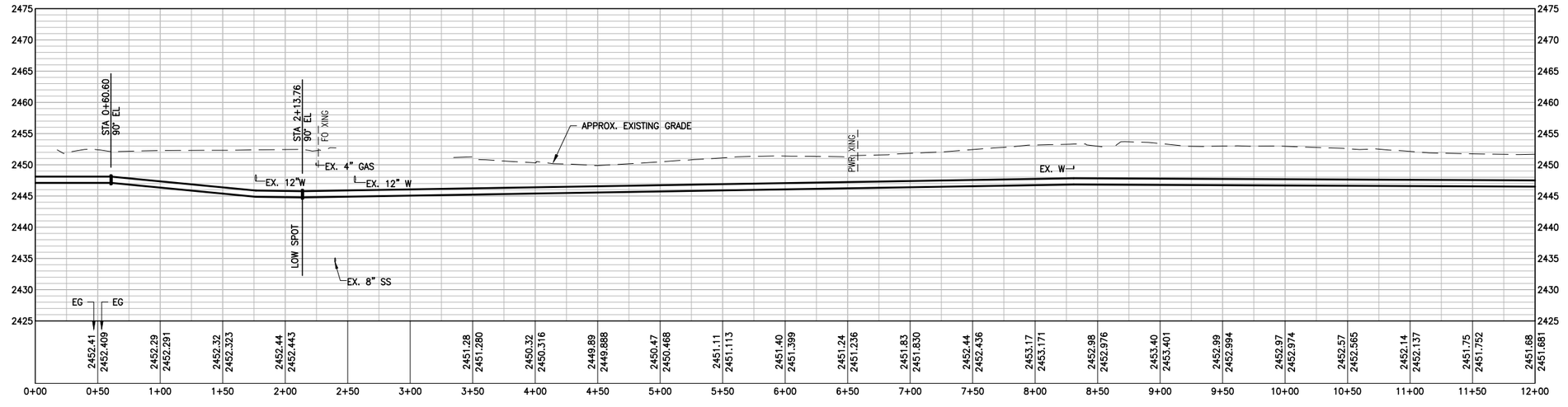

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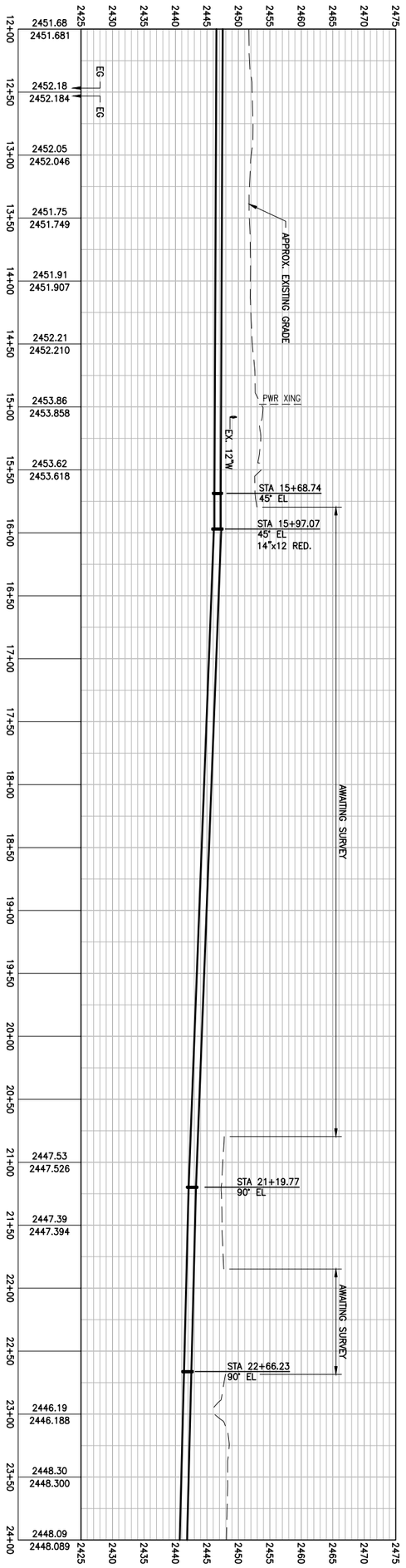

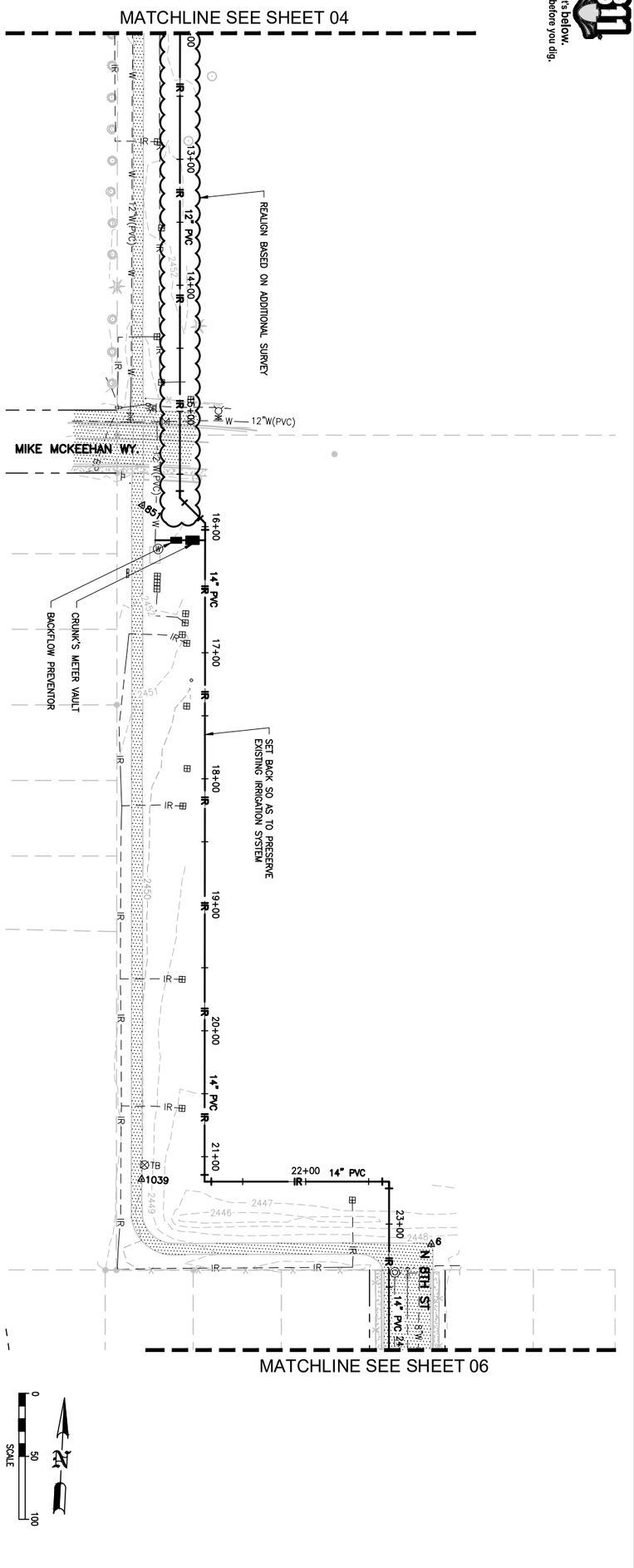

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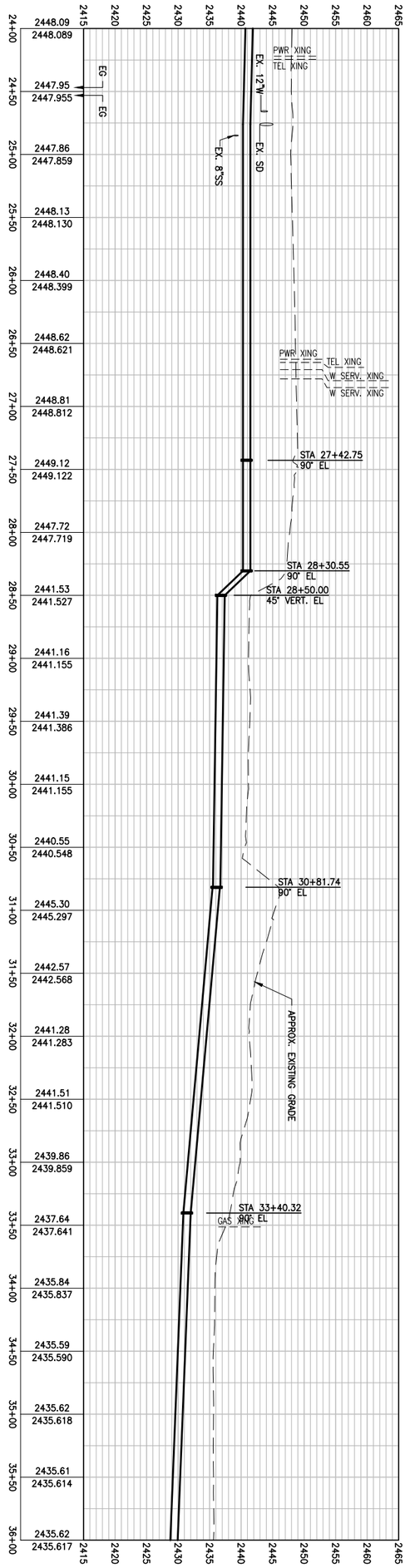

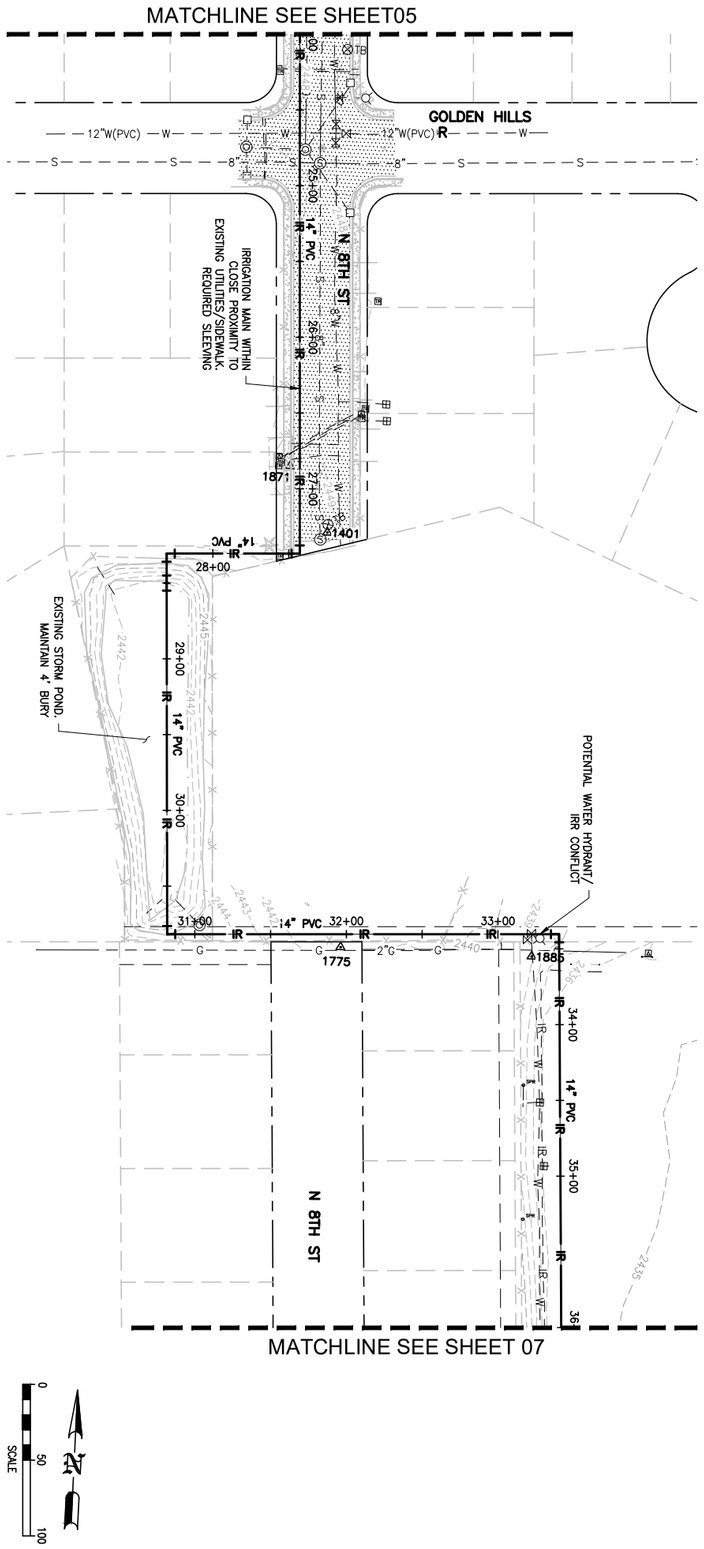

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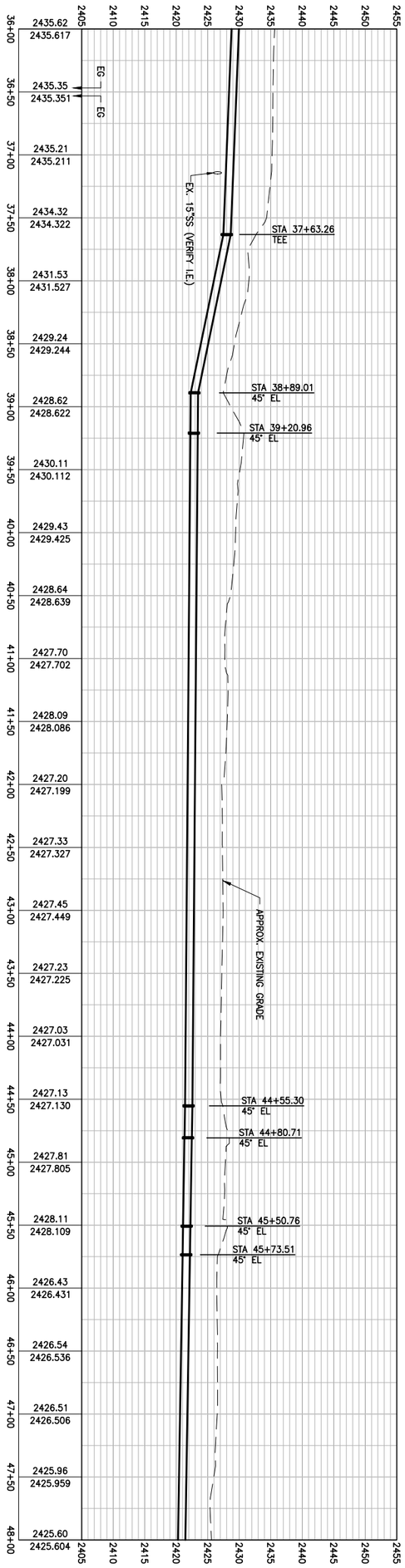

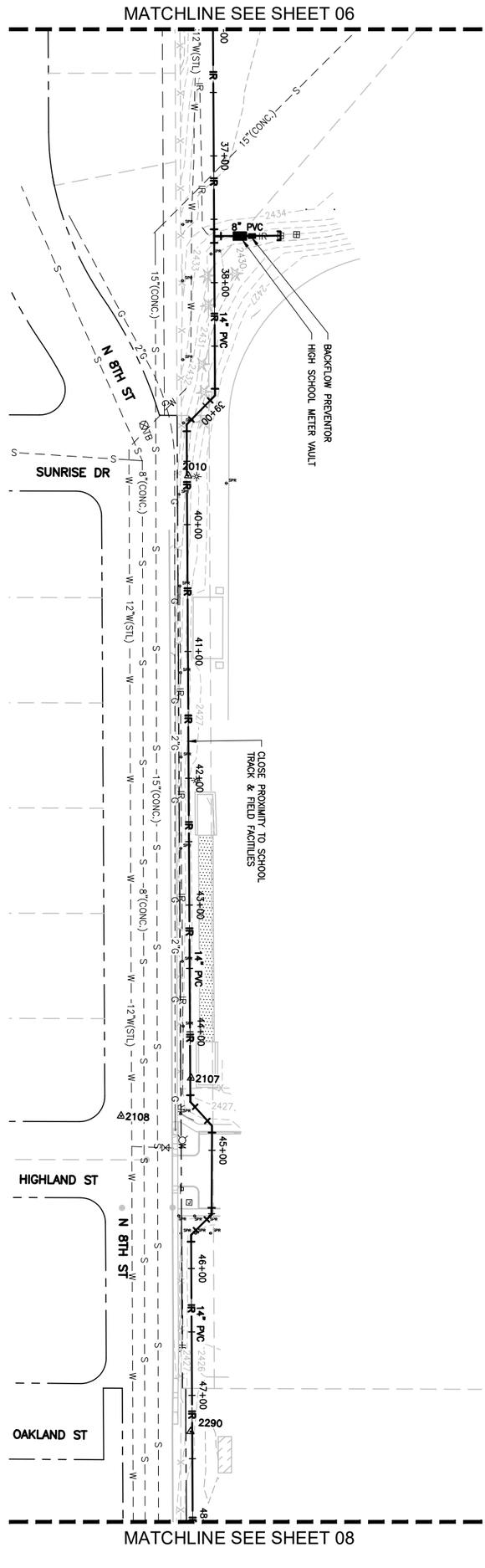

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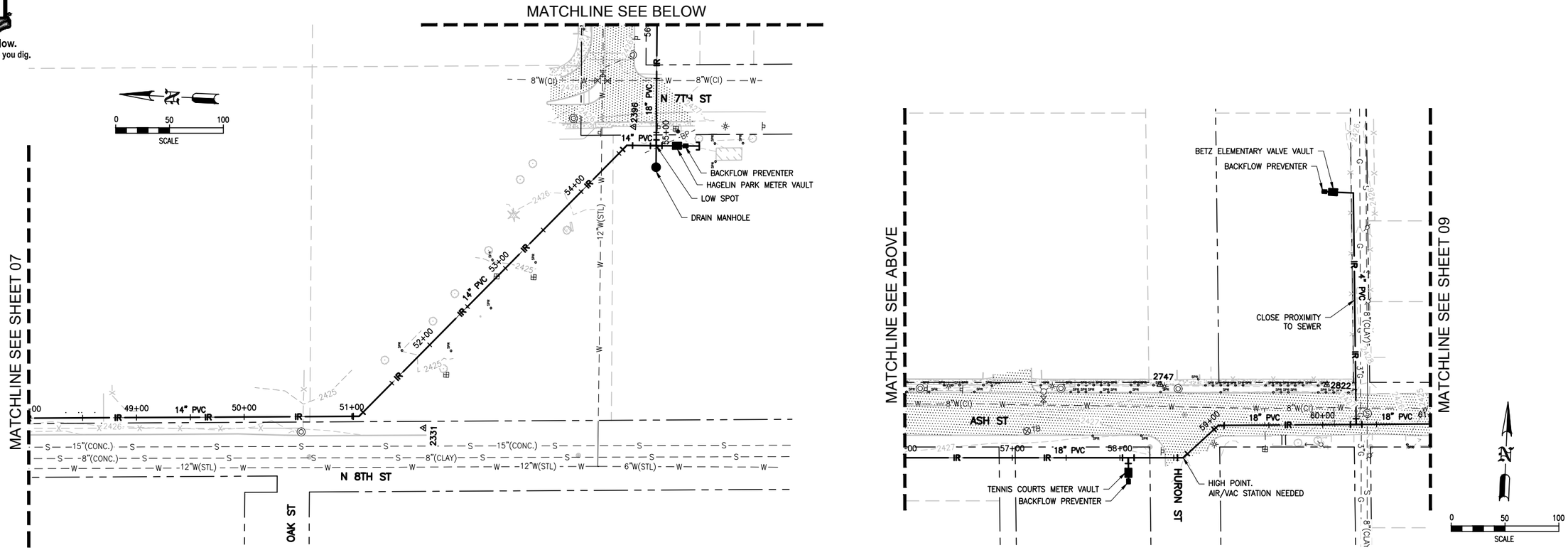

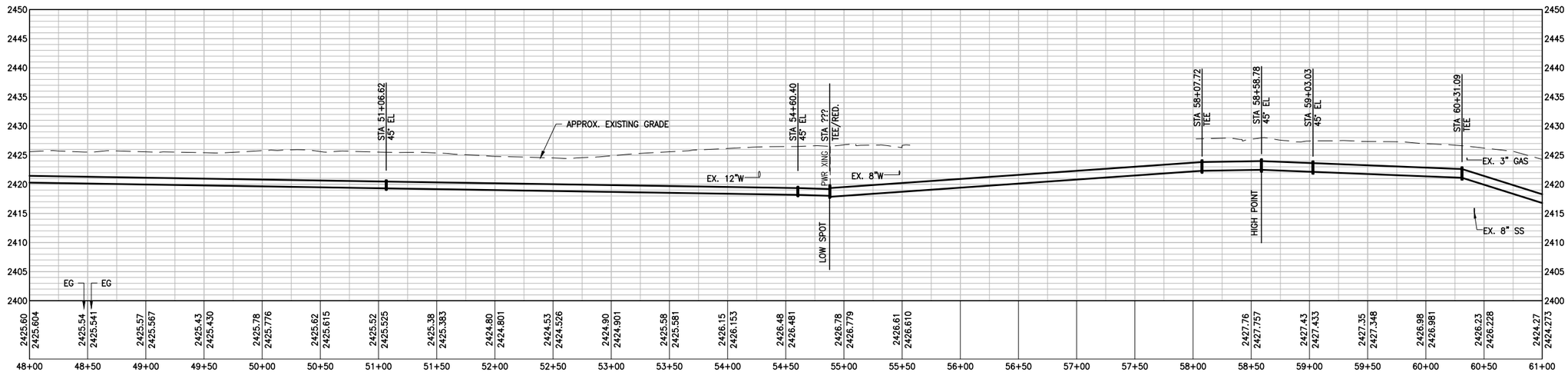

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PLAN AND PROFILE STA 48+00 - STA 61+00

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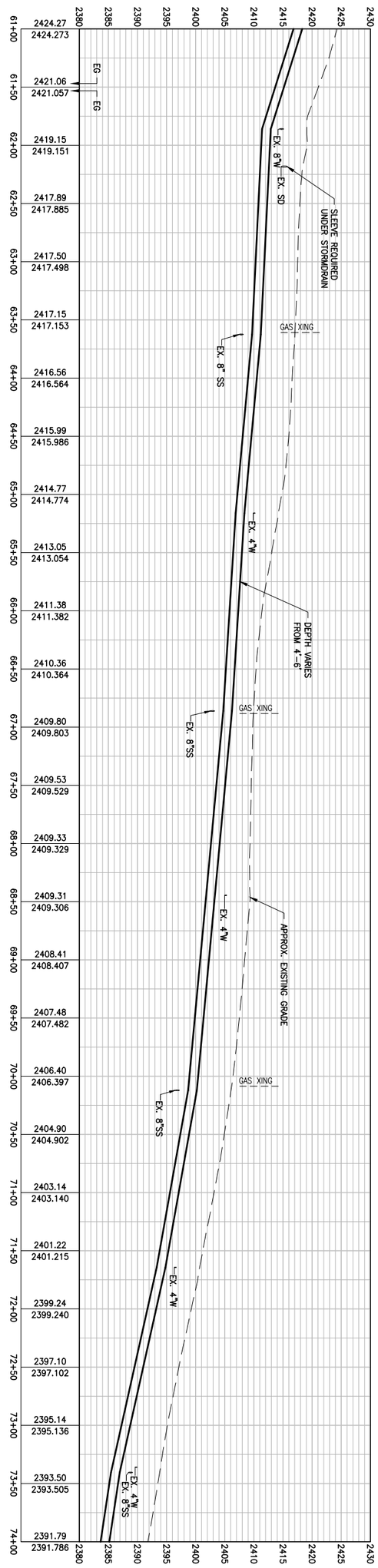

