

Request for Amendment #13 for the Mist Underground Natural Gas Storage Facility

Prepared for



NW Natural

Northwest Natural Gas

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Acronyms and Abbreviations

BHP	brake horsepower
EFSC	Energy Facility Siting Council
Facility	Mist Underground Natural Gas Storage Facility
FERC	Federal Energy Regulatory Commission
HDD	horizontal directional drilling
I/W	injection and withdrawal
MMscfd	million standard cubic feet per day
NMCS	North Mist Compressor Station
NMTP	North Mist Transmission Pipeline
NPDES	National Pollutant Discharge Elimination System
NWN	Northwest Natural Gas
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
ODOE	Oregon Department of Energy
ONG	Oregon Natural Gas Development Corporation
ORS	Oregon Revised Statutes
Project	Mist Resiliency Project
RFA 13	Request for Amendment 13
ROW	right-of-way

1.0 Introduction

1.1 Project Summary and Request

Northwest Natural Gas (NWN), the Certificate Holder, is submitting the Mist Resiliency Project (Project) as Request for Amendment 13 (RFA 13) to the Site Certificate for the Mist Underground Natural Gas Storage Facility for its underground natural gas storage facility in Columbia County, Oregon. In this RFA 13, NWN proposes to complete the following upgrades at the Facility:

- **Miller Station**
 - Upgrade and replace the two existing end-of-life natural gas-fired turbine-driven natural gas compressors with new natural gas-fired turbine-driven natural gas compressors.
 - Upgrade and replace the existing underground electric power supply line (and associated appurtenances) from its origin at Highway 202 to Miller Station.
 - NWN will purchase a 7.52-acre construction laydown area and convert it to permanent storage.
- **North Mist Compressor Station (NMCS) Enhancements and Storage Development**
 - Develop the existing Newton, Medicine, Stegosaur, and Crater underground storage reservoirs including aboveground well pads to increase the Facility's natural gas storage capacity.
 - Install injection and withdrawal (I/W) wells and transmission pipelines to connect the newly developed storage reservoirs to the existing NMCS.
 - Install three reciprocating natural gas-fired engine-driven natural gas compressors, two natural gas dehydration equipment systems, and all associated engineered facilities at NMCS.
 - Construct a new control and operations building at NMCS to facilitate manned operations at the Facility to include installation of a potable water tank and septic system.
 - Temporary use of up to four disjunct temporary laydown areas during construction.

1.2 Background and Procedural History

On September 30, 1981, the Energy Facility Siting Council (EFSC) issued a site certificate to Oregon Natural Gas Development Corporation (ONG) for an underground natural gas storage facility near Mist, Oregon in Columbia County (the Site Certificate). The Site Certificate has been amended 12 times.

The Site Certificate authorized ONG to construct and operate two naturally existing underground gas reservoirs (the Flora and Bruer pools) and Miller Station with attendant equipment, including,

but not limited to: compressors, gathering lines, access roads, existing natural gas wells, monitoring wells, and proposed I/W wells; all located in rural Columbia County in parts of Sections 2, 3, 4, 10, and 11 of Township 6 North, Range 5 West, Willamette Meridian, Oregon (the original Mist Site).

Amendment Nos. 1, 2, and 3: In 1990, ONG assigned the Site Certificate to its parent, NWN. EFSC approved amendments to the Site Certificate in 1987 (Amendment No. 1), 1988 (Amendment No. 2), and 1990 (Amendment No. 3). The amendments modified several terms of the Site Certificate and authorized the construction and replacement of wells.

Amendment No. 4: In 1997, EFSC approved Amendment No. 4. That amendment approved an expansion of the Mist Site that increased the combined total Mist storage peak-day delivery capability from 100 million standard cubic feet per day (MMscfd) to 145 MMscfd. The expansion included: (1) improvements to the Miller Station gas processing facility, including the replacement of two older 550-brake horsepower (BHP) compressor units with one larger, more efficient unit; (2) total available compression of 6,650 BHP; (3) construction of a building for the new compressor and updates to related equipment; (4) natural gas storage in one additional naturally occurring underground pool, Al's Pool, in the Calvin Creek storage area; (5) up to four new sites for I/W wells, including one to four wells at each site; (6) approximately 1 mile of buried 8-inch and 6-inch gathering pipeline; and (7) approximately 2.5 miles of buried twin 16-inch transmission pipelines.

Amendment No. 5: On March 13, 1998, EFSC approved Amendment No. 5, which replaced the amendment provisions in the Site Certificate with a requirement that future Site Certificate amendments be governed by EFSC's amendment rules.

Amendment No. 6: In 1999, EFSC approved Amendment No. 6, increasing the capacity of the Mist storage facility. The gas storage portion of that project included: (1) upgrades to the dehydration and metering systems at Miller Station; (2) natural gas storage in one additional naturally occurring underground pool, the Reichhold Pool, within the existing Site Boundary; (3) up to four new sites for I/W wells, including one to four wells at each site; (4) approximately 6,500 feet of buried gathering pipeline no greater than 12 inches in diameter; and (5) the removal of the 6,650 compressor horsepower limitation then in place for the Miller Station facility. Approval of Amendment No. 6 allowed Miller Station to operate at rates of up to 190 MMscfd without any restriction on the use of the three existing compressor units, which have a total rating of 8,200 BHP.

Amendment No. 7: On May 17, 2001, the Federal Energy Regulatory Commission (FERC) granted NWN a limited jurisdiction blanket certificate under section 284.224 of FERC's regulations. Under that certificate, NWN is authorized to use existing and expanded facilities at the Mist Site to provide FERC jurisdictional bundled firm and interruptible storage and related transportation services in interstate commerce. *See Northwest Natural Gas Company*, 95 FERC ¶ 61,242 (2001). However, FERC's jurisdiction extends only to the interstate services themselves. NWN provides the interstate storage services using existing and expanded facilities at the Mist Site that are not needed to serve its "core" utility customer needs. NWN also has agreements in place with state utility regulators regarding this use. To make increased capacity available to the interstate market, NWN amended its Site Certificate (Amendment No. 7) by increasing the permitted throughput of the Mist Site to 245 MMscfd. Amendment No. 7 was approved on November 17, 2000.

Amendment No. 8: In Amendment No. 8, approved October 26, 2001, EFSC authorized an increase of the permitted daily throughput from 245 MMscfd to 317 MMscfd. As described in the Amendment, this involved the installation of new metering facilities, new interconnect piping to the South Mist and North Mist pipelines, and a new gas-turbine-driven compressor. The new compressor added 7,800 horsepower, bringing the total compression capability to 16,000 horsepower.

Amendment No. 9: In Amendment No. 9, approved December 5, 2003, EFSC authorized an increase of the permitted daily throughput from 317 MMscfd to 515 MMscfd. EFSC also authorized the construction of improvements at Miller Station, including the installation of new dehydration facilities and gas quality and monitoring equipment. EFSC also authorized NWN to develop related and supporting facilities associated with new underground gas storage reservoirs in the Calvin Creek storage area, the Busch and Schlicker pools. Approval of Amendment No. 9 also allowed NWN to terminate the vibration monitoring program created in Amendment No. 1.

Amendment No. 10: In Amendment No. 10, approved May 30, 2008, EFSC approved a Consolidated, Restated, and Amended Site Certificate. In its RFA No. 10, NWN sought no substantive changes to the Site Certificate other than clarification of conditions where the applicable law had changed since the Site Certificate was initially approved. The approved Consolidated, Restated, and Amended Site Certificate consolidated the original Site Certificate and Amendment Nos. 1-9 to the Site Certificate, updated the Site Certificate to reflect the current statutory and regulatory regime, deleted outdated and superseded conditions, added language describing the surface facilities related to the underground gas storage reservoir, updated the site maps, and eliminated inconsistencies between the various documents.

Amendment No. 11: Amendment No. 11, approved April 21, 2016, authorized NWN to expand the Site Boundary to include the Adams storage reservoir, as well as the Newton, Medicine, Crater, and Stegosaur future storage areas. The amendment authorized NWN to develop only the Adams reservoir as a new underground storage area; to construct and operate a new compressor station, NMCS; and to construct and operate an approximately 12-mile natural gas transmission pipeline, the North Mist Transmission Pipeline (NMTP), between the NMCS and Portland General Electric's Port Westward Industrial Park. The amendment authorized NWN to increase the allowable throughput from 515 MMscfd to 635 MMscfd. New conditions were added to ensure compliance with EFSC requirements (Figure 1).

Amendment No. 12: Amendment 12, approved September 22, 2017, authorized a new limited water use license for water withdrawn from a diversion point in the Beaver Slough (referred to as the Seeley Mint Farm Diversion Point) during construction of the North Mist Expansion Project from August through November 2017.

Amendment No. 13: In this Request, as noted above, NWN proposes to replace existing (end of life) two turbines at Miller Station, replace existing (end of life) electric power supply from Highway 202 to Miller Station, and increase the fenced boundary of Miller Station by adding approximately 7.52 acres adjacent to the existing station creating permanent storage. At the NMCS, NWN will add three reciprocating gas fired compressors, two dehydration trains, new air compressor, inlet and outlet

coalescing filters, two new back-up power generators, fuel gas heater, skidded fuel gas regulators, power transformer, control building, a Power Distribution Center building, compressor building, dehydration regeneration building, and associated equipment. Additionally, NWN will develop the existing Crater, Medicine, Newton, and Stegosaur storage reservoirs, gas storage wells, associated well pad equipment, and transmission pipelines connecting the well pad locations to the NMCS. These additions at NMCS will enable an increase of allowable throughput from 635 MMscfd to 835 MMscfd. Furthermore, as many as four temporary construction laydown yards may be developed and restored during construction to support contractors, materials, and equipment during the construction process. Associated with the storage reservoirs, NWN will install I/W wells and transmission pipelines to connect to NMCS and improve infrastructure at NMCS (Figures 2 and 3).

1.3 Energy Facility Siting Council Jurisdiction

When the EFSC approved the underground natural gas storage facility at the Mist Site in 1981, its jurisdiction included both the surface and underground components of the Facility. In 1993, the siting law was amended such that EFSC now has jurisdiction only over the “surface facility related to an underground gas storage reservoir that, at design injection or withdrawal rates, will receive or deliver more than 50 million cubic feet of natural or synthetic gas per day, or require more than 4,000 horsepower of natural gas compression to operate” (ORS 469.300(11)(a)(I)). The surface facility at Mist exceeds this 50-million-cubic-feet threshold and is therefore subject to EFSC jurisdiction. Subsurface elements (other than pipelines) are within the exclusive jurisdiction of the Department of Geology and Mineral Industries (DOGAMI). The Facility is an “energy facility” subject to EFSC jurisdiction because it has the capacity to receive or deliver up to 120 million cubic feet of natural gas per day. On March 13, 1998, EFSC approved a request to replace the amendment provisions in the Site Certificate with a requirement that future Site Certificate amendments be governed by the “duly adopted rules of the EFSC for the amendment of site certificates.” Accordingly, this Request is set forth pursuant to the requirements of Oregon Administrative Rules (OAR) 345-027-0060.¹

2.0 Amendment Required under OAR 345-027-0350 & Review Process under OAR 345-027-0351

OAR 345-027-0350 – Changes Requiring an Amendment

Except for changes allowed under OAR 345-027-0353, an amendment to a site certificate is required to:

¹ Although this Request is not organized in accordance with OAR 345-021-0010, the information contained herein addresses all provisions of the rule as required by OAR 345-021-0010(1). Key reports and regulatory analyses are appended hereto, identified by the OAR chapter 345, division 21 provisions, including evidence supporting the compliance narratives in this Request.

- (1) Transfer ownership of the facility or the certificate holder as described in OAR 345-027-0400;*
- (2) Apply later-adopted law(s) as described in OAR 345-027-0390;*
- (3) Extend the construction beginning or completion deadline as described in OAR 345-027-0385;*
- (4) Design, construct or operate a facility in a manner different from the description in the site certificate, if the proposed change:*
 - (a) Could result in a significant adverse impact that the Council has not addressed in an earlier order and the impact affects a resource or interest protected by an applicable law or Council standard;*
 - (b) Could impair the certificate holder's ability to comply with a site certificate condition;*
or
 - (c) Could require a new condition or a change to a condition in the site certificate.*

The changes NWN proposes require an amendment under OAR 345-027-0350(4)(a) and (c). The proposed changes could result in significant, adverse impacts that EFSC has not addressed in an earlier order, and they were not previously addressed by EFSC for the Facility. These changes require revisions to the Facility description and potentially new or modified conditions in the Site Certificate (see Attachment 1). Moreover, NWN anticipates that the proposed changes may generate interest from reviewing agencies or from the public. There could also be additional impacts that have not previously been reviewed.

Due to these circumstances, NWN anticipates the review process for RFA 13 to be Type A. Pursuant to OAR 345-027-0351(2), the Type A review process consists of the following OARs: OAR 345-027-0359, OAR 345-027-0360, OAR 345-027-0363, OAR 345-027-0365, OAR 345-027-0367, OAR 345-027-0371, and OAR 345-027-0375.

The requirements of OAR 345-027-0360 are addressed in the following sections and document attachments.

3.0 Certificate Holder Information – OAR 345-027-0360(1)(a)

(1) To request an amendment to the site certificate required by OAR 345-027-0350(3) or (4), the certificate holder must submit a written preliminary request for amendment to the Department that includes the following:

OAR 345-027-0360(1)(a) The name of the facility, the name and mailing address of the certificate holder, and the name, mailing address, email address and phone number of the individual responsible for submitting the request;

3.1 Name of the Facility

The name of the Facility is the Mist Underground Natural Gas Storage Facility and the Certificate Holder is Northwest Natural Gas Company.

3.2 Name and Mailing Address of the Certificate Holder

Northwest Natural Gas Company
250 SW Taylor Street
Portland, Oregon 97204

3.3 Name and Mailing Address of the Individuals Responsible for Submitting the Request

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4.0 Detailed Description of the Proposed Change – OAR 345-027-0360(1)(b)

OAR 345-027-0360 Preliminary Request for Amendment

(1) To request an amendment to the Site Certificate required by OAR 345-027-0350(3) and (4), the certificate holder shall submit a written preliminary request for amendment to the Department of Energy that includes the following:

(a) A detailed description of the proposed change, including:

In RFA 13, NWN is proposing changes to Miller Station and other resiliency enhancements at the Facility. Table 1 provides a summary of existing Facility components and describes the changes proposed in RFA 13. Figures 4 and 5 show the vicinity of the Facility and a detailed layout and overview.

Activities occurring outside of the EFSC-approved Storage Site Boundary (Figure 1) include replacement of the powerline from Highway 202 to Miller Station and temporary construction laydown areas. Similar to the Site Certificate changes made in Amendment 11, NWN is not

requesting an expansion of the EFSC-approved Storage Site Boundary of the Facility as part of RFA 13, but proposes the powerline replacement and temporary laydown areas be addressed within a Facility Site Boundary. For analysis purposes, the term Facility Site Boundary as described in RFA 13 exhibits includes the NMCS, Miller Station, the replacement powerline to Miller Station, pipeline corridors, and all temporary laydown and staging areas. As described elsewhere in RFA 13, temporary laydown and staging areas are considered to be within the Site Boundary only during the construction phase, for purposes of compliance with OAR 345-001-0010(31). However, these locations are privately owned, and should not be considered part of the final, new EFSC-approved Storage Site Boundary for any other long-term jurisdictional purposes.

Table 1. Approved and Proposed Facility Components

Facility Component	Approved Facility	Proposed Changes
Storage Site Boundary	5,472 acres	5,472 acres
Daily throughput	635 MMscfd	835 MMscfd
Installed compression equipment	19,150 BHP	28,700 BHP
Developed storage reservoirs	Bruer, Flora, Calvin Creek, and Adams	Addition of Crater, Medicine, Newton and Stegosaur
Electrical feeds	3.1 miles	1.6 miles, replaced
Transmission pipelines	~ 15 miles	Up to an additional 2.6 miles
Temporary laydown/staging areas	N/A	31 acres

- 1. Updates to Miller Station** – At Miller Station, NWN is proposing the removal of two turbine-driven compressors of approximately 12,700 BHP (7,200 BHP and 5,500 BHP, respectively) that have reached the end of their service lives. As a replacement, NWN is proposing to install two new turbine-driven compressors of approximately 15,400 BHP (7,700 BHP each). The underground electrical feed to Miller Station and associated equipment will also be replaced using open trenching and horizontal directional drilling (HDD) across the designated wetlands area. A permanent Miller Station storage yard will be developed, expanding the fence line for the station.
- 2. Updates to Storage and NMCS** – NWN is also proposing the development of the existing, depleted natural gas storage reservoirs Crater, Medicine, Newton, and Stegosaur, and placement of infrastructure to increase the Facility’s natural gas storage capacity. Associated with the storage reservoirs, NWN will construct I/W wells, supporting equipment and facilities, and transmission pipelines to connect to NMCS and improve infrastructure at NMCS. This will include the installation of three reciprocating gas fired compressors of approximately 2,600 BHP each.

4.1 Project Description

4.1.1 Proposed Miller Station Developments

4.1.1.1 Powerline Replacement

The underground powerline and conduit running from the existing meter located near Highway 202 to Miller Station will be replaced as it is reaching the end of its service life. This replacement will be conducted using a combination of standard construction trenching techniques and HDD to avoid wetland and streams within the construction corridor. NWN will use a standard 24-foot-wide construction right-of-way (ROW) corridor within the existing road bed or a 40-foot-wide corridor in areas outside of the existing road. The powerline conduits will be buried at a depth of approximately 5 feet within the existing electrical service easement. Also, electrical cable pull boxes will be installed at a spacing not to exceed the selected power cable manufacture recommendations (approximately 2,000-foot spacing) allowing the cable to be pulled into the conduit and not exceed the cable tensile strength. After the installation of the conduit, the electrical contractor will pull 3.1 miles of power cable into the conduit and terminate the new power at the existing transformer located within the existing Miller Station boundary. The total excavation and fill will be 14,550 and 13,820 cubic yards, respectively. There are no anticipated impacts to wetlands and waterways.

Pre-Construction

Prior to any construction activities, survey crews will stake the limits of the construction ROW, the centerline of the trench, and all temporary workspace areas with color-coded flagging. Sensitive areas to be avoided may be marked using specific flagging tape or construction fencing to maintain separation from construction activities, and wetland boundaries will be clearly indicated using easily identifiable temporary signage.

Access to the Construction ROW

Typical powerline installation equipment includes delivery trucks, mowers, bulldozers, graders, front-end loaders, backhoes, welding machines, padding machines, winch trucks, water trucks, dump trucks, pickup trucks, and other miscellaneous equipment. Equipment involved in construction will be moved onto the ROW using approved access roads and will then generally proceed down the ROW performing their job tasks. Part of the construction ROW will include a travel lane for construction equipment and related Facility vehicles, accommodated within the construction ROW. When access is no longer required, the travel lane will be removed, and the ROW restored. Typical construction drawings are presented in Figures 6 through 8

Clearing and Grading

Vegetation will be cleared and the construction corridor graded, as needed, to provide safe and efficient operation of construction equipment. Where vegetation removal is needed, it will be cut and cleared from the ROW using standard techniques, in accordance with landowner requirements. The width of the construction corridor will be restricted to avoid undue surface disturbance. Temporary erosion control devices will be installed at the end of clearing activities.

If grading is required, trees, brush, and shrubs within the construction corridor will be cut or scraped at or near the ground level which should be minimal as this is an existing right of way that is maintained. Low brush will be scraped up and stored with the topsoil. Timber and larger brush will be stored adjacent to the ROW and placed on the ROW during final clean-up or removed from the ROW. Slash will be spread back across the ROW, chipped, and spread on the ROW, or removed from the ROW, subject to landowner approval and applicable law. All clearing activities will utilize existing access roads and ROWs permitted for the Facility. The Project does not include construction of additional access roads. The construction area will be graded to create a suitable work surface for construction vehicles.

Trenching and Backfilling

Excavation of the powerline conduit trench will follow any necessary clearing and grading of the ROW. Much of the excavation will be accomplished using machinery such as ditching machines, backhoes, or track hoes. The depth of the trench is expected to be 5 feet for the majority of the construction installation; however, the depth of cover can vary according to site-specific conditions and will be installed at a minimum of 30 inches, depending on the consolidated rock conditions, between the top of the conduit and the final land surface after backfilling.

The trench will be inspected during construction to verify that minimum cover is attained, that the trench is free of rock or debris, and that the conduit is properly fitted and installed into the trench. Trench dewatering may be necessary at certain times during the lowering-in process. Any trench dewatering will be accomplished in a manner designed to prevent silt-laden water from flowing into wetlands or water bodies.

After the powerline conduit is lowered into the trench, the trench will be backfilled. Backfill material generally consists of the material excavated from the trench. Padding may be used to prevent damage to the conduit. This padding will typically consist of subsoil removed from the trench that has been screened to remove larger rocks. Alternatively, other suitable material (e.g., soil or sand) may be imported to the site from other areas along the ROW. Topsoil will not be used for padding. Previously excavated materials will be pushed back into the trench using bladed equipment or backhoes.

Waterbody Crossings

The proposed powerline corridor crosses two streams (Lindgren and Lyons creeks; see Figure 5). These two streams will be crossed using HDD. HDD is a method of installing a conduit or pipeline underground by drilling a slightly over-sized hole at a very shallow angle under surface features and pulling a pre-assembled string through that hole (Figure 6). This method requires the preparation of an entrance (*i.e.*, drill) site and an exit site. The process includes the drilling of a pilot hole using a drill bit and an injection of bentonite slurry under pressure to remove the cuttings and hold the hole open. After the pilot hole is completed, a reamer and bentonite slurry combination are used to enlarge the hole and then the pipe is pulled through.

The entrance, bentonite pit (collecting slurry at the exit) and exit points will be located within the boundary of an existing private timber road. Typical HDD rig side workspace areas and bore pad design are depicted on Figure 7.

Potential impacts from HDD are the loss of upland vegetation and slight potential for bentonite inadvertent returns. Impacts from HDD can be minimized by analysis of the substrate prior to design, revegetation of cleared staging areas, and not staging in sensitive areas.

Inadvertent Return Response Plan

NWN has prepared an Inadvertent Return Response Plan for locations where the HDD and boring construction methods will be utilized (Attachment 2). The HDD method will use bentonite as a drilling fluid, and to fill in the area around the installed powerline conduit. In case of an accidental release of bentonite, either through a vent in the soil profile or at the installation point, the release point will be fully encircled with siltation fencing and the bentonite will be allowed to vent and flow into the enclosed area. When the enclosure becomes near full, a vacuum truck or pump will remove the bentonite. The siltation fencing will remain in place during the boring, back reaming, pipe pulling procedures and after completion to ensure the vent has sealed. The enclosure will only be removed after all evidence of the release has ceased.

Fill material will consist of gravel, silt, clay, sand, loam, rock, and crushed rock, depending on the construction site and job to be accomplished. No material will be excavated from waters of the state for use as fill material. Excavated material will be properly disposed of at upland disposal sites, and no excavated material will be disposed of in waters of the state.

Clean-Up and Restoration

After backfilling is complete, disturbed areas will be final graded and erosion control measures will be implemented. During final cleanup and initial restoration, drainage ditches and other structures that may have been temporarily removed or damaged during construction will be permanently repaired, returned to their pre-construction condition, or replaced. In addition, final cleanup typically will involve a series of steps, including off-site waste disposal and equipment removal and installation of permanent erosion control devices. Outside of existing road, the ROW will be mulched, seeded, and revegetated. Much of the powerline corridor is located within existing roadbed; this area will be restored to previous condition.

4.1.1.2 Turbine Replacement

At Miller Station, NWN is proposing the removal of two turbine-driven compressors totaling 12,700 BHP (7,200BHP and 5,500BPH, respectively) that have reached the end of their service lives. Removal of the end-of-life turbines also requires removal of their existing foundation, associated oil coolers, lube oil systems, gas coolers, gas scrubbers, piping and valves, intake filters, exhaust silencers, fuel gas filter, regulation and measurement equipment, electrical distribution and control panels and other associated items. As a replacement, NWN is proposing to install two new turbine-driven compressors totaling approximately 15,400 BHP (7,700 BHP each). Replacement of the existing units will also include installation of foundations for the replacement turbine/compressor

packages, an extension to the existing compressor building, and installation of associated oil coolers, double walled pressurized lube oil tank, gas coolers, gas scrubbers, piping and valves, intake filters, exhaust silencers, electrical distribution and control panels, and other associated minor items. A new fuel gas skid for the replacement turbines will be installed west of the compressor building. The existing mechanical building will be repurposed to house the new electrical distribution and control panels to be installed to support the new turbines. All construction activities will be inside the existing fence line of the Miller Station.

4.1.1.3 Storage Yard

A permanent Miller Station storage yard will be developed, adjacent to the existing Miller Station space (Figure 2). This area will be graded and graveled, and the Miller Station fence line will be expanded by approximately 7.52 acres to encompass this area. The additional acreage is within the storage field site boundary and is expected to create space for storage of equipment, consumables, and large stocked inventory items. This area will also likely be used as storage during construction.

4.1.2 North Mist Compressor Station and Storage Enhancements

4.1.2.1 Compressor Station Facilities

At NMCS, all construction activities will be inside the expanded fence line of NMCS. The existing fence line will be straightened, adding approximately 4,000 square feet to the existing station fenced-in boundary at NMCS. NWN is proposing the installation of the following (Table 2):

1. Three reciprocating gas fired compressors;
2. Two dehydration contact towers;
3. Two glycol regenerating skids with reboilers;
4. Two inlet filter coalescers;
5. Two outlet filter coalescers;
6. Two new back-up power generators;
7. One blowdown silencer;
8. One air system consisting of two compressors, dryers, prefilters, and wet air receiver;
9. One skidded compressor fuel gas heater;
10. One skidded fuel gas regulators system;
11. Two lube oil tanks;
12. One three-phase power transformer;
13. One covered gas/diesel fill station and containment;
14. One power distribution center; and

15. Four metal building systems associated with the Facility, including: one office/control building, one warehouse building, one compressor building, and one dehydration regeneration building (including all associated, grading, site rock, foundations, piping, valving, and miscellaneous mechanical and electrical supporting equipment).