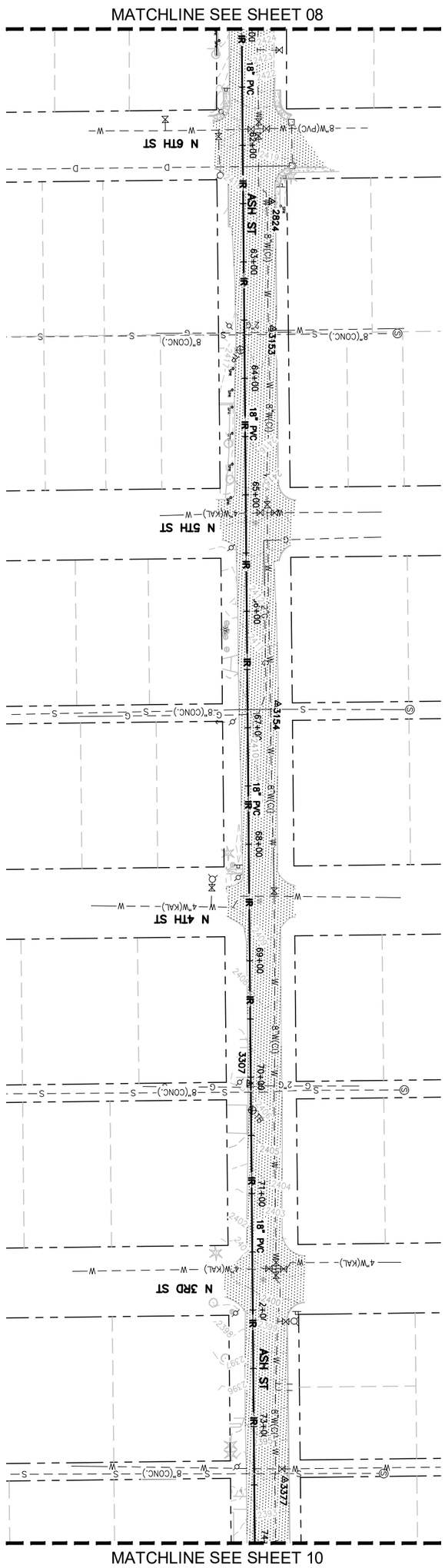

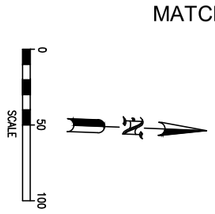

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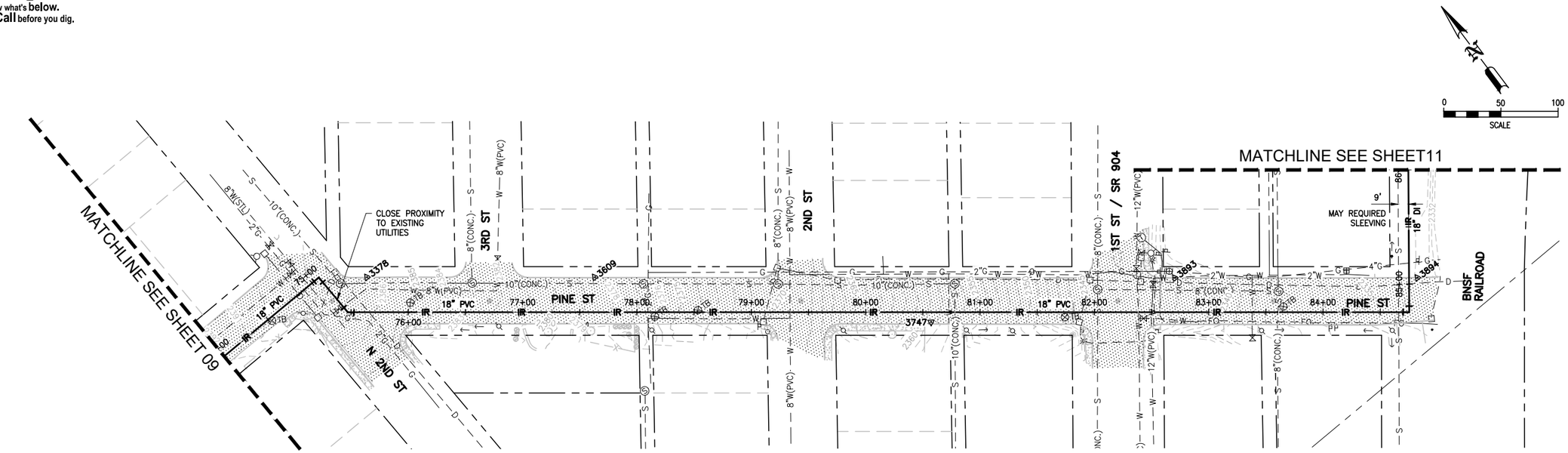

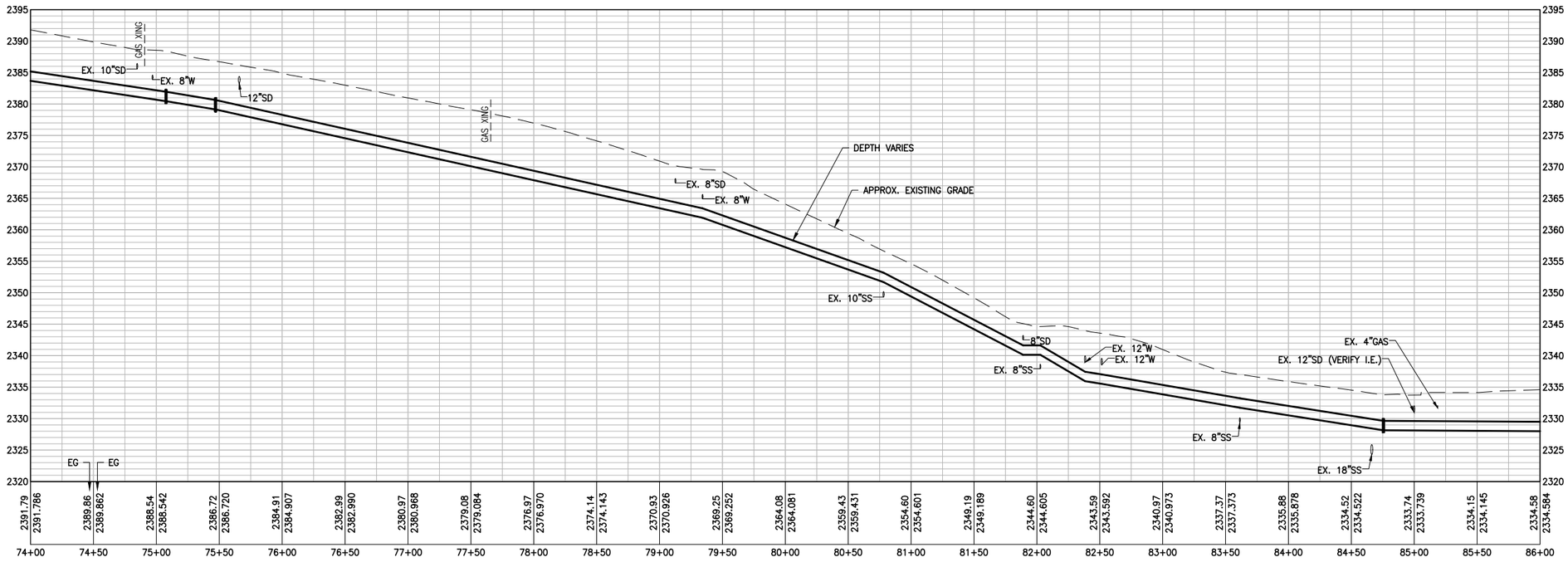

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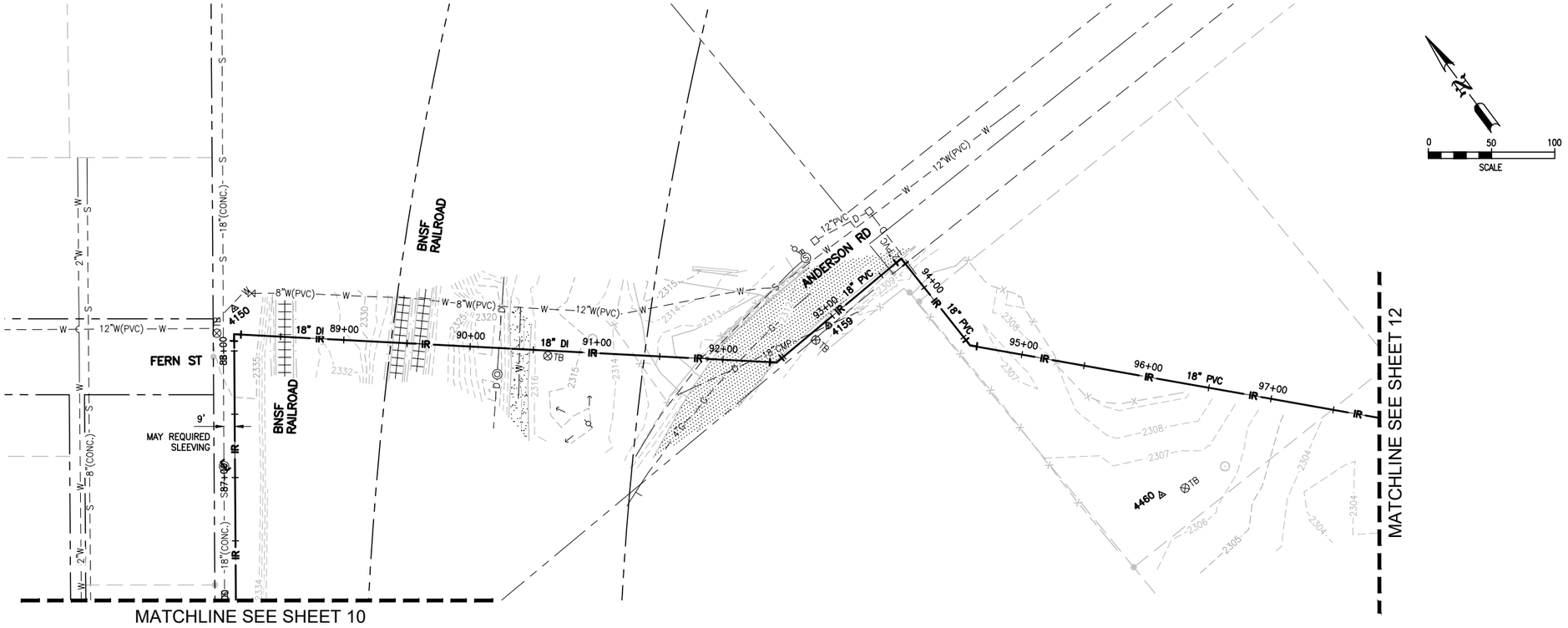

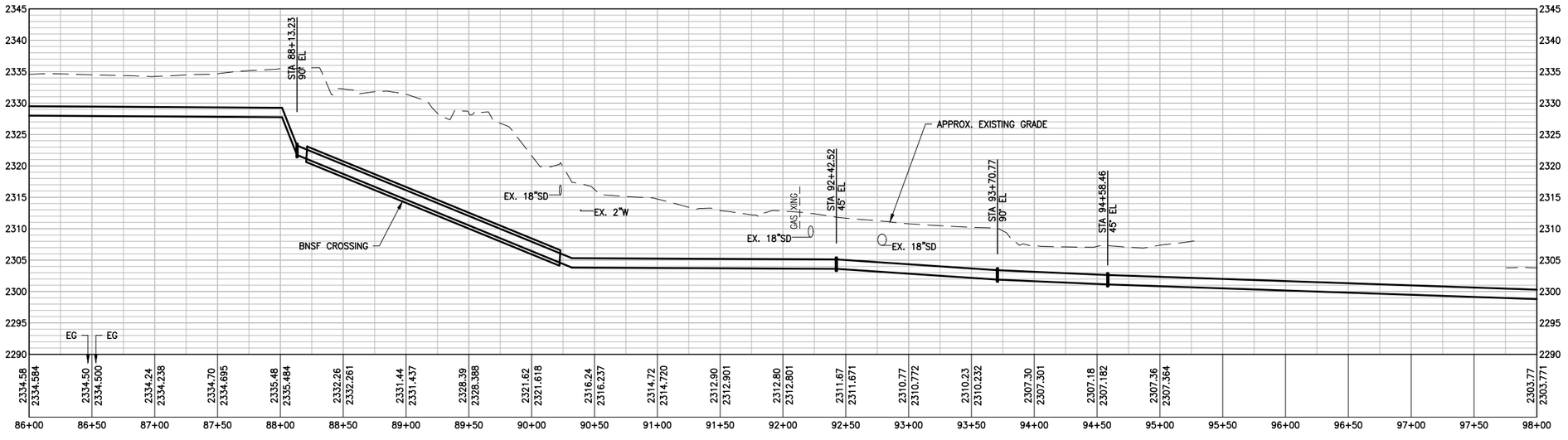

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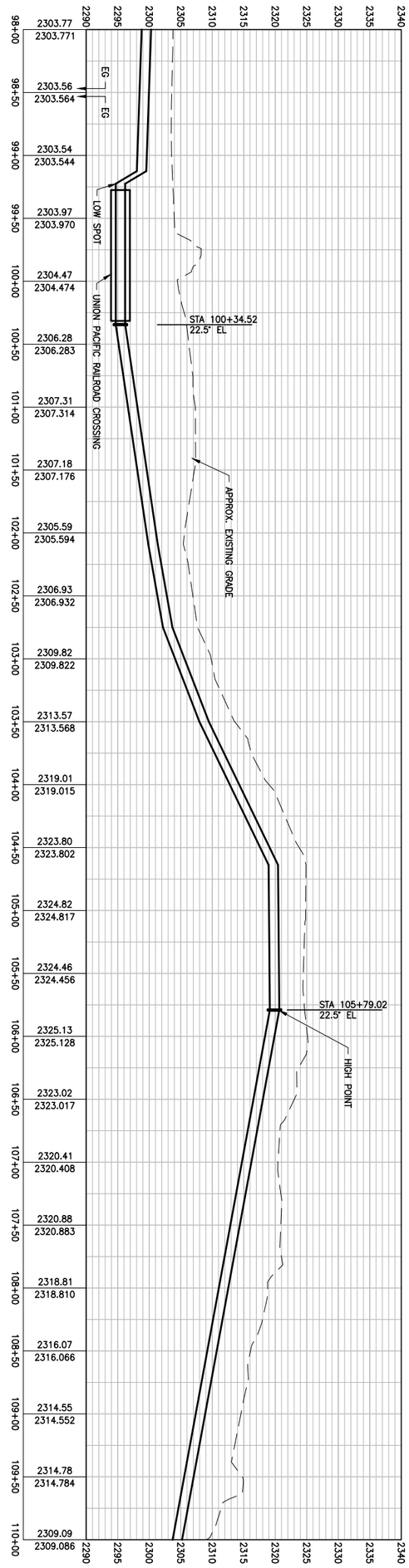

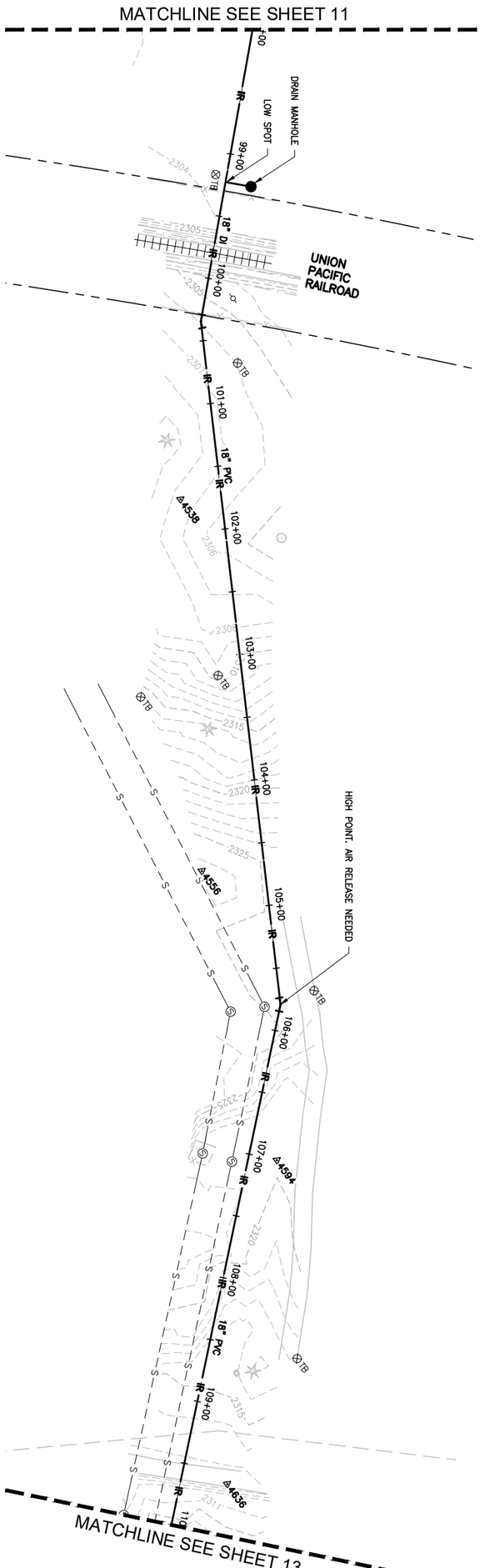

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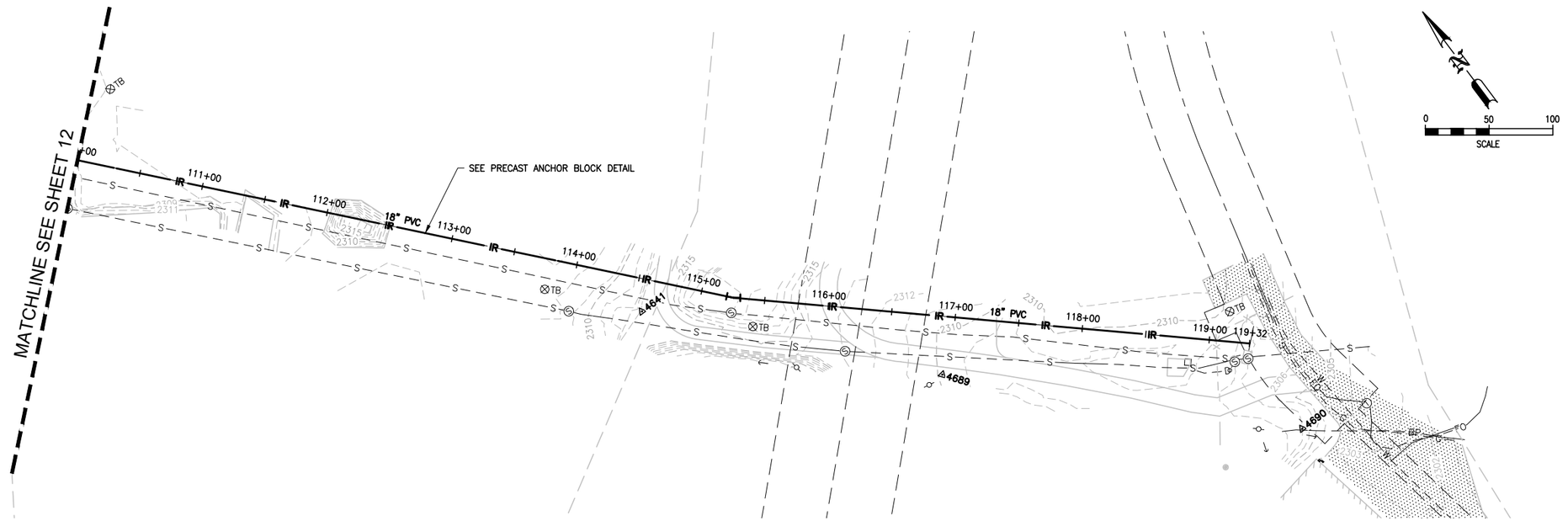

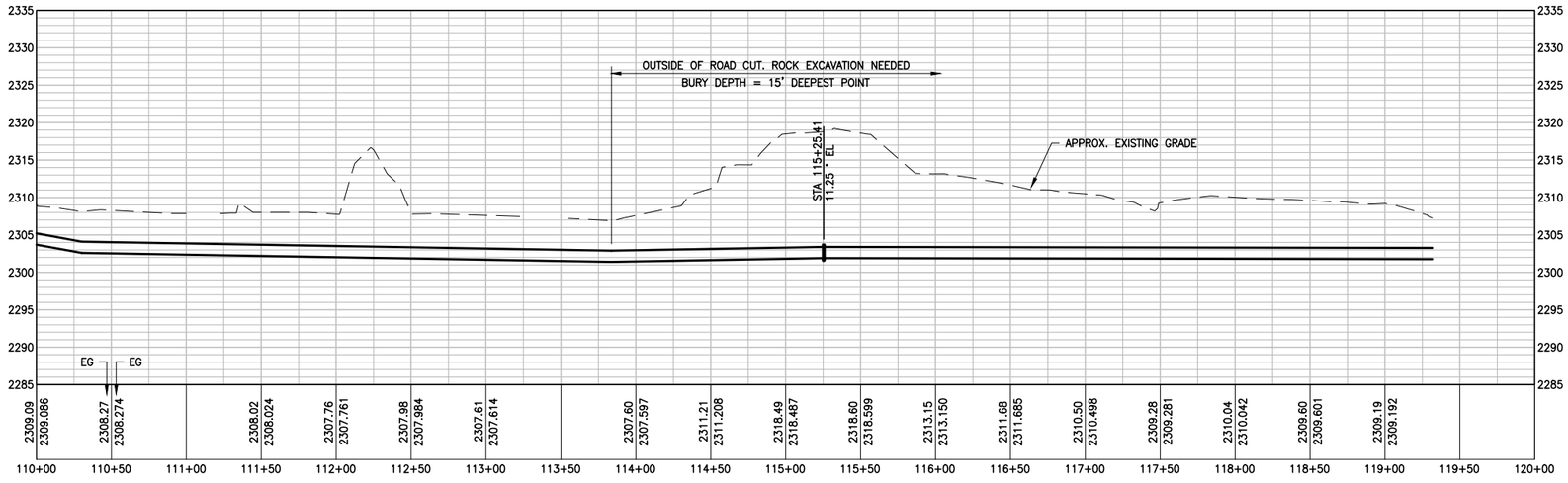

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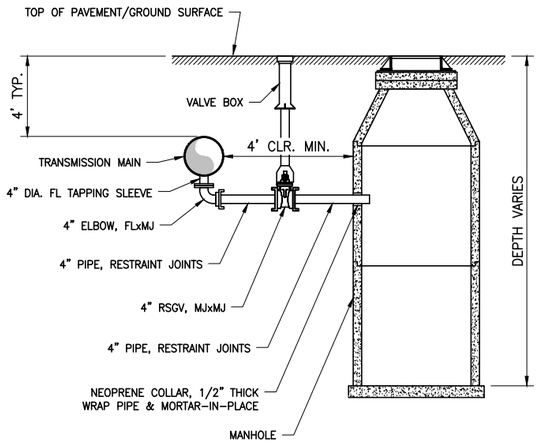
Ph:(509)328-6066

Project Engineer:
ESVELT ENVIRONMENTAL ENGINEERING LLC
8908 East Dalton Avenue
Spokane, Washington 99212
Ph:(509)926-3049

PLAN AND PROFILE STA 110+00 - STA 119+40

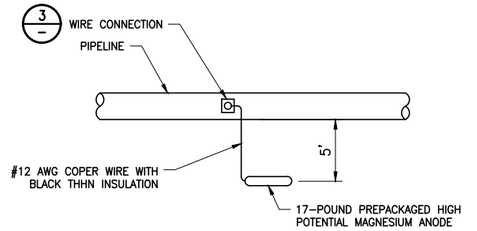
Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

revisions
ISSUE FOR REVIEW
drawing status
REVIEW SET
released for
CITY REVIEW
release date
7/20/2020
sheet
13
OF 14

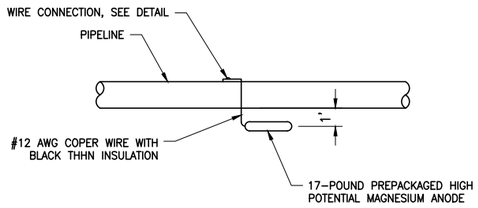


1 DETAIL – DRAIN

N.T.S.



PLAN



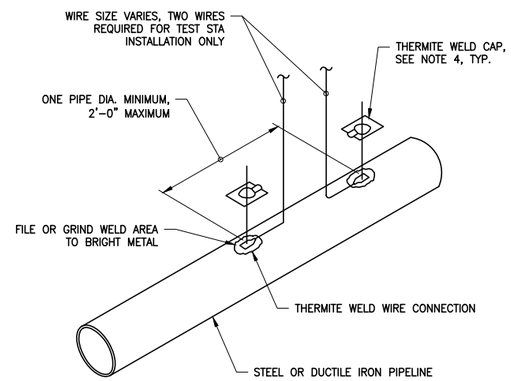
ELEVATION

NOTES

1. INSTALL NODES A MINIMUM OF EVERY 75'
2. A SHOP SUBMITTAL IS REQUIRED DETAILING THE CATHODIC PROTECTION TO BE PROVIDED AND INSTALLATION LOCATIONS.
3. REFER TO THE GEOTECHNICAL REPORT FOR SOILS INFORMATION

2 DETAIL – CATHODIC PROTECTION GALVANIC ANODE INSTALLATION

N.T.S.



NOTES

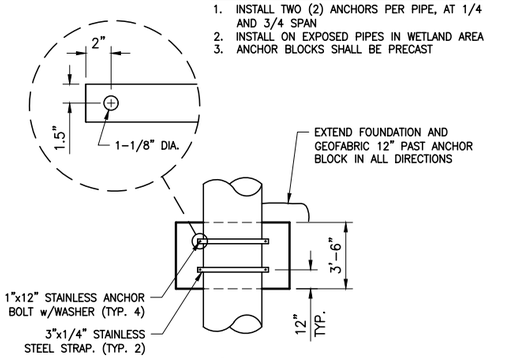
1. COPPER SLEEVE REQUIRED FOR THERMITE WELDING OF #10 AWG AND SMALLER WIRE.
2. USE COPPER SLEEVE ON #2 AWG JOINT BONDING WIRES.
3. WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO WIRE SIZE AND PIPE MATERIAL, CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE.
4. COAT WELD AREA AND FILL RECESS ON THERMITE WELD CAP WITH COLD APPLIED COAL TAR MASTIC AND APPLY CAP TO WELD.

3 DETAIL – CATHODIC PROTECTION WIRE CONNECTION FOR STEEL AND DUCTILE IRON PIPE

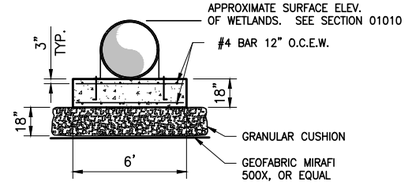
N.T.S.

ANCHOR BLOCK NOTES

1. INSTALL TWO (2) ANCHORS PER PIPE, AT 1/4 AND 3/4 SPAN
2. INSTALL ON EXPOSED PIPES IN WETLAND AREA
3. ANCHOR BLOCKS SHALL BE PRECAST



PLAN



SECTION

4 DETAIL – PRECAST ANCHOR BLOCK

N.T.S.

1860206–Dtls

REVIEW SET
NOT FOR CONSTRUCTION

Designer:
VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
601–A W Mallon Ave.
Spokane, Washington 99201
Ph:(509)328–6066

Project Engineer:
ESVELT ENVIRONMENTAL ENGINEERING LLC
6908 East Dalton Avenue
Spokane, Washington 99212
Ph:(509)926–3049

DETAILS

Reclaimed Water Distribution
Cheney Purple Pipe Project
City of Cheney, WA

cheney

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14
OF 14

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405
http://www.fws.gov/wafwo/

In Reply Refer To: September 02, 2020
Consultation Code: 01EWFW00-2020-SLI-1068
Event Code: 01EWFW00-2020-E-03115
Project Name: City of Cheney Purple Pipe to Parks and Playfields Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website: http://wdfw.wa.gov/mapping/phs/ or at our office website: http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:
http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at http://www.fws.gov/pacific/eagle/for information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: http://www.nmfs.noaa.gov/pr/laws/mmpa/.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:
National Marine Fisheries Service: http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

Project Summary

Consultation Code: 01EWFW00-2020-SLI-1068

Event Code: 01EWFW00-2020-E-03115

Project Name: City of Cheney Purple Pipe to Parks and Playfields Project

Project Type: WATER SUPPLY / DELIVERY

Project Description: The City of Cheney Purple Pipe to Parks and Playfields Project will provide water from the Cheney Wastewater Treatment and Reclamation Facility (southeast of the City of Cheney) to the center of Cheney, near Hagelin Park.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/47.49005017632309N117.56062163736057W

Counties: Spokane, WA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., conterminous, lower 48 states There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

Flowering Plants

NAME	STATUS
Spalding's Catchfly *Silene spaldingii* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3681	Threatened
Water Howellia *Howellia aquatilis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7090	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic Query ID: P200514143601
REPORT DATE: 05/14/2020 2.36

Common Name / Scientific Name / Notes	Site Name / Source Dataset / Source Record / Source Date	Priority Area / Occurrence Type / More Information (URL) / Mgmt Recommendations	Accuracy	Federal Status / State Status / PHS Listing Status	Sensitive Data / Resolution	Source Entity / Geometry Type
Freshwater Emergent	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Rocky Mountain elk Cervus elaphus nelsoni	TOWER MOUNTAIN/MICA PHSREGION 918601	Regular Concentration Regular concentration http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons

WDFW Test Map

May 14, 2020

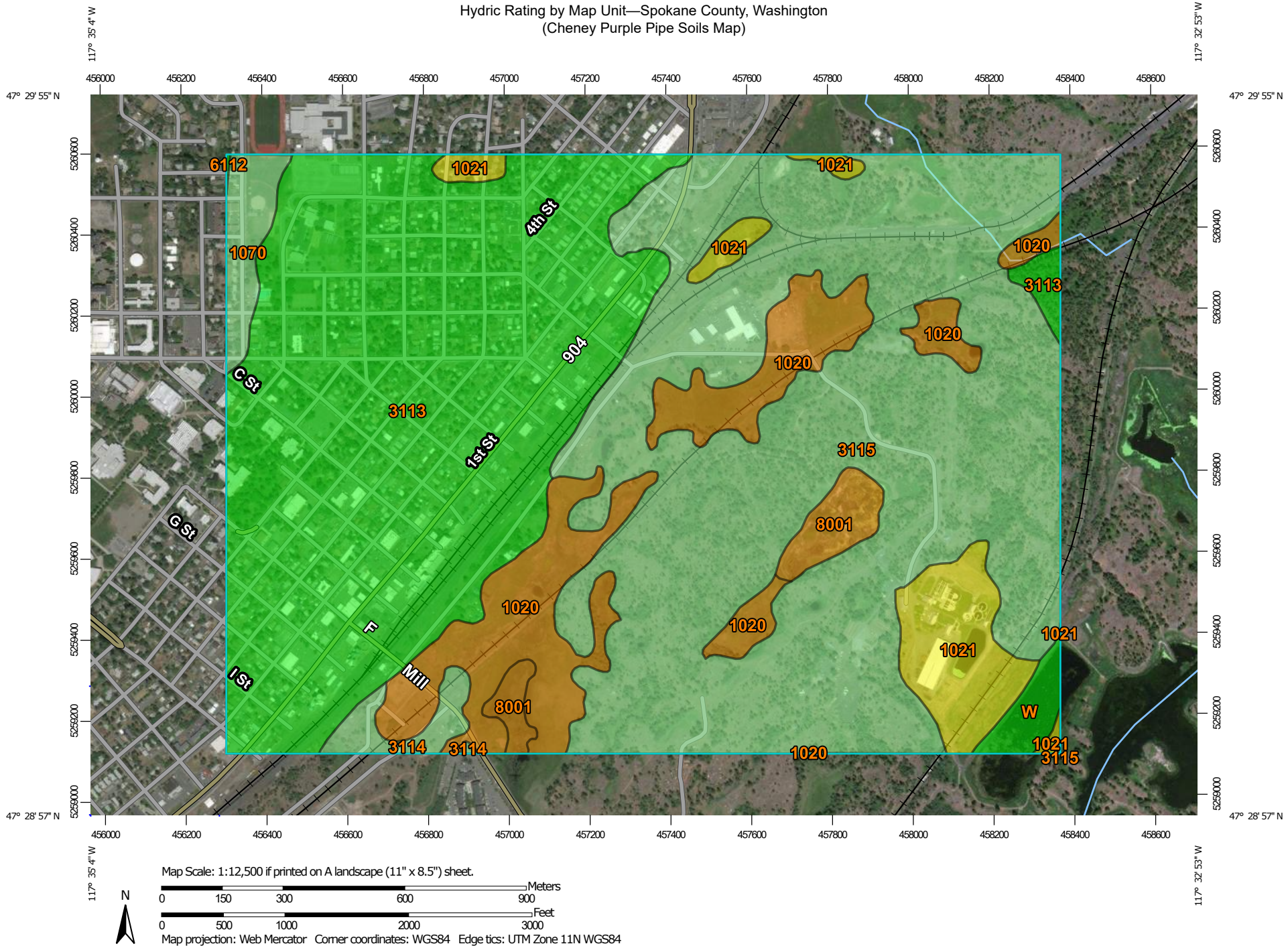
PHS Report Clip Area
PT
LN
AS MAPPED
SECTION
QTR-TWP
TOWNSHIP

1:19,842

0 0.15 0.3 0.6 mi
0 0.275 0.55 1.1 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Hydric Rating by Map Unit—Spokane County, Washington
(Cheney Purple Pipe Soils Map)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 12, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 18, 2014—Sep 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1020	Cocolalla ashy silt loam, 0 to 3 percent slopes	82	77.4	10.2%
1021	Cocolalla-Hardesty complex, 0 to 3 percent slopes	53	35.0	4.6%
1070	Mondovi silt loam, 0 to 8 percent slopes	5	11.9	1.6%
3113	Stutler-Springdale complex, 3 to 15 percent slopes	0	277.2	36.6%
3114	Rockly-Fourmound complex, 0 to 15 percent slopes	4	8.6	1.1%
3115	Northstar-Rock outcrop complex, 3 to 15 percent slopes	4	327.8	43.2%
6112	Broadax silt loam, 15 to 30 percent slopes	0	0.1	0.0%
8001	Saltese muck, 0 to 3 percent slopes	90	13.2	1.7%
W	Water	0	6.9	0.9%
Totals for Area of Interest			**757.9**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Photo Inventory

The following two photos were taken on June 17, 2020.

Photo 1: Overview of Miller Pond, staff gauge near outfall on northern end.

Photo 2: The northwest corner, or tip, of the wet meadow extends to this apple tree.

Appendix E

Water Rights

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APPENDIX E

WATER RIGHTS

(Appendix J of 2018 Water System Plan Update)

Appendix J

Water Rights Evaluation

Water Right Self-Assessment Form for Water System Plans

331-372 • 1/13/2017

All water right permits, claims, and certificates must be evaluated in a water right self-assessment for all sources used to supply the water system. The self-assessment compares the parameters and other limitations of existing water rights against current and forecasted water production, as described in your water system plan, to determine whether the rights are adequate to serve your system's current and future water needs.

You must account for all sources of supply and total quantities of water withdrawn from the source. If you purchase water from another purveyor through a non-emergency intertie, you must complete the INTERTIES section of the self-assessment.

A Note on Exempt Wells

If you're seeking DOH approval of a new Group A or Group B water system using an exempt well, you must complete the self-assessment, although certain fields will not apply. Talk to your DOH regional planner about using the Water Right Self-Assessment form for a Small Water System Management Program instead of this version.

Local governments must ensure that an adequate potable water supply is available from the exempt well before issuing a building permit. Before developing a permit exempt well, check with your local authorities on their criteria for establishing an adequate potable water supply for your planned public water system.

Water Right Parameters

Below is a brief description of the parameters associated with a typical water right. For the self-assessment, you only need to describe the last two bulleted items if they apply to your water rights.

Source Type – this refers to whether the source is surface water, groundwater or a spring.

Source Location – this refers to the location of points of groundwater withdrawal or surface water diversion for each right.

Purpose of Use – this refers to the type of use, such as municipal water supply, community domestic, industrial or agricultural purposes.

Place of Use – this describes where water can be put to beneficial use under the right. Under the 2003 Municipal Water Law, RCW 90.03.386, the place of use for a water right held for municipal water supply purposes may be the system's service area as identified in an approved water system plan or small water system management program. See Ecology Policy 2030 for information on how Ecology administers the Municipal Water Law.

Washington State Department of Health

If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/drinkingwater.

Period of Use – this refers to time-of-year limitations in which the water right may be put to use. If any water right has a time-of-year limitation, please include this information in the INTERRUPTIBLE WATER RIGHTS section.

Provisions or Limiting Conditions – this refers to any provisions or conditions placed on the water right. If a water right has a limiting condition or other provision, such as a collection and reporting requirement, other than a time-of year limitation, include this information in the ADDITIONAL COMMENTS section at the bottom of the self-assessment and in the water system plan narrative.

See Ecology Policy 1040 for more information on water right terminology. If you have questions about your water rights, please contact the Ecology regional office in your area.

Completing the Water Right Self-Assessment Form

The self-assessment is a Word document to allow users to make changes or to expand the document. You may use another format, if preferred, as long as all required information is included. Below is a description of all fields and how to complete them. This form is divided into four different sections. Each section is described in the headings below.

See the column identifiers (A, B, C, etc) at the bottom of each column for guidance in completing the necessary calculations.

Water Right Permit, Certificate, or Claim Number: This number is assigned by Ecology when a permit application is filed. It's listed at the top of the permit or certificate. For water right claims, this is the registration number stamped in the lower left hand corner of the claim form.

WFI Source #: Identify the individual sources (e.g. well #1, well #2) as defined on the DOH Water Facilities Inventory form. If a water right is associated with multiple sources, list all sources in the same row in this column. If a source is associated with multiple water rights, identify each water right on a separate row.

If you have any source(s) that is not currently being used (categorized as standby, back-up, or emergency), and the source has an associated water right that is not listed in column #1, please include the source and water right information in the ADDITIONAL COMMENTS section. This will identify that the source is still intended for a beneficial use under RCW 90.03.015(4). See Ecology Policy 1040.

EXISTING WATER RIGHTS SECTION *(olive green color, top section)*

This section refers to existing water rights. It does not include any water right applications that have been submitted to Ecology.

Primary Qi (Instantaneous Quantity): This is also known as instantaneous flow rate. It's the amount of water allowed to be taken under the right from the source during a period of peak operation. For surface water, this is generally expressed in terms of cubic feet per

second (cfs). For groundwater, this is generally expressed in terms of gallons per minute (gpm). One cfs equals 448.8 gpm. Please indicate the units of measurement you are using for each source. If there are situations where the flow rate will be limited (e.g. limitations established on the source when other sources are utilized), please note them in the ADDITIONAL COMMENTS section in the form and in the WSP narrative.

Non-Additive Qi: This term was formally known as "supplemental." Your water rights may use the old terminology. See Ecology Policy 1040 for more information. Not all water rights have non-additive quantities. If a water right has non-additive Qi quantities, include the non-additive quantity in this field. This is generally listed in the "quantity, type of use, period of use" section on both permits and certificates. *Non-additive quantities should not be included in the primary Qi totals.*

Primary Qa (Annual Quantity): This is the amount of water that can be taken from the source under the right on an annual basis. It's usually expressed in terms of acre-feet. An acre-foot is the amount of water necessary to submerge an acre of land to a depth of one foot. One acre-foot equals 43,560 cubic feet or 325,851 gallons of water.

Non-Additive Qa: This term was formerly known as "supplemental." Your water rights may use the old terminology. See Ecology Policy 1040 for more information. Not all water rights have non-additive quantities. If a water right has non-additive Qa quantities, include the non-additive quantity in this field. This is generally listed in the "quantity, type of use, period of use" section on both permits and certificates. *Non-additive quantities should not be included in the primary Qa totals.*

CURRENT SOURCE PRODUCTION SECTION *(light green color, top section)*

This section refers to how much water is withdrawn from the source under each water right for the most recent full calendar year. You will need to determine any excess or deficiency for each water right after calculating how much water was withdrawn compared to how much water is allowed under each water right. If demand has decreased over past years, you may wish to include historic maximum production information in the ADDITIONAL COMMENTS section. This will provide a more complete picture of the use of your water rights.

Use the water use data and demand projections from your water system plan to define current and projected water needs. You can determine if you'll need additional water rights based on the comparison of existing water rights, current water production, and projected 10- and 20-year needs.

Total Qi (Instantaneous Quantity): This refers to the total maximum instantaneous flow rate withdrawn from the source under each water right during the most recent calendar year. For surface water, this is expressed in terms of cubic feet per second (cfs). For groundwater, this is expressed in terms of gallons per minute (gpm). One cfs equals 448.8 gpm.

Current Excess or Deficiency (Qi): Please calculate the excess or deficiency for each water right after comparing the total amount withdrawn against each water right. Please use parentheses for deficient amounts.

Total Qa (Annual Quantity): This refers to the total volume of water withdrawn from each source under each water right during the most recent calendar year. It's usually expressed in acre-feet.

Current Excess or Deficiency (Qa): Please calculate the excess or deficiency for each water right after comparing the total amount withdrawn against each water right. Please use parentheses for deficient amounts.

10-YEAR FORECASTED SOURCE PRODUCTION SECTION *(light blue color, top section)*

This section refers to how much water you project to withdraw from each source in ten years as determined in your water system plan. Please complete this section in the same manner (using the same units of measurement) as the current source production section using your 10-year forecasted amounts.

20-YEAR FORECASTED SOURCE PRODUCTION SECTION *(darker blue color, top section)*

This section refers to how much water you project to withdraw from each source in twenty years as determined in your water system plan. Please complete this section in the same manner (using the same units of measurement) as the current source production section using your 20-year forecasted amounts. If you are unable to provide 20-year forecasts for each source, you may choose to include the combined 20-year total at the bottom.

PENDING WATER RIGHTS SECTION *(second section of form)*

Please complete this section for any water right applications that have been submitted to Ecology. Please include the application number, whether it's a new or a change application, the date submitted, and the total quantities requested.

INTERTIES SECTION *(third section of form)*

This section must be completed by purveyors who purchase any amount of wholesale water. If your system sells water to another public water system, include the quantity sold in the CURRENT SOURCE PRODUCTION section.

Purchasers of wholesale water must account for all water obtained through the intertie for non-emergency supply purposes. This is to ensure that all sources of supply are considered when evaluating whether new water rights are needed within 20 years.

Please identify the maximum quantity of water, expressed in the same manner as the above sections, allowed under each intertie contract. If there are limiting conditions or temporary

agreements that effect the long-term use of the intertie, you must account for such limiting conditions when evaluating the current and forecasted water supply needs in your water system plan.

Finally, purchasers of wholesale water are responsible for ensuring that the underlying water right (held by the purveyor selling water) are adequate for such use. You should confirm that the selling system has accounted for the wholesale area in their water system plan to ensure that the water right authorizes the distribution of water through the intertie.

INTERRUPTIBLE WATER RIGHTS SECTION *(bottom section of form)*

This section refers to water rights that have an annual time-of-year interruption. Please complete this section for any water right listed in the above fields that has a time-of-year interruption. Please include the water right number, describe the limitation, and the time period of interruption. Purveyors with interruptible rights should develop a water shortage response plan as part of their water system plan to describe how demand will be met during periods of interruption through aggressive demand-side conservation, fixing leaks or other means.

ADDITIONAL COMMENTS SECTION *(bottom section of form)*

If the system has any source that is not currently being used on a regular basis (such a source may be categorized as stand-by, back-up, emergency), you should identify the source in this section if the source has an associated water right that is not listed in the above sections. The purpose is to identify that such water rights are still intended for a future beneficial use as required under RCW 90.03.015(4). See Page 2, Item 9 (b) in ECY Policy 2030. For these water rights, please briefly describe the future intended use of the source and when you expect to utilize the water right. This does not refer to sources categorized as seasonal sources.

You should also include any other comments in this section that will explain aspects of your water right portfolio that are not identified above.

Water Right Self-Assessment Form for Water System Plan

Water Right Permit, Certificate, or Claim # *If water right is interruptible, identify limitation in yellow section below	**WFI Source #** If a source has multiple water rights, list each water right on separate line	**Existing Water Rights** Qi= Instantaneous Flow Rate Allowed (GPM or CFS) Qa= Annual Volume Allowed (Acre-Feet/Year) This includes wholesale water sold				**Current Source Production – Most Recent Calendar Year** Qi = Max Instantaneous Flow Rate Withdrawn (GPM or CFS) Qa = Annual Volume Withdrawn (Acre-Feet/Year) This includes wholesale water sold				**10-Year Forecasted Source Production (determined from WSP)** This includes wholesale water sold				**20-Year Forecasted Source Production (determined from WSP)** This includes wholesale water sold			
		Primary Qi Maximum Rate Allowed	**Non-Additive Qi** Maximum Rate Allowed	**Primary Qa** Maximum Volume Allowed	**Non-Additive Qa** Maximum Volume Allowed	**Total Qi** Maximum Instantaneous Flow Rate Withdrawn	**Current Excess or (Deficiency) Qi**	**Total Qa** Maximum Annual Volume Withdrawn	**Current Excess or (Deficiency) Qa**	**Total Qi** Maximum Instantaneous Flow Rate in 10 Years	**10-Year Forecasted Excess or (Deficiency) Qi**	**Total Qa** Maximum Annual Volume in 10 Years	**10-Year Forecasted Excess or (Deficiency) Qa**	**Total Qi** Maximum Instantaneous Flow Rate in 20 Years	**20-Year Forecasted Excess or (Deficiency) Qi**	**Total Qa** Maximum Annual Volume in 20 Years	**20-Year Forecasted Excess or (Deficiency) Qa**
1) 341-D	S01, S02, S03, S05, S08, S09 & S10	475		100													
2) 342-D	S01, S02, S03, S05, S08, S09 & S10	625		245													
3) 1418-A	S01, S02, S03, S05, S08, S09 & S10	900		550													
4) 3969-A	S01, S02, S03, S05, S08, S09 & S10	900		1,055*													
5) 5967-A	S01, S02, S03, S05, S08, S09 & S10	750		975													
6) G3-22439-C	S01, S02, S03, S05, S08, S09 & S10	500		804													
7) G3-25859-C	S01, S02, S03, S05, S08, S09 & S10	1,250		2,000													
	TOTALS =	5,400		5,729		1,921	3,479	1,870	3,859	2,584	2,816	2,241	3,488	2,952	2,448	2,560	3,169
Column Identifiers for Calculations:		A		B		C	=A-C	D	=B-D	E	= A-E	F	=B-F	G	=A-G	H	=B-H

ADDITIONAL COMMENTS:

* The annual volume allowed for groundwater certificate 3969-A was issued with a provision that "the total yearly withdrawal under all rights (previous to and including this one: i.e.; 341-D, 342-D & 1418-A) shall be limited to 1,950 acre-feet per year".

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

December 6, 2017

Daniel Ferguson
City of Cheney
112 Anderson Rd
Cheney, WA 99004

Re: City of Cheney; PWS ID # 12400; Spokane County
Water System Plan Update; DOH Project #17-1113

Dear Mr. Ferguson:

I have reviewed the above referenced document in accordance with the *2007 Memorandum of Understanding* between Department of Health (DOH) and Department of Ecology (Ecology), and in accordance with RCW 90.03.386. Ecology's review is focused only on the subject water system's water rights legitimacy, adequacy and related issues affecting the submitted report.

The city of Cheney has seven water rights for municipal supply. The water right self-assessment Table 4-4 seems current and correct. The City has total of 5,400 gpm instantaneous Qi right at combined sources, and 5,729 ac-ft Qa annual quantity. All City's water rights were consolidated in 2008. The city has adequate water rights quantity to support its current operation, 10 year and 20 year projected growth.

These are my comments at this time. Please don't hesitate to contact me at (509) 329-3451 or at yifu461@ecy.wa.gov should you have any questions regarding this letter.

Sincerely,

Ying Fu
Water Resources Program

YF: sm

cc: Brenda Smits, DOH

Appendix F

Cultural Resources Survey and No Adverse Effects Determination

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APPENDIX F

CULTURAL RESOURCES SURVEY

and

NO ADVERSE AFFECTS DETERMINATION

CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2020-02-01413

Author: Jennifer Thomas, Sean Stcherbinine, and James Jenks

Title of Report: Cultural Resources Survey for the City of Cheney Purple Pipe to Parks and Playfields Project, Spokane County, Washington

Date of Report: September 2020

County(ies): Spokane Sections: 1 and 12, 7 and 18 Township: 23N, 23N Range: 41E, 42E

Quad: Cheney, Wash (1980) Acres: Linear, 3.25 miles

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☒ Yes ☐ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

_____
_____
_____
_____
_____
_____
_____
_____

Cultural Resources Survey for the City of Cheney Purple Pipe to Parks and Playfields Project, Spokane County, Washington

By: Jennifer Thomas, Sean Stcherbinine, and James Jenks

Principal Investigator: Jennifer Wilson

Submitted to Esvelt Environmental Engineering
DAHP Project No.: 2020-02-01413

Short Report 1358
Archaeological and Historical Services
Eastern Washington University

September 2020

Executive Summary

The City of Cheney proposes to install a new reclaimed water distribution system to City parks and playfields. The project is sponsored by the Washington State Department of Ecology, which requires that the project comply with Section 106 of the National Historic Preservation Act. Archaeological and Historical Services (AHS), Eastern Washington University (EWU), was contracted to complete the cultural resources survey for the project.

Cultural resources fieldwork concluded on August 21, 2020, following pedestrian cultural resources survey and shovel test excavations. No cultural materials were observed during subsurface investigations. The 3.25-miles-long linear component of the project APE crosses under the alignment of three historical railroad linear resources, each of which are eligible for listing in the National Register of Historic Places (NRHP). As proposed, pipe line construction methods will allow placement of the pipe line approximately 15 feet under each rail track corridor with no alterations or disturbances to the NRHP-eligible resources. It is likely that construction of the pipe line will occur below the vertical boundary reasonably associated with each resource. Accordingly, the proposed project will have no adverse effect to the identified, significant historic built environment resources.

Table of Contents

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List of Tables

Archaeological and Historical Services, Eastern Washington University Cultural Resource Short Report Form

Author(s): Jennifer Thomas, Sean Stcherbinine, and James Jenks **Date:** September 2020
USGS Quadrangle(s): Cheney, Wash (1980)
Location (Sec., T, R): Sections 1 and 12, T23N, R41E; Sections 7 and 18, T23N R42E

PROJECT DATA

Agency/Sponsor: The City of Cheney, sponsored by Washington Department of Ecology

DAHP Project No.: 2020-02-01413

PROJECT DESCRIPTION

Undertaking/Area of Potential Effects

The City of Cheney (City) proposes to design and construct a water reclamation treatment and distribution system for the purpose of landscape irrigation for parks and playfields and for the campus of Eastern Washington University (EWU) within the municipal limits of the City of Cheney in Spokane County (Figure 1). The Cheney Purple Pipeline to Parks and Playfields Project will include construction of a new filter pump station building with new filtration and disinfection systems and new drain pump station, conversion of the existing reaeration lagoon to a reclaimed water storage lagoon, and a reclaimed water pump station all within the grounds of the City of Cheney Wastewater Treatment and Reclamation Facility (Facility), as well as excavation of 3.25 linear miles for the construction of new underground utilities consisting of 12-inch, 14-inch, and 18-inch PVC water pipe lines. Outside the Facility, the project area of potential effects (APE) consists of a corridor (typically 12 feet wide) centered mostly along existing, subsurface water main corridors that are adjacent to paved roads and sidewalks through downtown and residential areas of Cheney, and at the Facility. At locations adjacent to railroad crossings, the project APE expands to 30-foot widths to accommodate borings that will occur under extant railroad infrastructure. The proposed vertical APE is approximately six feet below the ground surface, except at railroad crossings where borings will reach up to 15 feet in buried depth (Esvelt Environmental Engineering 2020)

The Washington Department of Ecology is the lead agency for the project. The project was sent to the Washington Department of Archaeology and Historic Preservation's (DAHP) through the Washington Information System for Architectural and Archaeological Data (WISAARD) in February 2020, and assigned DAHP project number 2020-02-01413.