Table 2. Approximate Dimensions of Major Facility Structures

Feature	H (ft)	L (ft)	W (ft)	Notes
Three reciprocating gas fired compressors;	46	52	30	
Two dehydration contact towers;	45	5 DIA	-	
Two glycol regenerating skids with reboilers;	43	51	14	
Two inlet filter coalescers;	8	12	4	
Two outlet filter coalescers;	7	12	3	
Two new back-up power generators; HP and noise level;	13	28	13	1,006 HP (750 kW) 83 dB(A) @ 23 ft
One blowdown silencer;	9	4 DIA	-	
One air system consisting of two compressors, dryers, prefilters, and wet air receiver;	12	30	14	
One skidded compressor fuel gas heater;	15	23	8	
One skidded fuel gas regulators system;	6	20	8	
Two lube oil tanks; capacity;	-	18	6 DIA	3,000 Gallon each
One three-phase power transformer; oil-containing capacity;	8	5	8	
One covered gas/diesel fill station and containment; capacity;				
Gasoline Tank	8	16	7	2,500 Gallon
Diesel Tank	-	4	2 DIA	200 Gallon
One power distribution center; and	17	50	14	
Four Metal Building Systems				
Gas compressor building	48	130	55	
Office/control building	18	100	60	
Glycol regeneration building	39	70	70	
PDC building	17	50	14	

4.1.2.2 Proposed Reservoir Developments

NWN proposes to develop the existing Crater, Medicine, Newton, and Stegosaur storage reservoirs. The area where the reservoirs are located has been mapped utilizing a three-dimensional seismic survey and other subsurface data from multiple exploratory and production wells drilled in the area. Subsurface development of the reservoirs will be very similar to those storage reservoirs currently in service.

The reservoirs will be developed from drill sites located near the reservoirs using high-angle directional (deviated) and/or horizontal I/W wells. These wells are designed for high flow rates without damaging the storage formation or the installed subsurface equipment. Following is a summary of the reservoirs proposed for development (Table 3):

- **Crater** – This formation will be drilled from the Medicine well pad, and includes a gas fired heater(s), separation, metering equipment, associated piping, valving, equipment foundations, electrical, and communications.
- **Medicine** – This formation will be drilled from the proposed newly developed well pad. Site development will include a permanent, fenced in location of 2.5 acres. Construction activities include clearing, grading, site rocking, and fencing. Permanent facilities include gas fired heater(s), separation, metering equipment, associated piping, valving, equipment foundations, electrical, and communications.
- **Newton** – This formation will be drilled from the proposed newly developed well pad. Site development will include a permanent, fenced in location of 2.5 acres. Construction activities include clearing, grading, site rocking, and fencing. Permanent facilities include gas fired heater(s), separation, metering equipment, associated piping, valving, equipment foundations, electrical, and communications.
- **Stegosaur** – This formation will be drilled from the proposed newly developed well pad. Site development will include a permanent, fenced in location of 2.5 acres. Construction activities include clearing, grading, site rocking, and fencing. Permanent facilities include gas fired heater(s), separation, metering equipment, associated piping, valving, equipment foundations, electrical, and communications. Furthermore, an above ground valve setting at this location will allow for injection / withdrawal formation flexibility allowing for more effective management of the associated gas storage facility.

Table 3. Proposed Reservoir Development

Reservoir	Deliverability ¹	I/W Wells
Newton	50 – 100 MMscfd	3
Stegosaur	15 -35 MMscfd	1
Medicine	35 – 70 MMscfd	2
Crater	15 -35 MMscfd	1
1. These are estimates that will be confirmed during development		

The drill sites for the Newton, Stegosaur, Medicine, and Crater reservoir I/W wells will be well pads in relative proximity to the existing NMCS site. NWN will also drill additional observation wells to monitor pressure and water movement within the reservoir.

4.1.2.3 Proposed Transmission Injection/Withdrawal Pipelines

The new well pads (Newton, Stegosaur and Medicine) will each have underground I/W transmission pipelines to connect the I/W wells to the NMCS. These I/W transmission pipelines are designed to operate at pressures sufficient for the injection of gas into the reservoir at the maximum design injection pressure and withdrawal flow-rate conditions. All pipelines will be designed to have a 80-foot temporary impact corridor with a 40-foot permanent easement (see Section 4.4.3); within the permanent easement, the land will be reseeded post-construction.

- **Crater** – This formation will be drilled from the Medicine well pad. The well drilled in this formation will move gas from the wellhead into the associated equipment connected to an above ground manifold / valve setting. Construction of a new, up to 16-inch diameter transmission pipeline will be connected to the manifold and transport gas to and from Stegosaur well pad manifold / valve setting. This formation will share this pipeline with the Medicine formation.
- **Medicine** – The wells drilled in this formation will move gas from the wellhead into the associated equipment connected to an above ground manifold / valve setting. Construction of a new, up to 16-inch diameter transmission pipeline will be connected to the manifold and transport gas to and from Stegosaur well pad manifold / valve setting totaling approximately 6,300 linear feet of pipeline. This formation will share this pipeline with the Crater formation. The total excavation and fill will be 6,300 and 6,000 cubic yards, respectively.
- **Newton** – The wells drilled in this formation will move gas from the wellhead into the associated equipment. Construction of a new, up to 16-inch diameter transmission pipeline will be connected to the equipment and transport gas to and from Stegosaur well pad manifold / valve setting totaling approximately 4,100 linear feet of pipeline. The total excavation and fill will be 4,100 and 3,900 cubic yards, respectively.
- **Stegosaur** – The well drilled in this formation will move gas from the wellhead into the associated equipment connected to an above ground manifold / valve setting. Construction of two new, up to 16-inch diameter transmission pipeline will be connected to the manifold and transport gas to and from the NMCS manifold / valve setting totaling approximately 3,200 linear feet of pipeline (1,600 linear feet each). The total excavation and fill will be 2,300 and 2,200 cubic yards, respectively.

Pre-Construction

Prior to any construction activities, survey crews will stake the limits of the construction ROW, the centerline of the pipeline trench, and all temporary workspace areas with color-coded flagging. Sensitive areas to be avoided may be marked using specific flagging tape or construction fencing to maintain separation from construction activities. No wetlands or waters are anticipated to intersect planned pipeline routes, and no waterbody crossing methods will be needed.

Access to the Construction ROW

Typical I/W transmission pipeline installation equipment includes pipe trucks, flat-bed trucks, mowers, bulldozers, graders, front-end loaders, backhoes, bending machines, side-booms, welding machines, padding machines, winch trucks, water trucks, dump trucks, pickup trucks, and other miscellaneous equipment. See Figure 8. Equipment involved in construction will be moved onto the ROW using approved access roads and will then generally proceed down the ROW performing their job tasks. Part of the construction ROW will include a travel lane for construction equipment and related Facility vehicles, accommodated within the construction ROW. When access is no longer required, the travel lane will be removed, and the ROW restored.

Clearing and Grading

Vegetation will be cleared, and the construction corridor graded, as needed, to provide safe and efficient operation of construction equipment. Where vegetation removal is needed, it will be cut and cleared from the ROW using standard techniques, in accordance with landowner requirements. The width of the construction corridor will be restricted to avoid undue surface disturbance to adjacent resources. Temporary workspaces will all be within the boundaries of the studied corridor and will be clearly staked or flagged. Temporary erosion control devices will be installed at the end of clearing activities.

When grading is required, trees, brush, and shrubs within the construction corridor will be cut or scraped at or near the ground level. Low brush will be scraped up and stored with the topsoil. Timber and larger brush will be stored adjacent to the ROW and placed on the ROW during final clean-up or removed from the ROW. Slash will be spread back across the ROW, chipped, and spread on the ROW, or removed from the ROW, subject to landowner approval and applicable law. All clearing activities will utilize existing access roads and ROWs permitted for the Facility. The Project does not include construction of additional access roads. The construction area will be graded to create a suitable work surface for construction vehicles.

Trenching and Backfilling

Excavation of the pipeline trench will follow clearing and grading of the ROW. Much of the excavation will be accomplished using machinery such as ditching machines, backhoes, or track hoes. The depth of the trench is expected to be 5 feet for most of the construction installation; however, the depth of cover can vary according to site-specific conditions and will be installed at a minimum of 30 inches, depending on the consolidated rock conditions, between the top of the pipeline and the final land surface after backfilling. The installation of these pipelines will follow the same method described above for the powerline replacement.

4.1.3 Construction Laydown, Storage, and Staging Areas

During construction, NWN will use four temporary storage and staging areas to store supplies and equipment (three of these already exist; the fourth will be temporarily located on private property), as described in Exhibit K. The storage and staging areas are shown in Figure 2. The first storage

area will encompass approximately 6 acres of private property on the north side of Highway 202 west of Highway 47. The second will be at the Bark and Haul yard located slightly west of the intersection of Highway 47 and Highway 202, with 1.6 acres situated on previously disturbed land used for product storage and hauling. The third area, located approximately 7 miles north of Miller Station, are proposed at the Weyerhaeuser log-sorting yard in an approximately 3-acre, previously disturbed area. The fourth location is a paved storage area, previously used for Weyerhaeuser operations. All of the temporary storage and staging areas are remote from the Facility. Well pad areas that will be developed as part of the Project may also be used as temporary laydown or storage during construction.

4.1.4 Access Roads

Access to the Facility during Project construction will be provided by interstate and state highways, a combination of existing private forestry and farm roads, and county roads. No new roads will be constructed for facility access (see Exhibit U for transportation routes). Any upgrades or improvements to existing roads will be done according to Columbia County ordinances and through approval of the Columbia County public works department. Improved roads will include a gravel, all-weather surfaced roadbed. Compliance with county ordinances regarding road improvement construction is addressed in Exhibit K.

Typical existing timber operation roads are generally 20 to 60 feet in width. Proposed improvements may include widening some existing roads to provide access for construction vehicles along the pipeline corridor roads during construction, with all construction occurring within the identified construction corridor. It is possible that timber operators will improve some roads for pending, planned, and ongoing timber operations prior to NWN's construction. During construction, some roads may need an additional shoulder for turnaround areas for larger vehicles. These areas will be restored upon completion of construction. For purposes of estimating impacts, NWN assumes that up to ten hammerhead turnaround areas may be needed, each with a turning radius of up to 150 feet. These locations are not known and are not mapped at this time, nor are other areas of potential minor widening known at this time. They will all be constructed within the study corridor and will be fully restored after completion of construction.

4.1.5 Construction Schedule – OAR 345-021-0010(1)(b)(F)

For the purpose of this Request, “work on the site” means any work within a site or corridor, other than surveying, exploration, or other activities to define or characterize the site or corridor, that NWN anticipates or has performed as of the time of submitting this Request. Ordering of long lead material, and some facility construction is anticipated to begin in 2025, one of the Miller Station turbines will be in service fall of 2025 with the second and the powerline replacement in service by 2026. The NMCS will begin construction in 2028 and be in service fall of 2029. The completion of commissioning and start of commercial operation will be in phases similar to construction, 100 percent of this work will be in service by November 2029. Additional engineering and geotechnical

investigations may occur prior to issuance of the Site Certificate Amendment. No other construction work is anticipated to begin prior to issuance of the Amendment.

4.2 Effects of Proposed Changes on Facility – OAR 345-027-0360(1)(b)(A)

(A) A description of how the proposed change affects the facility;

The Facility, as approved, is an underground natural gas storage facility. RFA 13 proposes changes to accommodate increased storage and the proposed changes to the Facility will not result in changes to the Facility's overall operations in a manner not previously approved by EFSC. In general, the changes proposed in RFA 13 will also not affect impacts to resources or interests protected by applicable laws and EFSC standards in a substantially different way than what EFSC has already approved for the operation of the Facility since 1981. The current Project actions are primarily within the Facility Site Boundary, and the areas related to this Facility do not alter most of the various resource Analysis Areas that were reviewed in Amendment 11 and the ASC. Therefore, although there will be some additional impacts to certain resources resulting from the proposed modifications, these impacts will generally be similar in nature to those that have already been analyzed for the approved Facility.

4.3 Applicable Laws and Council Rules – OAR 345-027-0360(1)(b)(B)

(B) A description of how the proposed change affects those resources or interests protected by applicable laws and Council standards, and

In general, the proposed changes for RFA 13 do not affect the resources or interests protected by applicable laws and EFSC standards in a substantially different way than what EFSC already approved for the Facility. NWN has reviewed and considered current local, state, and federal law as referenced throughout the Exhibits. No laws were identified that would prohibit the proposed changes requested in RFA 13. Compliance with applicable laws is integrated into the existing and proposed modified Site Certificate conditions, including conditions related to pre-construction habitat surveys, cultural resources, noise analysis, setback verification, geohazards, the National Pollutant Discharge Elimination System (NPDES) 1200-C permit, consultation with the Oregon Department of Fish and Wildlife and the Department of Geology and Mineral Industries, among others. The proposed changes do not alter NWN's ability to comply with the Site Certificate conditions for the Facility except as noted in the exhibits and the proposed condition modifications (Section 6.0). Ultimately, the Facility will not be operated in a different manner than previously approved by EFSC as a result of RFA 13, and only minor changes to the Site Certificate are necessary to incorporate and meet EFSC standards and other applicable laws. Sections 5.0 and 7.0, and the Exhibits, further demonstrate how the proposed changes would continue to comply with EFSC standards and are consistent with the EFSC's previous findings for the Facility.

4.4 Location of the Proposed Change – OAR 345-027-0360(1)(b)(C)

(C) The specific location of the proposed change, and any updated maps and/or geospatial data layers relevant to the proposed change;

NWN is requesting an expansion of the Site Boundary of the Facility as part of RFA 13 (see Figure 2 and 5). OAR 345-001-0010(31) defines the Site Boundary as the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas, and all corridors and micrositings corridors proposed by NWN. For analysis purposes, the term Site Boundary as described in RFA 13 exhibits includes the NMCS, NMTP, Miller Station, the replacement powerline to Miller Station, pipeline corridors, and all temporary laydown and staging areas. Equipment replacements, upgrades, and additions, including the four new reservoir developments, will occur within the existing Site Boundary. However, as described elsewhere in RFA 13, temporary laydown and staging areas are considered to be within the Site Boundary only during the construction phase. These locations are privately owned, and should not be considered part of the final, new Site Boundary for any other long-term jurisdictional purposes. NWN is not proposing expansions to existing reservoirs.

4.4.1 Facility Location

This Facility description is included as required to meet the submittal requirements of OAR 345-021-0010(1)(c) paragraphs (A) through (C). OAR 345 Division 22 does not provide an approval standard specific to Exhibit C.

4.4.1.1 Location of Existing Energy Facility

The existing Mist Site consists of the Adams, Bruer/Flora, and the Calvin Creek areas. The Adams area is located north of the Nehalem River in rural Columbia County, in parts of Sections 3 and 4 of Township 6 North, Range 5 West, and parts of Sections 28, 27, 32, 33, 34, and 35 of Township 7 North, Range 5 West, Willamette Meridian, Oregon. The Bruer/Flora area and Miller Station are North of the Nehalem River in rural Columbia County, in parts of Sections 2, 3, 4, 10, and 11 of Township 6 North, Range 5 West, Willamette Meridian, Oregon. The Calvin Creek area, south of the Nehalem River, was added to the Facility in 1997 in Amendment No. 4. It is 2.5 miles south of Miller Station in parts of Sections 21, 22, 23, 26, and 27. Twin 16-inch pipelines cross the Nehalem River and connect the Calvin Creek area with Miller Station. In addition to the Adams area, the NMTP was added to the Facility in 2015 and traverses a north, northeast track from the NMCS to the Portland General Electric PWIP, in parts of Section 3 of Township 6 North, Range 5 West; parts of Sections 34, 27, 22, 15, 14, 11, 12, and 1 of Township 7 North, Range 5 West; in parts of Section 6 and 7 of Township 7 North, Range 4 West; and in parts of Sections 31, 32, 29, 28, 21, 22, 15, and 16 of Township 8 North, Range 4 West, Willamette Meridian, Oregon, crossing the Clatskanie River prior to terminating at the PWIP (Figure 1).²

4.4.1.2 Location of Area Proposed to Be Added to Site Boundary

The location of the area proposed to be added to the Site Boundary includes the replacement powerline that extends from Highway 202 north to Miller Station. This area occurs in Sections 11,

² Parts of Section 14, Township 6 North, Range 5 West and part of Section 1 Township 8 North, Range 5 West include temporary storage areas that will not be considered part of the final Site Boundary (Figure 1).

12, 14, 15, 33, 34, and 35 of Townships 6 North and 7 North, Range 5 West, Willamette Meridian, Oregon.

4.4.2 Specific Location of Major and Supporting Facilities

The Facility is located in rural Columbia County, Oregon, on privately owned land zoned as Primary Forest – 80 and Resource Industrial – Planned Development, as shown in Figure K-2 (Zoning and Comprehensive Plan Designations; see Exhibit K). Figure 4 (Vicinity Map) shows the proposed Site Boundary and nearby recognizable features (e.g., major roads, cities and towns). Figure 5 provides the proposed Facility layout, including the locations of all related or supporting facilities, in relation to nearby cities and towns, county boundaries, existing public roads, and other geographic features. Figure 9 shows the location of the Facility in relation to other energy facilities that are known to be permitted at the state or local level within 10 miles of the Site Boundary.

4.4.3 Temporary and Permanent Disturbance Areas

Table 4 shows temporary and permanent impacts associated with the Facility under RFA 13. The individual component impact areas (for powerline replacement, the temporary storage and laydown yard, etc.) were calculated using preliminary design data and represent NWN’s best estimate of preliminary impacts for each component; see Figures 2 and 5 which are inclusive of various infrastructure disturbance footprint information. However, the individual component impacts do not sum to the totals shown at the bottom of the table. This is because many of the individual component impact areas would overlap; simply summing the component impact areas would indicate greater impacts than would actually occur. Instead, the totals were calculated using consolidated data, with areas of overlap eliminated, to arrive at NWN’s best estimate for total temporary and permanent impact areas. This analysis uses the largest anticipated footprint for the Facility, the final disturbance impacts will not exceed the impacts analyzed. Under this disturbance scenario, the Facility would result in approximately 27.7 acres of permanent disturbance and 65.1 acres of temporary disturbance. Resource studies have been conducted within the Site Boundary where components of the Facility will be sited. See Exhibits J, P, Q, and S for details regarding wetland, biological, and cultural surveys (Attachment 3).

Table 4. Temporary and Permanent Disturbance Assumptions

Disturbance Type	Proposed	
	Temporary (acres)	Permanent (acres)
Powerline replacement	6.5	–
Miller Station storage yard	–	7.5
Newton wellpad	–	2.0
Stegosaur wellpad	–	16.3
Medicine wellpad	–	1.9
Transmission pipelines	22.5	–

Disturbance Type	Proposed	
	Temporary (acres)	Permanent (acres)
Construction storage and laydown yards	23.3	-
NMCS improvements	12.8	-
TOTAL	65.1	27.7

5.0 Division 21 Requirements – OAR 345-027-0360(1)(c)

OAR 345-027-0360(1)(c) References to any specific Division 21 information that may be required for the Department to make its findings;

NWN has addressed applicable specific Division 21 information in response to Division 27 requirements and in the exhibits. Exhibit labeling reflects the requirements of OAR 345-021-0010. However, because this is a RFA rather than an Application for Site Certificate, not all exhibits are applicable (Table 5)³. Together, this document and the exhibits provide the necessary information for the Oregon Department of Energy (ODOE) to make its findings, and based on those findings, that EFSC can find that the Facility, as proposed, continues to comply with the requirements of the Oregon Energy Facility Site Statutes, Oregon Revised Statutes (ORS) 469.300 to 469.520.

Table 5. Division 21 List of Exhibits for RFA 13

Exhibits	
A – Applicant Information (See Section 3.0, 5.1-5.3)	O – Water Use
B – Project Description (See Section 4.0)	P – Fish and Wildlife Habitats and Species
C – Property Location and Maps (See Section 4.4)	Q – Threatened and Endangered Species
D – Organizational Information (See Section 5.3)	R – Scenic Resources
E – Permits Needed for Construction and Operation (See Section 5.4)	S – Historic, Cultural, and Archeological Resources
F – Property Ownership (See Section 8.0) ¹	T – Recreation
G – Material Analysis	U – Public Services
H – Geologic Hazards Evaluation	V – Wildfire Prevention and Risk Mitigation
I – Soil Evaluation	W – Waste Management
J – Wetlands and Other Jurisdictional Waters	X – Site Restoration
K – Land Use	Y – Noise

³ Exhibits not applicable to RFA 13 are Exhibit N – Non-generating Facility Information, Exhibit Z – Cooling Towers, Exhibit AA – Electric and Magnetic Fields, and Exhibit BB – Other Information.

Exhibits	
L – Protected Areas	CC – Additional Statutes, Rules, and Ordinances
M – Financial Analysis	DD – Specific Standards
1. A revised property owner list will be provided as Attachment 4 at the request of ODOE after the completeness review.	

5.1 Other Participants – OAR 345-021-0010(1)(a)(B)

No other participants are anticipated at this time, with the exception of potential third-party permits that will be obtained by the construction firm for construction of the Project at the Facility. These third-party permits include permits for obtaining construction materials, transporting materials to the site, and other building-related permits that are typically obtained immediately prior to construction activities. See Section 5.4 for all anticipated third-party permits.

5.2 Other Affiliations – OAR 345-021-0010(1)(a)(C) through (F)

NW Natural, formerly Northwest Natural Gas Company, is an American publicly traded utility headquartered in Portland, Oregon (Attachment 5). NW Natural is a wholly owned subsidiary of Northwest Natural Holding Company (NW Natural Holdings). The full name and address of NWN is provided in Section 3.0.

5.3 Organizational Expertise – OAR 345-021-0010(1)(d)

Under this standard, EFSC determines whether NWN has the organizational, managerial, and technical expertise to construct and operate the Facility. To conclude that NWN has the necessary expertise, EFSC must find that NWN “has demonstrated the ability to design, construct and operate the proposed facility in compliance with site certificate conditions and in a manner that protects public health and safety and has demonstrated the ability to restore the site to a useful, non-hazardous condition.”

NWN and its predecessors have engaged in its core business of supplying gas service to the public for more than 165 years. In the 1980s, NWN began developing the natural gas fields in the Mist area for the reinjection and storage of natural gas. Since 1989, NWN has operated its underground natural gas storage operation at Mist under the Site Certificate. NWN also has two additional site certificates authorizing it to operate the South Mist Feeder Pipeline and South Mist Pipeline Extension, that both bring natural gas to and from the storage facility.

The Facility as currently approved allows NWN to:

1. Store natural gas that it purchases from the interstate pipeline and withdraw that gas when it is needed; and
2. Store gas owned by others.

There are no circumstances that would alter the basis for the EFSC’s findings in previous RFAs regarding NWN’s organizational expertise. Therefore, EFSC may rely on its previous findings that

NWN continues to have the organizational expertise to construct, operate, and retire the Facility in compliance with EFSC standards and Site Certificate conditions.

5.4 Required Permits – OAR 345-021-0010(1)(e)

This section provides information about permits that NWN will need for construction and operation of the Facility to meet the submittal requirements of OAR 345-021-0010(1)(e) paragraphs (A) through (G). While OAR 345 Division 22 does not provide an approval standard specific to Exhibit E, permits identified in Table 6 (OAR 345-021-0010(1)(e)(A) and (B)) are identified in each applicable exhibit included in Attachment 3. The proposed changes do not require any new permits, nor any new Site Certificate conditions for permits, which were not previously considered by EFSC.

Table 6. Permits

Permit	Agency Name and Contact	Authority	Description
Federal Permits			
Clean Water Act, Section 404	U.S. Army Corps of Engineers Attn: Brittney Campos, Columbia County Project Manager P.O. Box 2946 Portland, OR 97208 (503) 808-4385 brittney.c.campos@usace.army.mil	Clean Water Act, Section 404 (33 United States Code [U.S.C.] § 1344); 33 Code of Federal Regulations [CFR] §§ 320, 323, 325 28, and 330	A Section 404 Permit will be required if dredge or fill occurs in federally jurisdictional Waters of the United States, including wetlands. A nationwide permit could be used for this project; specifically Nationwide Permit #57 (utilities). If the permit is determined to be required, the permit should not be included in and governed by the Site Certificate because it is a federal permit and is thus outside the jurisdiction of the Council.
State Permits Not Federally Delegated			
Energy Facility Site Certificate	Oregon Department of Energy and Energy Facility Siting Council Attn: Chase McVeigh-Walker 550 Capitol Street NE Salem, OR 97301 (503) 378-4040 duane.kilsdonk@energy.oregon.gov	ORS 469.300 et seq.; OAR Chapter 345, Divisions 1, 21-24	This Site Certificate is the subject of this amendment request.
Water Right Permit or Water Use Authorization	Oregon Water Resources Department Water Rights Section, Districts 1 and 18 Attn: Nikki Hendricks, District 1 Watermaster c/o Port of Tillamook Bay 4000 Blimp Blvd Suite 400 Tillamook, OR 97141 (503) 815-1967 nikki.m.hendricks@water.oregon.gov Attn: Jake Constans, District 18 Watermaster 1400 SW Walnut Street, MS-49 Hillsboro, OR 97123 (503) 846-7780 jake.w.constans@water.oregon.gov	ORS 537 and 540.505-589; OAR 690, Divisions 310, 340, 410	If water is not available from existing permitted sources, NWN could seek temporary authorization for water use. However, NWN does not anticipate that a Limited Use License would be needed. Information regarding the water providers that would supply water for Facility construction is provided in Exhibit O. In the event such an authorization is needed, the third-party contractor would work directly with the Oregon Water Resources Department and therefore the authorization should not be included in and governed by the Site Certificate.
Archaeological Excavation Permit	Oregon Parks and Recreation Department, State Historic Preservation Office Attn: John Pouley, State Archaeologist 725 Summer Street NE, Suite C Salem, OR 97301 (503) 480-9164 John.Pouley@opr.d.oregon.gov	ORS Chapters 97, 358, and 390; OAR Chapter 736, Division 51	Ground-disturbing activity that may affect a known or unknown archaeological resource on public or private lands requires a permit issued by the Oregon Parks and Recreation Department. If the permit is needed, NWN will obtain it from the State Historic Preservation Office and therefore this permit should not be included in and governed by the Site Certificate.