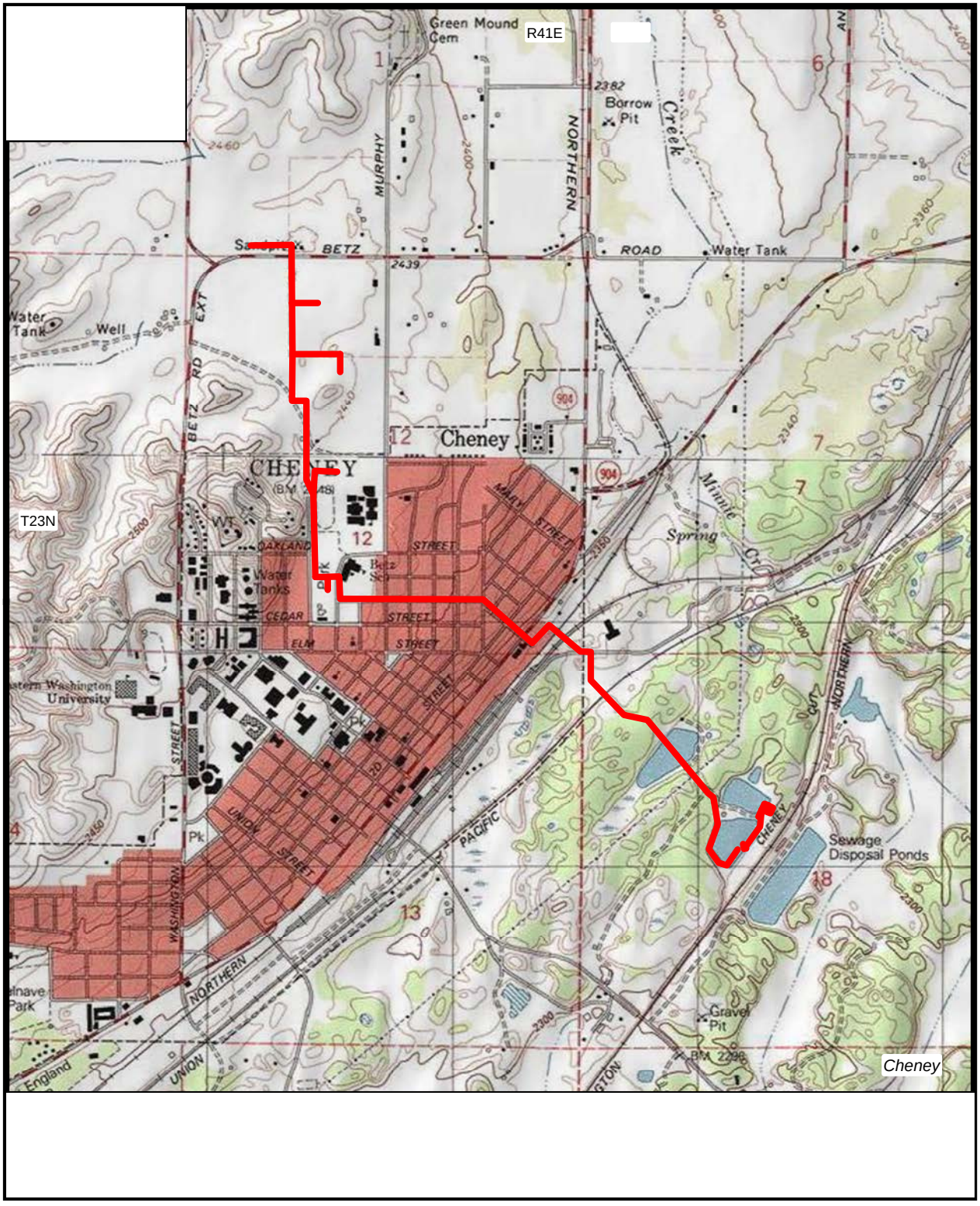

Figure 1. *Topographic map showing the location of the Cheney Purple Pipe Project (adapted from the USGS 7.5' topographic quadrangle Cheney, Wash. [1980]).*

Cultural Resource Tasks

Archaeological and Historical Services (AHS), Eastern Washington University (EWU), conducted the following tasks: 1) a comprehensive literature review and file search of records held at the DAHP through the WISAARD database; 2) a cultural resources survey, including shovel test excavation and historic building recordation, of the described project area; 3) a written informal request for information from the Spokane Tribe of Indians; and, 4) preparation of this technical report of findings.

AHS staff consulted with City of Cheney officials to determine the presence of underground utilities or another infrastructure, and received guidance regarding potential conflicts, which were avoided during excavations.

LOCATION

Project/locational information: The 3.25-mile project APE traverses the City of Cheney, including and extending between the City of Cheney Wastewater Treatment Facility and the City of Cheney Betz Field (see Figure 1).

Landowner(s): City of Cheney.

ENVIRONMENTAL BACKGROUND

Setting and Landform(s)

The project APE is located in the Columbia Basin physiographic province (Franklin and Dyrness 1988). The project vicinity is characterized by rolling loess hills intersected with a few streams and marshes. Permanent water sources are abundant in the region. In addition to the numerous streams in the region there are several small lakes surrounding the Cheney area; the Spokane River, a major tributary of the Columbia River, flows a little over 10 miles to the northeast. The Turnbull National Wildlife Refuge is located six miles south of Cheney.

Geology

The project APE is in the greater Columbia Basin geologic province, and the Palouse Slope subprovince, which is characterized by a few low-lying folds on a gently west-ward dipping paleoslope (Lindsey 1996). The Columbia Basin was formed by a series of Miocene basalt flows known as the Columbia River Basalt Group (Department of Natural Resources 2018). The Wanapum Basalt formation that flowed through the project area, consists of numerous, separate flows occurring between 15.6 and 14.5 million years ago (Tolan et al. 1989). Interbedded within these formations are sedimentary strata that once supported vast forests. As the Wanapum Basalt Formation enveloped these soils, dissolved silica from the ash slowly replaced the organic materials, petrifying wood, and forming volcanoclastic and sedimentary rocks (Boreson 1998).

The Cordilleran continental ice sheet advanced and retreated numerous times during the Pleistocene, eroding bedrock and transporting sediment (Booth et al. 2003). Strong winds transported finer-grained sands and silts across the region, and depositing to form expansive loess formations. The largest region-wide eolian deposit resulting from this process during the terminal Pleistocene is the Palouse Formation, which is most prevalent in the Palouse region of southeastern Washington.

Soils

Late Pleistocene Lake Missoula cataclysmic floods (13,000-20,000 years ago) scoured the region, removing residual soils and creating several large, temporary lakes. As they drained, they left behind large deposits of silt and gravel and the fine lake-bottom deposits were redistributed as loess. Various soil complexes are mapped within the project APE, mostly ashy silt loams, many of which formed in loess (Soil Survey Staff 2020). Soils found in the vicinity of the Facility at the eastern end of the project APE are mapped as Cocolalla-Hardesty complex. This complex is composed of deep, poorly to moderately well drained ashy silt loam formed in alluvium derived primarily from volcanic ash mixed with loess. Soils located between the Facility and the city of Cheney are mapped as the Northstar-Rock outcrop complex, which comprises moderately deep, well drained gravelly ashy loam formed in colluvium and residuum mixed with some loess and volcanic ash. Soils within the city proper are mapped as the Stutler-Springdale complex, which consist of very deep, well drained ashy silt loam formed in gravelly and sandy glaciofluvial deposits mixed with some volcanic ash and loess. Sediments along N 8th Street consist of Brincken ashy silt loams and Mondovi silt loam. The Brincken series is composed of very deep, well-drained ashy silt loam formed in loess mixed with some volcanic ash over glaciofluvial deposits of sand and gravel over older loess. Mondovi series comprises very deep, well-drained soils formed in recent alluvium on the flood plains of streams.

Climate

The climate of Spokane County is influenced by the prevailing westerly winds and the large mountain ranges that lie to the east and west. The Rocky Mountains shelter Cheney from strong Arctic winds, so the winters are not as severe as on the east side of the Rockies. The Cascades block the flow of moist air from the Pacific in the summer, creating a hot, dry summer climate, though nights are cool.

Summers are warm in valleys and cooler in the mountains in Spokane County. Winters are cold, and valley bottoms are colder than slopes due to cold air drainage. Precipitation falls throughout the year in the mountains and a deep winter snowpack usually accumulates. Snow covers the ground throughout much of the winter, though occasional warm Chinook winds result in snow melt. In Spokane, average January high temperature is 34º F (1.3º C) and the average daily low is 25º F (-4.1º C). The coldest temperature on record is -25º F (-32º C) (1890–2003). The July average high temperature is 83º F (28.3º C) and the average daily minimum is 56º F (13.5º C). The highest recorded temperature is 110º F (43º C). Annual precipitation averages only 16.6 inches (420 mm), of which only 6.1 inches (155 mm) falls during the growing season (April through

September). Average total annual snowfall in Spokane is 44.9 inches (1,140 mm), of which 26 inches (660 mm) fall on average in December and January (Desert Research Institute 2020)

CULTURAL/HISTORIC BACKGROUND

Ethnographic Period

Ethnographically, the project APE is within the traditional territory of the bands of the Salish-speaking Spokane (or Spokan). Ethnographers identified the area around the Little Spokane River drainage as territory of the Upper Spokan band, Latah/Hangman Creek as the territory for the Middle Spokan, and Little Falls as the territory of the Lower Spokan (Ray 1936; Ross 1998, 2011). Winters were typically spent in permanent villages along the river. In the summer and fall, bands spread out to the surrounding prairies to hunt and harvest plants. Relations between the Spokan and neighboring tribes were generally friendly, and many bands came to the area to take advantage of the numerous fishing sites or to trade for natural resources not available in their own territories, using the Spokane River as a transportation corridor. The Coeur d'Alene Tribe to the east procured many resources from the Spokan, often trading for salmon, bitterroot, soapberry, hazelnuts, and tobacco. After the introduction of the horse, the Coeur d'Alene reportedly traveled to the Cheney area to collect bitterroot themselves (Chalfant 1974; Ross 1998, 2011).

Plateau peoples were hunters and gatherers who placed heavy emphases on the acquisition of upland game animals, fish (including salmon, trout, carp, and other species), root crops, and berries. Native peoples circulated through their own and adjacent territories capitalizing on the changing food gathering opportunities presented by seasonal availability of native plants and animals. The Spokan—like other Native American peoples of the Columbia Plateau—followed a seasonal subsistence round. Root gathering and processing of stored foods for consumption during the lean winter months began in the spring, as each species became ready for harvest. Gathering root crops and berries continued into the summer months. Fishing at large communal gathering sites on the Spokane River and major rivers in the region was the main activity during the summer months. In the fall, large terrestrial game animals were hunted and many groups returned to the communal fishing sites. Winter was spent in village sites often located near summer fishing stations where people subsisted largely on preserved root crops and dried salmon and deer meat (Ross 1998). The winter diet was supplemented by continued hunting of deer and other large game animals, which occupied lower elevation landforms as the snow line dropped. Detailed ethnographic information pertaining to the Spokane and other regional aboriginal groups can be found in the sources cited above, as well as Chalfant (1974), Palmer (1998), Trafzer and Scheuerman (1986), and Wynecoop (1969).

Ethnographer Vern Ray recorded numerous Spokan settlements, most of which are located along the Spokane River and its tributaries (Ray 1936). Ten miles to the east of the project APE, near the mouth of Rock Creek, was a camp known as *tcəɬsi˙yutsu˙m* ("place where many woodpeckers are found"). In the winter it was used as a base camp for large deer drives in the area. About 12 miles to the northeast, on the bank of Latah Creek was a permanent village known as *qu˙yu* ("place where Oregon grape grows") where residents procured an abundance of salmon, trout, beaver,

deer, and antelope (Ray 1936). Rock Lake, located roughly 20 miles south of Cheney, was known as *En-chush-chesh-she-luxum* ("never freezing water"). In one traditional legend, Rock Lake was home to a great reptilian monster that made the people afraid, so they prayed to the Great Spirit, who killed the monster with a stone knife. Using the knife, the Great Spirit dismembered the monster, then tore open a grave which then filled with water. Although the people were safe, the tail was believed to still churn the water, and that is why Native people did not fish there (Durham 1912:163; Scheuerman and Clement 2003).

Historic Period

The horse and European goods made their way to the Columbia Plateau through trade with neighboring tribes during the 1700s, but it was not until the early nineteenth century that fur traders made direct contact with local tribal groups. In 1810, the North West Company established a fur trading post at the confluence of the Spokane and Little Spokane rivers. After the merger with Hudson's Bay Company in 1821, the Spokane House was moved north to Fort Colville. Within a few decades, missionaries arrived, followed soon after by gold seekers, settlers, and ranchers who quickly built a solid foothold, forcing tribes out of their traditional homelands (Wynecoop 1969). Resistance to encroachment resulted in open conflict across the Pacific Northwest in the 1850s between tribes and the U.S. Army.

The Spokan fought alongside their allies, particularly the Coeur d'Alene and Palouse, in many skirmishes against the US military. In September 1858, two major conflicts between several united regional tribes and the military occurred just a few miles north of the project APE near present-day Four Lakes, beginning with the Battle of Four Lakes. In the subsequent Battle of Spokane Plains, military forces fought a running battle with tribal warriors, who found themselves overwhelmed by superior weaponry. Further, soldiers slaughtered approximately 900 horses belonging to the tribes, effectively put an end to the major conflicts in the region and eventually led to the establishment of reservations. The Spokane Indian Reservation was established in 1881. Many Lower Spokane eventually submitted to the relocation, while most Middle and Upper Spokan moved to northern Idaho's Coeur d'Alene Reservation established in 1873 (Ross 2011).

Following the cessation of regional hostilities and the subsequent removal of Native Americans to reservations, non-Native settlement increased dramatically. Founded in 1878, Cheney was a small settlement initially known as "Willow Springs," named for the numerous springs in the area. By the early 1880s, the first of the lines constructed by American railroad magnate James J. Hill reached the Puget Sound when the Northern Pacific Railway (NP) completed its main line between Minneapolis and Seattle. The NP designated the Cheney vicinity a future rail line and depot, leading to an influx of settlers and land speculators. The railroad arrived in 1881, and the small community experienced a brief boom, but two destructive fires in 1883 and 1889 devastated the burg (Hitchman 1985; Kershner 2007a). Nearby Spokane was experiencing its own boom, after discovery of silver, lead, and zinc in the Coeur d'Alene mining district established Spokane as the service hub for North Idaho mines, making it one of the most important rail centers in the west (Arksey 2005). Meanwhile, the fertile Palouse soil surrounding Cheney proved ideal for wheat farming. The town's location on the NP main line, and later, the Union Pacific (UP) and Spokane,

Portland and Seattle (SP&S) lines, helped Cheney to become a major grain warehouse and milling center (Scheuerman and Clement 2003).

Despite the devastations to the town, Cheney continued to grow, albeit slowly. Census records from 1890 indicate a population of 647 citizens, which slowly increased to 1,207 by 1910. This is likely due to the installation of a State Normal School, one of three granted to the state of Washington after achieving statehood. The town's first college, the Benjamin P. Cheney Academy, was constructed in 1882 after local citizens appealed to NP director, Benjamin P. Cheney, for funds, offering to rename their town in his honor. In gratitude, he donated $10,000 for land, construction materials, two teachers, and crates of books (Cheney Historical Museum 2017). In 1889, Cheney was chosen as a location for one of the newly granted State Normal Schools. The school was renamed Eastern Washington College of Education in 1937, and later became Eastern Washington University in 1977 (Kershner 2007b).

The community of Cheney continued to attract a small, but steady, stream of residents and students over the years. The economic crash and subsequent hardships of the Great Depression significantly impacted the area. Students could not afford tuition, and graduates had few job prospects. At the close of WWII, many students enrolled under the G.I. Bill, and in 1947 the school became a liberal arts college, offering degrees in many more subjects. Subsequently, Cheney experienced a significant population increase which has continued to the present day. Its proximity to the Spokane also drew residents who wanted to live in a small town with easy access to the benefits of a large city. Agriculture, which has since grown to include barley and peas, continues to be a major contributor to Cheney's economy, but the university is the largest employer (Kershner 2007a).

Project APE Cultural Background

An examination of the General Land Office (GLO) Cadastral Survey Plat for T23N, R41E identified two unnamed roads and one unnamed trail crossing the project APE in Sections 1 and 12 (GLO 1873). The trail appears to align with what is now State Route 904 as it extends along the eastern end of the town of Cheney. The Cadastral Survey Plat for T23N, R42E depicts a homestead a little over one mile north of the existing water treatment facility (GLO 1879) (Figure 2). A review of land patents for T23N R42E revealed a total of six cash entry patents between 1884 and 1891 for Section 18: Jay W. Kirkwood (1884), John C. Tyler (1885), De Wilton R. French (1887), William F. Hooker (1889), John Ley (1891), and William M. Dean (1891). A review of patents for T23N R41E revealed four cash entry patents and one homestead entry patent between 1883 and 1887 for Section 12: George W. Crunk (1883), George W. Dike (1885), Henry C. Sessions (1885), Lawrence H. Sessions (1887), and Thomas M. Callaway (1888). All entries consist of private owners. A railroad grant was issued for all of Section 1 of T23N R41E to the Northern Pacific Railroad Company in 1894.

Later maps of Cheney show the land divided into smaller parcels platted for development. In 1912, George A. Ogle and Company published a Spokane County parcel ownership map illustrating property ownership in and around the project APE (Ogle 1912) (Figure 3). J.W. McIntosh purchased the northwest quarter of Section 12 and was living with his wife and a boarder

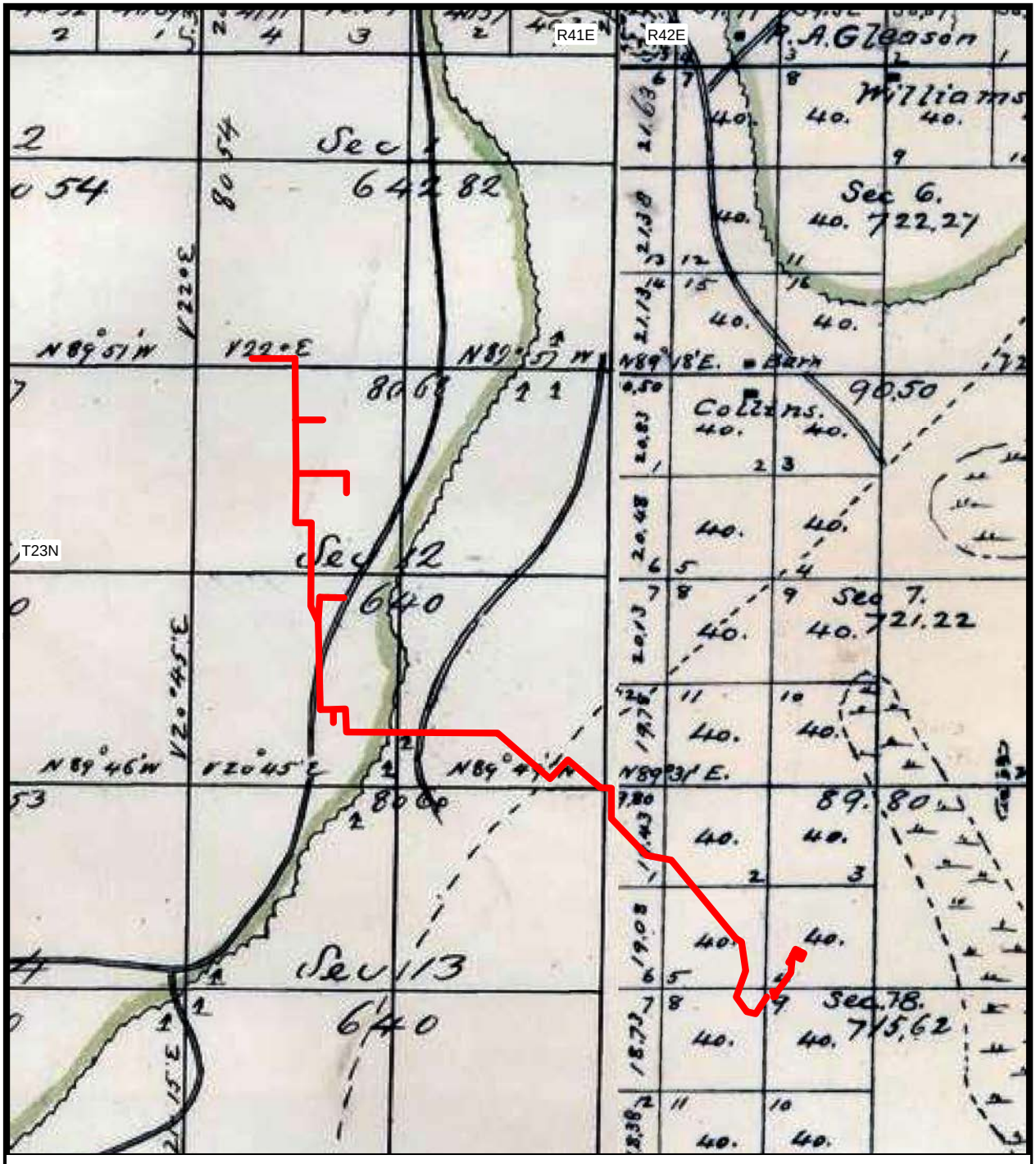

Figure 2. *Portions of the General Land Office surveyors plats of T23N, R41E (1873) and T23N R42E (1879), depicting the project APE.*

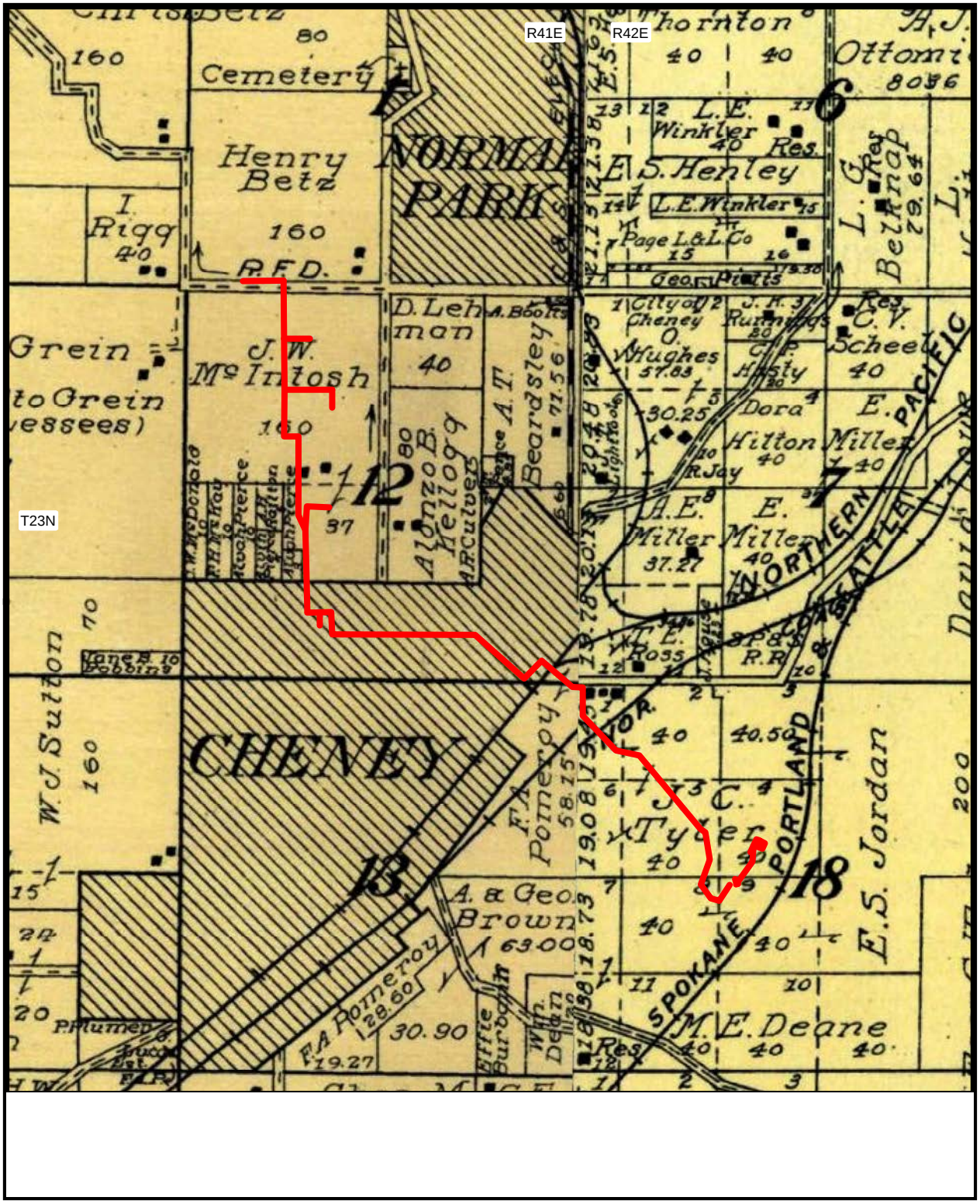

Figure 3. *Portions of the 1912 Ogle Map showing the location of the project APE in relation to the City of Cheney in T23N R41E and T23N R42E.*

by 1900. Henry Betz, a farmer, had purchased the southwest quarter of Section 1 and was living with his wife and son at the same time (US Department of Commerce 1900). John C. Tyler, a farmer who purchased most of the northwest quarter of Section 18 where the project APE is situated, and William Dean, a farmer who purchased the southern half of the southwest quadrant of Section 18, and his wife Martha E. Dean are the only original patented land owners living on their property when this map was platted (US Department of Commerce 1910). Section 18, depicted as a wetland in the 1873 GLO map (see Figure 2), appears to have been drained for farming. Several railroads had been constructed through Cheney by this point: the NP, the North Coast Railroad (part of the UP system), and the SP&S.

The Metsker Map from 1950 depicts a new set of owners along the project APE (Metsker 1950; Figure 4). This map of Cheney shows a moderate increase in development and a few changes in road alignments, which more closely resemble their modern alignments. Additionally, a parcel in the NE SW quadrant of Section 12 of T23N R41E has now been designated for School District #357, where Cheney High School is now located.

Development of the water treatment system in Section 18 appears on a 1980 USGS topographic map, which shows the presence of three sewer lagoons. In the early 1990s, the City of Cheney received funding to construct a modern wastewater treatment plant, resulting in the current Facility. To construct the new plant it was necessary to excavate and remove large quantities of unstable and contaminated earth. Subsequently, imported earth was brought in to fill the excavated space and to provide a stable foundation for the structures and holding ponds of the new facility. The existing facility wetlands were constructed in 1995 as a final enhancement for facility effluent. Expansion of the existing facility occurred in 2006 when new conditioning tanks were installed and the compost building was doubled in size (Emerson 2006).

Traditional Cultural Properties

No traditional cultural properties have been recorded in or within one mile of the project APE, according to DAHP/WISAARD records. However, it is highly likely that the Four Lakes and Spokane Plains battlefields are significant landscapes to regional tribes. Both locations are some distance from the project APE, but their existence may indicate the presence of other areas of high cultural significance to tribes. Informal correspondence soliciting tribal concerns for the project area was sent by AHS to Randy Abrahamson, Tribal Historic Preservation Officer (THPO) for the Spokane Tribe of Indians, on February 3, 2020. Tribal consultation may help identify any National Register of Historical Places (NRHP) eligible traditional cultural properties.

Previous Investigations near the Project APE

A review of DAHP's WISAARD database identified 12 cultural resource inventories that have occurred within one mile of the project APE (Table 1). Three of these investigations (Emerson 2006, 2011; Fagan 2002) include portions of the project APE. During a survey near the current project APE, Emerson 2001 did identify a historic debris concentration (35SP331) less than half a mile to the southwest of the project APE.