Permit	Agency Name and Contact	Authority	Description
Oversize Load Movement Permit/Load Registration	Oregon Department of Transportation (ODOT) Attn: Savannah Crawford, Regional Manager ODOT District 1 350 West Marine Drive Astoria, OR 97103 (503) 325-7222 savannah.crawford@odot.oregon.gov	ORS 818.030; OAR Chapter 734, Division 82	Authorization for oversized loads. Movement of construction cranes and other equipment and materials may require this permit. If needed, NWN’s third-party contractor will obtain this permit and load registration from ODOT and therefore this permit should not be included in and governed by the Site Certificate.
Access Management Permit	ODOT Attn: Savannah Crawford, Regional Manager ODOT District 1 350 West Marine Drive Astoria, OR 97103 (503) 325-7222 savannah.crawford@odot.oregon.gov	OAR Chapter 734, Division 51	Access from Oregon state highways will require an access permit, which may be issued by the local ODOT District Offices. If needed, NWN’s third-party contractor will obtain this permit directly from ODOT and therefore this permit should not be included in and governed by the Site Certificate.
Permit to Occupy or Perform Operations Upon a State Highway	ODOT Attn: Savannah Crawford, Regional Manager ODOT District 1 350 West Marine Drive Astoria, OR 97103 (503) 325-7222 savannah.crawford@odot.oregon.gov	OAR Chapter 734, Division 55 (Pole Lines, Buried Cables, and Miscellaneous Operations)	Utility installations within the right-of-way of a state highway in Oregon require a permit issued by ODOT. If needed, NWN’s third-party contractor will obtain this permit directly from ODOT and therefore this permit should not be included in and governed by the Site Certificate.
State Electrical Permit	Oregon Department of Consumer & Business Services, Building Codes Division Attn: Don VanDomelen, Building Official 230 Strand Street St. Helens, OR 97051 (503) 397-1501 Don.VanDomelen@columbiacountyor.gov	OAR 918, Division 309	A state electrical permit is required prior to the installation of electric, phone, or cable service to the new Facility control and operations building. Electrical permits may be obtained in person at the Building Codes Division St. Helens office, or online through the state’s e-permitting system (available at: https://aca-oregon.accela.com/oregon/Default.aspx). A state electrical permit will be obtained by the third-party contractor prior to construction of each component for which electrical, phone, or cable service will be required and therefore should not be included in and governed by the Site Certificate.
Building Permit	Oregon Department of Consumer & Business Services, Building Codes Division Attn: Don VanDomelen, Building Official 230 Strand Street St. Helens, OR 97051 (503) 397-1501 Don.VanDomelen@columbiacountyor.gov	OAR 734, Division 51	A building permit is required prior to beginning construction of the Facility. Columbia County has its own building department, but building permits are issued by the Oregon State Building Codes Agency. A building permit will be obtained by the third-party contractor prior to construction of each component for which a building permit would be required; therefore, this permit should not be included in or governed by the Site Certificate.
Gas Well Drill Permit	Oregon Department of Geology and Mineral Industries (DOGAMI) 229 Broadalbin Street SW Albany, Oregon 97321 (541) 967-2039 mlrr.info@dogami.oregon.gov	ORS 520	The construction of the Facility will require the conversion of the Crater, Medicine, Newton, and Stegosaur reservoirs from a production reservoir to a storage reservoir. That conversion will require the installation of injection/withdrawal wells. The Crater, Medicine, Newton, and Stegosaur reservoirs will have gas injected into them at a pressure above the discovery pressure. NWN will obtain this permit directly from DOGAMI and therefore this permit should not be included in and governed by the Site Certificate.

Permit	Agency Name and Contact	Authority	Description
Notification of Operation	Oregon Department of Forestry 5005 Third St. Tillamook, Oregon 97141 (503) 842-2545 Jasen.r.mccoy@oregon.gov	Oregon Forest Practices Act, Chapter 629	A Notification of Operations must be submitted at least 15 days prior to construction activity and is required during fire season.
Removal/Fill Permit	Oregon Department of State Lands (ODSL) Attn: Katie Blauvelt, Aquatic Resource Coordinator for Columbia County 775 Summer Street NE, Suite 100 Salem, OR 97301 (503) 586-8301 katie.blauvelt@dsl.oregon.gov	ORS 196; OAR Chapter 141, Division 85	A removal-fill permit is required if 50 cubic yards or more of material is removed, filled, or altered within a jurisdictional water of the State. Impacts to jurisdictional waters of the State are currently anticipated. Therefore, a removal-fill permit will be required. NWN will obtain this permit directly from ODSL and therefore this permit should not be included in and governed by the Site Certificate.
On-site Sewage Disposal Construction-Installation Permit	ODEQ, Northwest Region Attn: Paula Carson, Wastewater Operator Certification Coordinator 700 NE Multnomah Street, Suite 600 Portland, OR 97232 (503) 229-5161 paula.carson@state.or.us	ORS 454 and 468B; OAR Chapter 340, Division 71	Facilities with an on-site sewage disposal system must obtain a Construction-Installation Permit before construction. The Facility will have a daily sewage flow of fewer than 2,500 gallons and NWN’s third-party contractor will obtain the permit from ODEQ for the control and operations building. Therefore, this permit should not be included in and governed by the Site Certificate.
State Permits Federally Delegated			
National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge General Permit 1200-C	ODEQ, Northwest Region Attn: Matthew Schult, NPDES Permit Writer 700 NE Multnomah Street, Suite 600 Portland, OR 97232 (971) 806-4857 matthew.schult@state.or.us	Clean Water Act, Section 402 (33 U.S.C. § 1342); 40 CFR § 122; ORS 468 and 468B; OAR Chapter 340, Division 45	An NPDES permit is required for construction activities that will disturb one or more acres of land and has a potential to impact waters of the state. NWN will obtain this permit directly from ODEQ and it should not be included in and governed by the Site Certificate.
Basic Air Contaminant Discharge Permit	ODEQ, Northwest Region Attn: Lisa Ball, Air Quality Manager 700 NE Multnomah Street, Suite 600 Portland, OR 97232 (503) 229-5160 lisa.ball@state.or.us	Clean Air Act (42 U.S.C. Section 7401 <i>et seq.</i>); 40 CFR Parts 50, 51, and 52; ORS Chapters 468 and 468A; Oregon Administrative Rules (OAR) Chapter 340, Division 216	The Facility will be subject to at least one significant federal air quality program, either a New Source Performance Standard, or a National Emission Standard for hazardous Air Pollutants, and is expected to have emissions that allow permitting under a Basic Air Contaminant Discharge Permit. If the permit is required, NWN will obtain a Basic Air Contaminant Discharge Permit from ODEQ. This federal process is not within the jurisdiction of EFSC and therefore should not be included in and governed by the Site Certificate.
401 Water Quality Certification	ODEQ, Northwest Region Attn: Haley Teach, 401 Water Quality Certification - Statewide 700 NE Multnomah Street, Suite 600 Portland, OR 97232 (503) 229-5051 haley.teach@state.or.us	Clean Water Act, Section 401 (33 U.S.C. § 1341); OAR Chapter 340, Division 48	Water quality certification is required for projects that are processed under the U.S. Army Corps of Engineers Section 404 Nationwide Permits. The General Authorization for a removal fill permit will instead be pursued. If the certification is determined to be required, the permit should not be included in and governed by the Site Certificate because it is outside the jurisdiction of the Council.
Local Permits			

Permit	Agency Name and Contact	Authority	Description
Conditional Use Permit	Columbia County Attn: Land Development Services Department, Planning (temporary location) 445 Port Avenue St. Helens, OR 97051 (503) 366-3902 building@columbiacountyor.gov	Columbia County Zoning Ordinance, Article III, Section 500, Article IV, Section 680	NWN elects to obtain EFSC determination under ORS Chapter 469.504(1)(b). Under ORS 469.401(3), following issuance of the Site Certificate, the County, upon NWN's submission of the proper application and fee, shall issue the permits addressed in the Site Certificate, subject only to the conditions set forth in the Site Certificate and without hearings or other proceedings. Because EFSC will make the land use determination, this permit should be included in and governed by the Site Certificate.
Road Access Permit	Columbia County Attn: Land Development Services Department, Public Works 1054 Oregon Street St. Helens, OR 97051 (503) 397-5090 publicworks@columbiacountyor.gov	Columbia County Road Standards, Columbia County Transportation System Plan	A Road Access Permit is required to make any new road, driveway, or access that intersects with county, public, and private roads, any construction requiring a building permit, and any new development of property. Improvements to existing roads and new roads are not proposed for the Facility at this time. If required, these permits will be obtained by the construction contractor prior to construction. Therefore, these permits should not be included in and governed by the Site Certificate.
Public Road Construction Permit	Columbia County Attn: Land Development Services Department, Public Works 1054 Oregon Street St. Helens, OR 97051 (503) 397-5090 publicworks@columbiacountyor.gov	Columbia County Road Standards, Columbia County Transportation System Plan	A Public Road Construction Permit is required for any construction within a county road ROW. Improvements to existing roads and new roads are not proposed for the Facility at this time. If required, this permit will be obtained by the construction contractor prior to construction. Therefore, this permit should not be included in and governed by the Site Certificate.
Special Transportation and Hauling Permit	Columbia County Attn: Land Development Services Department, Public Works 1054 Oregon Street St. Helens, OR 97051 (503) 397-5090 publicworks@columbiacountyor.gov	Columbia County Road Standards, Columbia County Transportation System Plan	This permit will be required to transport loads that exceed standard size and/or weight limits on county roads. If required, this permit will be obtained by the construction contractor prior to construction. Therefore, this permit should not be included in and governed by the Site Certificate.

5.4.1 Permit Applications Not Federally Delegated – OAR 345-021-0010(1)(e)(C)

(i) In Exhibit J for permits related to wetlands

NWN plans to seek a General Authorization from Oregon Department of State Lands for minimal impacts to wetlands and waters. Please see Exhibit J for additional information.

(ii) In Exhibit O for permits related to water rights.

Water for construction will be acquired from one or a combination of Knappa Water Association, Mist Birkenfeld Fire Department, and Clatskanie Scion, LLC. Water from Knappa will be obtained via their permitting process. Water obtained from Mist Birkenfeld and Clatskanie Scion, LLC will be obtained via applicable permits from OWRD. The water is for a one-time use and will be utilized during the construction stage only, thus no long-term water use is anticipated during operation of the Facility. The water will be acquired from a local municipal water source or an existing well at Miller Station and will be trucked to the site. See Exhibit O for additional information.

5.4.2 Permit Applications Federally Delegated – OAR 345-021-0010(1)(e)(D)

The U.S. Environmental Protection Agency has delegated authority to the ODEQ to issue NPDES stormwater discharge permits for construction activities. NWN previously provided an application for NPDES 1200-C Construction Stormwater Discharge General Permit and an associated Erosion and Sediment Control Plan (ESCP) as Appendix I-1, Exhibit I, in RFA 11. NWN will obtain an updated NPDES permit prior to construction via the ODEQ's Your DEQ Online platform.⁴ The updated draft ESCP, which forms the basis for the updated ODEQ NPDES 1200-C Construction Stormwater Discharge General Permit (Attachment 6), has been provided in Exhibit I. NWN anticipates that this permit will be pursued during preconstruction and that confirmation of permit receipt and a permit decision from ODEQ will be received prior to the start of construction. Construction work will be conducted in compliance with the ESCP approved under the NPDES 1200-C permit, which is consistent with Site Certificate Condition C(5)(3). In addition, NWN will complete monitoring of the best management practices implemented under the NPDES 1200-C permit to ensure there are no significant potential adverse impacts to soil. NWN will also obtain modifications to Miller Station's and North Mist Compressor Station's Air Containment Discharge Permit's prior to construction via ODEQ's Your DEQ Online platform (Attachment 7).

⁴ <https://ordeq-edms-public.govonlineasaas.com/pub/login?web=1>; note that due to the online system limitations, consultants cannot submit permit applications on behalf of the third party.

5.4.3 Third Party State or Local Permits – OAR 345-021-0010(1)(e)(E)

(i) Evidence that the applicant has, or has a reasonable likelihood of entering into, a contract or other agreement with the third party for access to the resource or service to be secured by that permit.

As outlined above, NWN or its contractors will obtain the permits as needed for construction and operation. The third-party permits listed in Table 7 are routine and common permits in Oregon and are not dependent on a unique resource or location. During construction and operation, NWN will select similarly qualified contractors with experience constructing similar facilities and a reasonable likelihood of securing the required permits.

Table 7. Potential Third-Party State or Local Permits

Permit Name	Facility Phase	Description
Oregon Water Resources Department, Water Right Permit, or Water Use Authorization	Construction and Operation	If water is not available from existing permitted sources, NWN could seek temporary authorization for water use.
ODOT Oversized Load Movement Permit/Load Registration	Construction	An oversize load movement permit/load registration will be required for transporting large or overweight equipment to the site over state roads.
ODOT Access Management Permit	Construction	An access permit will be required for access usage of Oregon state highways.
ODOT Permit to Occupy or Perform Operations Upon a State Highway	Construction	A permit to occupy or perform operations will be required for utility installations within the right-of-way of a state highway.
ODEQ, On-site Sewage Disposal Construction-Installation Permit	Construction	An on-site sewage disposal construction-installation permit will be obtained for the control and operations building during construction.

(ii) Evidence that the third party has, or has a reasonable likelihood of obtaining, the necessary permit.

(iii) An assessment of the impact of the proposed facility on any permits that a third party has obtained and on which the applicant relies to comply with any applicable Council standard;

As indicated above, for each permit identified, NWN has worked with contractors familiar with constructing or operating similar facilities, and who are knowledgeable of the requirements for applications and activities under such permits. NWN will select the same, or similar, contractors who have the necessary experience to likely obtain the necessary permits. These permits have not yet been obtained and will be pursued prior to construction.

5.4.4 Third Party Federally Delegated Permits – OAR 345-021-0010(1)(e)(F)

NWN is not relying on any third-party federally delegated permits. NWN will directly obtain the NPDES permits, Basic Air Contaminant Discharge Permit, and other permits as applicable (i.e., Clean Water Act related permits) from ODEQ.

5.4.5 Monitoring – OAR 345-021-0010(1)(e)(G)

To the extent that monitoring may be required for any permit conditions, monitoring programs are discussed in the specific exhibit to which the permits pertain. NWN will comply with monitoring requirements imposed by EFSC and other jurisdictions responsible for granting permits or authorizations for the Facility.

6.0 Site Certificate Revisions – OAR 345-027-0360(1)(d)

OAR 345-027-0360(1)(d) The specific language of the site certificate, including conditions, that the certificate holder proposes to change, add, or delete through the amendment;

The changes included in RFA 13 require modification of the Facility description and likely new or modified conditions in the Site Certificate. NWN's proposed changes to the Site Certificate and operational conditions are included as Attachment 1. Generally, the proposed changes to language in the Site Certificate include amending the Facility description to include changes and upgrades to the Facility, its storage capacity, and its equipment specifications, as well as making minor edits to conditions for clarity purposes.

7.0 Other Standards and Permits – OAR 345-027-0360(1)(e)

OAR 345-027-0060(1)(e) A list of all Council standards and other laws, including statutes, rules and ordinances, applicable to the proposed change, and an analysis of whether the facility, with the proposed change, would comply with those applicable laws and Council standards. For the purpose of this rule, a law or Council standard is "applicable" if the Council would apply or consider the law or Council standard under OAR 345-027-0375(2); and

A list of statutes, administrative rules, and local government ordinances relevant to Site Certificate issuance for the Facility is provided in Exhibit CC. No additional statutes, rules, or ordinances need to be added based on the proposed changes.

EFSC standards relevant to RFA 13 include Division 22 (General Standards for Siting Facilities) and Division 24 (Specific Standards for Siting Facilities). Inapplicable provisions of both Division 23 and 24 (e.g., related to wind energy facilities and transmission lines) are not discussed.

The proposed changes to the Facility do not alter the basis for EFSC's earlier findings for the Facility. Table 8 identifies EFSC standards and other laws reviewed as part of RFA 13 and their applicability to RFA 13. The Facility will comply with all existing applicable Site Certificate

conditions, with proposed modifications as identified in Attachment 1. The appended exhibits (see Attachment 3) contain the information necessary for EFSC to find that the Facility, with the proposed changes, continues to meet the standards of the relevant laws.

Table 8. Standards and Laws Relevant to Proposed Amendment

Standard	Applicability & Compliance
OAR 345-022-0000 General Standard of Review	Applicable and complies. EFSC previously found that the Facility complies with the General Standard of Review. The Facility continues to comply with the requirements of the Oregon Energy Facility Siting statutes and standards adopted by EFSC. RFA 13 does not change adverse impacts from the previously approved facility for most resources and does not alter NWN's ability to comply with the Site Certificate conditions.
OAR 345-022-0010 Organizational Expertise	Applicable and complies. EFSC has previously found that NWN has the ability to construct, operate, and retire the Facility. RFA 13 does not alter the basis for EFSC's prior findings regarding organizational expertise and does not alter NWN's ability to comply with the Site Certificate conditions. See Section 5.3 for accompanying analysis.
OAR 345-022-0020 Structural Standard	Applicable and complies. RFA 13 does not alter the basis for EFSC's prior findings regarding the structural standard and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit H for accompanying analysis.
OAR 345-022-0022 Soil Protection	Applicable and complies. Additional permanent and temporary disturbance will occur as a result of construction and operation of Facility. However, RFA 13 does not alter the basis for EFSC's prior findings regarding soil protection and does not alter NWN's ability to comply with the Site Certificate conditions. See Section 4.4 and Exhibit I for accompanying analysis.
OAR 345-022-0030 Land Use	Applicable and complies. The Facility, as proposed, will not force a significant change in current forest practices, nor will it significantly increase the cost of forest practices. RFA 13 does not otherwise alter NWN's ability to comply with the Site Certificate conditions. See Exhibit K for accompanying analysis.
OAR 345-022-0040 Protected Areas	Applicable and complies. Visual, noise and traffic impacts were reviewed for the proposed changes. RFA 13 does not alter the basis for EFSC's prior findings regarding protected areas and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit L for accompanying analysis.
OAR 345-022-0050 Retirement and Financial Assurance	Applicable and complies. With the proposed changes, NWN is still able to restore the site to a useful, nonhazardous condition following permanent cessation of construction or operation of the Facility. RFA 13 does not alter the basis for EFSC's prior findings regarding retirement and financial assurance and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibits M and X for accompanying analyses.
OAR 345-022-0060 Fish and Wildlife Habitat	Applicable and complies. The Site Boundary remains within areas surveyed for fish and wildlife habitat as documented in Exhibit P. The Draft Habitat Mitigation Plan has been included. RFA 13 does not alter the basis for EFSC's prior findings regarding fish and wildlife habitat and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit P for accompanying analysis.

**Request for Amendment #13
for the Mist Underground Natural Gas Storage Facility**

Standard	Applicability & Compliance
OAR 345-022-0070 Threatened and Endangered Species	Applicable and complies. The Facility will be constructed within the existing Site Boundary where impacts to threatened and endangered species have been reviewed. RFA 13 does not alter the basis for EFSC's prior findings regarding threatened and endangered species and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit Q for accompanying analysis.
OAR 345-022-0080 Scenic Resources	Applicable and complies. NWN reviewed visual impacts for the Facility on scenic resources. RFA 13 does not alter the basis for EFSC's prior findings regarding scenic resources and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit R for accompanying analysis.
OAR 345-022-0090 Historic, Cultural and Archaeological Resources	Applicable and complies. Surveys were conducted for the existing Site Boundary and identified resources will be protected per Site Certificate conditions. RFA 13 does not alter the basis for EFSC's prior findings regarding historical, cultural, or archeological resources and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit S for accompanying analysis.
OAR 345-022-0100 Recreation	Applicable and complies. RFA 13 does not alter the basis for EFSC's prior findings regarding recreation areas and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit T for accompanying analysis.
OAR 345-022-0110 Public Services	Applicable and complies. The proposed changes are not anticipated to substantially increase the demand of public services generated by the Facility. RFA 13 does not alter the basis for EFSC's prior findings regarding public services and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit U for accompanying analysis.
OAR 345-022-0115 Wildfire Prevention and Risk Mitigation	Applicable and complies. OAR 345-022-0115 is a new standard introduced in 2022 and therefore was not previously addressed in the original Application for Site Certificate or subsequent amendments for the approved Facility. The design, construction, and operation of the Facility, taking into account mitigation, is not likely to result in significant adverse impacts to areas subject to a heightened risk of wildfire or high-fire consequence areas addressed under OAR 345-022-0115. See Exhibit V for accompanying analysis.
OAR 345-022-0120 Waste Minimization	Applicable and complies. The proposed changes are not anticipated to substantially alter the amount of solid waste and wastewater generated by the Facility. RFA 13 does not alter the basis for EFSC's prior findings regarding waste minimization and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit W for accompanying analysis.
OAR 345-023-0005 Need for a Facility	Not Applicable. EFSC's previous conclusion that the rule does not apply to surface facilities related to an underground natural gas storage reservoir still applies to the proposed Facility. RFA 13 does not alter the basis for EFSC's prior findings regarding need for a natural gas facility and does not alter NWN's ability to comply with the Site Certificate conditions.

**Request for Amendment #13
for the Mist Underground Natural Gas Storage Facility**

Standard	Applicability & Compliance
OAR 345-024-0030 Public Health and Safety Standards for Surface Facilities Related to Underground Gas Storage Reservoirs	Applicable and complies. NWN has expertise, derived over years of successfully operating hundreds of MWs of gas service projects; see Section 5.3. RFA 13 does not alter the basis for EFSC's prior findings regarding public health and safety and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit H for structural information and Exhibit DD for accompanying analysis.
OAR 345-024-0620 Standard for Nongenerating Energy Facilities	Applicable and complies. RFA 13 does not alter the basis for EFSC's prior findings regarding nongenerating energy facilities and does not alter NWN's ability to comply with the Site Certificate conditions.
OAR 340-035-0035 Noise	Applicable and complies. RFA 13 does not alter the basis for EFSC's prior findings regarding noise and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit Y for accompanying analysis.
Removal-Fill Law	Applicable and complies. A removal-fill permit is needed for the Facility because the Facility will temporarily impact waters of the state. The General Authorization for temporary impacts can be utilized as the removal-fill permit when temporary wetland impacts are below 0.2 acres. RFA 13 does not alter the basis for EFSC's prior findings regarding the removal-fill law and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit J for accompanying analysis.
Water Rights	Applicable and complies. The anticipated construction water demand from the amended facility will be short-term and less than or equal to the amount previously anticipated for the Facility as currently approved. RFA 13 does not alter the basis for EFSC's prior findings regarding water rights and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit O for accompanying analysis.

8.0 Property Owners of Record (OAR 345-027-0360(1)(f))

OAR 345-027-0360(1)(f) A list of the names and mailing addresses of property owners, as described in this rule:

(A) The list must include all owners of record, as shown on the most recent property tax assessment roll, of property located:

(i) Within 100 feet of property which the subject of the request for amendment, where the subject property is wholly or in part within an urban growth boundary;

(ii) Within 250 feet of property which is the subject of the request for amendment, where the subject property is outside an urban growth boundary and not within a farm or forest zone; or

(iii) Within 500 feet of property which is the subject of the request for amendment, where the subject property is within a farm or forest zone; and

(B) In addition to incorporating the list in the request for amendment, the applicant must submit the list to the Department in an electronic format acceptable to the Department.

OAR 345-027-0360(f) requires that, if an amendment would change the Site Boundary, extend the deadlines for beginning or completing construction, or change the legal description of the Facility, an updated list of the owners of property located within or adjacent to the site of the Facility, as described in OAR 345-021-0010(1)(f), must be provided. RFA 13 proposes a change to the Site Boundary, but does not request an extension to the construction deadline. In addition, the legal description of the Facility will change; therefore, a revised property owner list will be provided as Attachment 4 at the request of ODOE after the completeness review.