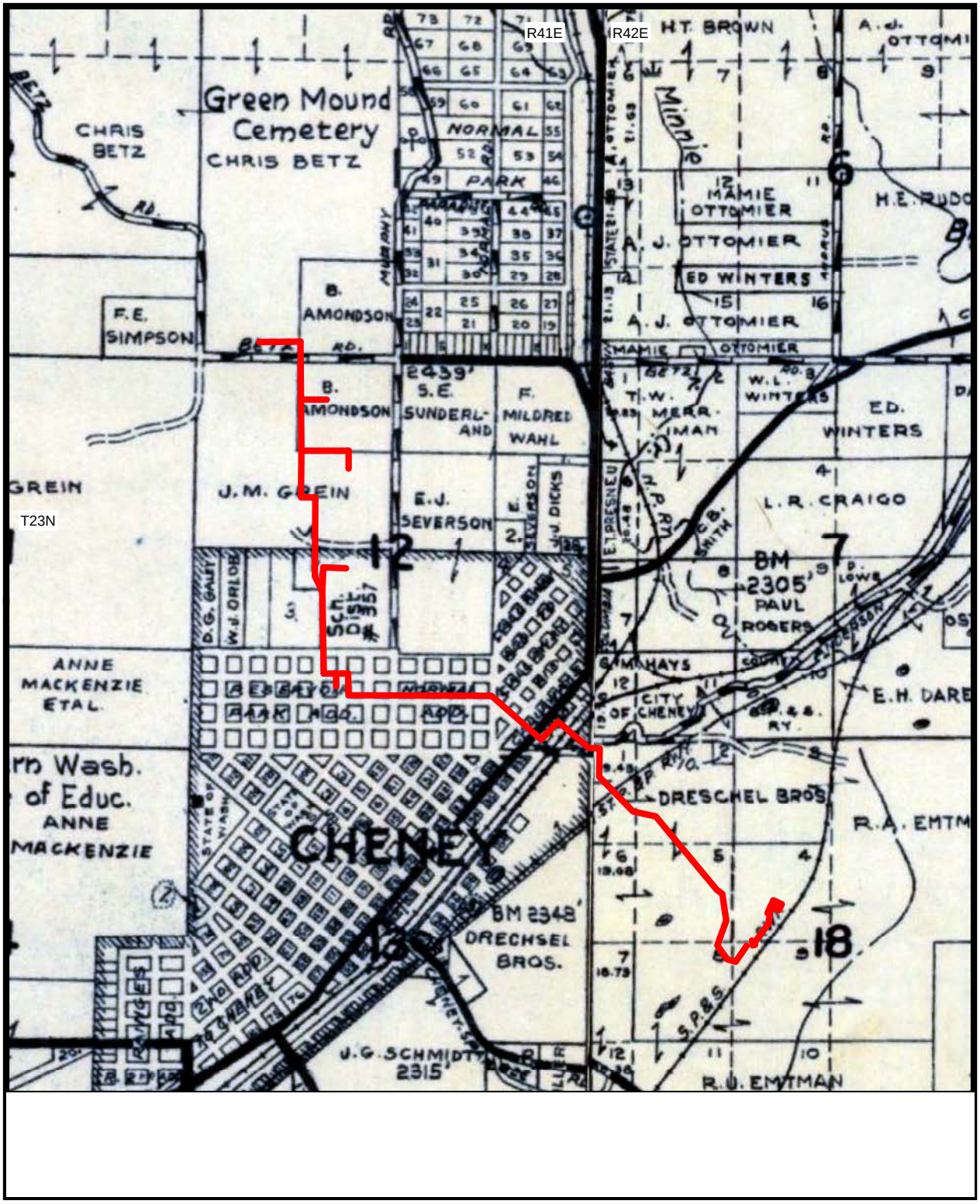

Figure 4. *Portions of the 1950 Metsker Map showing the location of the project APE in relation to the City of Cheney in T23N R41E and T23N R42E.*

Table 1. Previous Investigations near the Project APE

NADB	Reference	Title	Within APE
1333281	Fagan 2002	Cultural Resource Survey of The Spokane Class III Smart Pigging Project Area Along Northwest Pipeline Corporations Spokane Lateral Natural Gas Transmission Pipeline In Spokane and Lincoln Counties, Washington	Yes
1340463	Regan 1998	A Cultural Resources Survey for the Proposed Curtis Road Realignment Project, Spokane County, Washington	No
1340702	Emerson 2001	A Cultural Resources Survey of Cheney-Plaza Road, Between the Columbia Plateau Trail and the Union Pacific Railroad Tracks, Spokane County, Washington	No
1342174	Larsen 2003	A Cultural Resources Survey of the Washington State Department of Transportation's SR 904: Cheney to Four Lakes Project, Spokane County, Washington	No
1347239	Emerson 2006	Letter to Don MacDonald Regarding the Cheney Wastewater Treatment Plant Expansion Project	Yes
1350201	Emerson 1996	Historic Property Inventory, Cheney	No
1681024	Mauser and Bauer 2011	Cheney School District No. 360, New Middle School	No
1681051	Emerson 2011	Cultural Resources Survey for the Cheney Parks and Recreation Department's 50-Acre Park Development Project, Spokane County, Washington	Yes
1684618	Ferguson and Root 2014	Cultural Resources Survey of the BNSF Cheney to Babb Double Track, Cheney	No
1686612	Luttrell 2015	Columbia Plateau Trail Rockfall Hazard Reduction Project Phase II Letter Report	No
1688284	Homan and Perkins 2016	A Cultural Resources Survey for the 2016 Bell District Priority Wood Pole Replacement Project, Pend Oreille, Spokane and Stevens Counties, Washington	No
1690182	Meyer and Ellis 2018	Trevor Smith Environmental Quality Incentives Program Project Cultural Resources Survey Report, Spokane County, Washington	No

Previously Recorded Resources in and near the Project APE

A total of 10 previously recorded resources were identified in or within one mile of the project APE (Table 2). NRHP listed or eligible historic built environment resources include the Northern Pacific Railroad Mainline (property 973206), the Spokane, Portland & Seattle Railway 3rd Subdivision (property 488414), the Burlington Northern Depot (property 32683), the F.M. Martin and Co. Hay and Grain Warehouse (property 32684), and the Eastern Washington University Holter House Married Student Housing (property 716056). The Holter House has been demolished and in June 2020, the Burlington Northern Depot was moved to new location in Cheney. The four previously-recorded archaeological resources listed in Table 2 (45SP331, 45SP355, 45SP678, and 45SP679) that are potentially NRHP eligible are not in the project APE and will not be impacted by project activities.

Property 973206, the SP&S railway, is the single previously-recorded resources that extends through the project APE. The linear resource has been determined by DAHP as NRHP eligible. The resource is discussed in greater detail in the Results section of the report.

In addition, a large number of historic built environment resources are adjacent to the project area, with no DAHP NRHP determination. Most were surveyed as part of 2006 historic resources survey (DAHP project 2006-10-00110) conducted by the City of Cheney and Spokane County. These resources will not be impacted by the project as proposed and are not included in Table 2 or subsequent discussions.

Table 2. Previously Recorded Cultural Resources within and near the Project APE

DAHP Site/Property Number	DAHP Site Type	Name	NRHP Eligibility	Reference
45SP331	Historic debris concentration	Cheney/Spangle Road Dump	Not eligible	Emerson 2001
45SP355	Historic dump/campsite		Not eligible	Ferguson and Root 2014
45SP678	Historic foundation		Not eligible	Fagan 2002
45SP679	Historic graffiti		Undetermined	Shong and Scratch 1997; Ferguson and Root 2014
32683 (relocated)	Historic building	Burlington Northern Depot	NRHP listed	Luttrell 1989
32684	Historic building	F.M. Martin and Co. Hay and Grain Warehouse	Eligible	Larsen 1991
32753	Historic building	Mooreman House	Eligible	Luttrell 1990
488414	Historic railroad	Spokane, Portland & Seattle Railway 3rd Subdivision	Eligible	McMurry 2011
673206	Historic railroad	Northern Pacific Railroad Mainline	Eligible	Ferguson and Root 2014
716056 (demolished)	Historic building	EWU Holter House Married Student Housing	Eligible	Jenks 2018

CULTURAL RESOURCE SURVEY RESEARCH DESIGN

Objectives

The objective of this study is to assist the City of Cheney in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, by the location and preliminary characterization of both previously and as yet unidentified cultural resources within the Cheney Purple Pipeline project APE.

Expectations

According to the DAHP cultural resources sensitivity model mapped on WISAARD, the project APE extends through areas containing a moderately low risk probability for cultural resources within the city limits to areas outside of the city containing a very high probability. The GLO map for this area depicts several marshy areas located east of what is now Cheney (GLO 1879). There are also numerous creeks nearby as well as several permanent lakes roughly five miles to the northwest. The relatively flat terrain, nearby permanent water sources, and traditional food resources such as game and edible plants suggest the area would have been used by indigenous populations. The presence of significant battlefields northeast of the project APE has been noted, and although there are no known villages or campsites in the immediate vicinity, ethnographic records state the presence of habitation sites along Latah Creek roughly 10 miles to the east and northeast, and the region around Cheney was a known gathering location for Spokan and Coeur d'Alene people for spring bitterroot and camas (Ray 1936; Ross 2011; Scheuerman and Clement 2003). Logistically organized activities could have left behind cultural materials associated with resource processing and temporary camps. However, development of the city of Cheney may have destroyed evidence of these and other precontact activities. The project APE is located primarily along established roads within the city of Cheney. Areas east of the railroad appear relatively undisturbed and may contain intact subsurface deposits.

Area Surveyed

The entire 3.25-mile project APE was surveyed.

Methods

Prior to fieldwork, AHS personnel conducted a literature review for the project vicinity through the DAHP WISAARD online database for recorded cultural resources within and in the vicinity of the project area. Background research included a review of online historical narratives and historic maps of the project APE, as well as records and reports on file in the AHS library and available through the EWU John F. Kennedy Library, interlibrary loan, and land records maintained by the Bureau of Land Management (BLM) and Spokane County.

On July 14, 2020, AHS archaeologist Jennifer Thomas conducted a pedestrian survey of the project APE. The entire 3.25 miles was investigated for cultural resources. Transects were no wider than 10 meters. All areas devoid of vegetation, tree tip-ups, and animal burrows were closely examined. Larger trees were also examined for evidence of cultural modification.

On August 10, 2020, historic built environment resources were surveyed by AHS historian James Jenks (Figure 5). The previously-recorded property 673206 was visited within the project APE, and the existing HPI form for the resource was updated to include photographs depicting the resource within the narrow project APE.

On August 19-20, 2020 AHS archaeologist Sean Stcherbinine conducted shovel test excavations at the Facility and along the route of the linear project APE (Figure 6). Shovel tests (STs) were

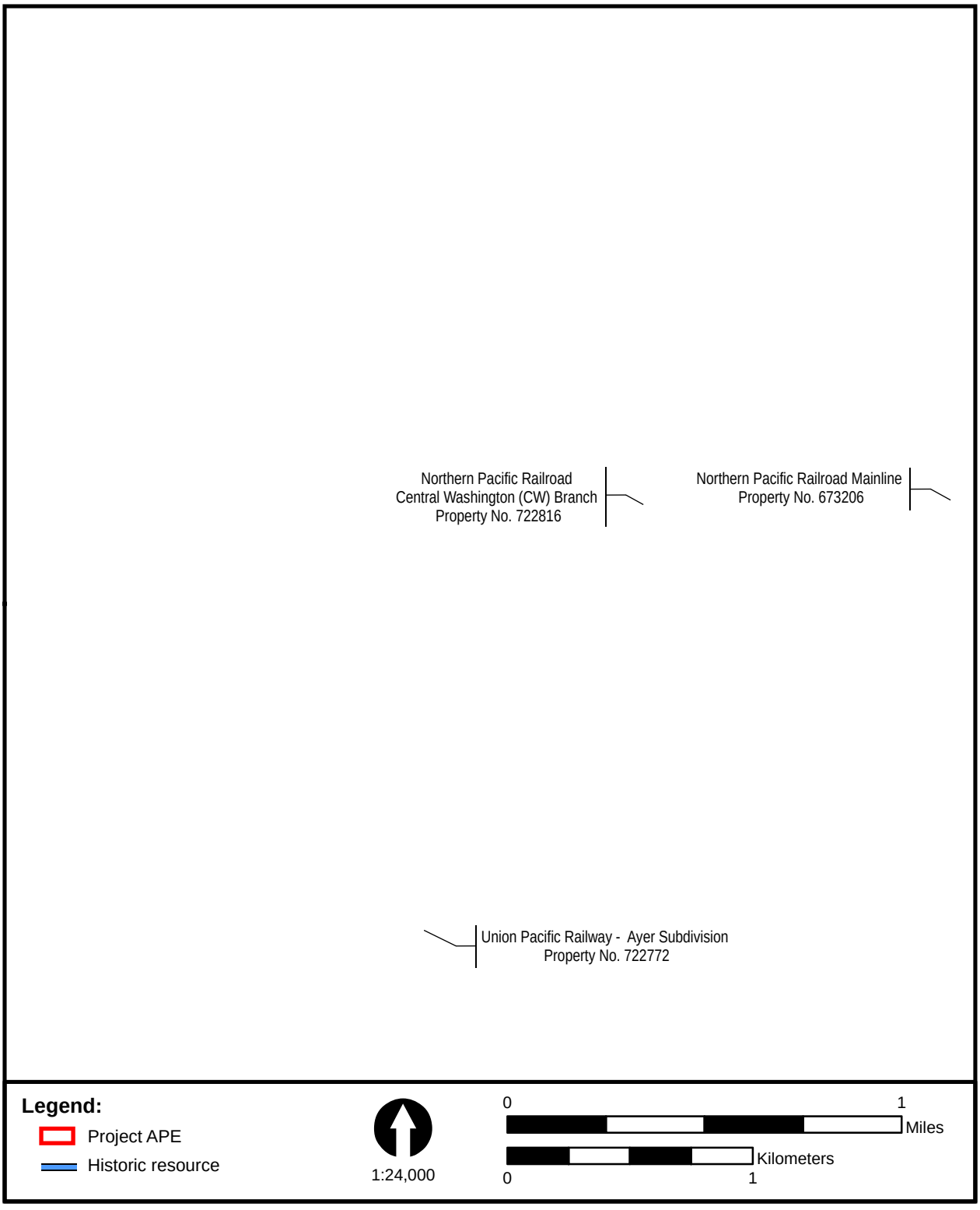

Figure 5. *Aerial photograph showing historic built environment resources in the vicinity of the project APE.*

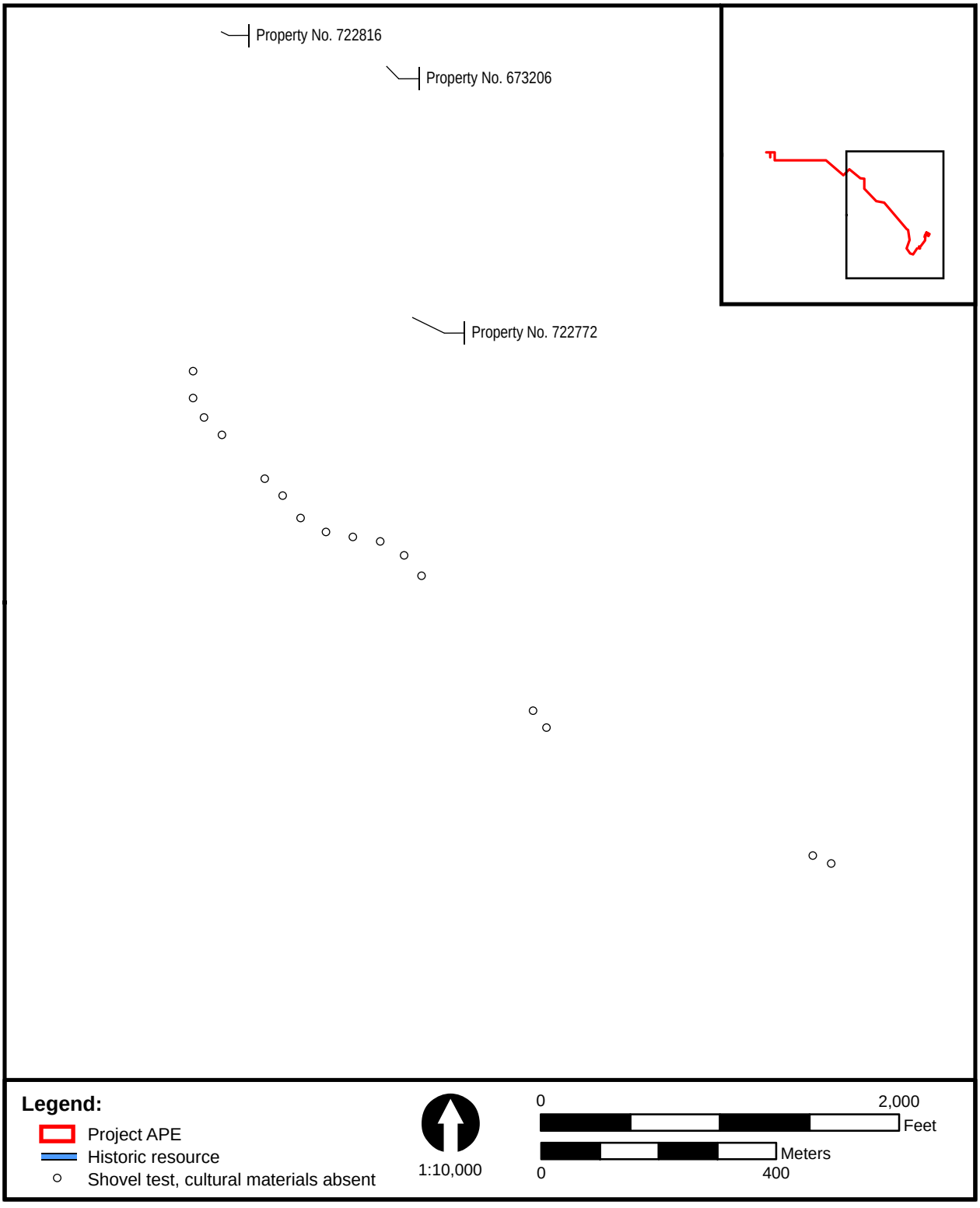

Figure 6. *Aerial photograph showing excavated shovel tests and historic built environment resources in the vicinity of the project APE.*

excavated at approximately 30-meter intervals in areas with the potential for intact sediments. Shovel tests averaged 40 centimeters in diameter and were excavated to varying depths depending on field conditions. All excavated sediments were screened through ¼-inch mesh hardware cloth. Representative STs were photographed and all were backfilled immediately upon completion of recording paperwork.

During the survey, descriptive survey and excavation notes were recorded and representative photographs taken depicting landscape appearance. This report presents findings, conclusions, and recommendations. All photographs, field notes, maps, correspondence, and other records generated during this study are on file at the AHS office in Cheney.

RESULTS _X_ positive __ negative

Cultural resources recorded/observed:

☐ building(s)	☐ site(s)	☐ structure(s)
☐ object(s)	☐ artifact(s)	☑ linear structure(s)
☐ historic district(s)	☐ feature(s)	☐ isolated find(s)
☐ **see attached**		

Survey Results

As a result of the cultural resource investigations of the Cheney Purple Pipeline Project APE, one previously recorded cultural resource (property 673206) and two newly-observed cultural resources, all historic railroad alignments that remain active, were identified extending across the approximately 12-foot-wide project APE, which widens to 30-foot widths on both sides of rail crossings. The project APE was observed as extending through the previously unrecorded Ayer Subdivision of the UP rail line, recorded as property 722772, and the previously unrecorded CW branch of the NP, recorded as property 722816. No prehistoric cultural resources were observed. Ground surface conditions, shovel test results, and a description of the two cultural resources are presented below.

The project APE has been significantly impacted by city development. The project APE extends through City of Cheney residential neighborhoods, school property, parks, and the grounds of the Facility. The Facility itself appears disturbed, while much of the linear project APE appears to follow existing subsurface water lines. Immediately northwest of the Facility, the project APE extends southeast through a small, relatively undisturbed forested area before extending into urbanized Cheney, where the project APE traverses paved sidewalks and roads along commercial and residential development and school property (see Figure 5; Figures 7-12). In the relatively short forested segment of the project APE northwest of the Facility, vegetation consists of ponderosa pine trees, lupine, yarrow, wild rose, and various grasses, though exposed basalt bedrock visible in areas here. Ground surface visibility ranged from moderate to excellent in areas not covered by pavement, roads or sidewalks. The forest floor consists of a couple inches of duff, which obscured most of the ground surface.

Figure 7. *Overview of the City of Cheney Wastewater Treatment Facility. A linear segment of the project APE is in the disturbed and built-up grassy area between the fence and the road. No precontact cultural materials were observed during field survey. The view is to the southwest.*

Figure 8. *Overview of the project APE through a wooded area northwest of the treatment facility. No cultural materials were observed during survey and shovel testing of the project APE route. The view is to the northwest.*

Figure 9. *Overview of a shovel test excavation along the project APE route in the pasture north of property 722772, background. No subsurface cultural resources were observed during shovel test excavations. The view is to the south.*

Figure 10. *Typical view of the project APE in Cheney, as it extends along Ash Street, along an existing water main corridor. The view is to the west.*

Figure 11. *Typical view of North 8th Street, in a North Cheney residential neighborhood, where the project APE generally follows existing water mains under the sidewalk and road. The view is to the north.*

Figure 12. *Overview of the north terminus of the project, at Betz Park in north Cheney. No shovel tests were conducted in the project APE at the field, which is comprised of a thick layer of fill. The view is to the east.*

Shovel Test Results

Sixteen shovel tests were excavated along the southeast portion of the linear project APE, in proximity to the Facility (see Figure 6). No cultural materials were observed. Shovel tests were placed in areas with potential to contain intact sediments. Extensively developed and disturbed areas were not sampled including the north terminus of the project APE at Betz Park. This area was not covered with asphalt or a sidewalk and looked to be intact. However, City of Cheney personnel confirmed that the area consists of a few meters of fill which exceeds the approximately 6-foot deep vertical APE for the project in this area. Shovel tests were excavated to an average depth of 40 centimeters below surface (cmbs). Excavation was terminated because of impassable cobbles and boulders, bedrock, and physical limitations due to depth. Complete shovel test data is included as Appendix A.

Shovel test excavations exposed three primary sediment profiles: 1) disturbed sediment; (2) deep loamy sediment; and, (3) shallow rocky sediment. Only one shovel test (ST 1), within the Facility, exposed an entirely disturbed sediment profile (Figure 13). Shovel test 1 was excavated in about 5 meters away from a buried concrete tank in a part of the treatment plant that appeared disturbed. All other shovel tests exposed intact sediment profiles.

Shovel tests 3, 4, 5, and 6 were excavated in a low-lying pasture with deep loamy. The pasture location is mapped as Cocolalla ashy silt loam, 0 to 3 percent slopes (Soil Survey Staff 2020). Cocolalla soils are found in depressions and drainageways, form in alluvium, have little to no rock fragments, and contain dark silt loam overlying light brownish gray silt loam. Sediments exposed in the pasture are nearly identical to Cocolalla soils.

Shovel test 2, within the Facility, was placed on a 10 percent slope, at the location of a new pond in the southeast project APE. The remaining shovel tests (STs 7 through 16; Figure 14) were placed between the Facility and the pasture, in an area with surface boulders and outcropping bedrock. These two areas are mapped as Northstar-Rock outcrop complex, 3 to 15 percent slopes (Soil Survey Staff 2020). Northstar-Rock outcrop complex soils are found on outcropping bedrock, form in colluvium and residuum, contain many rock fragments, and are often shallow with bedrock no more than 74 cmbs. Sediments exposed in ST 2, and 7 through 16 are nearly identical to Northstar-Rock outcrop complex soils.

Cultural Resources Present in the Project APE

Three cultural resources consisting of three historic railroad alignments were observed extending across the linear project APE. Descriptions of properties 673206, 722772, and 722816 (see Figure 5) are provided below, and Historic Property Inventory (HPI) forms for each resource are presented in Appendix B.

Property 673206

Property 673206 is the historic Northern Pacific Railroad (NP) Cheney to Babb Mainline (today's Burlington, Northern, and Santa Fe Railway Company line) (see Figure 5, Figures 15-16). Within the project APE and the vicinity, the double-track, standard-gauge lines extend on a

Figure 13. *Overview of ST 1, within disturbed sediments at the wastewater treatment facility. No subsurface cultural resources were observed during shovel test excavations.*

Figure 14. *Overview of ST 13. Excavated STs in this area terminated at bedrock or relatively shallow cobble impasses. No subsurface cultural resources were observed during shovel test excavations.*

Figure 15. *Overview of property 673206, the Northern Pacific Railroad Mainline at the project APE The pipeline will pass under the double line near the center of the image marked by the one-meter scale. The NRHP-eligible resource will not be impacted by the project. The view is to the northeast.*

Figure 16. *Property 673206, where the proposed pipe line will be constructed under the NRHP eligible resource. The property will not be impacted by project construction. The view is to the north.*

northeast/southwest trending alignment. The modern double-track is comprised of parallel 9-inch-high steel rails fastened by steel tension clips to 8 feet long by 8 inches wide concrete ties that are perpendicular to the steel rails. A slight arched dip is present on each observed concrete tie, a characteristic not generally found on timber ties. The double lines are approximately 11 feet apart. The subject rail line is approximately 80 feet south of property 722816, and shares an extensive foundational bed of crushed stone with that property. The track itself rests on an additional layer of crushed stone ballast which extends 12 to 18 inches above the stone foundation, though the berm along the south side of the south track is more pronounced. Shallow stone-lined ditches parallel each side of the ballast bed. No switches or crossing are present within the project APE. The nearest level crossing, which maintains traffic control devices is approximately 290-feet southwest of the project APE.

Property 722772

Property 722772 is the historical Union Pacific freight line referred to as the Ayer Subdivision, which connects the Hinkle Yard in Hermiston, Oregon, to the Spokane Terminal and is 171 miles in length (see Figure 5, Figures 17-18). Within the project APE and the vicinity, the single-track, standard-gauge line extends on a northeast/southwest alignment. The track is typical, comprised of parallel steel rails fastened by steel tie plates (secured using steel spikes) to timber ties that are perpendicular to the steel rails. The system rests on a substantial berm of crushed stone ballast. No switches or crossing are present within the project APE or were observed nearby. Shallow earthen ditches parallel each side of the ballast bed.