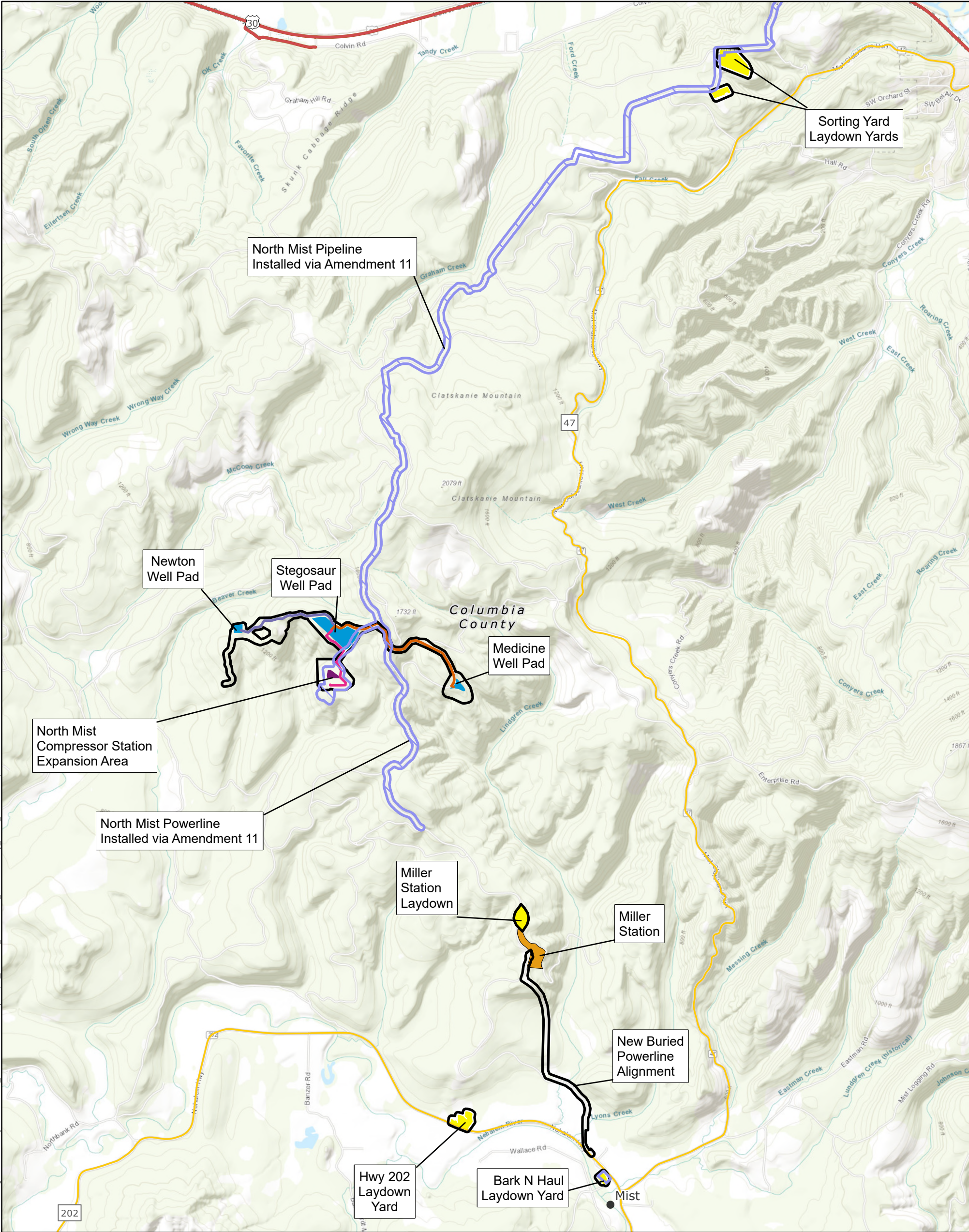
9.0 Conclusion

Based on this submittal and attached exhibits (see Attachment 3), EFSC can find that the Facility, as modified by RFA 13, continues to comply with the requirements of the Oregon Energy Facility Site Statutes, ORS 469.300 to 469.520, with all other Oregon statutes and administrative rules applicable to the amendment of the Site Certificate that are within the EFSC's jurisdiction, and that the existing and amended Site Certificate conditions ensure that the Facility will continue to comply with the applicable laws, standards, and rules. For these reasons, NWN respectfully requests approval of RFA 13.

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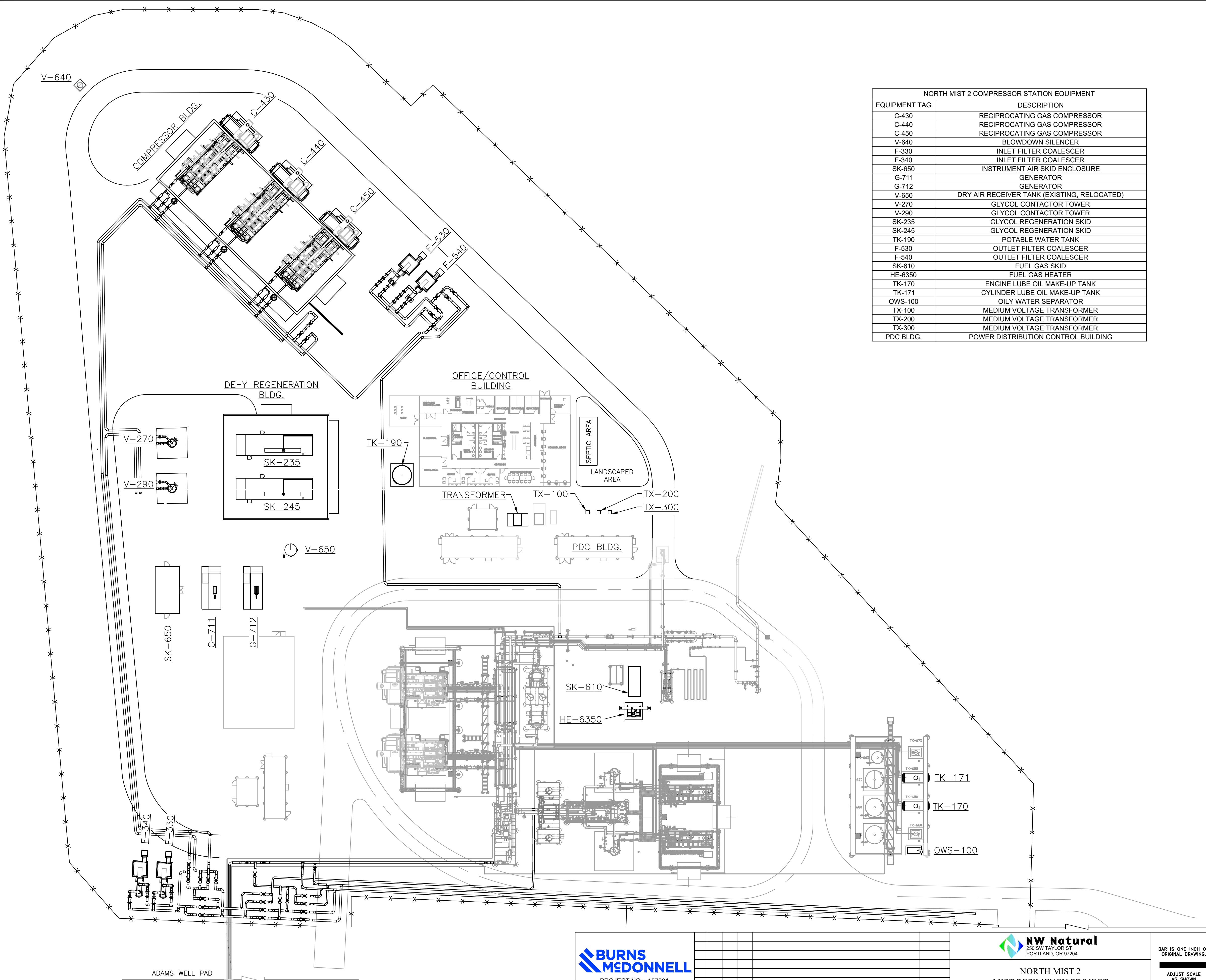
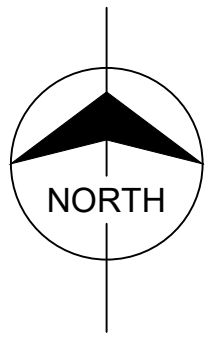
Figures

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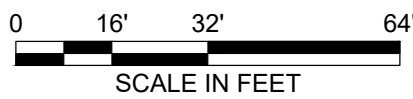



1:40,000 WGS 1984 UTM Zone 10N 0 1 Miles NOT FOR CONSTRUCTION

Mist Resiliency Project	<ul style="list-style-type: none">Site BoundaryMiller Station (Existing)Previous Study CorridorCity/TownCounty BoundaryUS HighwayState Highway	Project Infrastructure <ul style="list-style-type: none">Medicine to Stegosaur Pipeline RouteNewton to Stegosaur Pipeline RouteStegosaur to NMCS Expansion Pipeline RouteCompressor stationLaydown YardWell Pad	Reference Map CANADA WA MT OR ID CA NV
Div 27 Figure 2 Proposed Project			
COLUMBIA COUNTY, OREGON			




NORTH MIST 2 COMPRESSOR STATION EQUIPMENT	
EQUIPMENT TAG	DESCRIPTION
C-430	RECIPROCATING GAS COMPRESSOR
C-440	RECIPROCATING GAS COMPRESSOR
C-450	RECIPROCATING GAS COMPRESSOR
V-640	BLOWDOWN SILENCER
F-330	INLET FILTER COALESCER
F-340	INLET FILTER COALESCER
SK-650	INSTRUMENT AIR SKID ENCLOSURE
G-711	GENERATOR
G-712	GENERATOR
V-650	DRY AIR RECEIVER TANK (EXISTING, RELOCATED)
V-270	GLYCOL CONTACTOR TOWER
V-290	GLYCOL CONTACTOR TOWER
SK-235	GLYCOL REGENERATION SKID
SK-245	GLYCOL REGENERATION SKID
TK-190	POTABLE WATER TANK
F-530	OUTLET FILTER COALESCER
F-540	OUTLET FILTER COALESCER
SK-610	FUEL GAS SKID
HE-6350	FUEL GAS HEATER
TK-170	ENGINE LUBE OIL MAKE-UP TANK
TK-171	CYLINDER LUBE OIL MAKE-UP TANK
OWS-100	OILY WATER SEPARATOR
TX-100	MEDIUM VOLTAGE TRANSFORMER
TX-200	MEDIUM VOLTAGE TRANSFORMER
TX-300	MEDIUM VOLTAGE TRANSFORMER
PDC BLDG.	POWER DISTRIBUTION CONTROL BUILDING





PROJECT NO.: 157831

A	RSH	KIK	BB	ISSUED FOR EXHIBIT	12/06/23	DATE	
REV	DR.	CHK.	APP.	REVISION			



NORTH MIST 2
MIST RESILIENCY PROJECT
EQUIPMENT LOCATION KEY PLAN - NM2CS

BAR IS ONE INCH ON ORIGINAL DRAWING.

ADJUST SCALE AS SHOWN ACCORDINGLY.

DWG. NO. NM1000-SP110

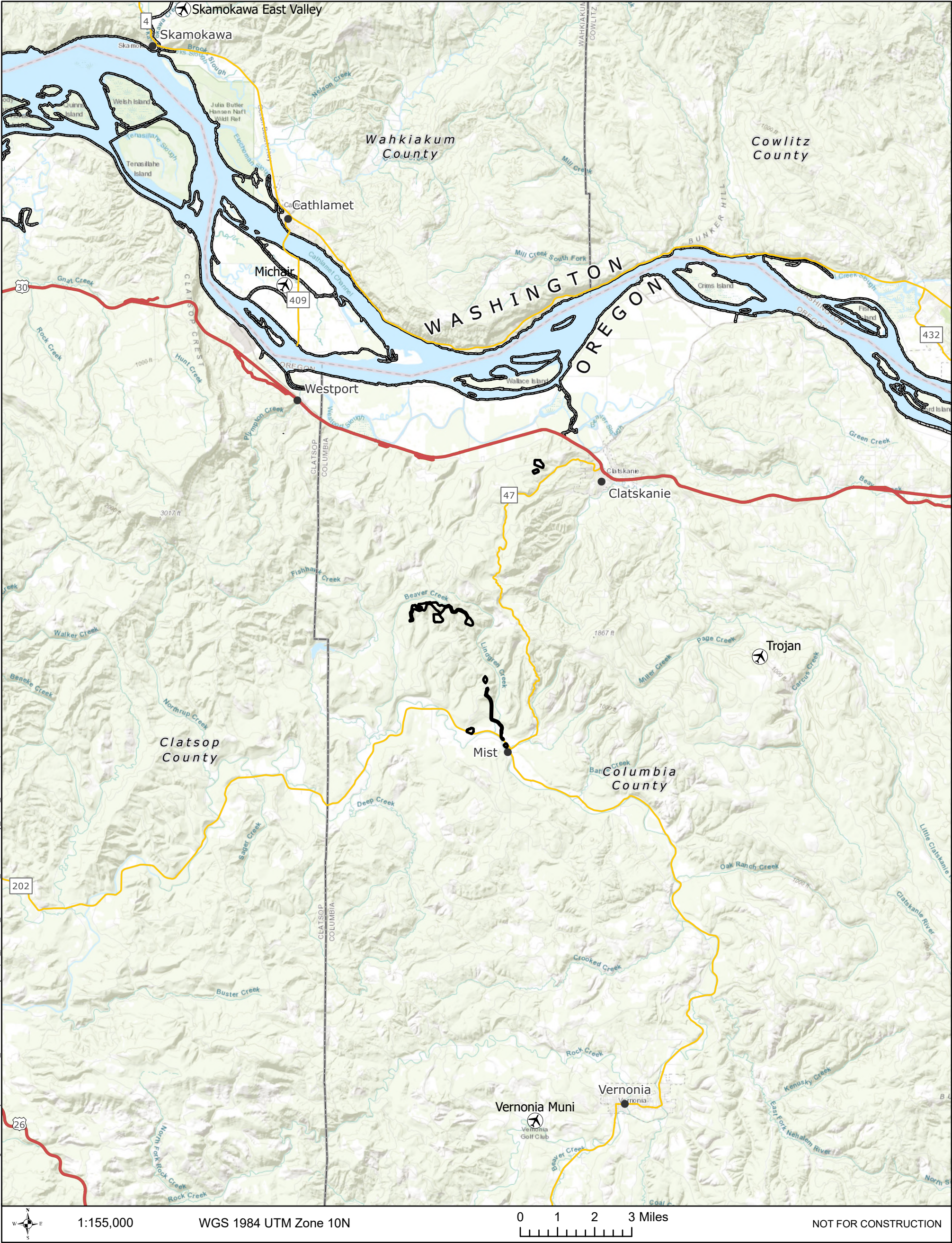
SHEET 1 OF 1

DR. RSH

APP. BB

SCALE 1/32" = 1'-0"

DATE 12/06/23



Mist Resiliency Project

Div 27 Figure 4
Vicinity Map

COLUMBIA COUNTY, OREGON

Site Boundary

Airport

City/Town

County Boundary

US Highway

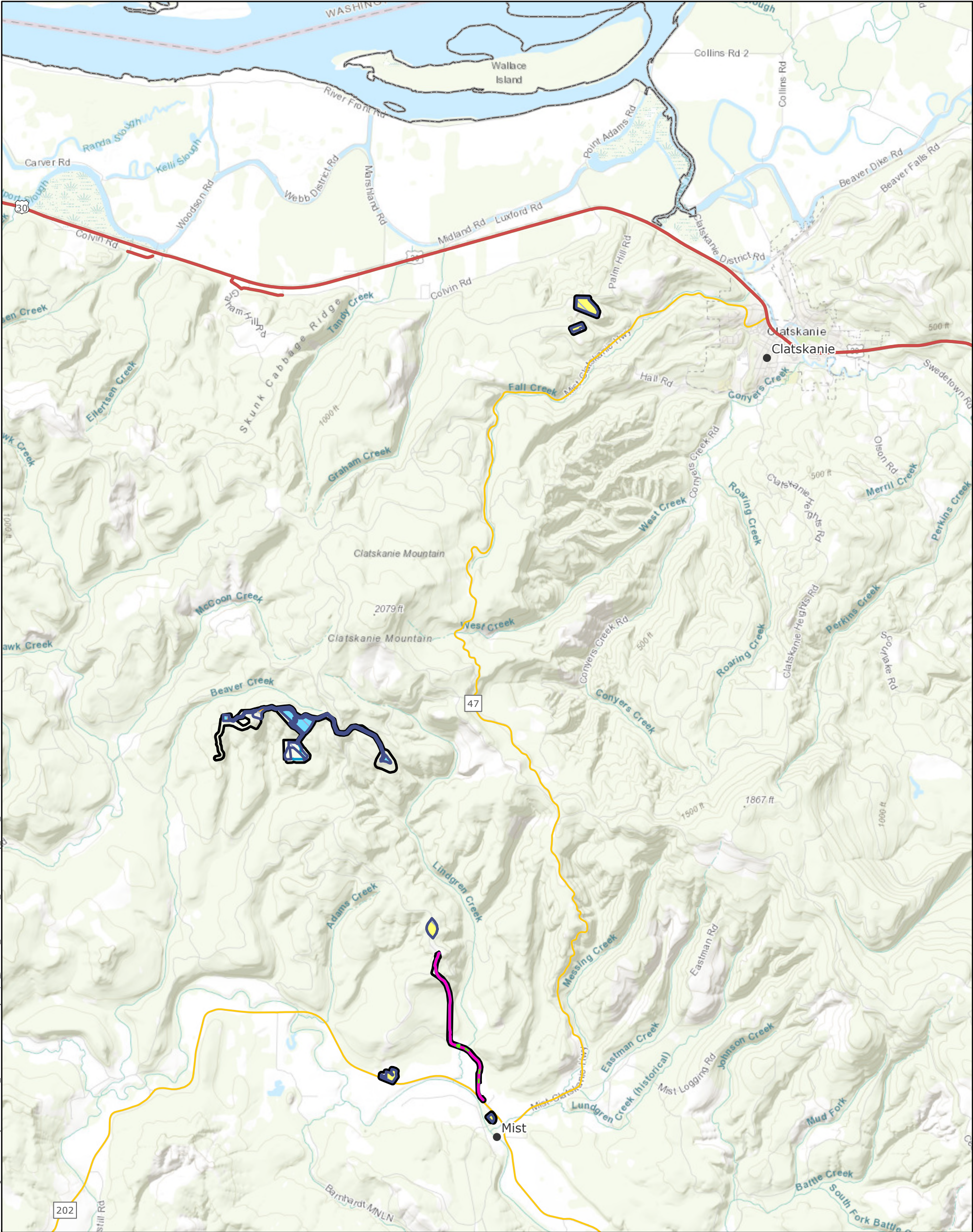
State Highway

County Highway

TETRA TECH

NW Natural





1:55,000 WGS 1984 UTM Zone 10N 1 inch equals 4,583 feet 0 1 Miles NOT FOR CONSTRUCTION

Mist Resiliency Project

Div 27 Figure 5.1
Facility Layout and Overview

COLUMBIA COUNTY, OREGON

Site Boundary

City/Town

County Boundary

US Highway

State Highway

Temporary Impacts

Medicine to Stegosaur Pipeline Route

Newton to Stegosaur Pipeline Route

Stegosaur to NMCS Expansion Pipeline Route

Powerline

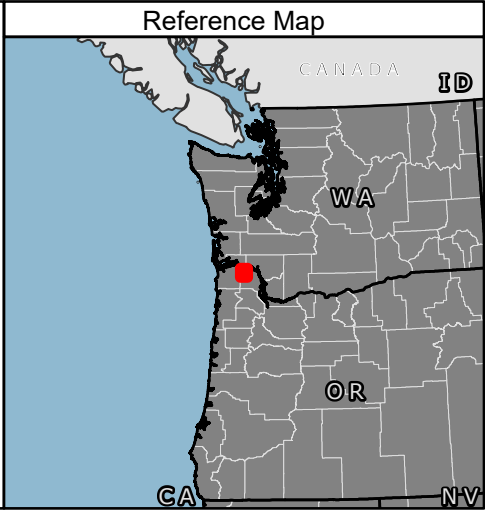
HDD Areas

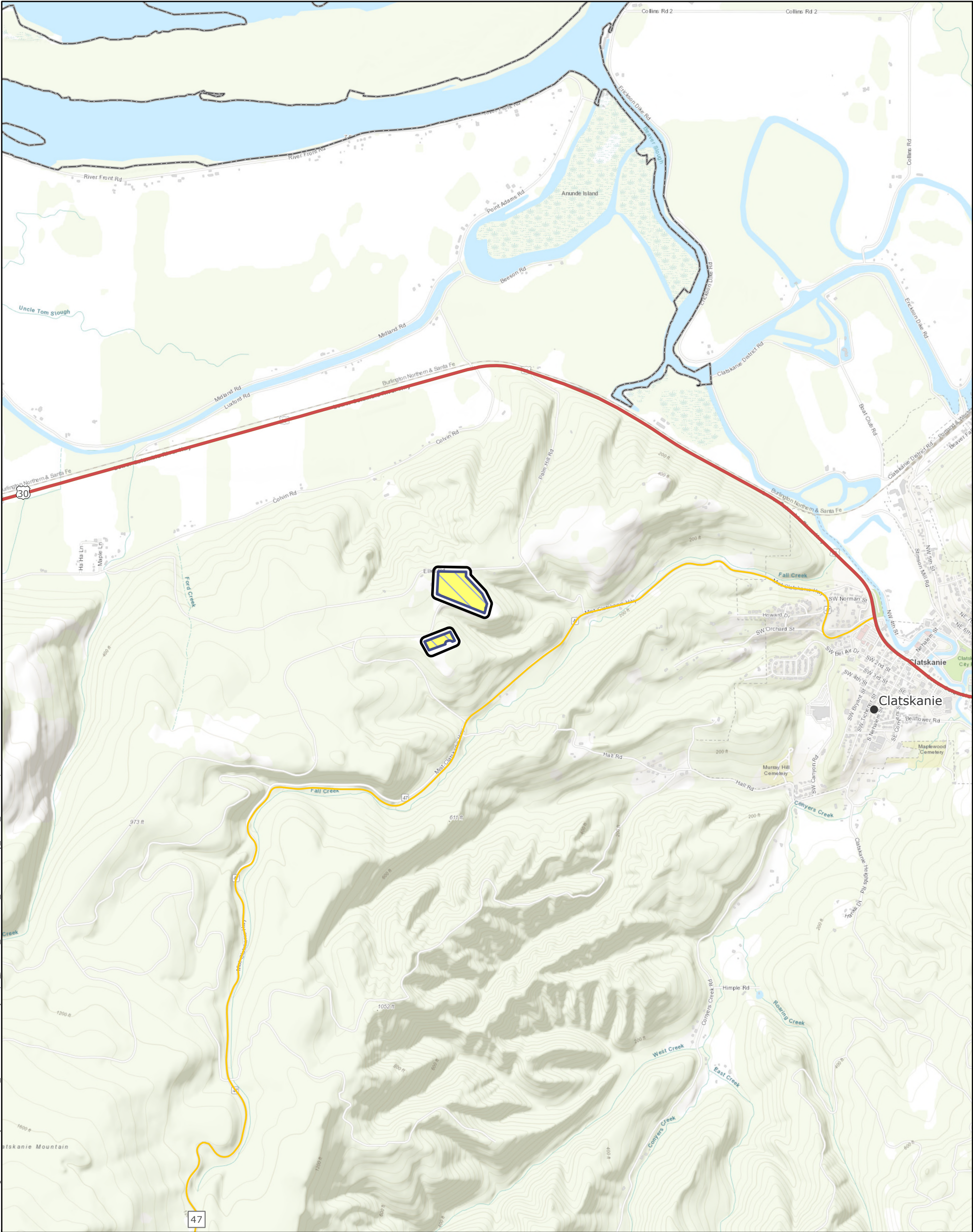
Laydown Yard

Well Pad

TETRA TECH

NW Natural





1:24,000 WGS 1984 UTM Zone 10N 1 inch equals 2,000 feet 0 1,000 2,000 US Feet NOT FOR CONSTRUCTION

Mist Resiliency Project

Div 27 Figure 5.1 Facility Layout and Overview

COLUMBIA COUNTY, OREGON

Site Boundary

City/Town

County Boundary

US Highway

State Highway

Temporary Impacts

Medicine to Stegosaur Pipeline Route

Newton to Stegosaur Pipeline Route

Stegosaur to NMCS Expansion Pipeline Route

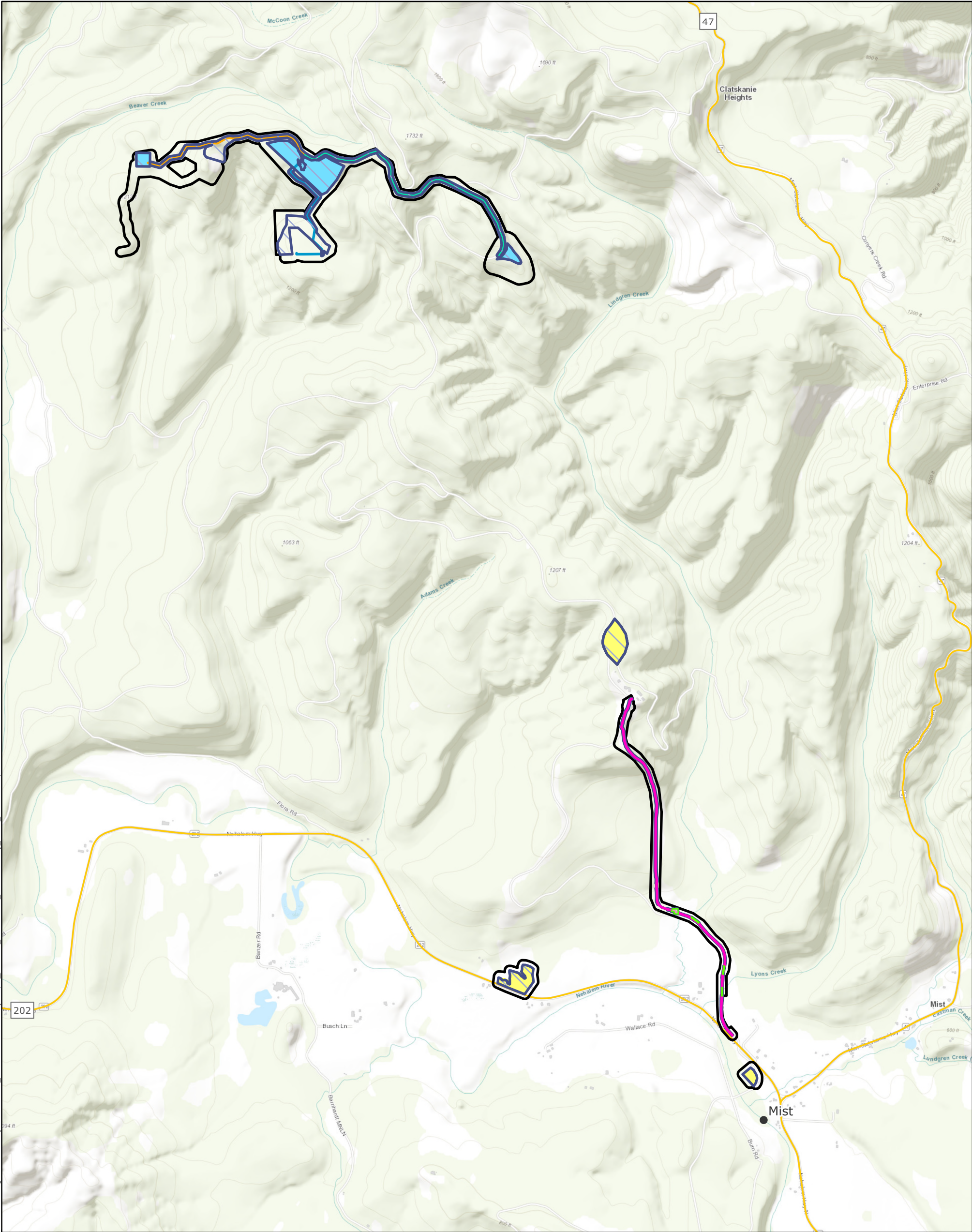
Powerline

HDD Areas

Laydown Yard

Well Pad

TETRA TECH NW Natural



1:24,000 WGS 1984 UTM Zone 10N 1 inch equals 2,000 feet 0 1,000 2,000 US Feet NOT FOR CONSTRUCTION