The overall line (referred to as the Washy Line) is comprised of four segments, and the segment between Ayer, Washington (near MP 264) and Fish Lake (MP 355), and which includes the project APE was completed in 1914 by the Oregon-Washington Railroad and Navigation Company (OWR&N). Construction of the line was initiated by the North Coast Railroad Company in 1908, following its incorporation by UP interests in 1906. This company was sold to the OW&RN in 1910, and following the consolidation of several other smaller lines within the new company, the OWR&N purchased 1,593.12 miles of track and constructed 369.31 new miles of track, with the Ayer Subdivision considered one of the two major new road construction projects undertaken by the company. On January 1, 1936, all operations were leased to the Union Pacific Railroad Company, the present owner/operator, which managed the railroad as a non-operating subsidiary (Robertson 1995; Washington State Transportation Commission 2006).

Property 722816

Property 722816 is the historic Central Washington (CW) Branch of the NP. Within the project APE and the vicinity, the single-track, standard-gauge line extends on a northeast/southwest alignment (Figures 19-20). The track is typical, comprised of parallel 9-inch-high steel rails fastened by steel tie plates (secured using steel spikes) to 8 feet long by 9 inch wide timber ties that are perpendicular to the steel rails. The subject rail line is approximately 80 feet north of property 67206, and shares an extensive foundational bed of crushed stone. The track itself rests on an additional layer of crushed stone ballast which extends approximately 18 inches above the stone foundation. Shallow stone-lined ditches parallel each side of the ballast bed. No switches

Figure 17. *Overview of the project-associated segment of property 722772, recommended eligible for listing in the NRHP. The subsurface pipeline will be buried under the track and will be constructed with no disturbance to rail infrastructure. The view is to the southwest.*

Figure 18. *Overview of the project-associated segment of property 722772, note the one-meter scale across the tracks. The subsurface pipe line continues under the track northwest across the field in the background. The view is to the northwest.*

Figure 19. *Overview of property 722816, in the foreground, the historic-era CW Branch of the NP, and property 673205, the historic-era NP main line The pipeline will pass under both sets of tracks near the center of the image, and the NRHP-eligible resources will not be disturbed, even temporarily, by the project. The view is to the east.*

Figure 20. *Side view of the project-associated segment of property 722816. Note the one-meter scale, which depicts the general path of the pipe line under the tracks. The view is to the northwest.*

or crossing are present within the project APE. The nearest level crossing, which maintains traffic control devices, is approximately 290-feet southwest of the project APE.

Historically, the 108-mile-long line extended between Cheney and Coulee City, Washington. Incorporated in Washington Territory in 1888, the NP constructed the CW branch to compete with the eastern section of the Seattle, Lake Shore, and Eastern Railroad Company. In the late 1880s, surveys were completed and a line located which diverged from the main line at Cheney, extending westward through areas of Spokane, Lincoln, and Douglas counties. By May 1890, the grade and bridges were completed for the entire branch, and by July 1st, the CW track was completed (Robertson 1995; Big Bend Railroad History 2020), though Lewis (1912:195) reports that the branch was not operational until 1891. In October 1893, the branch line went into receivership and in 1898, the foreclosed line was sold to Charles T. Barney who conveyed the property to the Washington Central Railway Company, which was yet another entity of the NP (Cheever 1948:108).

Mid-twentieth century consolidation of national rail carriers combined the NP with several railroads to form the Burlington Northern Railroad (BN, today's BNSF) in 1970, and the CW branch became part of the line. In 1996, the BNSF placed hundreds of mile of its Inland Northwest system on sale, including the CW. The lines were purchased by the Palouse River and Coulee City Railroad (PCC) until high operating costs forced the PCC to consider abandoning extensive segments of the line. At the urging of region grain producers who feared loss of the critical shipping corridors, the State of Washington purchased the lines. From 2007 to 2018, the Eastern Washington Gateway Railroad (EWG) Railroad operated the CW under the direction of the Washington State Department of Transportation (WSDOT). Today, Washington Eastern Railroad (WER) operates the line, which remains under the ownership of the State of Washington (Robertson 1995; Big Bend Railroad History 2020).

National Register of Historic Places Discussion

One previously-recorded and two previously-unrecorded historic built environment resources were identified as a result of the cultural resources survey. The three linear resources extend across the project APE; however, at its railroad crossings the project APE likely extends under what could be considered the vertical boundary of the resources (discussed below in Project Impacts). The previously recorded resource, the BNSF railroad (property 673206, the historic NP railroad), has been determined eligible for listing in the NRHP, while the previously unrecorded properties 722772 and 722816 are eligible for listing in the NRHP. Historic built environment NRHP evaluations are presented below.

Property 673206

Property 673206 is the historic Northern Pacific Railroad Mainline in the vicinity of Cheney (today's Burlington, Northern, and Santa Fe Railway Company line). In 2014, the Cheney to Babb double track, which extends through the project APE, was determined NRHP eligible as listed on WISAARD. Within the project APE, no change was observed which would diminish resource eligibility, and property 673206 remains NRHP eligible.

Property 722772

Property 722772, the Ayer Subdivision of the Union Pacific Railroad is eligible for listing in the NRHP under Criterion A for its significant association with transportation and the development of a new transit and commerce corridor from the Columbia River to Spokane during the early to mid-twentieth century. The resource is likely not eligible under Criterion B, as research into the rail line did not indicate a significant individual associated with the design, construction, or use of the subject resource. Like most active transportation-related infrastructure that is of historic age, the resource has undergone, and will continue to undergo, improvements and alterations designed to maintain safety and functionality. Such changes have likely impacted the resource's integrity of materials, and possibly elements of its workmanship, two important Criterion C integrity considerations. As such, the rail line may be ineligible under Criterion C. And, as a tremendous amount of textual and photographic information documenting the history of the Ayer Subdivision is available, the resource itself is not a sole source of information and is thus not eligible under Criterion D.

Under its Criterion A significance, Design is relatively intact, though certainly the materials component of Design has been negatively impacted by the necessarily replacement of aging historical infrastructure, though the historical arrangement of the materials appears to remain intact. The property's Setting, Feeling and Association remain intact.

Property 722816

Property 722816, the Central Washington (CW) Branch of the historical Northern Pacific Railroad is eligible for listing in the NRHP under Criterion A for its significant association with transportation and the development of a new transit and commerce corridor across central and eastern Washington beginning in the late nineteenth century and into the mid-twentieth century, for the purpose of capturing the regional agricultural commodities shipping market. Though the resource could be broadly attributed to railroad magnate Henry Villard, Villard was not the president of the NP at the time of the construction of the branch, but a member of the Board of Directors. As a result, there are likely other rail-related resources that better demonstrate Villard's significance, especially during his time as NP president in the early-1880s, when the NP transcontinental route was completed. As such, the CW branch resource is likely not eligible under Criterion B. Like most historic-age transportation-related infrastructure that remains active, the resource has undergone, and will continue to undergo, improvements and alterations designed to maintain safety and functionality. Such changes have likely impacted the resource's integrity of materials, and possibly elements of its workmanship, two important Criterion C integrity considerations. As such, the rail line may be ineligible under Criterion C. And, as a tremendous amount of textual and photographic information documenting the history of the CW branch, the resource itself is not a sole source of information and is thus not eligible under Criterion D.

Under its Criterion A significance, Design is relatively intact, though certainly the materials component of Design has been negatively impacted by the necessarily replacement of aging historical infrastructure, though the historical arrangement of the materials appears to remain intact. The property's Setting, Feeling and Association remain intact.

Project Impacts to Significant Cultural Resources

While property 673206 has been determined as NRHP eligible, and property 722772 and 722816 are both recommended NRHP eligible under Criterion A, the proposed project does not form an adverse effect to the identified historic properties.

At railroad crossings, the generally 12-feet-wide project APE extends to 30 feet in width on each side of the crossing and extends approximately 15 feet under the rail corridor. As currently proposed, steel casings which will contain the irrigation pipe line will be bored at approaches to the railroad crossings, penetrating subsurface areas well under each ground-level track using a jack. As a result of this method of pipe line installation, extant rail road infrastructure and operations will not be impacted by construction, even temporarily. In addition, and as noted, it appears that pipe line construction will occur below, or outside, the likely vertical boundary of properties 673206, 722772, and 722816. Overall, the project will not impact the characteristics that support NRHP eligibility of properties 673206, 722772 and 722816.

MANAGEMENT SUMMARY

The 2020 cultural resources survey for the City of Cheney Purple Pipe to Parks and Playfields Project resulted in the identification of three NRHP eligible historic built environment resources potentially impacted by the project. However, proposed new pipe line construction will pass under the identified historic built environment linear resources and existing resource infrastructure will remain undisturbed and intact.

Subsurface sampling was conducted within the project APE in areas containing intact sediments and where ground disturbing activities are proposed. No cultural materials were observed in any of the excavated shovel tests and there is little expectation for archaeological deposits within or beneath the sediments observed during shovel test excavations given the depth to bedrock and the generally developed and disturbed condition of the project APE.

In the unlikely event that cultural resources are identified during project-related activities, work should be halted in the immediate vicinity of the find and a professional archaeologist notified to assess the resource. This document should be submitted by Esvelt Environmental Engineering to the appropriate review agencies and interested parties for review and comment prior to the initiation of any land altering activities.

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Appendix A

Shovel Test Data

Table A.1. Metric and Descriptive Attributes of Shovel Test Excavations.

Shovel Test Number	Stratum	Depth (cmbs)	Color	Texture	Roots	Gravels	Integrity	Cultural Materials	Reason for Termination	Notes
1	1	0-55	dark brown	loam	few fine	40% sub rounded pebbles and cobbles	disturbed	none	cobble impasse	inclusions of light-colored silt (disturbed) 5 m east of buried concrete tanks. Not an intact landform
2	1	0-35	light brown	silt loam	common medium	70% sub rounded pebbles and cobbles and boulders	intact	none		
	2	35-45	pale brown	silt loam	common medium	70% sub rounded pebbles and cobbles and boulders	intact	none	boulder impasse	
3	1	0-70	brown	silt loam	common fine	10% sub rounded pebbles	intact	none		
	2	70-80	light brown	silt loam	common fine	70% sub rounded pebbles and cobbles	intact	none	cobble impasse	
4	1	0-60	dark brown	silt loam	common fine	None	intact	none		
	2	60-100	pale brown	silt	none	None	intact	none	physical limitations	
5	1	0-65	dark brown	silt loam	many coarse roots	None	intact	none		
	2	65-101	pale brown	silt	none	None	intact	none	physical limitations	
6	1	0-60	dark brown	silt loam	many medium roots	None	intact	none		
	2	60-100	pale brown	silt	none	None	intact	none	physical limitations	
7	1	0-10	light brown	silt loam	few coarse	90% angular pebbles	intact	none	bedrock	Duff and decomposing bedrock. No soil
8	1	0-8	light brown	(duff)	none		intact	none	bedrock	8 cm of pine duff over consolidated basalt bedrock. No soil
9	1	19	brown	silt loam	many medium	80% angular pebbles and cobbles	intact	none	bedrock	
10	1	12	light brown	silt loam	many coarse	80% angular pebbles and cobbles	intact	none	cobble/bedrock impasse	Boulder field and outcrops throughout whole area between pond and RR.

Table A.1. Metric and Descriptive Attributes of Shovel Test Excavations.

Shovel Test Number	Stratum	Depth (cmbs)	Color	Texture	Roots	Gravels	Integrity	Cultural Materials	Reason for Termination	Notes
11	1	15	light brown	silt loam	few medium roots	80% angular pebbles and cobbles	intact	none	cobble impasse	
12	1	31	light brown	silt loam	common fine to coarse	50% angular pebbles	intact	none	bedrock	
13	1	17	light brown	silt loam	common medium	70% angular pebbles and cobbles	intact	none	cobble impasse	
14	1	16	light brown	silt loam	common medium	80% angular pebbles and cobbles	intact	none	cobble impasse	
15	1	13	light brown	silt loam	common medium	80% angular pebbles and cobbles	intact	none	cobble impasse	
16	1	21	light reddish brown	silt loam	common fine	60% angular pebbles and cobbles	intact	none	bedrock	

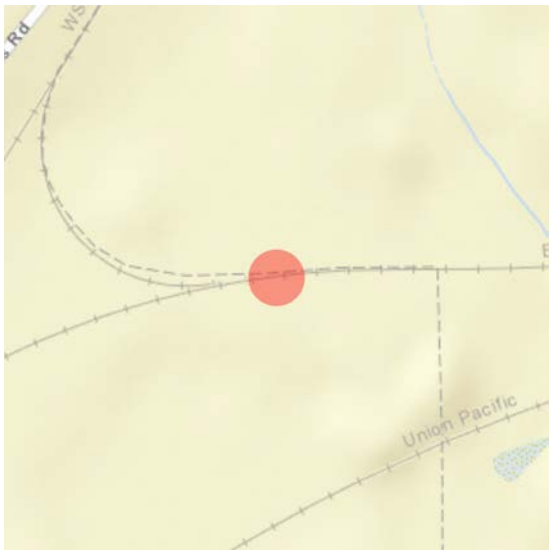
Appendix B

Historic Property Inventory Forms

Historic Property Report

Resource Name: Northern Pacific Railroad Mainline Property ID: 673206

Location



Address: vicinity of, Cheney, WA 99004

Tax No/Parcel No: none (BNSF right-of-way)

Geographic Areas: Spokane County, CHENEY Quadrangle, T23R42E07

Information

Number of stories: N/A

Construction Dates:

Construction Type	Year	Circa
Built Date	1881	☐

Historic Use:

Category	Subcategory
Transportation	Transportation - Rail-Related
Transportation	Transportation - Rail-Related

Historic Context:

Category
Transportation

Architect/Engineer:

Category	Name or Company
Engineer	Northern Pacific Railroad Company

Thematics:

Local Registers and Districts

Name	Date Listed	Notes

Project History

Project Number, Organization, Project Name	Resource Inventory	SHPO Determination	SHPO Determined By, Determined Date
013014-27-COE-S, , BNSF Railway Company--Cheney to Babb double track (NWS 2013-239)	11/11/2013	Determined Eligible	, 5/7/2014
2020-02-01413, DAHP, City of Cheney Purple Pipe Project	8/20/2020	Survey/Inventory	

Historic Property Report

Resource Name: Northern Pacific Railroad Mainline Property ID: 673206

Photos

NP Main Line Double Track

NP Main Line Double Track and adjacent NP Ayer Subdivision

NP Main Line Double Track

NP Main Line Double Track

NP Main Line Double Track

Overview

Overview

Overview

Maintenance/access road alongside tracks.

Historic Property Report

Resource Name: Northern Pacific Railroad Mainline Property ID: 673206

Inventory Details - 11/11/2013

Common name: Burlington Northern-Santa Fe Railroad Mainline

Date recorded: 11/11/2013

Field Recorder: Rain Shadow Research

Field Site number:

SHPO Determination 013014-27-COE-S determined on 5/7/2014

Detail Information

Characteristics:

Category	Item
Structural System	Mixed

Surveyor Opinion

Property appears to meet criteria for the National Register of Historic Places: No

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local): No

Significance narrative: The rail line had its beginnings in April 1864, when President Abraham Lincoln chartered the Northern Pacific Railroad (NPRR) to build a transcontinental rail line from the Great Lakes to Puget Sound. The original charter called for construction to start by 2 July 1866, but actual groundbreaking at the eastern terminus outside Duluth, Minnesota did not take place until 1870 due to financial problems. Three routes for the transcontinental line were surveyed between 1870 and 1872, with the one skirting the northern shore of Lake Pend Oreille in northern Idaho chosen as the route for the transcontinental mainline. In 1872, Tacoma, Washington was chosen as the western terminus of the line, but the Financial Panic of 1873 further delayed major construction on the line until 1879. The NPRR began laying tracks through eastern Washington during early 1881. The original segment through the APE was laid by May 1881 (Washington State Railroads Historical Society 2005). The mainline between Wallula, Washington and Sandpoint, Idaho through Providence Coulee was completed by April 1882 (Figure 9). Construction of the extension from Pasco, up the Yakima River valley to Stampede Pass began two years later, and transcontinental rail service direct from Puget Sound finally began in 1888. In March 1970, the Northern Pacific Railway, Great Northern Railway, the Chicago, Burlington and Quincy Railway, and the Spokane, Portland and Seattle Railway all merged to form Burlington Northern. Burlington Northern later merged with the Atchison, Topeka and Santa Fe Railway to form the present Burlington Northern-Santa Fe Railway (BNSF), which continues to operate the line. Although the NPRR mainline through the project APE was completed in 1881, all of the elements (rails, ties, etc.) of the original mainline have been replaced through routine maintenance and the structural prism on which the rail line was built has been significantly expanded and altered to accommodate a service/maintenance access road. All of the original rails have been replaced, and all of the original wooden ties along this segment of the mainline have been replaced with modern concrete ties. Thus, although the mainline has historical importance for its association with the development of nearby Cheney and the surrounding region, the segment through the project APE does not retain sufficient integrity of design, materials, workmanship, or feeling. We therefore recommend that this segment of the NPRR/BNSF mainline is not eligible for listing on the National Register of Historic Places.

Physical description: The rail line has standard gauge rails. The original wood ties have been replaced with concrete.

Bibliography: Washington State Railroads Historical Society (2005) Washington Railroad History Dates. Electronic document, http://www.wsrhs.org.

Historic Property Report

Resource Name: Northern Pacific Railroad Mainline Property ID: 673206

Inventory Details - 8/20/2020

Common name:

Date recorded: 8/20/2020

Field Recorder: James Jenks

Field Site number:

SHPO Determination

Detail Information

Surveyor Opinion

Significance narrative: 2020 Update: Property 673206 is the historic Northern Pacific Railroad Mainline in the vicinity of Cheney, WA (today's Burlington, Northern, and Sante Fe Railway Company line). In 2014, the Cheney to Babb double track was determined NRHP eligible. No change to the resource was observed during 2020 field survey and the resource remains NRHP eligible.

Physical description: 2020 Update in the vicinity of Cheney: The modern double-track is comprised of parallel 9"-high steel rails fastened by steel tension clips to 8' long by 8" wide concrete ties that are perpendicular to the steel rails. A slight arched dip is present on each observed concrete tie, a characteristic not generally found on timber ties. The double lines are approximately 11' apart. The subject rail line is approximately 80' south of property 722816, and shares an extensive foundational bed of crushed stone with that property. The track itself rests on an additional layer of crushed stone ballast which generally extends 12 to 18 inches above the stone foundation, though the berm along the south side of the south track is more pronounced. Shallow stone-lined ditches parallel each side of the ballast bed. No switches or crossing are present within the project APE. The nearest level crossing, which maintains traffic control devices, is approximately 290-feet southwest of the project APE.

Bibliography: Cultural Resources Survey for the City of Cheney Purple Pipe to Parks and Playfields Project, Spokane County, Washington, Jennifer Thomas, Sean Stcherbinine, and James Jenks. Archaeological and Historical Services, Eastern Washington University, 2020.

Historic Property Report

Resource Name: Ayer Subdivision, Union Pacific Railway Property ID: 722772

Location

Geographic Areas: CHENEY Quadrangle, Spokane County, Cheney Certified Local Government, T23R42E18

Information

Number of stories: N/A

Construction Dates:

Construction Type	Year	Circa
Built Date	1914	☐

Historic Use:

Category	Subcategory
Transportation	Transportation - Rail-Related
Transportation	Transportation - Rail-Related

Historic Context:

Category
Transportation

Architect/Engineer:

Category	Name or Company
Builder	Oregon and Washington Railway and Navigation Company

Thematics:

Local Registers and Districts

Name	Date Listed	Notes

Project History

Project Number, Organization, Project Name	Resource Inventory	SHPO Determination	SHPO Determined By, Determined Date
2020-02-01413, DAHP, City of Cheney Purple Pipe Project	8/19/2020	Survey/Inventory	

Historic Property Report

Resource Name: Ayer Subdivision, Union Pacific Railway Property ID: 722772

Photos

Ayer Subdivision, UP Railroad

Ayer Subdivision, UP Railroad Route Map

Ayer Subdivision, UP Railroad

Ayer Subdivision, UP Railroad

Ayer Subdivision, UP Railroad

Ayer Subdivision, UP Railroad

Historic Property Report

Resource Name: Ayer Subdivision, Union Pacific Railway Property ID: 722772

Inventory Details - 8/19/2020

Common name:

Date recorded: 8/19/2020

Field Recorder: James Jenks

Field Site number:

SHPO Determination

Detail Information

Surveyor Opinion

Property appears to meet criteria for the National Register of Historic Places: Yes

Significance narrative: Property 722772 is the historical Union Pacific freight line referred to as the Ayer Subdivision, which connects the Hinkle Yard in Hermiston, Oregon, to the Spokane Terminal and is 171 miles in length (see Figure 5, Figures 17-18). The overall line (referred to as the Washy Line) is comprised of four segments, and the segment between Ayer, WA (near MP 264) and Fish Lake (MP 355), and which includes the project APE was completed in 1914 by the Oregon-Washington Railroad and Navigation Company (OWR&N). Construction of the line was initiated by the North Coast Railroad Company in 1908, following its incorporation by UP interests in 1906. This company was sold to the OW&RN in 1910, and following the consolidation of several other smaller lines within the new company, the OWR&N purchased 1,593.12 miles of track and constructed 369.31 new miles of track, with the Ayer Subdivision considered one of the two major new road construction projects undertaken by the company. On January 1, 1936, all operations were leased to the Union Pacific Railroad Company, the present owner/operator, which managed the railroad as a non-operating subsidiary (Robertson 1995; Washington State Transportation Commission 2006).

Property 722772, the Ayer Subdivision of the Union Pacific Railroad is eligible for listing in the NRHP under Criterion A for its significant association with transportation and the development of a new transit and commerce corridor from the Columbia River to Spokane during the early to mid-twentieth century. The resource is likely not eligible under Criterion B, as research into the rail line did not indicate a significant individual associated with the design, construction, or use of the subject resource. Like most active transportation-related infrastructure that is of historic age, the resource has undergone, and will continue to undergo, improvements and alterations designed to maintain safety and functionality. Such changes have likely impacted the resource's integrity of materials, and possibly elements of its workmanship, two important Criterion C integrity considerations. As such, the rail line may be ineligible under Criterion C. And, as a tremendous amount of textual and photographic information documenting the history of the Ayer Subdivision is available, the resource itself is not a sole source of information and is thus not eligible under Criterion D.

Physical description: In the vicinity of Cheney, the single-track, standard-gauge line extends on a northeast/southwest alignment. The track is typical, comprised of parallel steel rails fastened by steel tie plates (secured using steel spikes) to timber ties that are perpendicular to the steel rails. The system rests on a substantial berm of crushed stone ballast. No switches or crossing are present within the project APE or were observed nearby. Shallow earthen ditches parallel each side of the ballast bed.

Bibliography:

Cultural Resources Survey for the City of Cheney Purple Pipe to Parks and Playfields Project, Spokane County, Washington, Jennifer Thomas, Sean Stcherbinine, and James Jenks. Archaeological and Historical Services, Eastern Washington University, 2020.

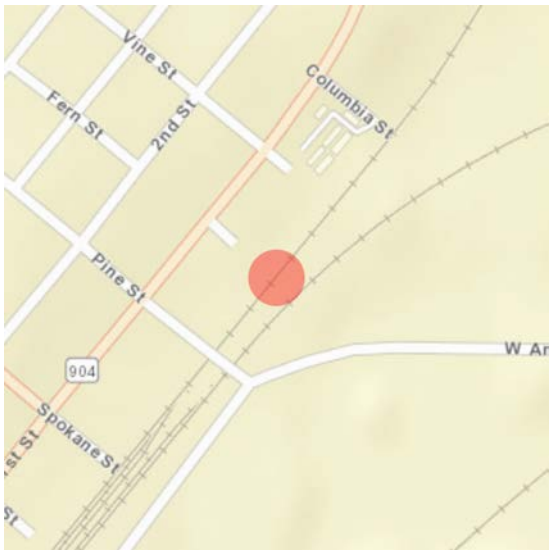
Robertson, Donald B.
1995 Encyclopedia of Western Railroad History: Volume III, Oregon and Washington. Caxton Printers: Caldwell, ID.

Historic Property Report

Resource Name: Northern Pacific Railroad, Central Washington (CW) Branch

Property ID: 722816

Location



Geographic Areas: CHENEY Quadrangle, Spokane County, Cheney Certified Local Government, T23R41E12

Information

Number of stories: N/A

Construction Dates:

Construction Type	Year	Circa
Built Date	1890	☐

Historic Use:

Category	Subcategory
Transportation	Transportation - Rail-Related
Transportation	Transportation - Rail-Related

Historic Context:

Category
Transportation

Architect/Engineer:

Category	Name or Company
Engineer	Northern Pacific Railroad Company

Historic Property Report

Resource Name: Northern Pacific Railroad, Central Washington (CW) Branch

Property ID: 722816

Thematics:

Local Registers and Districts

Name	Date Listed	Notes

Project History

Project Number, Organization, Project Name	Resource Inventory	SHPO Determination	SHPO Determined By, Determined Date
2020-02-01413, DAHP, City of Cheney Purple Pipe Project	8/20/2020	Survey/Inventory	

Historic Property Report

Resource Name: Northern Pacific Railroad, Central Washington (CW) Branch

Property ID: 722816

Photos

Central Washington (CW) Branch, Historical NP Railroad

Central Washington (CW) Branch, Historical NP Railroad

Central Washington (CW) Branch, Historical NP Railroad

Central Washington (CW) Branch, Historical NP Railroad

Central Washington (CW) Branch, Historical NP Railroad

Central Washington (CW) Branch, Historical NP Railroad

Historic Property Report

Resource Name: Northern Pacific Railroad, Central Washington (CW) Branch

Property ID: 722816

Inventory Details - 8/20/2020

Common name:

Date recorded: 8/20/2020

Field Recorder: James Jenks

Field Site number:

SHPO Determination

Detail Information

Surveyor Opinion

Property appears to meet criteria for the National Register of Historic Places: Yes

Historic Property Report

Resource Name: Northern Pacific Railroad, Central Washington (CW) Branch

Property ID: 722816

Significance narrative: Historically, the 108-mile-long line extended between Cheney and Coulee City, WA. Incorporated in Washington Territory in 1888, he NP constructed the CW branch to compete with the eastern section of the Seattle, Lake Shore, and Eastern Railroad Company. In the late 1880s, surveys were completed and a line located which diverged from the main line at Cheney, extending westward through areas of Spokane, Lincoln, and Douglas counties. By May 1890, the grade and bridges were completed for the entire branch, and by July 1st, the CW track was completed (Robertson 1995; Big Bend Railroad History 2020), though Lewis (1912:195) reports that the branch was not operational until 1891. In October 1893, the branch line went into receivership and in 1898, the foreclosed line was sold to Charles T. Barney who conveyed the property to the Washington Central Railway Company, which was yet another entity of the NP (Cheever 1948:108).