Mist Resiliency Project

Div 27 Figure 5.2 Facility Layout and Overview

COLUMBIA COUNTY, OREGON

Site Boundary

City/Town

County Boundary

State Highway

Temporary Impacts

Project Infrastructure

Medicine to Stegosaur Pipeline Route

Newton to Stegosaur Pipeline Route

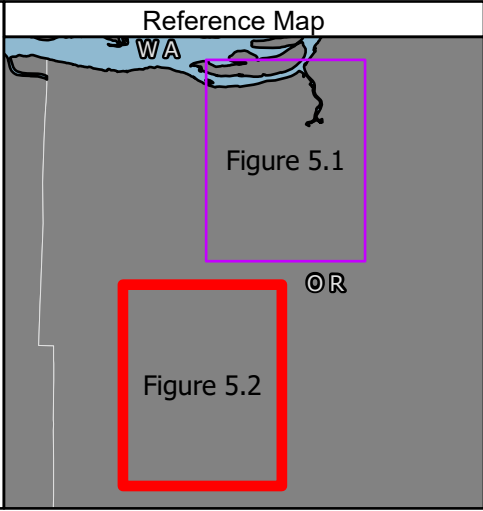
Stegosaur to NMCS Expansion Pipeline Route

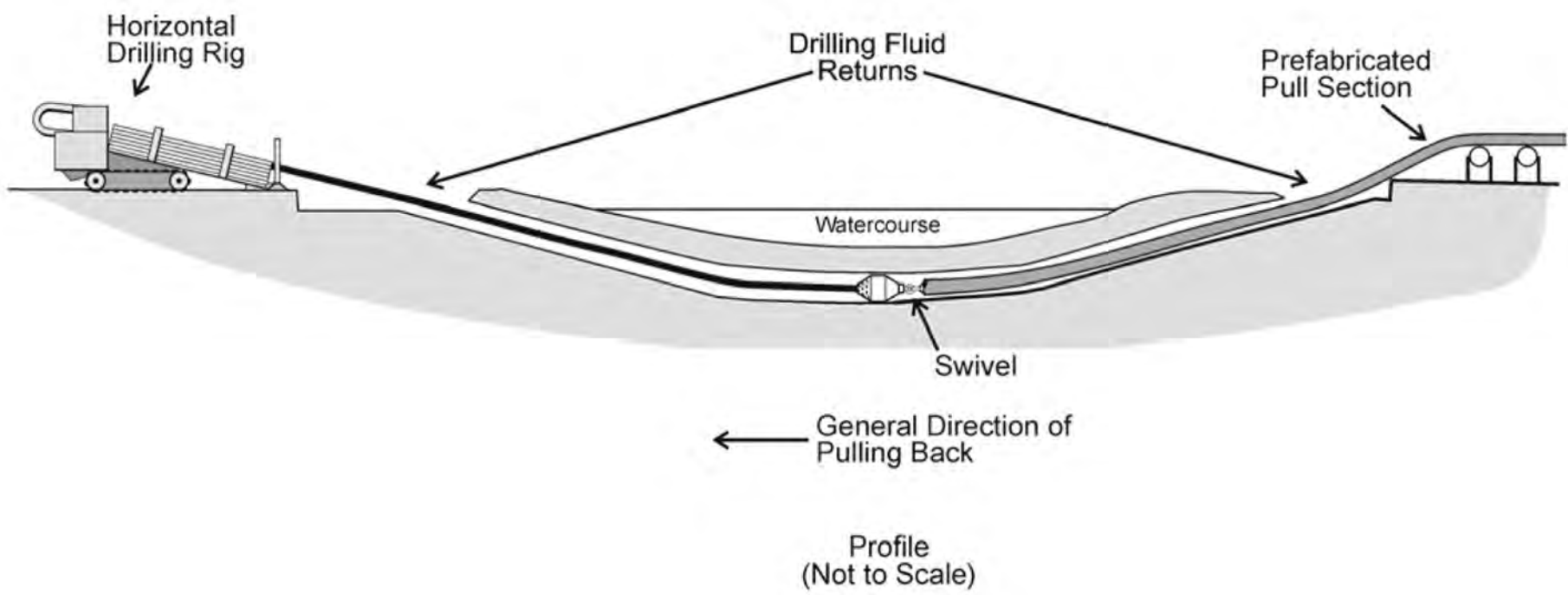
Powerline

HDD Areas

Laydown Yard

Well Pad





Source: Adapted from ASCE 1996, TERA 1998

NW Natural
North Mist Expansion Project
Request for Amendment No. 13

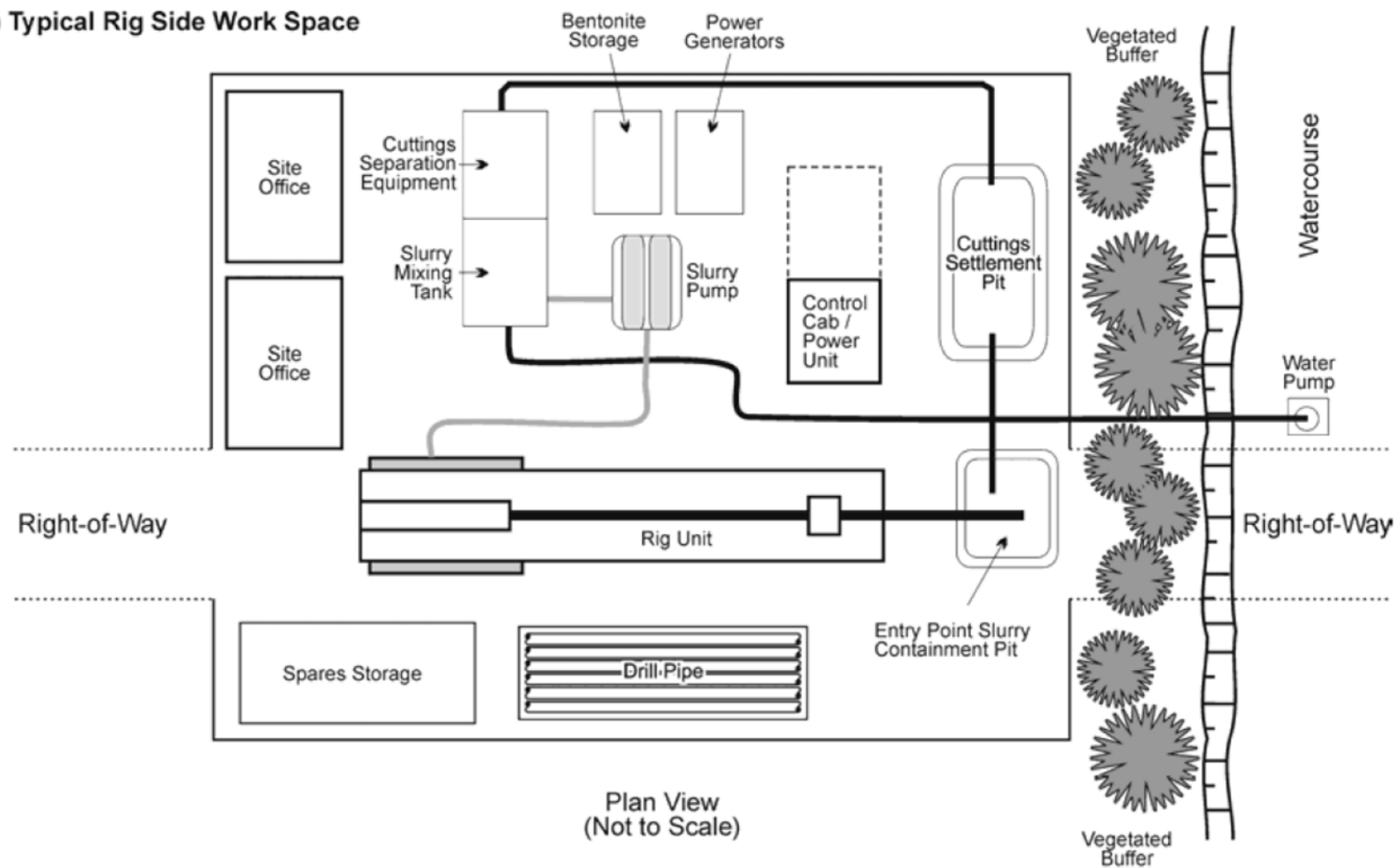
Columbia County,
OR, January 2024

Figure 6
HDD Bore Profile
Construction Typical

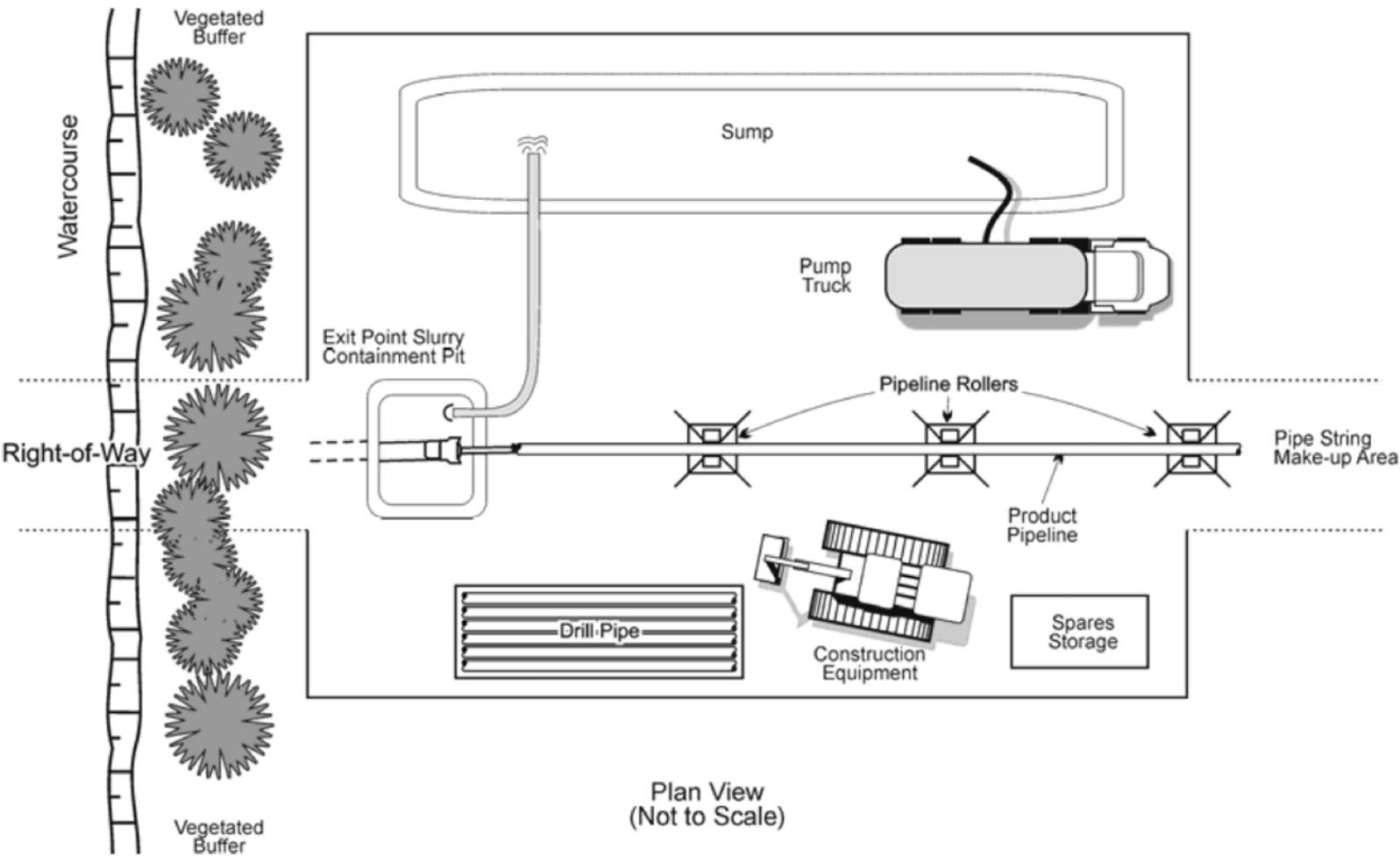


Data Source: NW Natural North Mist Expansion Project

(A) Typical Rig Side Work Space



(B) Typical Pipe Side Layout



Source: Adapted from ASCE 1996

NW Natural
North Mist Expansion Project
Request for Amendment No. 13

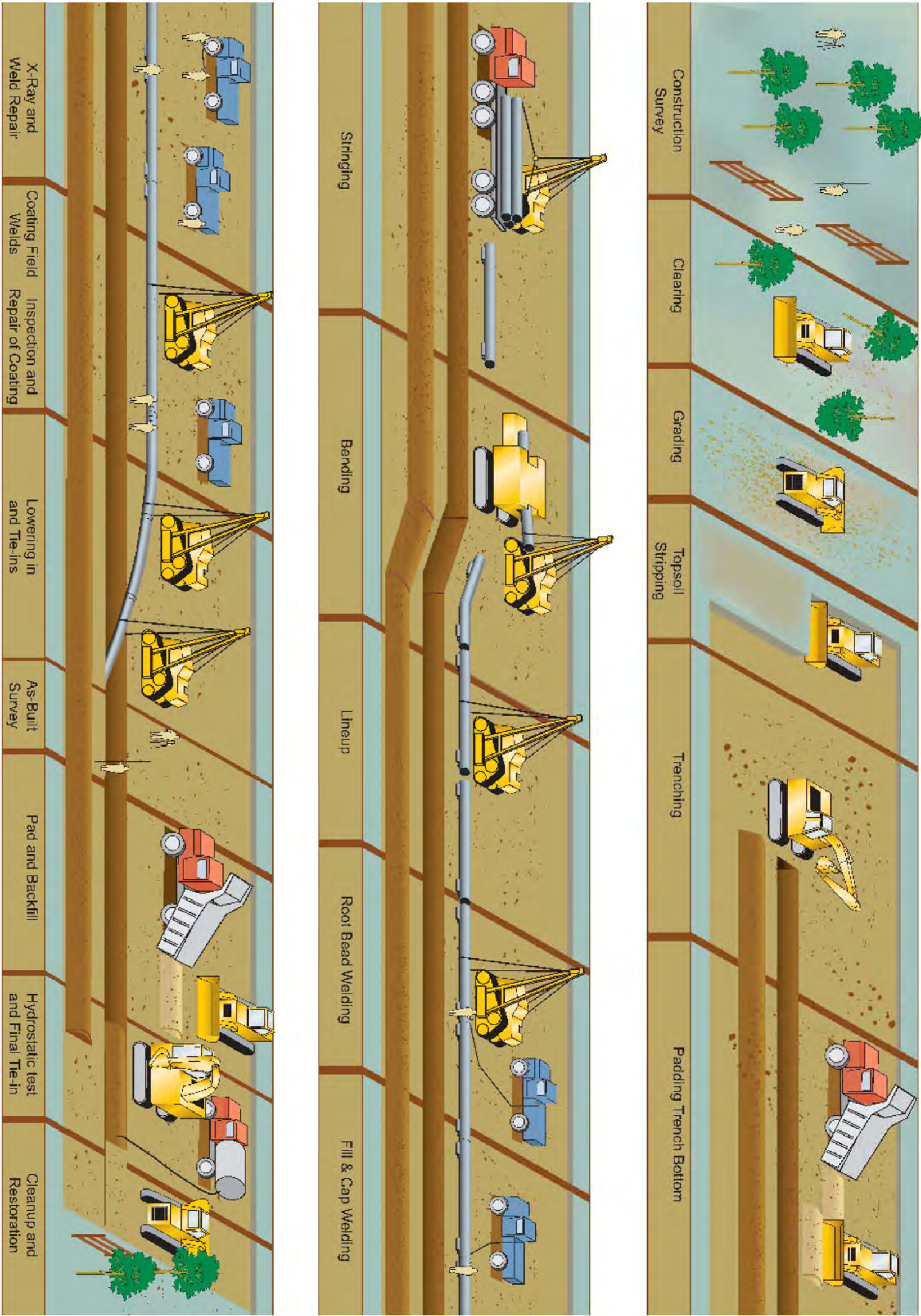
Columbia County,
OR, January 2024

Figure 7
HDD Bore Pad Workspace
and Site Layout
Construction Typical



Data Source: NW Natural North Mist Expansion Project





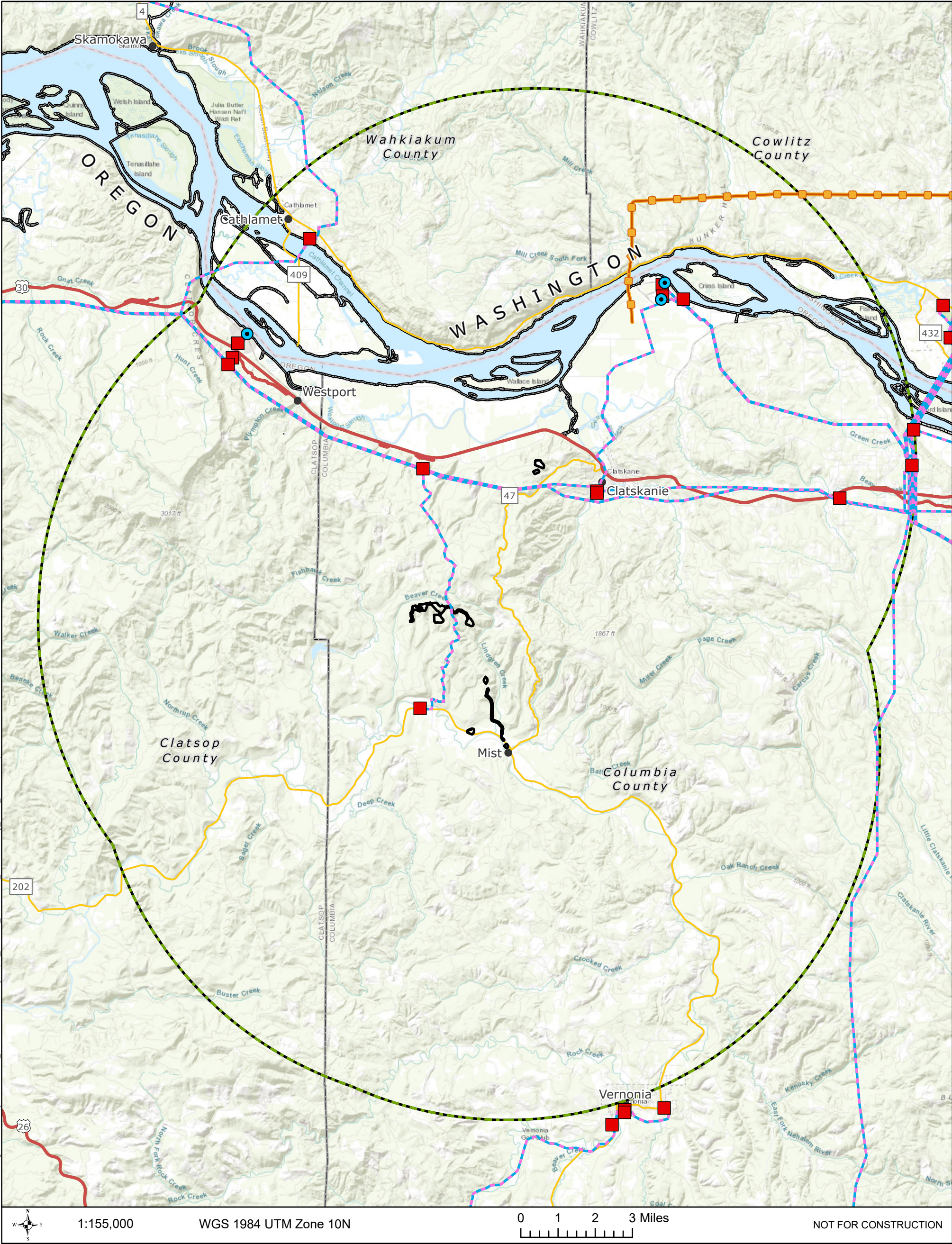
NW Natural
North Mist Expansion Project
Request for Amendment No. 13

Columbia County,
OR, January 2024

Figure 8
Overall NMTP
Construction Typical



Data Source: NW Natural North Mist Expansion Project



Mist Resiliency Project

Div 27 Figure 9
Energy Facilities
within 10 miles

COLUMBIA COUNTY, OREGON

- Site Boundary

Analysis Area (10-mile Buffer)

City/Town

County Boundary

US Highway

State Highway

County Highway
- Transmission Line

Natural Gas Pipeline

Substation

Natural Gas Power Plant



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Attachment 1. Redlined Site Certificate

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**CONSOLIDATED, RESTATED, AND AMENDED
UNDERGROUND NATURAL GAS STORAGE FACILITY**

AMENDED SITE CERTIFICATION AGREEMENT

for the

MIST SITE

between

The State of Oregon

acting by and through its

ENERGY FACILITY SITING COUNCIL

and

NORTHWEST NATURAL GAS COMPANY

September-August, 20172024

This Certification Agreement is made and entered into in the manner provided by ORS 469.300 through ORS 469.570 and ORS 469.992, by and between the State of Oregon (State), acting by and through its Energy Facility Siting Council (EFSC) and Oregon Natural Gas Development Corporation (ONG), a wholly owned subsidiary of Northwest Natural Gas Company (NWN). Any reference herein to ONG shall also include NWN.

I. SITE CERTIFICATION

- A. This agreement certifies that, to the extent authorized by state law and those warranties and conditions set forth herein, the State approves and authorizes the construction and operation of an underground storage facility for natural gas and related or supporting facilities at the Mist Site, in the manner described in NWN's site certificate application, this agreement, and the record of the administrative hearings held pursuant to ORS 469.300 through ORS 469.570, including supporting testimony filed by ONG or NWN with EFSC. This approval by the State binds the State and all counties, cities and political subdivisions in the State as to the approval of the site and the construction and operation of the underground storage reservoir and related or supporting facilities, subject only to the conditions of this agreement. However, each agency and county that

issues a permit, license or certificate shall continue to exercise enforcement authority over such permit, license or certificate.

- B. This certificate requires NWN to comply with applicable state laws or EFSC rules as they exist on the date it is executed by EFSC, and with stricter state laws or EFSC rules adopted subsequent thereto if compliance with such stricter state laws or EFSC rules is necessary to avoid a clear danger to the public health and safety.
- C. The Site Certificate has been amended ~~12~~13 times, as follows:
1. Amendment 1, approved October 24, 1987, amended the site map and amended certain conditions regarding monitoring for safety and vibration.
 2. Amendment 2, approved August 2, 1988, amended the site map to allow the addition of a monitoring well.
 3. Amendment 3, approved September 21, 1990, amended the site map to replace two poorly functioning injection/withdrawal wells and add two new wells to increase capacity during the “heating season.”
 4. Amendment 4, approved July 21, 1997, enlarged the site boundary and authorized NWN to develop related and supporting surface facilities associated with new underground storage reservoirs in the Calvin Creek Storage Area, and upgrade related and supporting surface facilities at NWN’s Miller Station. The amendment also authorized NWN to develop and operate new pipelines connecting the storage facilities at Calvin Creek to Miller Station. It authorized the replacement of two reciprocating compressors with one turbine driven compressor with rated horse power of 5,035 BHP at Miller Station, subject to an operating limitation to 6,650 total horsepower.¹ It added new conditions regarding the development of new related and supporting facilities associated with the Calvin Creek Storage area and Miller Station improvements. This amendment increased the total throughput of the facility to 145 million cubic feet per day (MMcfd).

The Site Certificate to Amendment 4 covered the Miller Station improvements and the pipelines and other surface facilities. The underground storage reservoirs were under the Department of Geology and Mineral Industries (DOGAMI) jurisdiction.²

¹ The Council imposed the operating limitation in response to a request for a contested case by United Pipefitters Local 290. See Section III.A, Final Order Approving Amendment 4.

² State law grants DOGAMI broad authority “to regulate the underground storage of natural gas and the drilling and operation of any wells required therefor.” ORS 520.095(16). DOGAMI has exercised this authority through the adoption of comprehensive rules governing underground storage facilities at OAR 632 Division 10.

5. Amendment 5, approved March 13, 1998, replaced the Site Certificate amendment process set forth in section VII of the Site Certificate with the process set forth in Council rules at OAR 345, Division 7.
6. Amendment 6, approved March 30, 1999, authorized NWN to develop related and supporting facilities associated with new underground storage reservoirs in the Calvin Creek storage area. The amendment also removed operating restrictions at the Miller compression station (added in Amendment 4) and added new Site Certificate conditions associated with further development of the Calvin Creek storage area.
7. Amendment 7, approved November 17, 2000, authorized NWN to increase the allowed throughput at the Mist storage facility from 190 million cubic feet per day (“MMcfd”) to 245 MMcfd.
8. Amendment 8, approved October 26, 2001, authorized NWN to increase the allowed throughput from 245 MMcfd to 317 MMcfd and to install a new 7324 BHP turbine driven compressor and a new injection/monitoring well, served by existing pipelines. The compressor authorized by Amendment 8 is subject to EFSC’s carbon dioxide standards at OAR 345 Division 24.
9. Amendment 9, approved December 5, 2003, authorized NWN to increase the allowed throughput from 317 MMcfd to 515 MMcfd. It authorized the construction of improvements at Miller Station, including the installation of new dehydration facilities and gas quality and monitoring equipment. It also authorized NWN to develop related and supporting facilities associated with new underground storage reservoirs in the Calvin Creek storage area. The amendment also allowed NWN to terminate the vibration monitoring program created in Amendment 1.
10. The 1981 site certificate and first nine amendments were stand-alone documents. Amendment 10, approved May 30, 2008, consolidated these documents into a single unified site certificate. Amendment 10 made no substantive changes to the facility or the site certificate.
11. Amendment 11, approved April 21, 2016, authorized NWN to expand the site boundary to include the Adams storage reservoir, as well as the Newton,

When EFSC approved the Site Certificate for the Mist Site in 1981, its jurisdiction included the surface and underground components of the facility. In 1993, the siting law was amended to included within the Council’s jurisdiction only the “surface facility related to an underground gas storage reservoir that, at design injection or withdrawal rates, will receive or deliver more than 50 million cubic feet of natural or synthetic gas per day, and require more than 4,000 horsepower of natural gas compression to operate ***.” ORS 469.300(11)(a)(I). Underground storage reservoirs, injection, withdrawal, and monitoring wells, and individual wellhead equipment remain under DOGAMI’s pervasive authority over the wells and other subsurface components. ORS 469.300(11)(a)(I)(i)-(ii).

Medicine, Crater, and Stegosaur future storage areas. The amendment authorized NWN to develop only the Adams reservoir as a new underground storage area; to construct and operate a new compressor station, the North Mist Compressor Station (NMCS); and, to construct and operate an approximately 12-mile natural gas transmission pipeline, the North Mist Transmission Pipeline (NMTP), between the NMCS and Portland General Electric's Port Westward Industrial Park (PWIP). The amendment authorized NWN to increase the allowable throughput from 515 MMcfd to 635 MMcfd. New conditions were added to ensure compliance with EFSC requirements.

12. Amendment 12, approved September 22, 2017, authorized a new limited water use license for water withdrawn from a diversion point in the Beaver Slough (referred to as the Seeley Mint Farm Diversion Point, see Figure 2 in Final Order on Amendment 12) during construction of the North Mist Expansion Project from August through November 2017.

13. Amendment 13, approved [DATE], authorized the replacement of the Miller Station compressors and underground electric power supply line, and conversion of the construction laydown area to permanent storage space. Additionally, Amendment 13 authorized the development of the existing underground storage reservoirs, a new control and operations building, and four temporary laydown areas, and installation of injection and withdrawal wells, transmission pipelines, compressors, dehydration equipment systems, and other associated engineered facilities at the North Mist Compressor Station. The amendment authorized NWN to increase the allowable throughput from 635 MMcfd to 835 MMcfd.

II. SITE DESCRIPTION OF THE UNDERGROUND STORAGE RESERVOIR AND RELATED OR SUPPORTING FACILITIES

The underground storage reservoir and related or supporting facilities to be constructed and operated consist of:³

- A. **Original Site:** Two naturally existing underground gas reservoirs (the Flora and Bruer pools) in portions of 3 sections of land all in Township 6 North, Range 5 West of the Willamette Meridian in Columbia County, Oregon, containing 940 acres, more or less from the surface of the earth to the base of the Clark and Wilson Sands and the stratigraphic equivalent thereof, which in the case of the Bruer pool was identified at a measured depth of 3,095 feet in the REC CC#1 RD 1 well and in the case of the Flora pool was identified at measured depth of 2,760 feet in REC CC#33-3 well and are entirely within project boundaries shown in Appendix 1 attached hereto and by reference incorporated herein; and
- B. **Calvin Creek:** Naturally existing underground gas reservoirs located in the Calvin Creek area, which is located on the south side of the Nehalem River

approximately 2.5 miles south of Miller Station, as shown in Appendix 2. The Calvin Creek storage area is connected to the original facility by two 16-inch pipelines which cross under the Nehalem River in a corridor 200 feet wide and terminate at the Busch Valve Station, as shown in Appendix 2. The 6, 8, and 12-inch pipelines begin at the Busch Valve Station and terminate at the well sites.

³ NWN has adopted nomenclature for the phases of its gas storage operation at Mist. NWN refers to facilities permitted under the original 1981 permit as “phase 1.” NWN refers to the development of storage pools in the Calvin Creek area permitted in 1997 under Amendment 4 as “phase 2.” NWN refers to development permitted in amendment 6, coupled with the pipeline expansion authorized in amendment 2 to the South Mist Feeder Pipeline Site Certificate, as “phase 3.”

The 6, 8, and 12-inch pipelines are each located within a 200 foot wide corridor that has been characterized in orders approving Amendments 4-9 or changes to the facility that received Department concurrence under OAR 345-027-0050(5).

- C. **Miller Station:** The Miller Compression Station, shown in Appendix 1, is located contiguous to the Bruer Flora storage area. Miller Station contains ~~the natural gas fired~~ two turbine-driven compressors, a staffed operations and maintenance building, a permanent storage yard, and other ancillary process equipment. Emissions from the compressors are permitted under an air contaminant discharge permit (ACDP) issued by the Department of Environmental Quality. Miller Station contains the following compressors:

1. Two 500 HP Caterpillar reciprocating compressors removed pursuant to Amendment 4.
2. Two 1,350 HP Superior reciprocating compressors not subject to EFSC CO₂ standards.
3. One 5,035 BHP Allison KC-5 turbine driven compressor installed in 1997 pursuant to Amendment 4 and not subject to EFSC CO₂ standards.
4. One 7,324 BHP Allison KC-7 turbine driven compressor installed in 2001 pursuant to Amendment 8 and subject to EFSC CO₂ standards.
5. Two 7,700 BHP natural gas fired turbine driven compressors.

- D. **North Mist Expansion Area:** The North Mist Expansion Area, shown in Appendix 3, includes the Adams storage area and the North Mist Transmission Pipeline corridor, as well as the Newton, Medicine, Crater, and Stegosaur ~~future~~ storage areas. The North Mist Transmission Pipeline corridor traverses a north, northeast track from the North Mist Compressor Station to the PWIP.

- E. **North Mist Compressor Station:** The North Mist Compressor Station, shown in Appendix 3, is located within the North Mist Expansion Area. The North Mist Compressor Station serves ~~only~~ the Adams ~~reservoir~~, Newton, Medicine, Crater, and Stegosaur reservoirs, having the capability not only to compress the gas for injection into and withdrawal from the reservoirs, but also to measure and control the gas flow and dehydrate the gas as needed during withdrawal. The North Mist Compressor Station has a total installed compression of approximately ~~3,600~~ 13,300 BHP provided by ~~two~~ three gas-fired reciprocating natural gas fueled compressors.

III. WARRANTIES

In consideration of the execution of this Certification Agreement by the EFSC and pursuant to ORS 469.400(4) and ORS 469.470(3) the following warranties are made:

A. Financial Ability

NWN warrants that it has reasonable assurance of obtaining sufficient financial resources to construct and operate the underground storage facility and related and supporting facilities including funds necessary to cover construction costs, operating costs for the design lifetime of the underground storage facility, and the costs of permanently shutting the underground storage facility down and maintaining it in a safe condition.

B. Ability to Construct and Operate

NWN warrants that it has the ability to take those actions necessary to ensure that the underground storage facility and related and supporting facilities will be constructed and operated in a manner consistent with its representations regarding effects on the public health, safety and welfare contained in its site certificate application, and supporting testimony and the terms and conditions of this agreement including compliance with all design, quality assurance and personnel qualifications and training requirements.

C. Protection of Public health and Safety

NWN warrants that it will take those actions, including compliance with all State and Federal statutes, rules and regulations, necessary to ensure that construction and operation of the Mist underground storage facility poses no danger to the public health and safety.

IV. CONDITIONS

The following conditions are provided pursuant to the provision of ORS 469.401.

A. State and Federal Law

1. NWN and EFSC shall abide by local ordinances and state law and the rules of the Council in effect on the date of this Site Certificate, except that upon a clear showing of a significant threat to the public health, safety or the environment that requires application of later-adopted laws or rules, EFSC may, pursuant to ORS 469.401(2), require NWN to comply with such later-adopted laws or rules.
2. Nothing in this agreement shall relieve NWN from complying with requirements of Federal laws and regulations which may be applicable to construction and operation of the underground storage reservoir and associated facilities, and with the terms and conditions of any permits and licenses which may be issued to NWN by pertinent federal agencies.

B. Control of Site

Prior to commencement of construction of the facility NWN shall present evidence satisfactory to EFSC that NWN has access to and full control over the underground reservoirs and sites for the related and supporting facilities, whether by ownership, lease or easement or otherwise as necessary to: Construct and maintain the underground reservoir, compressors, pipelines, injection withdrawal and other wells, and access roads to the facility necessary for the construction, operation, monitoring and regulation of the underground storage reservoir.

C. General Conditions

1. **Location:** Related or supporting facilities shall not be located at less than the minimum distances from any existing permanent habitable dwelling specified in OAR 345-024-0030 in effect on the date of this Certificate. [Amendment 10]
2. **Pipelines:** All pipelines in the project site shall be designed, built and operated in compliance with the requirements of the U.S. Department of Transportation set forth in Title 49, Code of Federal Regulations Part 192 subpart C in effect on the date of this Certificate, as administered by the Public Utility Commissioner of Oregon.
3. **Noise:** All compressors, pipelines, roads and related facilities shall be designed, constructed, installed and operated in such a manner so as not to violate the standards specified by the Oregon Department of Environmental Quality in OAR 340-35-35 (Noise Control Regulation) in effect on the date of this Certificate.
4. **Wells:** Operation, maintenance and abandonment of all wells on the site shall be in compliance with the applicable provision of ORS Chapter 520 and OAR Chapter 632 Division 10, in effect on the date of this Certificate, as administered by DOGAMI.
5. **Monitoring Program:** Deleted and superseded by conditions in Amendment 4. [Amendments 1,9, 10]
6. **Water Quality Protection:** NWN shall construct, build and operate surface facilities related to the underground gas storage reservoir so as to prevent emissions of pollution into ground or surface water in violation of rules at OAR Chapter 340 administered by DEQ. [Amendment 10]
7. **Fragile Soils:** Deleted and superseded by specific conditions related to soils. [Amendment 10]

8. **Socio-Economic Impacts:** Deleted and superseded by specific conditions related to public services. [Amendment 10]
9. **Water Rights:** NWN shall design, build and operate the surface facilities related to the underground gas storage reservoir in accordance with limited use licenses issued by the Department of Water Resources under Amendments 4-9. [Amendment 10]
10. **Applicants' Representations:** The facility shall be designed, built and operated in compliance with the representations made by ONG or NWN in satisfaction EFSC standards at OAR 345 Divisions 22 and 24. [Amendment 10]
11. **Gas Pressure:** NWN shall notify EFSC and Columbia County when it applies to DOGAMI for an increase in reservoir gas pressure. [Amendments 1, 10]

V. APPROVALS

The following approvals, permits, licenses, or certificates by governmental agencies are considered necessary to construct and operate the surface facilities related to the underground gas storage reservoir. Consistent with provisions of ORS 469.401 and 469.504 and any administrative rules adopted thereunder, NWN shall make application for these approvals, permits, licenses, or certificates, paying all applicable fees prior to construction of the facility or later as appropriate.

- A. **Department of Geology and Mineral Industries:** Well drilling and other permits required by ORS Chapter 520 and OAR Chapter 632 Division 10.
- B. **Department of Environmental Quality:** Air Contaminant Discharge Permit for the operation of the Mist underground storage facility.
- C. **Public Utility Commissioner:** Compliance inspection of pipelines, pursuant to Title 49 CFR, Part 192 as necessary.
- D. **Department of Consumer and Business Services:** Pressure vessel inspection, State Fire Marshall approvals and plan review of construction drawings.
- E. **Department of Transportation:** Single trip permits for oversize or overweight loads.
- F. **Columbia County:** Building, plumbing, electrical permits, and conditional land use permits. [Amendment 1]

VI. AMENDMENT OF SITE CERTIFICATE AGREEMENT

Amendments to this Site Certificate shall be governed by duly adopted rules of the Energy Facility Siting Council for the amendment of site certificates. As of the date of the execution of

Amendment ~~42~~13, the Council rules applicable to the amendment of this Site Certificate are OAR 345-027-0050, 0060, 0070 and 0080.

Changes to the facility that involve a change to the site boundary shall be reviewed as set forth in OAR 345-027-0050(1). Changes to the facility that involve the installation of pipelines or other surface facilities on land that is within the site boundary but that has not been characterized (ground truthed) in a previous Council order can be implemented without an amendment subject to Department review described at OAR 345-027-0050(5). Changes to the facility that involve the installation of pipelines or other surface facilities that have been characterized in a previous Council order or Department concurrence under section (5) may be implemented and reported under OAR 345-027-0050(4). In addition to these circumstances, pursuant to OAR 345-027-0050(5), NWN may ask the Department to determine whether a proposed change requires an amendment.

VII. CONDITIONS UNDER AMENDMENTS

A. Conditions related to EFSC Rules at OAR Chapter 345 Division 27

(Amendments 1 – 10)

1. Prior to any amendment that changes the site, NWN shall submit to the Oregon Department of Energy (ODOE) a legal description of the Project site to be appended to the Site Certificate prior to construction. [Amendments 4, 8]
2. The Project shall be designed, constructed, operated and retired:
 - a. Substantially as described in the amended Site Certificate;
 - b. In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the Council issues or amends the Site Certificate; and
 - c. In compliance with all applicable permit requirements of other state agencies. [Amendment 4]
3. No construction, including clearing of a right of way, except for the initial survey, may commence on any part of the facility until the certificate holder has adequate control, or has the statutory authority to gain control, of the lands on which clearing or construction will occur. [Amendment 4]

4. NWN shall, to the extent practical, prevent any condition from developing on the Project site that would preclude restoration of the site to a useful condition. [Amendments 4, 10]
5. NWN shall restore vegetation to the extent practicable and shall landscape portions of the area disturbed by Project construction in a manner compatible with its surroundings and/or proposed future use. Upon completion of Project construction, NWN shall dispose of all temporary structures not required for future use and all timber, brush, refuse and flammable materials or combustible material resulting from the clearing of land or from construction of the facility. [Amendment 4]
6. NWN may operate all compressors installed as of January 11, 2008 at full rated capacity.⁴ [Amendments 6, 10]
7. NWN shall notify ODOE, the State Building Codes Division and DOGAMI promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the Application for Amendment 6, 8, or 9. The Council may, at such time, require the certificate holder to propose additional mitigating actions in consultation with the Department of Geology and Mineral Industries and the Building Codes Division. [Amendment 6]
8. NWN shall notify ODOE, the State Building Codes Division and DOGAMI promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site. [Amendment 6]
9. NWN shall submit to ODOE copies of all incident reports involving the certified pipeline required under 49 CFR § 191.15. [Amendment 6, 11]
10. Pursuant to Amendment ~~44~~13, the permitted daily throughput of the facility is ~~635~~835 MMcfd. [Amendments 7, 8, 9, 11, 13]
11. NWN shall establish, in consultation with affected state agencies and local governments, monitoring programs as required by the Site Certificate for impact on resources protected by the standards of OAR Chapter Divisions 22 and 24, and to ensure compliance with the Site Certificate. [Amendment 6]
12. If NWN becomes aware of a significant environmental change or impact attributable to the facility, NWN shall submit ODOE as soon as possible a

⁴ Amendment 4, issued in 1997, contained a condition limiting total horsepower at Miller Station. The Council removed this limitation in 1999 under Amendment 6. No further operating limits apply to compression at Miller Station.

written report identifying the issue and assessing the impact on the facility and any affected Site Certificate conditions

B. Conditions related to EFSC Rules at OAR Chapter 345 Division ~~2725~~ (formerly Division 27)

(Amendment 11 – Amendment 13)

1. The certificate holder shall begin construction of the components authorized by Amendment ~~11-13~~ within two years after the effective date of the amended site certificate. Under OAR 345-015-0085(8), the site certificate is effective upon execution by the Council chair and the certificate holder. [Amendment ~~11-13~~ General Standard Condition 1] [Mandatory Condition 345-~~027-0020~~025-0006(4)]
2. The certificate holder shall complete construction of the components authorized by Amendment ~~11-13~~ within four years of the effective date of the amended site certificate. [Amendment ~~11-13~~ General Standard Condition 2] [Mandatory Condition 345-~~027-0020~~025-0006(4)]
3. The certificate holder shall submit a legal description of the Amendment ~~11-13~~ site to the Oregon Department of Energy within 90 days after beginning operation of the components authorized by Amendment ~~11-13~~. The legal description required by this rule means a description of metes and bounds or a description of the site by reference to a map and geographic data that clearly and specifically identify the outer boundaries that contain all parts of the facility. [Amendment ~~11-13~~ Mandatory Condition 1] [OAR 345-~~025-0006~~027-0020(2)]
4. The certificate holder shall design, construct, operate and retire the components authorized by Amendment ~~11-13~~:
 - a. Substantially as described in the amended Site Certificate;
 - b. In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the Site Certificate is issued; and
 - c. In compliance with all applicable permit requirements of other state agencies.

[Amendment ~~11-13~~ Mandatory Condition 2] [OAR 345-~~025-0006~~027-0020(3)]

5. Except as necessary for the initial survey or as otherwise allowed for wind energy facilities, transmission lines or pipelines under this section, the certificate holder shall not begin construction, as

defined in OAR 345-001-0010, or create a clearing on any part of the site until the certification holder has construction rights on all parts of the site. For the purpose of this rule, “construction rights” means the legal right to engage in construction activities. For wind energy facilities, transmission lines or pipelines, if the certificate holder does not have construction rights on all or parts of the site, the certificate holder may nevertheless begin construction, as defined in OAR 345-001-001, or create a clearing on a part of the site if the certificate holder has construction rights on that part of the site and:

- a. The certificate holder would construct and operate part of the facility on that part of the site even if a change in the planned route of a transmission line or pipeline occurs during the certificate holder’s negotiations to acquire construction rights on another part of the site; or
- ~~a.b.~~ b. [relates to wind energy facilities and therefore not applicable]

[Amendment ~~11-13~~ Mandatory Condition 3] [OAR 345-~~025-0006~~~~027-0020~~(5)]

6. The certificate holder shall prevent the development of any conditions on the site that would preclude restoration of the site to a useful, non-hazardous condition to the extent that prevention of such site conditions is within the control of the certificate holder. [Amendment ~~11-13~~ Mandatory Condition 4] [OAR 345-~~025-0006~~ ~~027-0020~~(7)]
7. Upon completion of construction, the certificate holder shall restore vegetation to the extent practicable and shall landscape all areas disturbed by construction in a manner compatible with the surroundings and proposed use. Upon completion of construction, the certificate holder shall remove all temporary structures not required for future operation and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility. [Amendment ~~11-13~~ Mandatory Condition 5] [OAR 345-~~027-0020~~~~025-0006~~(11)]
8. The certificate holder shall notify the department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in Request for Amendment No. ~~11-13~~. After the department receives the notice, the Council may require the certificate holder to consult with the Department of Geology and Mineral Industries and the Building Codes Division and to propose mitigation actions. [Amendment ~~11-13~~ Mandatory Condition 6] [OAR 345-~~027-0020~~~~025-0006~~(13)]
9. The certificate holder shall notify the department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if

shear zones, artesian aquifers, deformations or clastic dikes are found at or

in the vicinity of the site. [Amendment ~~11-13~~ Mandatory Condition 7] [OAR 345-~~027-0020~~025-0006(14)]

10. If the certificate holder becomes aware of a significant environmental change or impact attributable to the Amendment ~~11-13~~ components, the certificate holder shall, as soon as possible, submit a written report to the department describing the impact on the facility and any affected site certificate conditions. [Amendment ~~11-13~~ Mandatory Condition 8] [OAR 345-~~027-0020~~025-0006(6)]
11. Before any transfer of ownership of the facility or ownership of the site certificate holder, the certificate holder shall inform the department of the proposed new owners. The requirements of OAR 345-027-0010 apply to any transfer of ownership that requires a transfer of the site certificate. [Amendment ~~11-13~~ Mandatory Condition 9] [OAR 345-~~027-0020~~025-0006(15)].
12. The certificate holder shall design, construct and operate all pipelines in accordance with:
 - a. The requirements of the U.S. Department of Transportation as set forth in Title 49, Code of Federal Regulations Part 192. [OAR 345-027-0023(3)(a)]
 - b. The certificate holder shall develop and implement a program using the best available practicable technology to monitor the pipeline to ensure protection of public health. [Amendment ~~11-13~~ Site Specific Condition 2] [OAR 345-027-0023(3)(b)]
13. The corridor for the North Mist Transmission Pipeline, associated with Amendment 11, shall be as shown in Request for Amendment 11, Exhibit C, Project Location and Maps. Changes in pipeline corridor shall require prior Council approval. [Amendment 11 Site Specific Condition 3] [OAR 345-027-0023(5)]
14. Pursuant to Amendment ~~11-13~~, the site boundary is 5,472 acres and the permitted daily throughput of the facility is ~~635-835~~ MMcfd. [Amendment ~~11-13~~ Site Specific Condition 4] [OAR 345-027-0023(6)]

C. Conditions related to EFSC Standards at OAR Chapter 345 Division 22

1. Conditions Generally Applicable to the Facility

a. Socio Economic Impact

- (1) NWN shall provide the Mist Birkenfield Rural Fire Protection District with an annual tour of the Miller Station to familiarize personnel with the facility in case of an emergency. [Amendment 4]

b. Waste Minimization

- (1) NWN shall transport construction waste materials to an appropriate recycling facility or to an approved sanitary landfill for nonrecyclable goods. NWN shall collect scrap steel and welding rods for transportation to a recycling facility. Silt fence and straw bales shall be transported to an approved landfill. [Amendment 4, 11, 13]
- (2) Nonhazardous wastes associated with the Project such as crankcase oil, triethylene glycol and oil/water separator oils shall be collected, transported and recycled by a vendor as bunker fuel. Oily rags and oil filters shall be incinerated off site by a permitted disposal facility. Granular activated carbon will be collected and sent to a permitted facility for regeneration. NWN may use alternate methods of disposal if approved by ODOE. [Amendment 4, 11, 13]
- (3) Water used for pressure testing shall be disposed of in a manner consistent with approved permits. [Amendment 4, 11, 13]

c. Retirement

- (1) Prior to termination of the Site Certificate, NWN shall retire the Project site sufficiently to restore it to a useful condition. Site restoration shall include, but not be limited to, steps to:
 - (a) Remove any hazardous material stored in buildings or located in process equipment and dispose of them following applicable state hazardous materials statutes and rules,
 - (b) Disassemble the buildings and steel structures, break up the concrete slabs, and dispose of these materials either as scrap or at an appropriate landfill,
 - (c) Remove above ground portions of all pipelines,
 - (d) If necessary, revegetate the area, including pipeline rights-of-ways, to prevent erosion and encourage habitat development,

- (e) Inspect all pipelines and remove any hazardous materials found, and dispose of hazardous materials generated from cleaning the pipelines in accordance with applicable state hazardous materials statutes and rules. [Amendment 4, 11, 13]

2. Conditions Applicable to Amendment 4

a. Structural and Soils

- (1) The pipeline corridor shall be as shown on Figure G-1 of Exhibit 10 of the Application for Amendment 4. Changes in pipeline corridor shall require prior Council approval. [Amendment 4]
- (2) NWN shall construct modifications to Miller Station substantially in accordance with the recommendations in Exhibit 11, Section 7 of the Application for Amendment 4. In the vicinity of the new compressor building, the adjacent equipment, in the dehydration area and in areas where there will be heavy loads and traffic, all fill will be classed as “structural fill.” This fill will utilize imported soil and will be compacted as specified in Section 7.1.3 of Exhibit 11 of the Application for Amendment 4. For trench backfill in unimproved areas (no surface traffic), the backfill above pipe will consist of removed soil placed with nominal compaction, as specified in Section 7.1.3 of Exhibit 11 of the Application for Amendment 4. [Amendment 4]
- (3) NWN shall design and construct pipelines substantially in accordance with the recommendations in Section 8 of Exhibit 11 of the Application for Amendment 4. [Amendment 4]

b. Fish and Wildlife Habitat

- (1) NWN shall utilize directional drilling for the pipeline installation at the Nehalem River. Drilling shall begin at points no closer than 300 feet from the river bank and shall place the pipeline at least 20 feet below the river bed. [Amendment 4]
- (2) NWN shall minimize impacts for the Category 2 wetland north of highway 202 by taking steps including but not limited to:
 - (a) using a single trench for dual pipelines and keeping the installation as narrow as possible while remaining consistent with safety and practical installation requirements.