Mid-twentieth century consolidation of national rail carriers combined the NP with several railroads to form the Burlington Northern Railroad (BN, today's BNSF) in 1970, and the CW branch became part of the line. In 1996, the BNSF placed hundreds of mile of its Inland Northwest system on sale, including the CW. The lines were purchased by the Palouse River and Coulee City Railroad (PCC) until high operating costs forced the PCC to consider abandoning extensive segments of the line. At the urging of region grain producers who feared loss of the critical shipping corridors, the State of Washington purchased the lines. From 2007 to 2018, the Eastern Washington Gateway Railroad (EWG) Railroad operated the CW under the direction of the Washington State Department of Transportation (WSDOT). Today, Washington Eastern Railroad (WER) operates the line, which remains under the ownership of the State of Washington (Robertson 1995; Big Bend Railroad History 2020).

Property 722816, the Central Washington (Branch) of the historical Northern Pacific Railroad is eligible for listing in the NRHP under Criterion A for its significant association with transportation and the development of a new transit and commerce corridor across central and eastern Washington beginning in the late nineteenth century and into the mid-twentieth century, for the purpose of capturing the agricultural shipping market across the region. Though the resource could be broadly attributed to railroad magnate Henry Villard, Villard was not the president of the NP at the time of the construction of the branch, but was a member of the Board of Director. As a result, there are likely other rail-related resources that better demonstrate Villard's significance, especially during his time as NP president in the early-1880s, when the NP transcontinental route was completed. As such, the CW branch resource is likely not eligible under Criterion B, as research into the rail line did not indicate a significant individual associated with the design and construction of the subject resource. Like most active transportation-related infrastructure, the resource has undergone, and will continue to undergo, improvements and alterations designed to maintain safety and functionality. Such changes have likely impacted the resource's integrity of materials, and possibly elements of its workmanship, two important Criterion C integrity considerations. As such, the rail line may be ineligible under Criterion C. And, as a tremendous amount of textual and photographic information documenting the history of the CW branch, the resource itself is not a sole source of information and is thus not eligible under Criterion D.

Historic Property Report

Resource Name: Northern Pacific Railroad, Central Washington (CW) Branch

Property ID: 722816

Physical description: Property 722816 is the historical Central Washington (CW) Branch of the NP. Within the project APE and the vicinity, the single-track, standard-gauge line extends on a northeast/southwest alignment. The track is typical, comprised of parallel 9”-high steel rails fastened by steel tie plates (secured using steel spikes) to 8’ long by 9” wide timber ties that are perpendicular to the steel rails. The subject rail line is approximately 80’ north of property 67206, and shares an extensive foundational bed of crushed stone. The track itself rests on an additional layer of crushed stone ballast which extends approximately 18” above the stone foundation. Shallow stone-lined ditches parallel each side of the ballast bed.

Taylor Eoff

rom: Vince Barthels
Sent: Tuesday, July 6, 2021 8:52 AM
To: Taylor Eoff
Subject: FW: Section 106 Consultation -- City of Cheney Purple Pipe Project - Final Determination - No Adverse Effects

ollow Up Flag: Follow up
lag Status: Flagged

VINCE BARTHELS | *Spokane Office Manager / Environmental Services Manager*

T-O ENGINEERS
1717 S. Rustle Street | Suite 201 | Spokane, Washington 99224
O 509-319-2580 | C 509-951-9564
www.to-engineers.com

From: allison@esvelt.com <allison@esvelt.com>
Sent: Wednesday, June 30, 2021 11:54 AM
To: Vince Barthels <vbarthels@to-engineers.com>
Subject: FW: Section 106 Consultation -- City of Cheney Purple Pipe Project - Final Determination - No Adverse Effects

Hi Vince – Please see correspondence between the tribes and Ecology on the cultural and historic resources survey.

Thank you,

Allison Esvelt, MSCE, PE, BCEE
Esvelt Environmental Engineering, LLC
8908 East Dalton Avenue
Spokane WA 99212
Phone: 509-926-3049
Cell: 509-995-8425

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From: Todd Ableman <tableman@cityofcheney.org>
Sent: Wednesday, June 30, 2021 10:48 AM
To: allison@esvelt.com
Subject: FW: Section 106 Consultation -- City of Cheney Purple Pipe Project - Final Determination - No Adverse Effects

Back in the office…..FYI.

Todd Ableman
Director of Public Works
112 Anderson Road
Cheney, WA 99004
(509) 498-9293
tableman@cityofcheney.org

From: Wall, Cynthia (ECY) <CYWA461@ECY.WA.GOV>
Sent: Wednesday, May 19, 2021 3:24 PM
To: Todd Ableman <tableman@cityofcheney.org>
Subject: FW: Section 106 Consultation -- City of Cheney Purple Pipe Project - Final Determination - No Adverse Effects

Hi Todd,

Ecology's final determination on this project.

Cynthia

Cynthia Wall
CCWF/SRF Project Manager
Municipal Facility Manager
Regional Cultural Resources Coordinator
(509) 570-4145 – cell

WA State Department of Ecology Eastern Regional Offices are closed to walk-in service until further notice as we adhere to a statewide effort to slow the spread of the coronavirus (COVID-19). Regional staff are available by

telephone and email, and information is also available on our website. We remain committed to service, so don't hesitate to reach out to us.

Ecology Water Quality Combined Funding Program: https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-Combined-Funding-Program

Ecology 05-05/106 Cultural Review Form has been updated - Ensure you use the updated form
https://fortress.wa.gov/ecy/publications/SummaryPages/ECY070537.html

Environmental Review Information: . https://ecology.wa.gov/About-us/How-we-operate/Grants-loans/Find-a-grant-or-loan/Water-Quality-grants-and-loans/Environmental-review

The best way to predict your future is to create it. – Abraham Lincoln

---

From: Ellis, Liz (ECY) <lell461@ECY.WA.GOV>
Sent: Tuesday, October 13, 2020 11:15 AM
To: tableman@cityofcheney.org
Cc: Wall, Cynthia (ECY) <CYWA461@ECY.WA.GOV>; 106 (DAHP) <106@dahp.wa.gov>; Whitlam, Rob (DAHP) <Rob.Whitlam@DAHP.WA.GOV>; 'jwagner@cdatribe-nsn.gov' <jwagner@cdatribe-nsn.gov>; Randy Abrahamson <randya@SpokaneTribe.com>
Subject: RE: Section 106 Consultation -- City of Cheney Purple Pipe Project - Final Determination - No Adverse Effects

Electronic Delivery

Re: ***Section 106 of the National Historic Preservation Act***
City of Cheney, Purple Pipe to Parks and Playfield Project – Construction Phase
Clean Water State Revolving Fund WQC-2018-Cheney-00191
DAHP Project 2020-02-01413
Final Determination – Survey Recommendation Adopted – No Adverse Effects

Greetings,

The review and comment period has ended for the archaeological investigation completed for the City of Cheney's Purple Pipe Project (see below for details). Ecology is basing its Final Determination upon the survey recommendations, the Area of Potential Effect (APE) as described, location, type of ground-disturbing activities, any comments received on the preliminary determination, and research completed using the Washington Information System for Architectural and Archaeological Records Data (WISAARD), including a review of any adjacent cultural resource surveys or documentation of historic properties.

Based upon these results, Ecology retains its preliminary determination of ***No Adverse Effects to NRHP-eligible historic resources***, reflecting the recommendations of the archaeological investigation.
Ecology has received an IDP for this project.

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and the listed concerned tribes, Ecology, and DAHP notified.

Should you receive additional comments on this project, please send them to me. If the initial plan or project area changes, please contact me so we can amend your review and include the changes. Please contact me if you have any more questions about the cultural resources review process at 360-628-4410 (teleworking, cell) or liz.ellis@ecy.wa.gov.

Thank you for participating in consultation.

Respectfully,

-liz

From: Ellis, Liz (ECY)
Sent: Thursday, September 24, 2020 11:47 AM
To: Whitlam, Rob (DAHP) ; 'jwagner@cdatribe-nsn.gov' ; Randy Abrahamson
Cc: 'tableman@cityofcheney.org' ; Wall, Cynthia (ECY) ; 106 (DAHP)
Subject: RE: Section 106 Consultation -- City of Cheney Purple Pipe Project - Continuing Consultation - No Adverse Effects

Electronic Delivery

Re: ***Section 106 of the National Historic Preservation Act***
City of Cheney, Purple Pipe to Parks and Playfield Project – Construction Phase
Clean Water State Revolving Fund WQC-2018-Cheney-00191
DAHP Project 2020-02-01413
Continuing Consultation - Survey Available Prior to Construction – No Adverse Effects

Greetings,

The Washington State Department of Ecology (Ecology) proposes to continue funding the City of Cheney's reclaimed water treatment and distribution system for landscape irrigation (purple pipe) within the City Limits. This review covers the construction phase (second phase) of this project. As was discussed during the geo-tech phase (see below), the City completed a full archaeological investigation in advance of construction (also noticed in their 2016 SEPA and SERP environmental review packages)

The survey is available in WISAARD at: Project: 2020-02-01413 |
City of Cheney Purple Pipe Project

From the survey:

The 3.25-miles-long linear component of the project APE crosses under the alignment of three historical railroad linear resources, each of which are eligible for listing in the National Register of Historic Places (NRHP). As proposed, pipe line construction methods will allow placement of the pipe line approximately 15 feet under each rail track corridor with no
alterations or disturbances to the NRHP-eligible resources. It is likely that construction of the pipe line will occur below the vertical boundary reasonably associated with each resource.
Accordingly, the proposed project will have no adverse effect to the identified, significant historic built environment resources.

Ecology is providing a 15-day comment period on the survey results, and otherwise proposes to adopt the recommendations of ***No Adverse Effects to NRHP-eligible historic resources*** .
We have received an IDP and look forward to any comments you may have.

In the event that archaeological deposits are inadvertently discovered during construction in any portion of the Project APE, ground-disturbing activities should be halted immediately in an area large enough to maintain integrity of the deposits. The DAHP, affected tribes, and Ecology should be notified. Appropriate treatment of the archaeological resources and/or human remains would be determined among these parties. The recipient must keep an inadvertent discovery plan (IDP) onsite. We have received an IDP.

Should you receive additional comments on this project, please send them to me. If the initial plan or project area changes, please contact me so we can amend your review and include the changes. Please contact me if you have any more questions about the cultural resources review process at 360-628-4410 or liz.ellis@ecy.wa.gov.

Thank you for participating in consultation.

Respectfully,

--liz

From: Ellis, Liz (ECY)
Sent: Tuesday, March 24, 2020 8:45 AM
To: Wall, Cynthia (ECY) <CYWA461@ECY.WA.GOV>; 'tableman@cityofcheney.org' <tableman@cityofcheney.org>
Cc: Randy Abrahamson <randya@SpokaneTribe.com>; 'jwagner@cdatribe-nsn.gov' <jwagner@cdatribe-nsn.gov>; Whitlam, Rob (DAHP) <Rob.Whitlam@DAHP.WA.GOV>
Subject: RE: Section 106 Consultation - Clean Water SRF - Geo Tech - City of Cheney Purple Pipe Project - Onsite IDP and Survey required

Electronic Delivery
March 24, 2020

Electronic Delivery

Re: ***Section 106 of the National Historic Preservation Act***
City of Cheney, Purple Pipe to Parks and Playfield Project – Geo Tech Phase Only
Clean Water State Revolving Fund WQC-2018-Cheney-00191
Final Determination – Onsite IDP required, Continue Consultation with Survey Required for Second Phase

Good Morning,

The comment period has ended for City of Cheney's reclaimed water treatment and distribution system for landscape irrigation (purple pipe) within the City Limits. The Washington State Department of Ecology (Ecology) did receive comments from the Department of Archaeology and Historic Preservation (DAHP), attached (Log 2020-02-01413-ECY). DAHP concurred with the preliminary determination for an onsite-IDP for the geo-tech phase, and the requirement for an archaeological investigation as part of the construction phase.

Ecology is basing its Final Determination for the geo-technical investigation upon the comments received, the Area of Potential Effect (APE) as described, location, type of ground-disturbing activities, and the Washington Information System for Architectural and Archaeological Records Data (WISAARD). We are retaining our preliminary determination:

- To avoid potential cultural resources impacts, Ecology is requiring an ***onsite inadvertent discovery plan (IDP).***
- The recipients must also continue consultation when the second phase (Design and Construction) begins and submit the results of the survey for the group. At this phase, Ecology is not able to collect enough information to made a No Historic Properties Present or Adversely Affected call, and will wait until we receive the survey.

In the event that archaeological deposits are inadvertently discovered during construction in any portion of the Project APE, ground-disturbing activities should be halted immediately in an area large enough to maintain integrity of the deposits. The DAHP, affected tribes, and Ecology should be notified. Appropriate treatment of the archaeological resources and/or human remains would be determined among these parties. The recipient must keep an inadvertent discovery plan (IDP) onsite. We have received an IDP.

Should you receive additional comments on this project, please send them to me. If the initial plan or project area changes, please contact me so we can amend your review and include the changes. Please contact me if you have any more questions about the cultural resources review process at 360-407-6429 or liz.ellis@ecy.wa.gov.

Thank you for participating in consultation.

Respectfully,

--liz

From: Ellis, Liz (ECY)
Sent: Wednesday, February 19, 2020 10:21 AM
To: Randy Abrahamson <randya@SpokaneTribe.com>; 'jwagner@cdatribe-nsn.gov' <jwagner@cdatribe-nsn.gov>; Whitlam, Rob (DAHP) <Rob.Whitlam@DAHP.WA.GOV>
Cc: Wall, Cynthia (ECY) <CYWA461@ECY.WA.GOV>; 'tableman@cityofcheney.org' <tableman@cityofcheney.org>
Subject: Section 106 Consultation - Clean Water SRF - Geo Tech - City of Cheney Purple Pipe Project - Onsite IDP Required

Electronic Delivery

Re: ***Section 106 of the National Historic Preservation Act***
City of Cheney, Purple Pipe to Parks and Playfield Project – Geo Tech Phase Only
Clean Water State Revolving Fund WQC-2018-Cheney-00191
Request for a Determination of Concurrence – Onsite IDP required, Continue Consultation with Survey

Hello,

The Washington State Department of Ecology (Ecology) proposes to fund the City of Cheney's reclaimed water treatment and distribution system for landscape irrigation (purple pipe) within the City Limits. This review covers the geotechnical investigation only. The City plans a full archaeological investigation in advance of construction, as noticed in their 2016 SEPA and SERP environmental review packages. The survey is anticipated to be completed by Eastern Washington University after the geo technical investigation, by June 2020.

For geo technical investigation, the City has completed an Ecology 05-05/106 Cultural Resources form describing the Area of Potential Effect (APE), project activities. Ecology has also received an Inadvertent Discovery Plan (IDP).

Area of Potential Effect and Undertaking
The work will occur within Sections 18 of Township 23 North, Range 42 East and within Section 12 of Township 41 North, Range 21 East. The APE and project activities are well described in the attached Ecology 05-05/106 Form, and includes 36 geotechnical borings and 12 shallow test bits along the length of the proposed water transmission line. Please see the form for additional details.

Summary of Efforts to Identify and Evaluate Cultural and Historic Properties
The City and Ecology have made a reasonable and good faith effort to identify cultural resources and historic properties that may be affected by this undertaking. Ecology researched the Department of Archaeology and Historic

Preservation's (DAHP) Washington Information System for Architectural and Archeological Resources Data (WISAARD) in order to identify recorded historic and previous cultural resource reviews for the project vicinity. As stated in the Form, the City has a number of reports and surveys covering or adjacent to the area of potential effect.

A cultural resource survey by Emerson, Stephen (AHS 2006-2007) in WISAARD covers the treatment plant. While out of date, no further investigation is recommended for that location, basing it upon the quantity of fill in the area.

The City setting is within a historic district. I was not able to bring up information on it within WISAARD. The City does not consider this project to impact the historic district.

Agency Determination and Findings

WISAARD's predictive model shows the project APE to range from moderate to very high risk for cultural resources or historic properties. Based upon the project activities and location, results from past surveys, Ecology's preliminary determination is that there is a ***moderate probability*** that project activities may adversely affect cultural resources or historic properties, depending upon the proximity to the City. The further away from the City, the higher the risk. However, the fact the City is planning a survey already is encouraging. Ecology requests your review and agreement on the APE and your concurrence with our findings below.

To avoid potential cultural resources impacts, Ecology is requiring an ***onsite inadvertent discovery plan (IDP).*** The recipients must also continue consultation when the second phase (Design and Construction) begins and submit the results of the survey for the group. At this phase, Ecology is not able to collect enough information to made a No Historic Properties Present or Adversely Affected call, and will wait until we receive the survey.

The recipient must follow the IDP protocol in the event that archaeological deposits are inadvertently discovered during construction in any portion of the Project APE, ground-disturbing activities should be halted immediately in an area large enough to maintain integrity of the deposits. The DAHP, affected tribes, and Ecology must be notified. Appropriate treatment of the archaeological resources and/or human remains would be determined among these parties.

Ecology will issue a determination shortly after the 30-calendar day comment period. If you have any questions about this project or need more time for your consideration of concurrence, please contact me, Liz Ellis, Environmental Review Coordinator, at liz.ellis@ecy.wa.gov or (360) 407-6429 if you have any questions about the general cultural resources review process.

Sincerely,

--liz

Liz Ellis, Environmental and Cultural Resource Coordinator
Financial Management Section, Water Quality Program, Ecology
300 Desmond Drive, Lacey
360.407.6429

Appendix G

Spokane Regional Clean Air Agency Maps and Air Quality Calculations

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APPENDIX G

SPOKANE REGIONAL CLEAN AIR AGENCY

(Maintenance Boundary Maps)

and

AIR QUALITY CALCULATIONS

Spokane Regional Clean Air Agency

CO Maintenance Boundary

Incorporated Areas

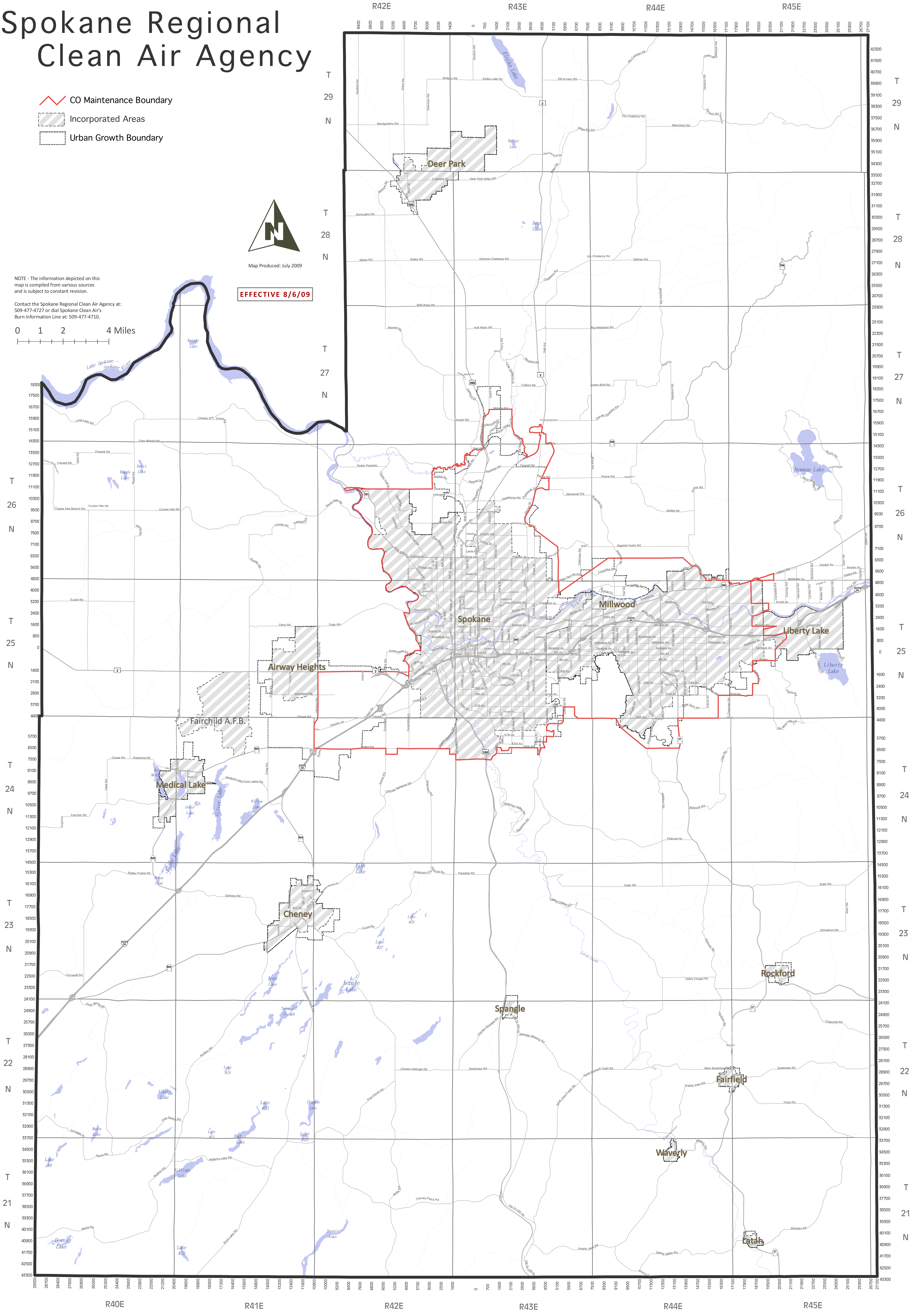
Urban Growth Boundary

Map Produced: July 2009

EFFECTIVE 8/6/09

NOTE - The information depicted on this map is compiled from various sources and is subject to constant revision.

Contact the Spokane Regional Clean Air Agency at: 509-477-4727 or dial Spokane Clean Air's Burn Information Line at: 509-477-4710.



Spokane Regional Clean Air Agency

PM10 Maintenance Boundary

Incorporated Areas

Urban Growth Boundary

Map Produced: July 2009

NOTE - The information depicted on this map is compiled from various sources and is subject to constant revision.

Contact the Spokane Regional Clean Air Agency at: 509-477-4727 or dial Spokane Clean Air's Burn Information Line at: 509-477-4710.

0 1 2 4 Miles

EFFECTIVE 8/6/09

R42E R43E R44E R45E

T 29 N

T 28 N

T 27 N

T 26 N

T 25 N

T 24 N

T 23 N

T 22 N

T 21 N

Deer Park

Millwood

Spokane

Liberty Lake

Airway Heights

Fairchild A.F.B.