- (b) timing construction for the dry time of year, not to extend beyond November 15, 1997.
 - (c) separating and returning topsoil to the trench backfill surface for pipelines and installing clay barriers at each end of the wetland crossing.
 - (d) avoiding the rest of the wetland during construction by use of the existing road through the wetland for construction equipment. [Amendment 4]
- (3) NWN shall restore habitat in the Category 2 wetland to the north of highway 202 to preconstruction conditions within two growing seasons. [Amendment 4]
 - (4) NWN shall minimize the loss of habitat in forested areas and clear cuts by allowing vegetation to grow back in the construction corridor except for the 40 foot area directly over the pipeline. NWN shall restore surface vegetation in farmed areas. [Amendment 4]
 - (5) NWN shall time the crossing of any small tributaries or creeks during the dry period, and shall restore the stream bed and stream banks before the rainy season, not to extend beyond November 15, 1997. [Amendment 4]
 - (6) NWN shall minimize impact to wetlands by separating the upper foot of topsoil from the rest of the trench spoils and replacing it on the top of the trench. [Amendment 4]
 - (7) NWN shall filter any water pumped from the trench during construction to remove sediments before it is returned to the wetland. [Amendment 4]
 - (8) NWN shall complete pipeline construction through the wetland by November 15, 1997. [Amendment 4]

c. Historic, Archeological and Cultural

- (1) A qualified archeologist shall monitor all grading and excavation activities associated with boring operations. If any artifacts or other cultural materials that might qualify as “archeological objects” as defined at ORS 358.905(1)(c) are identified, ground disturbing activities will cease until the archeologist can evaluate their

potential significance. If the material is likely to be eligible for listing on the National Register of Historic Places or to qualify as archeological objects or sites, as defined at ORS 358.905(j)(c), NWN shall consult with the State Historic Preservation Office (“SHPO”) and will comply with the archeological permit requirement administered by the SHPO as set forth in OAR 736 Division 51. [Amendment 4]

3. Conditions Applicable to Amendment 6

a. Structural and Soils

- (1) The pipeline corridor shall be substantially as shown on Figure G-I of Exhibit 14 of the Application for Amendment 6. NWN may change the pipeline corridor by obtaining ODOE or EFSC concurrence as described in OAR 345-027-0050. [Amendments 6, 10]
- (2) NWN shall design and construct the pipelines substantially in accordance with the recommendations in Sections 5.2 and 5.3 of Exhibit 14 of the Application for Amendment 6. [Amendment 6]

b. Land Use

- (1) NWN shall provide Columbia County Land Development Services (LDS) with drawings showing the final locations of all wells (underground natural gas storage facilities) and pipelines as constructed. [Amendment 6]
- (2) NWN shall submit to LDS a letter from the Oregon Department of Transportation that all of ODOT’s permit requirements have been met. [Amendment 6]
- (3) NWN shall submit to LDS a letter from the Mist-Birkenfeld & Vernonia Fire Districts stating that all fire safety concerns have been addressed. [Amendment 6]

c. Fish and Wildlife Habitat

- (1) NWN shall return the construction area to approximately its original grade, and revegetate the disturbed areas using appropriate plant species. NWN will allow and encourage natural vegetation to return in the disturbed area, except that NWN may prevent large trees from growing in the permanent maintenance right-of-way which

shall be as narrow as practicable and no greater than 40 feet wide.
[Amendment 6]

- (2) During construction NWN shall use appropriate erosion control and sediment control measures, such as those in Washington County Erosion Control Plans Technical Guidance Book (February 1994), as necessary to prevent material from leaving the construction area or adversely affecting water quality in nearby and downslope streams. NWN shall also use best management practices (BMP) and follow Oregon Department of Forestry, Forest Practice Administrative Rules during construction. [Amendment 6]

4. Conditions Applicable to Amendments 8 and 9

a. Structural and Soils

- (1) NWN shall design the modifications authorized by Amendments 8 and 9 in accordance with the seismic design factors show in Table 2 of GeoEngineers' September 18, 2001 report "EFSC Structural Standard Information, Miller Station Gas Compression Facility, Mist, Oregon." [Amendments 8, 9]
- (2) NWN shall design, engineer and construct the modifications authorized by Amendments 8 and 9 substantially in accordance with the recommendations in the section entitled "Non-Seismic Design and Construction Recommendations" in GeoEngineers' September 18, 2001 report "EFSC Structural Standard Information, Miller Station Gas Compression Facility, Mist, Oregon." [Amendments 8, 9]

5. Conditions Applicable to Amendment 9

a. Structural and Soils

- (1) During construction authorized by Amendment 9, NWN shall implement the recommendations in Exhibit 6, section 7 of the application for Amendment 9. [Amendment 9]

b. Fish and Wildlife Habitat

- (1) During the construction under Amendment 9, NWN will minimize removal of vegetation to the extent practical. [Amendment 9]

- (2) Where an Amendment 9 pipeline is installed adjacent to an existing one, the permanent easement will be only 10 feet wider than the existing one. However, where the Schlicker pool pipeline approaches the Busch valve station, the permanent easement may be 30 feet wider than the existing one to allow installation of surface equipment. [Amendment 9]
- (3) NWN will use the erosion control measures required for the NPDES 1200-C (a federal permit) and Best Management Practices (BMPs) to prevent erosion of soil into the ephemeral stream channel during construction of the Amendment 9 pipelines. [Amendment 9]
- (4) Following construction of the pipelines for Amendment 9, NWN will allow and encourage native vegetation to grow back in the temporary construction easement and staging areas. [Amendment 9]
- (5) Where revegetation is necessary in the permanent right-of-way for the pipelines constructed under Amendment 9, NWN will plant vegetation that provides forage for big game species. [Amendment 9]
- (6) During pipeline construction for Amendment 9, NWN will restore any stream channels to pre-construction conditions, including grades, contours, morphology and substrate and will take measures to prevent scouring of stream slopes. [Amendment 9]
- (7) At stream crossings, crews will use hand tools to control [right-of-way] vegetation in the permanent easement for the Amendment 9 pipelines. [Amendment 9]
- (8) Construction of the Busch well pipeline will follow the US Fish and Wildlife Service scheduling and distance guidelines to avoid adverse impact to the bald eagle nest. [Amendment 9]

6. Conditions Applicable to Amendment 11 and Amendment 13

a. Structural Standard

- (1) The site certificate holder shall design and build the components authorized by Amendment ~~11~~13 according to the Oregon Structural Specialty Code which uses the ~~2012~~2018 International Building Code, with current amendments by the state of Oregon and local agencies. [Amendment ~~11~~13 Structural Standard Condition 1]
- (2) The site certificate holder shall design, engineer, and construct the components authorized by Amendment ~~11~~13 to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from all maximum probable seismic events. Seismic hazards include ground shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement, and subsidence. [Amendment ~~11~~13 Structural Standard Condition 2] [OAR 345-~~027-0020~~0025-0006(12)]
- (3) Prior to beginning construction of Amendment 11 components, the site certificate holder shall complete the following geotechnical investigations. The final scope of the studies will be determined by NWN's geotechnical consultants and confirmed by the department in consultation with DOGAMI. The additional studies shall include:
 - Civil site plans for the NMCS, the utility conduit, and NMTP alignments rights of way. Civil site plans will include:
 - Existing topography,
 - Proposed grading (cut and fill),
 - Alignment of the utility conduit and NMTP,
 - Existing utilities, culverts, and other site features within the rights of way, and
 - Final positioning of equipment within the NMCS area.
 - Site-specific geotechnical studies for the proposed cut and fill slopes along the pipeline and utility conduit alignments, following the development of civil site plans and site grading delineation. Site-specific geotechnical studies will include slope stability analysis, as needed, to provide recommendations to mitigate potential adverse impacts to slope stability that may result from cutting into hillsides adjacent to existing roadways. The study will also include recommendations for restoring site grades to pre-construction conditions, and recommendations for engineered fill slopes will include specifications for materials

to be used, adequacy of native soils to be used as fill, lift thickness, and compaction criteria for wet and dry weather conditions.

- Site-specific geotechnical evaluation for the development of the NMCS, once final site grading and final facility location is determined. Additional borings will be completed to define geotechnical conditions at the proposed equipment locations at the site once final layout is determined. If cuts and fills greater than five feet are anticipated, additional borings will be completed in cut and fill slope locations to evaluate the stability of cut and fill slopes. The final geotechnical engineering report will include the information and assessment identified in Exhibit H, Section H.5.
- Evaluation of the two landslides identified along the utility conduit alignment to better define risk to adjacent logging road and utility conduit, and to evaluate potential road stabilization options to be discussed with the road owner.

[Amendment 11 Structural Standard Condition 31]

(4) Prior to beginning construction of Amendment 13 components, the site certificate holder shall complete the following geotechnical investigations. The final scope of the studies will be determined by NWN's geotechnical consultants and confirmed by the department in consultation with DOGAMI. The additional studies shall include:

- Civil site plans for changes to the NMCS, Miller Station, pipelines, and the utility conduit. Civil site plans will include:
 - Existing topography,
 - Proposed grading (cut and fill),
 - Alignment of the utility conduit and pipelines,
 - Existing utilities, culverts, and other site features within the rights of way, and
 - Final positioning of equipment and structures within the NMCS and Miller Station areas.
- Site-specific geotechnical studies for the proposed cut and fill slopes along the pipeline and utility conduit alignments, following the development of civil site plans and site grading delineation. Site-specific geotechnical studies will include slope stability analysis, as needed, to provide recommendations to mitigate potential adverse impacts to slope stability that may result from cutting into hillsides adjacent to existing roadways. The study will also include recommendations for restoring site grades to pre-construction conditions, and recommendations for

engineered fill slopes will include specifications for materials to be used, adequacy of native soils to be used as fill, lift thickness, and compaction criteria for wet and dry weather conditions.

- Site-specific geotechnical evaluation for the improvements to the NMCS and Miller Station, once final site grading and final locations of equipment and structures are determined. Additional borings will be completed to define geotechnical conditions at the proposed equipment locations at the site once final layout is determined. If cuts and fills greater than five feet are anticipated, additional borings will be completed in cut and fill slope locations to evaluate the stability of cut and fill slopes. The final geotechnical engineering report will include the information and assessment identified in Exhibit H, Section H.6.

[Amendment 13 Structural Standard Condition 3]

~~(4)~~(5) The site certificate holder shall include the identified landslide hazards in its established landslide monitoring program. If future investigations identify additional landslide hazards that may adversely impact the Amendment 11-13 components, those landslide hazards shall also be added to the landslide monitoring program. [Amendment 11-13 Structural Standard Condition 4]

b. Soil Protection

- (1) During construction of the Amendment 11-13 components, the certificate holder shall conduct all construction work in compliance with a final Erosion and Sediment Control Plan that is satisfactory to the Oregon Department of Environmental Quality as required under the National Pollutant Discharge Elimination System Construction Stormwater Discharge General Permit 1200-C. [Amendment 11-13 Soil Protection Condition 1]
- (2) During construction of Amendment 11-13 components occurring partially or wholly on privately-owned agricultural land, the certificate holder shall implement the Agricultural Impact Mitigation Plan, provided as Attachment D of this order. [Amendment 11-13 Soil Protection Condition 2]

- (3) Prior to beginning construction of Amendment ~~44~~13 components, the certificate holder shall prepare and submit to the department for review and approval a construction spill prevention and management plan (SPMP) for implementation during construction. The construction SPMP shall include at a minimum the following procedures and best management practices (BMPs):
- Use secondary containment around stationary equipment (including drill rigs, drilling fluid pumps, centrifugal pumps, and mobile fluid storage tanks),
 - Use drip pans during equipment maintenance,
 - Properly store materials on-site,
 - Maintain spill kits at construction areas,
 - Refuel all equipment at least 100 feet away from water bodies and delineated wetlands,
 - Train employees on the BMPs and procedures included in the construction SPMP, and
 - The requirements for oil and hazardous material emergency response consistent with DEQ rules at OAR 340, Division 142.

[Amendment ~~44~~13 Soil Protection Condition 3]

- (4) During horizontal directional drilling (HDD) associated with components authorized by Amendment ~~44~~13, the certificate holder shall implement the procedures in the Inadvertent Return Response Plan (IRRP), provided as Attachment F of this order. The certificate holder shall employ a monitor during HDD to watch for surface fluid release at the entry and exit points of the HDD drill and the area within 150 feet of the entry/exit locations. The certificate holder shall add the Oregon Department of Energy to the list of agencies that will be contacted by phone within 24 hours of an inadvertent return that impacts a wetland or perennial stream. The certificate holder shall contact the department within 48 hours if there is an inadvertent return that does not impact wetlands or waterways but does require issuance of a containment installation order.

[Amendment ~~44~~13 Soil Protection Condition 4]

- (5) Prior to operation of components authorized by Amendment 11, the certificate holder shall prepare and submit to the department for review and approval an operational Spill Prevention and Management Plan (SPMP). The operational SPMP shall contain at a minimum the following procedures and best management practices:
- Install containment diking at the NMCS designed to hold chemical spills.
 - Install curbing at the NMCS buildings to prevent spills and leaks from being released to the environment, and routing runoff to treatment or control areas.
 - Install drip pans to contain very small volumes of leaks, drips, and spills.
 - Maintenance of on-site absorbent socks and absorbent granules to control and clean-up a spill or release.
 - Train employees on the BMPs and procedures included in the operational SPMP.
 - The requirements for oil and hazardous material emergency response pursuant to DEQ rules at OAR 340, Division 142.

[Amendment 11 Soil Protection Condition ~~5~~1]

- (6) Prior to operation of components authorized by Amendment 13, the certificate holder shall prepare and submit to the department for review and approval an operational Spill Prevention and Management Plan (SPMP). The operational SPMP shall contain at a minimum the following procedures and best management practices:
- Install containment diking where new equipment or structures are installed designed to hold chemical spills.
 - Install curbing where new structures are installed to prevent spills and leaks from being released to the environment, and routing runoff to treatment or control areas.
 - Install drip pans to contain very small volumes of leaks, drips, and spills.
 - Maintenance of on-site absorbent socks and absorbent granules to control and clean-up a spill or release.
 - Train employees on the BMPs and procedures included in the operational SPMP.
 - The requirements for oil and hazardous material emergency response pursuant to DEQ rules at OAR 340, Division 142.

[Amendment 13 Soil Protection Condition 5]

c. Land Use

- (1) During construction and operation, the certificate holder shall design and construct signs for the Amendment ~~11~~13 components in compliance with sign requirements of Columbia County Zoning Ordinance (CCZO) 308.6. [Amendment ~~11~~13 Land Use Condition 1]
- (2) Prior to construction of components authorized by Amendment 11, the certificate holder shall coordinate with and provide written notification to surface property owners on timing and location of tree removal and other site preparation and ground disturbing activities associated with the NMCS and the I/W well pad sites. Copies of written notification to each affected surface property owner shall be maintained onsite and made available to the department upon request. [Amendment 11 Land Use Condition ~~2~~1]
- (3) Prior to construction of components authorized by Amendment 11, the certificate holder shall provide written notification to the department verifying whether the NMCS parcel and I/W well pad site would be leased or purchased from the current landowners. If one or both sites are purchased, the certificate holder shall comply with the following requirements:
 - (a) The certificate holder shall file a waiver of remonstrance with Columbia County certifying that the certificate holder would not remonstrate against or begin legal action or suit proceeding to cause or persuade the owner or operator of any farm or forest lands to modify the conduct or legal and accepted farm or forest operations. A copy of the waiver of remonstrance shall be provided to the department and maintained onsite for the duration of construction and made available to the department upon request.
 - (b) The certificate holder shall secure a partition for the parcel in accordance with Columbia County Subdivision and Partitioning Ordinance and shall ensure that the purchased site complies with applicable parcel dimensions, County Road fire safety design standards, and setbacks. A copy of the approved partition shall be maintained onsite for the duration of construction and operation and made available to the department upon request. [Amendment 11 Land Use Condition ~~3~~2]
- (4) Prior to construction of components authorized by Amendment 13,

the certificate holder shall coordinate with and provide written notification to surface property owners on timing and location of tree removal and other site preparation and ground disturbing activities authorized by Amendment 13. Copies of written notification to each affected surface property owner shall be maintained onsite and made available to the department upon request. [Amendment 13 Land Use Condition 2]

- (5) Prior to construction of components authorized by Amendment 143, the certificate holder shall provide written notification to the department verifying whether any parcels would be leased or purchased from the current landowners. If any parcels are to be purchased, the certificate holder shall comply with the following requirements:
- (a) The certificate holder shall file a waiver of remonstrance with Columbia County certifying that the certificate holder would not remonstrate against or begin legal action or suit proceeding to cause or persuade the owner or operator of any farm or forest lands to modify the conduct or legal and accepted farm or forest operations. A copy of the waiver of remonstrance shall be provided to the department and maintained onsite for the duration of construction and made available to the department upon request.
- (b) The certificate holder shall secure a partition for the parcel in accordance with Columbia County Subdivision and Partitioning Ordinance and shall ensure that the purchased site complies with applicable parcel dimensions, County Road fire safety design standards, and setbacks. A copy of the approved partition shall be maintained onsite for the duration of construction and operation and made available to the department upon request. [Amendment 13 Land Use Condition 3]
- ~~(4)~~(6) Prior to construction or placement of a utility or facilities within a public road or county right-of-way, the certificate holder shall apply for and obtain a Public Road Construction Permit from the Columbia County Road Department. A copy of the road permit shall be maintained onsite and made available to the department upon request. [Amendment ~~11-13~~ Land Use Condition 4]
- ~~(5)~~(7) Prior to construction of Amendment ~~11-13~~ components, the certificate holder shall apply for and obtain a County Road access permit (part of the County Building Permit) from the Columbia

County Land Development Services Department. A copy of the County Road access permit shall be maintained onsite and made available to the department upon request. [Amendment ~~11-13~~ Land Use Condition 5]

(8) Prior to construction of the North Mist Transmission Pipeline, associated with Amendment 11, the certificate holder shall apply for and obtain a Floodplain Development permit from Columbia County Land Development Services Department for the NMTP for areas where the pipeline corridor is located in a Flood Hazard Area. A copy of the Development Permit shall be maintained onsite and made available to the department upon request. [Amendment 11 Land Use Condition ~~6~~3]

(9) Prior to construction of the North Mist Transmission Pipeline, associated with Amendment 11, the certificate holder shall apply for and obtain a Stream/Wetland Protection permit from Columbia County Land Development Services Department for the NMTP for areas where the pipeline corridor is located in a Wetland Area overlay zone. [Amendment 11 Land Use Condition ~~7~~4]

(10) Prior to construction of Amendment 13 components, the certificate holder shall apply for and obtain a variance in accordance with Columbia County Zoning Ordinance where the placement of structures or equipment authorized under Amendment 13 cannot comply with dimensional requirements such as setbacks, height, lot or parcel coverage, lot or parcel width, or lot or parcel depth. A copy of any approved variance shall be maintained onsite for the duration of construction and operation and made available to the department upon request. [Amendment 13 Land Use Condition 7]

d. Retirement and Financial Assurance

(1) Before beginning construction of the components authorized by Amendment ~~11-13~~, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition. The certificate holder shall maintain a bond or letter of credit in effect at all times until the Amendment ~~11-13~~ components have been retired. The Council may specify different amounts for the bond or letter of credit during construction and during operation of the Amendment ~~11-13~~ components. [OAR 345-~~027-0020~~025-0006(8)] [Amendment ~~11-13~~ Retirement and Financial Assurance Condition 1]

(2) Prior to construction of the components authorized by Amendment ~~44~~13, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The initial bond or letter of credit amount for the Amendment ~~44~~13 components is \$~~3.030~~XXX million (in first quarter ~~2015~~2024 dollars), to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (b) of this condition:

(a) The certificate holder may adjust the amount of the initial bond or letter of credit based on the final design configuration of the Amendment ~~44~~13 components. Any revision to the restoration costs should be adjusted to the date of issuance as described in (b) and subject to review and approval by the Council.

(b) The certificate holder shall adjust the amount of the bond or letter of credit using the following calculation:

(1) Adjust the amount of the bond or letter of credit (expressed in first quarter ~~2015~~2024 dollars) to present

value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency and using the first quarter ~~2015-~~ 2024 index value and the quarterly index value for the date of issuance of the new bond or letter of credit. If at any time the index is no longer published, the Council shall select a comparable calculation to adjust first quarter ~~2015-~~ 2024 dollars to present value.

- (2) Round the result total to the nearest \$1,000 to determine the financial assurance amount.
- (c) The certificate holder shall use an issuer of the bond or letter of credit approved by the Council.
- (d) The certificate holder shall use a form of bond or letter of credit approved by the Council. The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under OAR 345-026-0080. The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site.

[Amendment ~~11-13~~ Retirement and Financial Assurance Condition 2]

- (3) The certificate holder shall retire the components associated with Amendment ~~11-13~~ if the certificate holder permanently ceases construction or operation of the Amendment ~~11-13~~ components. The certificate holder shall retire the components associated with Amendment ~~11-13~~ according to a final retirement plan approved by the Council, as described in OAR 345-027-0110. The certificate holder shall pay the actual cost to restore the site to a useful, non-hazardous condition at the time of retirement, notwithstanding the Council's approval in the amended site certificate of an estimated amount required to restore the site. [OAR 345-~~027-0020025-~~ 0006(9)] [Amendment ~~11-13~~ Retirement and Financial Assurance Condition 3]
- (4) If the Council finds that the certificate holder has permanently ceased construction or operation of the components authorized by Amendment ~~11-13~~ without retiring the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110, the Council shall notify the certificate holder and request that the certificate holder submit a proposed final retirement plan

to the department within a reasonable time not to exceed 90 days. If the certificate holder does not submit a proposed final retirement plan by the specified date, the Council may direct the department to prepare a proposed final retirement plan for the Council's approval. Upon the Council's approval of the final retirement plan, the Council may draw on the bond or letter of credit described in section (8) to restore the site to a useful, non-hazardous condition according to the final retirement plan, in addition to any penalties the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall pay any additional cost necessary to restore the site to a useful, non-hazardous condition. After completion of site restoration, the Council shall issue an order to terminate the site certificate if the Council finds that the facility has been retired according to the approved final retirement plan. [OAR 345-~~027-0029~~025-0006(16)] [Amendment ~~11-13~~ Retirement and Financial Assurance Condition 4]

e. Fish and Wildlife Habitat

- (1) Prior to construction of components authorized by Amendment ~~11-13~~, the certificate holder shall conduct a field-based habitat, fish, and wildlife survey of the area within and extending to the site boundary of the Amendment ~~11-13~~ components. Following completion of the field survey, the certificate holder shall provide the department and the Oregon Department of Fish and Wildlife (ODFW) the report containing the results of the survey, including a map set of the components associated with Amendment ~~11-13~~, showing all project components, the habitat categories of all areas that will be affected by the project, and the locations of any sensitive resources such as active bird nests. The report shall also include an updated version of Table FW-1 *Potential Temporary and Permanent Impacts by Habitat Category and Type* of the final order, showing the acres of expected temporary and permanent impacts to each habitat category, type, and sub-type.

In classifying the affected habitat into habitat categories, the certificate holder shall consult with the department and ODFW. The certificate holder shall not begin construction of the components associated with Amendment ~~11-13~~ until the habitat assessment has been approved by the department, in consultation with ODFW. If the department and ODFW have not provided a response within 30 days following the site certificate holder's submission of the habitat assessment to the department and ODFW, the assessment will be

considered approved. The certificate holder shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat.