Medical Lake

Cheney

Spangle

Rockford

Waverly

Latah

Fairfield

Newman Lake

Eloika Lake

Bailey Lake

Bear Lake

Knight Lake

Lake Spokane ~ Spokane River

Long Lake

Woods Lake

Davis Lake

Silver Lake

Otter Lake

Willow Lake

Clear Lake

Fish Lake

Lake #26

Lake #27

Long Lake

Keppler Lake

Turnbull Slough

Latah Creek

Lake #19

Alkali Lake

Lake #20

Chapman Lake

Lake #21

Badger Lake

Lake #23

Lake #8

Williams Lake

Lake #12

Bonnie Lake

Downs Lake

Assumed Emission Rates for Vehicles

National Scale

Moves uses information in the MOVES default database

Passenger Vehicles - 2022

		grams							grams/mile					
		CO	NO2	PM-10	PM-2.5	SO2	VOC	Distance	CO	NO2	PM-10	PM-2.5	SO2	VOC
11	Motorcycle	1359483	3606	2953	2613	273	213654	102719	13.23497	0.035105	0.028748	0.025438	0.002657736	2.079985
21	Passenger Car	26672620	134939	62408	55219	12896	2383213	6668785	3.999622	0.020234	0.009358	0.00828	0.001933786	0.357368
31	Passenger Truck	27494060	225868	68613	60782	14166	1998511	5534964	4.967342	0.040807	0.012396	0.010981	0.002559366	0.36107
								Average grams/mile	**7.400645**	**0.032049**	**0.016834**	**0.0149**	**0.002383629**	**0.932808**

Single Unit Trucks (Construction)

		grams							grams/mile					
		CO	NO2	PM-10	PM-2.5	SO2	VOC	Distance	CO	NO2	PM-10	PM-2.5	SO2	VOC
52	Single Unit Short-Haul Truck	4878181	208026	38055	34703	5608	226848	823655	5.922602	0.252564	0.046203	0.042133	0.006808676	0.275416
53	Single Unit Long-Haul Truck	95349	13957	2292	2100	317	9689	48061	1.983916	0.290402	0.047689	0.043694	0.006595785	0.201598
									7.906519	**0.542966**	**0.093892**	**0.085827**	**0.01340446**	**0.477014**

Assumed Emission Rates for Construction Equipment

Moves uses information in the MOVES default database

			Grams Per Day							
SCC	Fuel	Fuel Type	CO	NOx	PM-10	PM-2.5	SO2	VOC	Type	Sector
2270002003		23 Diesel	3540	9158	587	570	24	623	Pavers	Mobile - Non-Road Equipment - Diesel
2270002015		23 Diesel	11484	28041	1765	1712	62	1971	Rollers	Mobile - Non-Road Equipment - Diesel
2270002018		23 Diesel	14498	29620	1953	1894	70	1736	Scrapers	Mobile - Non-Road Equipment - Diesel
2270002021		23 Diesel	1016	2208	168	163	4	196	Paving Equi	Mobile - Non-Road Equipment - Diesel
2270002024		23 Diesel	1329	2768	177	172	3	193	Surfacing Eq	Mobile - Non-Road Equipment - Diesel
2270002030		23 Diesel	12581	23686	1740	1688	32	1844	Trenchers	Mobile - Non-Road Equipment - Diesel
2270002033		23 Diesel	13662	44713	2388	2316	42	3423	Bore/Drill R	Mobile - Non-Road Equipment - Diesel
2270002036		23 Diesel	21712	66301	4019	3898	237	3446	Excavators	Mobile - Non-Road Equipment - Diesel
2270002042		23 Diesel	816	1791	134	130	2	188	Cement and	Mobile - Non-Road Equipment - Diesel
2270002045		23 Diesel	9646	37761	1645	1595	63	2315	Cranes	Mobile - Non-Road Equipment - Diesel
2270002048		23 Diesel	5473	13874	1046	1015	60	999	Graders	Mobile - Non-Road Equipment - Diesel
2270002051		23 Diesel	18633	98369	2885	2799	203	3495	Off-highwa	Mobile - Non-Road Equipment - Diesel
2270002054		23 Diesel	2386	8814	371	360	12	507	Crushing/Pr	Mobile - Non-Road Equipment - Diesel
2270002057		23 Diesel	22435	43822	3334	3234	83	3468	Rough Terr	Mobile - Non-Road Equipment - Diesel
2270002060		23 Diesel	70698	182284	10844	10518	297	11449	Rubber Tire	Mobile - Non-Road Equipment - Diesel
2270002066		23 Diesel	209105	226483	31716	30765	242	45735	Tractors/Lo	Mobile - Non-Road Equipment - Diesel
2270002069		23 Diesel	40085	102827	6249	6061	251	5965	Crawler Tra	Mobile - Non-Road Equipment - Diesel
2270002072		23 Diesel	204797	177545	30108	29204	182	42267	Skid Steer L	Mobile - Non-Road Equipment - Diesel
2270002075		23 Diesel	8351	22143	1149	1114	30	1212	Off-highwa	Mobile - Non-Road Equipment - Diesel
2270002078		23 Diesel	629	561	94	91	1	142	Dumpers/T	Mobile - Non-Road Equipment - Diesel
2260002039		1 Gasoline	117431	712	4283	3941	2	27901	Concrete/In	Mobile - Non-Road Equipment - Gasoline
2265002006		1 Gasoline	205	1	0	0	0	5	Tampers/Ra	Mobile - Non-Road Equipment - Gasoline
2265002009		1 Gasoline	40265	368	42	38	1	1361	Plate Compa	Mobile - Non-Road Equipment - Gasoline
2265002027		1 Gasoline	1830	15	2	1	0	50	Signal Boar	Mobile - Non-Road Equipment - Gasoline

In-Direct On-Road Emissions

Worker vehicle travel to and from the job site

Vehicle Data

Maximum # of Cars	35	POV associated with the project
Average Distance Traveled per Light Duty	20	Miles per car round trip to and from work
Total Days/year		
2022	90	Construction days
2023	60	Construction days
2024	60	Construction days
2025	60	Construction days

Construction On-Road

Maximum # of Trucks	10	per day
Average Distance Traveled per Truck per day	20	miles
Total Days/year		
2022	90	Construction days
2023	60	Construction days
2024	60	Construction days
2025	60	Construction days

MOVES Emission Data

						2022			2023			2024			2025		
Vehicle Type	**Fuel**	**Operating Mode**	**Pollutant**	**Emission rate**	**Units**	**g/year**	**lb/year**	**tons/year**	**g/year**	**lb/year**	**tons/year**	**g/year**	**lb/year**	**tons/year**	**g/year**	**lb/year**	**tons/year**
Passenger Vehicles (Commuter)	All Fuels Avg	Total Travel		7.400645136	g/mile	466240.64	1027.87	0.51	310827.10	685.24	0.34	310827.10	685.24	0.34	310827.10	685.24	0.34
				0.032049132	g/mile	2019.10	4.45	0.00	1346.06	2.97	0.00	1346.06	2.97	0.00	1346.06	2.97	0.00
				0.016834282	g/mile	1060.56	2.34	0.00	707.04	1.56	0.00	707.04	1.56	0.00	707.04	1.56	0.00
				0.014900004	g/mile	938.70	2.07	0.00	625.80	1.38	0.00	625.80	1.38	0.00	625.80	1.38	0.00
				0.002383629	g/mile	150.17	0.33	0.00	100.11	0.22	0.00	100.11	0.22	0.00	100.11	0.22	0.00
				0.932807959	g/mile	58766.90	129.56	0.06	39177.93	86.37	0.04	39177.93	86.37	0.04	39177.93	86.37	0.04
Single Unit Trucks (Construction)	All Fuels Avg	Total Travel		7.906518576	g/mile	142317.33	313.75	0.16	94878.22	209.17	0.10	94878.22	209.17	0.10	94878.22	209.17	0.10
				0.542966265	g/mile	9773.39	21.55	0.01	6515.60	14.36	0.01	6515.60	14.36	0.01	6515.60	14.36	0.01
				0.093891992	g/mile	1690.06	3.73	0.00	1126.70	2.48	0.00	1126.70	2.48	0.00	1126.70	2.48	0.00
				0.085827403	g/mile	1544.89	3.41	0.00	1029.93	2.27	0.00	1029.93	2.27	0.00	1029.93	2.27	0.00
				0.01340446	g/mile	241.28	0.53	0.00	160.85	0.35	0.00	160.85	0.35	0.00	160.85	0.35	0.00
				0.477014254	g/mile	8586.26	18.93	0.01	5724.17	12.62	0.01	5724.17	12.62	0.01	5724.17	12.62	0.01

On-Road Construction Vehicle and Commuter Trip Vehicle Emissions (tons/year)

2022	0.67	0.01	0.00	0.00	0.00	0.07
2023	0.45	0.01	0.00	0.00	0.00	0.05
2024	0.45	0.01	0.00	0.00	0.00	0.05
2025	0.45	0.01	0.00	0.00	0.00	0.05

Type	Sector	Pump House Building and Tertiary Treatment System Building	Reclaimed Water Pipe Distribution System			Total	Totals Days Per Year				Emissions (grams/day)						CO (grams/year)				NOx (grams/year)				PM10 (grams/year)				PM25 (grams/year)				SO2 (grams/year)				VOC (grams/year)			
Years		2022	2023	2024	2025		2022	2023	2024	2025	CO	NOx	Total_PM10	Total_PM25	SO2	VOC	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025
Total Days		90	60	60	60																																		
Days/Year		90	60	60	60																																		
Tampers/Rammers	Mobile - Non-Road Equipment - Gasoline	10	20	20	20	70	10	20	20	20	205	1	0	0	0	5	2050	4100	4100	4100	10	20	20	20	0	0	0	0	0	0	0	0	0	0	0	0	50	100	100	100
Plate Compactors		10	20	20	20	70	10	20	20	20	40265	368	42	38	1	1361	402650	805300	805300	805300	3680	7360	7360	7360	420	840	840	840	380	760	760	760	10	20	20	20	13610	27220	27220	27220
Signal Boards/Light Plants		10	20	20	20	70	10	20	20	20	1830	15	2	1	0	50	18300	36600	36600	36600	150	300	300	300	20	40	40	40	10	20	20	20	0	0	0	0	500	1000	1000	1000
Concrete/Industrial Saws		10	10	10	10	40	10	10	10	10	117431	712	4283	3941	2	27901	1174310	1174310	1174310	1174310	7120	7120	7120	7120	42830	42830	42830	42830	39410	39410	39410	39410	20	20	20	20	279010	279010	279010	279010
Bore/Drill Rigs	Mobile - Non-Road Equipment - Diesel	2	10	1	1	14	2	10	1	1	13662	44713	2388	2316	42	3423	27324	136620	13662	13662	89426	447130	44713	44713	4776	23880	2388	2388	4632	23160	2316	2316	84	420	42	42	6846	34230	3423	3423
Pavers		3	4	4	4	15	3	4	4	4	3540	9158	587	570	24	623	10620	14160	14160	14160	27474	36632	36632	36632	1761	2348	2348	2348	1710	2280	2280	2280	72	96	96	96	1869	2492	2492	2492
Rollers		10	4	4	4	22	10	4	4	4	11484	28041	1765	1712	62	1971	114840	45936	45936	45936	280410	112164	112164	112164	17650	7060	7060	7060	17120	6848	6848	6848	620	248	248	248	19710	7884	7884	7884
Scrapers		5	0	0	0	5	5	0	0	0	14498	29620	1953	1894	70	1736	72490	0	0	0	148100	0	0	0	9765	0	0	0	9470	0	0	0	350	0	0	0	8680	0	0	0
Paving Equipment		2	4	4	4	14	2	4	4	4	1016	2208	168	163	4	196	2032	4064	4064	4064	4416	8832	8832	8832	336	672	672	672	326	652	652	652	8	16	16	16	392	784	784	784
Surfacing Equipment		2	4	4	4	14	2	4	4	4	1329	2768	177	172	3	193	2658	5316	5316	5316	5536	11072	11072	11072	354	708	708	708	344	688	688	688	6	12	12	12	386	772	772	772
Trenchers		2	2	2	2	8	2	2	2	2	12581	23686	1740	1688	32	1844	25162	25162	25162	25162	47372	47372	47372	47372	3480	3480	3480	3480	3376	3376	3376	3376	64	64	64	64	3688	3688	3688	3688
Excavators		20	30	30	30	110	20	30	30	30	21712	66301	4019	3898	237	3446	434240	651360	651360	651360	1326020	1989030	1989030	1989030	80380	120570	120570	120570	77960	116940	116940	116940	4740	7110	7110	7110	68920	103380	103380	103380
Cement and Mortar Mixers		5	3	3	3	14	5	3	3	3	816	1791	134	130	2	188	4080	2448	2448	2448	8955	5373	5373	5373	670	402	402	402	650	390	390	390	10	6	6	6	940	564	564	564
Cranes		2	0	0	0	2	2	0	0	0	9646	37761	1645	1595	63	2315	19292	0	0	0	75522	0	0	0	3290	0	0	0	3190	0	0	0	126	0	0	0	4630	0	0	0
Graders		10	10	10	10	40	10	10	10	10	5473	13874	1046	1015	60	999	54730	54730	54730	54730	138740	138740	138740	138740	10460	10460	10460	10460	10150	10150	10150	10150	600	600	600	600	9990	9990	9990	9990
Off-highway Trucks		5	5	5	5	20	5	5	5	5	18633	98369	2885	2799	203	3495	93165	93165	93165	93165	491845	491845	491845	491845	14425	14425	14425	14425	13995	13995	13995	13995	1015	1015	1015	1015	17475	17475	17475	17475
Crushing/Processing Equipment		5	5	5	5	20	5	5	5	5	2386	8814	371	360	12	507	11930	11930	11930	11930	44070	44070	44070	44070	1855	1855	1855	1855	1800	1800	1800	1800	60	60	60	60	2535	2535	2535	2535
Rough Terrain Forklifts		20	15	15	15	65	20	15	15	15	22435	43822	3334	3234	83	3468	448700	336525	336525	336525	876440	657330	657330	657330	66680	50010	50010	50010	64680	48510	48510	48510	1660	1245	1245	1245	69360	52020	52020	52020
Tractors/Loaders/Backhoes		20	30	30	30	110	20	30	30	30	209105	226483	31716	30765	242	45735	4182100	6273150	6273150	6273150	4529660	6794490	6794490	6794490	634320	951480	951480	951480	615300	922950	922950	922950	4840	7260	7260	7260	914700	1372050	1372050	1372050
Crawler Tractor/Dozers		10	5	5	5	25	10	5	5	5	40085	102827	6249	6061	251	5965	400850	200425	200425	200425	1028270	514135	514135	514135	62490	31245	31245	31245	60610	30305	30305	30305	2510	1255	1255	1255	59650	29825	29825	29825
Skid Steer Loaders		15	30	30	30	105	15	30	30	30	204797	177545	30108	29204	182	42267	3071955	6143910	6143910	6143910	2663175	5326350	5326350	5326350	451620	903240	903240	903240	438060	876120	876120	876120	2730	5460	5460	5460	634005	1268010	1268010	1268010
Off-highway Tractors		5	5	5	5	20	5	5	5	5	8351	22143	1149	1114	30	1212	41755	41755	41755	41755	110715	110715	110715	110715	5745	5745	5745	5745	5570	5570	5570	5570	150	150	150	150	6060	6060	6060	6060
Dumpers/Tenders		10	10	10	10	40	10	10	10	10	629	561	94	91	1	142	6290	6290	6290	6290	5610	5610	5610	5610	940	940	940	940	910	910	910	910	10	10	10	10	1420	1420	1420	1420
																Total (g/year)	10621523	16067256	15944298	15944298	11912716	16755690	16353273	16353273	1414267	2172230	2150738	2150738	1369653	2104834	2083990	2083990	19685	25067	24689	24689	2124426	3220509	3189702	3189702
																tons/year	11.70822	17.71112	17.57558	17.57558	13.13152	18.46999	18.0264	18.0264	1.558963	2.394474	2.370783	2.370783	1.509784	2.320182	2.297206	2.297206	0.021699	0.027632	0.027215	0.027215	2.341779	3.550003	3.516045	3.516045

Fugitive Dust Calculation

Total Area Disturbed (acres)	PM-10 (lb/year)	PM-10 (lb/year) Mitigation Factor	PM-10 (tons/year)	PM-2.5 (lb/year)	PM-2.5 (tons/year)	YEAR
0.45	9	4.5	0.00225	0.945	0.0004725	2022
9.6	192	96	0.048	20.16	0.01008	2023
9.6	192	96	0.048	20.16	0.01008	2024
9.6	192	96	0.048	20.16	0.01008	2025

	2022	2023	2024	2025
Number of Construction Days	90	60	60	60
Dirt disturbed per day (acres)	0.005	0.16	0.16	0.16
PM-10 Emissions Factor (lb/acre/day)	20	20	20	20
Mitigation factor	0.5	0.5	0.5	0.5
PM-2.5 Emissions Factor (21% of PM-10)	0.21	0.21	0.21	0.21

Unpaved Roads Fugitive Dust Calculation

AP-42 13.2.2 Unpaved Roads to estimate construction PM Emissions
NOI T0554 indicated 3.85 lbs per vehicle mile travel as the result of the application of the equation given in AP-42.

Known Information	**2022**	**2023**	**2024**	**2025**	**Unit**	
Emission Factor	3.85	3.85	3.85	3.85	lbs/VMT	
# of active construction days	90	60	60	60	Days	
Vehicle Distance Traveled per Trip on Unpaved Roads	2	2	2	0.16	miles	
# of onroad construction vehicles	10	10	10	10	Vehicles	
Trips per vehicle/day	2	2	2	2	trips	
PM-10 from On-Road Construction Vehicles	13860	9240	9240	739.2	lbs/year	
	6930	4620	4620	369.6	Mitigation Factor	
	3.465	2.31	2.31	0.1848	tons/year	Convert to tons
	0.72765	0.4851	0.4851	0.038808	PM-2.5	

Construction Emissions Summary

On Road Emissions

	2022	2023	2024	2025
CO	0.67	0.45	0.45	0.45
NOx	0.01	0.01	0.01	0.01
Total_PM10	0.00	0.00	0.00	0.00
Total_PM25	0.00	0.00	0.00	0.00
SO_2	0.00	0.00	0.00	0.00
VOC	0.07	0.05	0.05	0.05

Fugitive Dust - Ground Disturbance

	2022	2023	2024	2025
Total_PM10	0.00	0.05	0.05	0.05
Total_PM25	0.00	0.01	0.01	0.01

Fugitive Dust - Unpaved Roads

	2022	2023	2024	2025
Total_PM10	3.47	2.31	2.31	0.18
Total_PM25	0.73	0.49	0.49	0.04

Off-Road Emissions

	2022	2023	2024	2025
CO	11.71	17.71	17.58	17.58
NOx	13.13	18.47	18.03	18.03
Total_PM10	1.56	2.39	2.37	2.37
Total_PM25	1.51	2.32	2.30	2.30
SO_2	0.02	0.03	0.03	0.03
VOC	2.34	3.55	3.52	3.52

Total Proposed Action Emissions

	Anticipated Year of Construction Activities			
Pollutant (tons/year)	**2022**	**2023**	**2024**	**2025**
CO	12.38	18.16	18.02	18.02
NOx	13.14	18.48	18.04	18.04
Total_PM10	5.03	4.75	4.73	2.61
Total_PM25	2.24	2.82	2.79	2.35
SO_2	0.02	0.03	0.03	0.03
VOC	2.42	3.60	3.57	3.57

Appendix H

EJScreen Report

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EJScreen Report (Version 2.0)

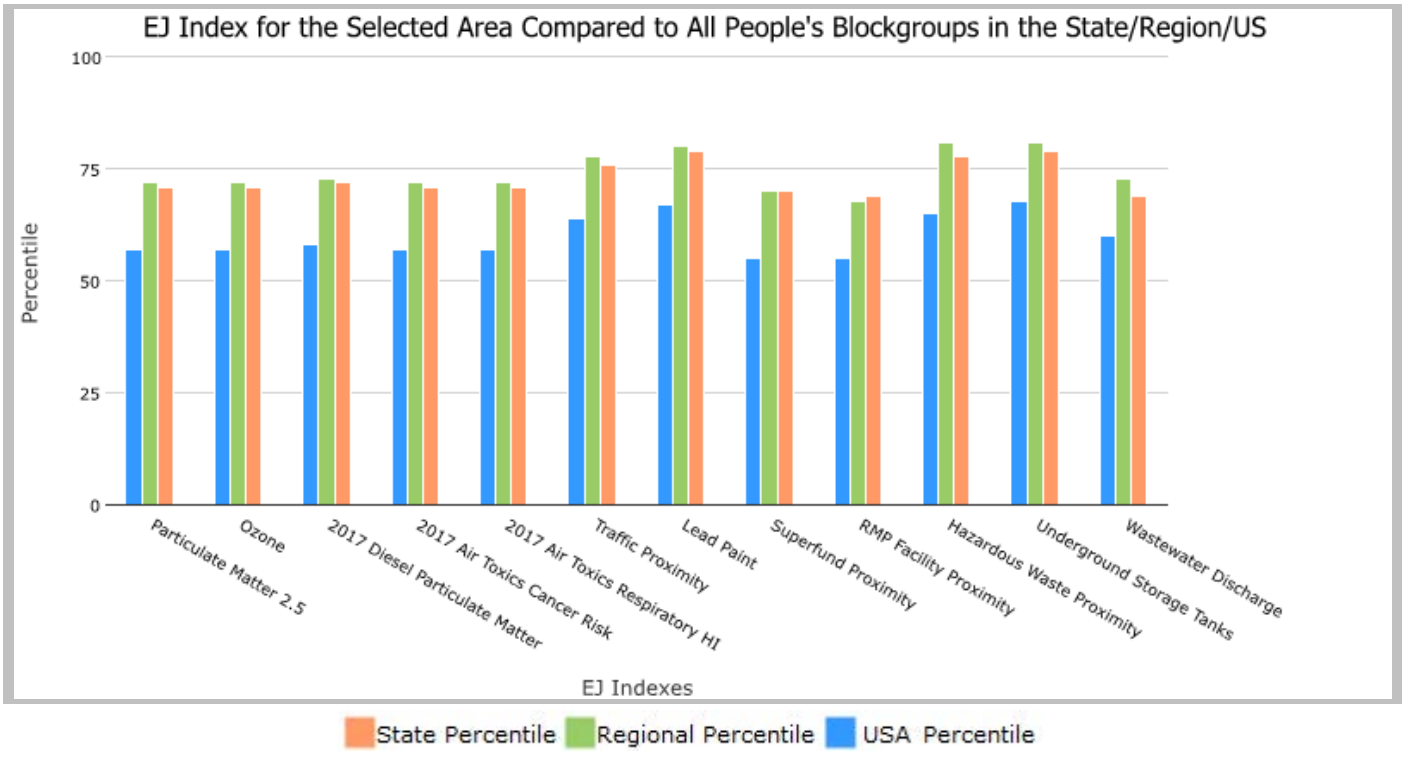
.25 miles Ring around the Area, WASHINGTON, EPA Region 10

Approximate Population: 12,274

Input Area (sq. miles): 7.59

City of Cheney

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	71	72	57
EJ Index for Ozone	71	72	57
EJ Index for 2017 Diesel Particulate Matter*	72	73	58
EJ Index for 2017 Air Toxics Cancer Risk*	71	72	57
EJ Index for 2017 Air Toxics Respiratory HI*	71	72	57
EJ Index for Traffic Proximity	76	78	64
EJ Index for Lead Paint	79	80	67
EJ Index for Superfund Proximity	70	70	55
EJ Index for RMP Facility Proximity	69	68	55
EJ Index for Hazardous Waste Proximity	78	81	65
EJ Index for Underground Storage Tanks	79	81	68
EJ Index for Wastewater Discharge	69	73	60



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

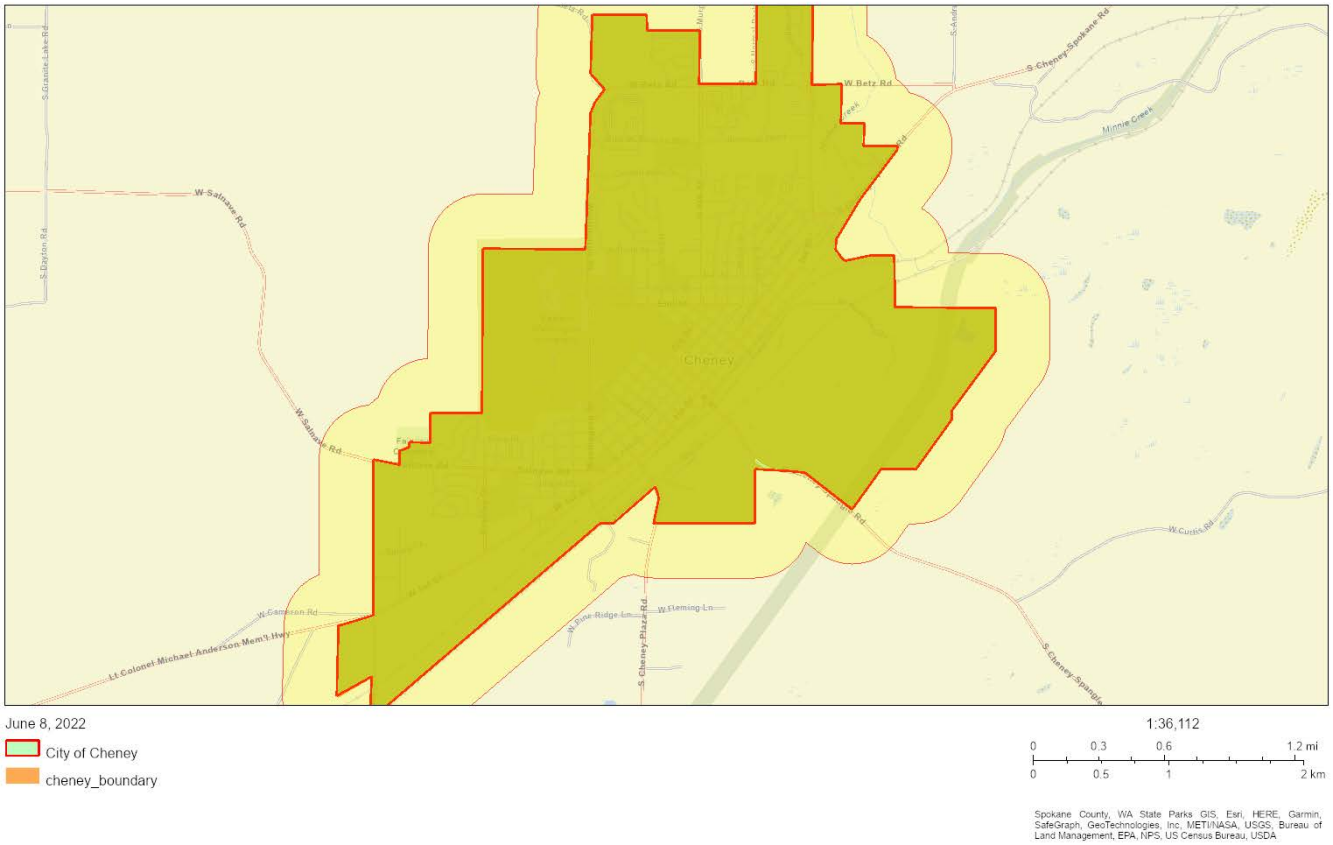
EJScreen Report (Version 2.0)

.25 miles Ring around the Area, WASHINGTON, EPA Region 10

Approximate Population: 12,274

Input Area (sq. miles): 7.59

City of Cheney



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	2

EJScreen Report (Version 2.0)

.25 miles Ring around the Area, WASHINGTON, EPA Region 10

Approximate Population: 12,274

Input Area (sq. miles): 7.59

City of Cheney

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	10.2	7.86	93	8.17	91	8.74	86
Ozone (ppb)	44.4	35.3	90	37.2	86	42.6	70
2017 Diesel Particulate Matter* (µg/m^3)	0.121	0.336	15	0.312	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	20	35	9	33	<50th	29	<50th
2017 Air Toxics Respiratory HI*	0.4	0.52	30	0.47	<50th	0.36	80-90th
Traffic Proximity (daily traffic count/distance to road)	340	710	56	600	60	710	59
Lead Paint (% Pre-1960 Housing)	0.16	0.22	56	0.22	56	0.28	49
Superfund Proximity (site count/km distance)	0.064	0.19	36	0.13	50	0.13	50
RMP Facility Proximity (facility count/km distance)	0.11	0.65	23	0.66	25	0.75	17
Hazardous Waste Proximity (facility count/km distance)	1.6	2.2	62	1.7	69	2.2	65
Underground Storage Tanks (count/km^2)	0.99	6.1	44	4.5	48	3.9	45
Wastewater Discharge (toxicity-weighted concentration/m distance)	2.5E-11	0.021	0	0.53	0	12	0
Socioeconomic Indicators							
Demographic Index	36%	29%	73	28%	74	36%	58
People of Color	25%	31%	47	28%	54	40%	43
Low Income	46%	26%	86	28%	84	31%	76
Unemployment Rate	10%	5%	86	5%	85	5%	83
Linguistically Isolated	1%	4%	49	3%	54	5%	51
Less Than High School Education	5%	9%	38	9%	35	12%	28
Under Age 5	4%	6%	25	6%	25	6%	26
Over Age 64	8%	15%	19	16%	17	16%	18

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

For additional information, see: www.epa.gov/environmentaljustice