[Amendment ~~44~~13 Fish and Wildlife Condition 1]

- (2) Prior to construction of Amendment ~~44~~13 components, the certificate holder shall flag all environmentally sensitive areas as restricted work zones. Restricted work zones shall include but not be limited to areas with sensitive or protected plant species, including candidate species, wetlands and waterways that are not authorized for construction impacts, areas with seasonal restrictions, and active State sensitive species bird nests. [Amendment ~~44~~13 Fish and Wildlife Condition 2]
- (3) During construction, all Project personnel shall attend an environmental awareness training session conducted by an environmental professional prior to working on the Project site. The training shall include, but not be limited to, the following topics: identification of approved Project boundaries and access roads including flagged exclusion areas; identification of sensitive wetland and waterbody resources; identification of sensitive and special status plant and wildlife species found in the analysis area; techniques regarding avoidance and minimization measures the certificate holder will implement; the notification process to be followed if new sensitive resources are identified; permit requirements; buffer distances from sensitive and protected resources; work timing restrictions including seasonal restrictions; the role of the onsite environmental inspector(s) and NWN environmental personnel; and other topics as necessary. A copy of the training shall be provided to the department. Records of completed worker training shall be maintained onsite and made available to the department upon request. [Amendment ~~44~~13 Fish and Wildlife Condition 3]
- (4) During construction and operation of components authorized by Amendment ~~44~~13, the certificate holder may use herbicides to control noxious weeds, undesirable plant species, and vegetation within the site boundary. Herbicides shall be applied by an appropriately licensed person and according to all state and federal regulations. The certificate holder shall consult with landowners prior to applying herbicides on any land not owned by the certificate holder.
- If requested by a landowner, the certificate holder shall not use herbicides on that landowner's property. The certificate holder shall not allow herbicides to migrate onto nearby property from

herbicide use on another parcel. Herbicides shall not be used in or near sensitive environments. Herbicides shall not be used within 100 feet of any occurrence of special status or otherwise sensitive plant species. Except where the product label applies more stringent requirements, when applied from the ground, herbicides shall not be used within 10 feet of any wetlands, stream, river, or other waterway except if specifically approved for use near aquatic environments. [Amendment ~~11-13~~ Fish and Wildlife Condition 4]

- (5) During construction and operation of Amendment ~~11-13~~ components, the certificate holder shall restrict vehicle speed on roadways within the site boundary to 25 miles per hour. [Amendment ~~11-13~~ Fish and Wildlife Condition 5]
- (6) Prior to construction of Amendment ~~11-13~~ components the certificate holder shall obtain an ODFW Wildlife Capture, Holding, Transport, and Relocation Permit specifically for reptiles and amphibians. The certificate holder shall implement all provisions of the permit. A copy of the permit shall be maintained on-site and shall be made available to the department upon request. [Amendment ~~11-13~~ Fish and Wildlife Condition 6]
- (7) Prior to construction of Amendment 11 components, the certificate holder shall finalize and implement the Habitat Mitigation Plan (HMP) provided in Attachment E of the final order, as approved by ODOE in consultation with ODFW. Provision 7(f) regarding impacted acreage calculations shall be completed and submitted to the department after construction is complete as described in the condition below.
 - (a) The final HMP shall include an implementation schedule for all mitigation actions, including securing the conservation easement, conducting the ecological uplift actions at the compensatory mitigation parcel, revegetation and restoration of temporarily impacted areas, and monitoring. The mitigation actions shall be implemented according to the following schedule, as included in the HMP:
 - a. Restoration and revegetation of temporary construction-related impact area shall be conducted no later than the fall of the year of construction.
 - b. The habitat enhancement actions at the compensatory habitat mitigation site shall be implemented concurrent with construction. Plantings along the ditch shall occur in the fall of the year of construction.

- (b) The final HMP shall include a plan to remove noxious weeds and revegetate areas that are temporarily disturbed during construction within the 80-foot construction easement in the commercial timberland portion of the Project, south of U.S. Highway 30. Revegetation shall be with seed mixes and forbs beneficial to fish and wildlife as recommended by ODOE, in consultation with ODFW. NWN shall implement this condition regardless of whether the underlying landowner has conducted timber harvest prior to construction of Amendment 44-13 components.
- (c) The final HMP shall include a monitoring and reporting program for evaluating the effectiveness of all mitigation actions, including restoration of temporarily impacted areas and ecological uplift actions at the compensatory mitigation parcel. Monitoring of the weed removal and revegetation per condition 7(b) shall be for one year following implementation. Monitoring of the compensatory mitigation parcel shall be during years one, three, and five following implementation.
- (d) The final HMP shall be submitted and ODOE's concurrence received prior to beginning construction. ODOE shall consult with ODFW on the final HMP. If ODOE and ODFW have not provided a response within 30 days following the site certificate holder's submission of the final HMP, the HMP will be considered approved.
- (e) The HMP may be amended from time to time by agreement of the certificate holder and the department. Such amendments may be made without amendment to the site certificate. The Council authorizes the department to agree to amendments of this plan and to mitigation actions that may be required under this plan; however, the Council retains the authority to approve, reject or modify any amendment of this plan agreed to by the department.
- (f) Within 30 days of completion of construction, the certificate holder shall submit to the department and ODFW an updated HMP Table 1, providing the finalized acreage numbers for both temporary and permanent impacts by habitat category and type. Mitigation shall be commensurate with the final acreage numbers, the approved HMP, and the EFSC Fish and Wildlife Habitat standard.

[Amendment 44-13 Fish and Wildlife Condition 7]

- (8) During construction of Amendment 44-13 components, NWN shall employ at a minimum one environmental inspector to be onsite

daily. The environmental inspector shall oversee permit compliance and construction, and ensure that known sensitive environmental resources are protected. The environmental inspector shall prepare a weekly report during construction, documenting permit compliance and documenting any corrective actions taken. Reports shall be kept on file and available for inspection by the department upon request. [Amendment ~~44-13~~ Fish and Wildlife Condition 8]

f. Threatened and Endangered Species

- (1) To the extent practicable, the certificate holder shall conduct construction, operation, and maintenance activities of Amendment ~~44-13~~ components during daylight hours outside of dawn and dusk in Columbia white-tailed deer habitat. Dawn is assumed to be 30 minutes prior to sunrise and dusk is assumed to be 30 minutes after sunset. HDD boring may occur throughout a 24-hour period. [Amendment ~~44-13~~ Threatened and Endangered Species Condition 1]
- (2) To the extent practicable, the certificate holder shall avoid construction activities within the range of the Columbia white-tailed deer during fawning season of June 1 to July 31. Except that HDD boring activities may begin or recommence on July 15 rather than August 1. [Amendment ~~44-13~~ Threatened and Endangered Species Condition 2]
- (3) During construction of Amendment ~~44-13~~ components in Columbia white-tailed deer habitat, the certificate holder shall install deer escape ramps at all open trenches and to the extent practicable, minimize the time the trench is left open. [Amendment ~~44-13~~ Threatened and Endangered Species Condition 3]
- (4) Prior to construction of Amendment ~~44-13~~ components, the certificate holder shall conduct a pre-construction survey for tall bugbane in the vicinity of the population identified during the 2013-2014 botanical survey. Areas with tall bugbane will be flagged and those plants that occur in the vicinity of proposed construction activities will be protected using construction safety fencing or similar visual and physical barrier to protect from construction-related impacts. Results of the pre-construction survey shall be reported to the department. [Amendment ~~44-13~~ Threatened and Endangered Species Condition 4]

- (5) Prior to construction of ~~Amendment 11-13~~ components, if any previously unidentified state-listed threatened or endangered species (listed under ORS 564.105(2) or ORS 496.172(2)) is discovered during the pre-construction survey (see Fish and Wildlife Condition 1), the certificate holder shall consult with ODFW or ODA and the department to develop a protection plan for that species and to maintain continued compliance with the Threatened and Endangered Species standard (OAR 345-022-0070). [~~Amendment 11-13~~ Threatened and Endangered Species Condition 5]

g. Historic, Cultural and Archeological Resources

- (1) During construction related ground-disturbing activities of components authorized by Amendment ~~11-13~~, if any artifacts or other cultural materials that might qualify as “archaeological objects” as defined at ORS 358.905(1)(a) or “archaeological sites” as defined at ORS 358.905(1)(c) are identified, ground disturbing activities will cease until a professional archeologist can evaluate its potential significance. The certificate holder shall flag or mark the area and shall notify the department and the State Historic Preservation Office (SHPO) of the find immediately.

If SHPO determines that the resource is significant, the certificate holder shall make recommendations to the Council for mitigation, including avoidance, field documentation, and data recovery, in consultation with the department, SHPO, interested tribes and other impacted parties. The certificate holder shall not restart work in the affected area until the certificate holder has demonstrated to the Council that it has complied with the archaeological resource protection regulations.

In accordance with Fish and Wildlife Condition 4, the worker training shall include a section describing this permit condition, how to identify archaeological objects, and the certificate holder’s requirement to avoid impacting significant historic, cultural, and archaeological resources. [~~Amendment 11-13~~ Historic, Cultural and Archeological Condition 1]

h. Public Services

- (1) Prior to construction, the certificate holder shall develop an updated fire protection and safety plan for the construction and operation of the NMCS, Miller Station, and NMTP. The fire protection and safety plans shall include personnel training requirements, training materials, and accident prevention

measures and plans. The certificate holder shall consult with and shall obtain written concurrence from the Mist-Birkenfeld Fire Marshal and Clatskanie RFPD Fire Marshal to confirm construction and operational activities comply with all applicable requirements. The certificate holder shall submit a copy of the NMCS, Miller Station and NMTP fire protection and safety plans to the department. [Amendment ~~11-13~~ Public Services Condition 1]

i. Waste Minimization

- (1) Prior to construction of the North Mist Transmission Pipeline associated with Amendment 11, the certificate holder shall seek land-owner authorization for bentonite land application and shall provide to the department the following information:
 - (a) List of land-owners contacted for authorization of bentonite application including first and last name, address and tax lot identification number, and
 - (b) Written consent letters obtained from land-owners authorizing bentonite application, and
 - (c) Estimated quantity of bentonite to be applied to each land owner whom provided consent per (b).

In the event land-owner authorization for bentonite land application is not received for all or a portion of the quantities generated during HDD construction, the site certificate holder shall provide to the department the information requested in (a), estimated total quantity of bentonite to be transported to a disposal facility, and name of disposal facility where bentonite will be transferred. [Amendment 11 Waste Minimization Condition 1]

- (2) Prior to construction of the pipelines associated with Amendment 13, the certificate holder shall seek land-owner authorization for bentonite land application and shall provide to the department the following information:
 - (a) List of land-owners contacted for authorization of bentonite application including first and last name, address and tax lot identification number, and
 - (b) Written consent letters obtained from land-owners authorizing bentonite application, and
 - (c) Estimated quantity of bentonite to be applied to each land owner whom provided consent per (b).

In the event land-owner authorization for bentonite land application is not received for all or a portion of the quantities generated during

HDD construction, the site certificate holder shall provide to the department the information requested in (a), estimated total quantity of bentonite to be transported to a disposal facility, and name of disposal facility where bentonite will be transferred. [Amendment 13 Waste Minimization Condition 1]

~~(2)~~(3) Before beginning construction of components authorized by Amendment ~~11~~13, the certificate holder shall provide confirmation in writing to the department that the third parties have obtained all necessary permits or approvals for receiving and discharging hydrostatic test water and shall provide to the department proof of agreement between the certificate holder and the third parties regarding access to the resources or services secured by the permits or approvals. [Amendment ~~11~~13 Waste Minimization Condition 2]

Before beginning operation of components authorized by Amendment ~~11~~13, the certificate holder shall provide confirmation in writing to the department that the third parties have obtained all necessary permits or approvals for disposing of produced saline process water from the Adams reservoir and shall provide to the department proof of agreement between the certificate holder and the third parties regarding access to the resources or services secured by the permits or approvals. [Amendment ~~11~~13 Waste Minimization Condition 3]

D. Conditions Related to EFSC Standards at OAR Chapter 345 Division 24

Under ORS 469.401(2), EFSC must impose conditions in the Site Certificate for the protection of public health and safety. Throughout this Site Certificate are conditions related to other decisional criteria that are ultimately intended to protect public health and safety. The following conditions protect public health and safety specifically with regard to EFSC standards for surface facilities related to underground natural gas storage and natural gas pipelines.

1. Conditions Applicable to this Facility
 - a. NWN shall design, construct, operate and retire the Project in accordance with applicable statutes, rules and ordinances. [Amendment 4]
 - b. NWN shall construct all pipelines in accordance with the requirements of the U.S. Department of Transportation as set forth in Title 49, Code of Federal Regulations Part 192. [Amendment 4]
 - c. Isolation valves shall be located at both ends of the 16 inch pipelines connecting Miller Station and the Busch Valve Station and at both ends of the eight inch and six inch pipelines connecting the well sites with the

sixteen inch pipeline at the Busch Valve Station. [Amendment 4]

- d. NWN shall maintain a program to monitor the proposed pipeline to ensure protection of the public health and safety, including but not limited to:
 - (1) Pressure sensing devices positioned at Miller Station and near the wellheads to relay critical information to both Miller Station and, as needed, from Miller Station to the Portland gas control center,
 - (2) High and low pressure alarms monitored on a 24 basis to detect and locate areas where pressure variations may indicate abnormal conditions, and
 - (3) Emergency response personnel on duty 24 hours per day, at Miller Station or in Portland, trained to respond to situations that require immediate attention. [Amendment 4]

2. Condition Applicable to Amendment 4

- a. Within two months of initial startup of the new compressor, NWN shall conduct noise surveys at the two locations previously tested on February 20 and 21, 1997 to demonstrate compliance with DEQ Noise regulations at OAR 340-35-0035. Sound measurements shall be made with all compressors running at within 5% of horsepower permitted by this Site Certificate. Measurements shall be made at each location during atmospheric conditions best for sound propagation. Sound monitoring shall not be conducted when winds are in excess of 5 mph. [Amendment 4]

3. Condition Applicable to Amendment 8

- a. Within six months of initial startup of the new compressor authorized by Amendment 8, NWN shall conduct noise surveys at the locations previously tested pursuant to Amendment 4 to demonstrate compliance with DEQ Noise regulations at OAR 340-035-0035. Sound measurements shall be made with the compressor authorized by Amendment 8 running at within 5% of rated horsepower. Measurements shall be made at a time when weather and atmospheric conditions are comparable in terms of sound propagation to the conditions that existed during the measurements taken pursuant to Amendment 4. NWN shall mathematically add the sound from this compressor to the sound from compressors installed prior to Amendment 8, as measured in the tests required by Amendment 4. NWN shall add instrument error to the noise measurements and shall treat instrument errors as cumulative. NWN shall promptly notify ODOE if the total from this mathematical addition exceeds the limits in Table 8 of OAR 340-035-0035. [Amendment 8]

4. Conditions Applicable to Amendment 11 and Amendment 13
 - a. Prior to construction of Project components authorized by Amendment 11~~11~~13, the site certificate holder shall submit a written equipment design and estimated emissions report to the department, including the following information:
 - (1) Manufacturer specifications for the selected natural gas-fired engine-driven compressors
 - (2) Fuel consumption rate (Btu/HP-hr), based on higher heating value of fuel, and rated engine capacity (HP), based on manufacturer specifications
 - (3) Engine load factor and adjusted HP
 - (4) Estimated annual hours of operation (hr/yr) for both engine-driven compressors
 - (5) Carbon dioxide emission calculations including: gross carbon dioxide emission rate, net carbon dioxide emission rate based on Council emission rate standard equal to 0.504 lb CO₂/HP-hr, and estimated excess carbon dioxide emissions for the assumed 30-year operational lifetime. Calculations shall be based on information provide in (1)(a) – (1)(d) of this condition and consistent with OAR 345-024-0620(1).

[Amendment 11~~11~~13 Carbon Dioxide Emissions Condition 1]

- b. Following receipt of written validation by the department of monetary path payment calculations, and before beginning construction, the site certificate holder shall remit payment to The Climate Trust in the full amount of the monetary path payment requirement as determined by the calculations set forth in Carbon Dioxide Emissions Condition 1. Monetary path payment requirements shall be calculated using an offset rate of \$1.27 per ton of excess carbon dioxide emissions, adjusted from the year in which the Council issues the final order for Amendment 11~~11~~13, to present value dollars of the year in which payment is made to the Climate Trust. Present value shall be calculated using the US Gross Domestic Product Implicit Price Deflator, as published by the US Department of Commerce, Bureau of Economic Analysis, or any successor agency (“the index”). As part of the monetary path payment, the certificate holder shall also pay selection and contracting funds in an amount equal to 10 percent of the first \$500,000 of the offset funds and 4.286 percent of any offset funds in excess of \$500,000.
 - c. The department shall establish an “offset credit account” for Amendment 11~~11~~13. The initial offset credit account shall be the total carbon dioxide offsets for which the site certificate holder has provided offset funds to The Climate Trust, pursuant to Carbon Dioxide Emissions Condition 2.

- d. Each year after beginning commercial operation of the North Mist Compressor Station (“annual carbon dioxide reporting period”), the site certificate holder shall report to the department the annual hours of operation (hr/yr) and annual fuel consumption (MMBtu/yr) for each of the two natural gas-fired, engine-driven compressors. The site certificate holder shall provide the annual report to the department consistent with the annual reporting date for all Mist Facility components.
- (1) The department shall calculate the excess carbon dioxide emissions during each annual carbon dioxide reporting period and subtract those emissions from the offset credit account annually.
 - (2) The offset credit account shall maintain a minimum of 4,500 tons of carbon dioxide credits unless the department determines that based on the calculations conducted in (3)(a) that the balance in the carbon dioxide offset credit account is adequate to cover the estimated future emission of the NMCS over the expected 30-year life span of the NMCS. If the department determines that based on calculations conducted in (3)(a) that the offset credit account is unlikely to contain adequate credits to offset the NMCS carbon dioxide emissions over the estimated 30-year life of the NMCS, the site certificate holder shall replenish the offset credit account. The site certificate holder shall replenish the offset credit account equivalent to the full amount of the estimated future excess emissions. The department shall estimate excess emissions for the remaining period of the deemed 30-year life of the NMCS, based on the average annual excess carbon dioxide emissions in the prior three years. The department shall calculate the estimated future excess emissions of the new compressors and notify the site certificate holder of the amount of payment required, using the monetary path offset rate as described in (c) below.
 - (3) For any additional future payments related to the carbon dioxide offset credit account as described in this condition, the carbon dioxide offset rate of \$1.27 shall be adjusted for inflation to present value from the date the Council issues the final order for Amendment ~~41~~13, using the US Gross Domestic Product Implicit Price Deflator, as published by the US Department of Commerce, Bureau of Economic Analysis, or any successor agency.
 - (4) The department shall calculate and the certificate holder shall pay additional contracting and selection funds to the qualified organization pursuant to Carbon Dioxide Emissions Condition 2(1).
 - (5) The certificate holder shall remit payment of the additional monetary path payment requirement to replenish the offset credit account to The Climate Trust or other qualified organization (as

- e. The two engine-driven compressors operated at the North Mist Compressor Station and the three compressors located at Miller Station shall be fueled solely with pipeline quality natural gas or with synthetic gas with a carbon content per million Btu no greater than pipeline quality natural gas. The department shall use a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel to calculate carbon dioxide emissions.

[Amendment ~~11~~13 Carbon Dioxide Emissions Conditions 2]

E. Other Amendment-Specific Conditions

1. Conditions Applicable to Amendment 4

- a. Conditions for DSL Removal Fill Permit
Construction of the Project will require a Removal-Fill permit from the Department of State Lands (DSL). The Council, in consultation with DSL, approves the activities associated with the Removal-Fill permit, subject to the following conditions:
 - (1) NWN shall minimize impacts for the Category 2 wetland north of Highway 202 by taking steps including but not limited to:
 - (a) using a single trench for dual pipelines and keeping the installation as narrow as possible while remaining consistent with safety and practical installation requirements.
 - (b) timing construction for the dry time of year, not to extend beyond November 15.
 - (c) separating and returning topsoil to the trench backfill surface for pipelines and installing clay barriers at each end of the wetland crossing.
 - (d) avoiding the rest of the wetland crossing during construction by use of the existing road through the wetland for construction equipment. [Amendment 4]
 - (2) NWN shall restore habitat in the Category 2 wetland to the north of highway 202 to preconstruction conditions within two growing seasons. [Amendment 4]
 - (3) NWN shall minimize impact to wetlands by separating the upper foot of topsoil from the rest of the trench spoils and replacing it on the top of the trench. [Amendment 4]

- (4) NWN shall filter any water pumped from the trench during construction to remove sediments before it is returned to the wetland. [Amendment 4]
 - (5) NWN shall complete pipeline construction through the wetland by November 15, 1997. [Amendment 4]
 - (6) Turbidity shall not exceed 10% above natural stream turbidities as a result of the project except that the Department of Environmental Quality allows that the 10% limit may be exceeded for a limited duration, provided all practicable erosion control measures have been implemented, including but not limited to:
 - (a) use of filter bags, sediment fences, catch basins or other means to prevent off site movement of soil
 - (b) use of impervious covers for stockpiles left unattended or during a rain event,
 - (c) waste materials and spoils shall be placed on uplands, such that the material cannot reenter a waterway or wetland, and
 - (d) all areas of soil disturbance shall be seeded or otherwise revegetated with native species upon completion of construction to prevent subsequent erosion. [Amendment 4]
- b. Conditions Related to Limited Water Use Permit

- (1) Construction of the Project will require a one-time use of approximately 300,000 gallons of water for pipeline testing. This use will require a Limited Water Use permit from the Water Resources Department. The water would be withdrawn from the Nehalem River. The Council approves this use, subject to the following conditions and in consultation with the Water Resources Department:
 - (a) The licensee shall install, maintain and operate fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. The required screens and by-pass devices are to be in place, functional and approved by an Oregon Department of Fish and Wildlife representative prior to diversion of any water. [Amendment 4]
 - (b) The use shall be allowed only at times when the Watermaster has determined the flows of the source stream, namely the Nehalem River, are sufficient to satisfy instream water rights. [Amendment 4]

- (c) The licensee shall give notice to the Watermaster not less than 15 days or more than 60 days in advance of using the water. The notice shall include the location of the diversion and place of use, the quantity of water to be diverted and the intended use. [Amendment 4]
- (d) The licensee shall maintain a record of use, including the total number of hours of pumping, an estimate of the total quantity pumped, and the categories of beneficial use to which the water is applied. The record of use shall be submitted to the Watermaster upon request. [Amendment 4]
- (e) The limited license is effective for use between September 15, 1997 and November 15, 1997. [Amendment 4]

c. Conditions Related to DEQ WPCF permit

Construction of the Project will require a one-time discharge of the water used for pipeline testing. The water will be discharged by land application to a pasture located near the Nehalem River and in the vicinity of the directional drilling site. This discharge requires a Water Pollution Control Facilities (WPCF) permit from the Department of Environmental Quality (DEQ). The Council approves this activity, subject to the following conditions and in consultation with DEQ:

- (1) No discharge to State waters is permitted. All waste water shall be distributed on land for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:
 - (a) Prolonged ponding of waste on the ground surface;
 - (b) Surface runoff or subsurface drainage through drainage tile;
 - (c) Creation of odors, fly and mosquito breeding and other nuisance conditions, and
 - (d) The overloading of land with nutrients or organics. [Amendment 4]

- (2) NWN shall, during all times of disposal, provide personnel whose primary responsibilities are to assure the continuous performance of the disposal system within the limitations of the permit. [Amendment 4]
- (3) Prior to land disposal of the waste water it shall be treated by filtering through straw bales. [Amendment 4]
- (4) Unless approved by EFSC and DEQ, waste water that is disposed of on land but not used to irrigate crops shall be disposed of on a deep-rooted cover crop to ensure maximum infiltration and evapotranspiration rate. [Amendment 4]
- (5) Prior to constructing or modifying any waste water control facilities, detailed plans and specifications shall be approved in writing by EFSC and DEQ. [Amendment 4]
- (6) An adequate contingency plan for prevention and handling of spills and unplanned discharges shall be in force at all times. A program of employee orientation and education shall be maintained to ensure awareness of the necessity for good inplant control and proper action in the event of a spill or accident. [Amendment 4]

2. Conditions Applicable to Amendment 8

a. Condition under OAR 345 Division 27

- (1) NWN must decommission the new equipment and portion of the facility described in Amendment 8 and restore the site to a useful and non-hazardous condition as provided in OAR 345-022-0010 and the retirement plan previously described in the Order Approving Amendment 4. In addition, immediately upon execution of Amendment 8 to the Site Certificate, NWN must provide EFSC with a surety bond or other form of financial assurance, which shall guarantee NWN's obligation and indemnify the state from any failure by NWN to decommission the new equipment and portion of the facility described in Amendment 8 and restore the site to a useful and non-hazardous condition as provided in OAR 345-022-0010 and the retirement plan previously described in the order approving Amendment 4 to the Site Certificate. The Council delegates authority for approval of the bond to the Council chair. The amount of the bond or financial assurance must be \$400,000 in 2001 dollars. The calculation of 2001 dollars shall be made using the U.S. Gross Domestic Product Implicit Price Deflator, as published by

the U. S. Department of Commerce, Bureau of Economic Analysis, or any successor agency (the “index”). If, at any time, the index is no longer published, the Council will select a comparable replacement index. [Amendment 8] [OAR 345-027-0020(8)]

b. Conditions under OAR 345 Division 24

- (1) Immediately upon execution of Site Certificate Amendment 8 authorizing the compressor described in NWN’s Request for Amendment 8 (“new compressor”), NWN shall report to EFSC the design and operating parameters of the new compressor, as specified in subsections (a) through (c).
 - (a) NWN shall notify the Council in writing of its final selection of a gas turbine compressor vendor. [Amendment 8]
 - (b) NWN shall submit written design information sufficient to verify the new compressor’s designed heat rate (higher heating value) and its nominal capacity. NWN shall include an affidavit certifying the heat rate and nominal capacity of the new compressor. [Amendment 8]
 - (c) NWN shall specify the estimated annual average hours that it reasonably expects to operate the new compressor. [Amendment 8]
- (2) NWN shall submit all monetary path payment requirement calculations to the Department of Energy (“department”) for verification in a timely manner prior to making payments to The Climate Trust. NWN shall use the contracted design parameters for nominal capacity and heat rate of the new compressor, along with the estimated annual hours of operation, that it reports pursuant to Condition (1) to calculate the estimated monetary path payment requirement. For the purposes of this Site Certificate, the “monetary path payment requirement” means the offset funds determined pursuant to OAR 345-024-0630 and the selection and contracting funds that NWN must disburse to The Climate Trust, as the qualified organization, pursuant to OAR 345-024-0710 and this Site Certificate. [Amendment 8]
 - (a) The net carbon dioxide emissions rate for the new compressor shall not exceed 0.522 pounds of carbon dioxide per horsepower hour. [Amendment 8]

- (b) The offset fund rate for the monetary path payment requirement shall be \$0.85 per ton of carbon dioxide (in 2001 dollars). For the initial monetary path payment that NWN must make prior to beginning construction, the calculation of 2001 dollars shall be made using the US Gross Domestic Product Implicit Price Deflator, as published by the US Department of Commerce, Bureau of Economic Analysis, or any successor agency (“the index”). The amount of the payment requirement shall increase annually by the percentage increase in the index and shall be pro-rated within the year to the date of disbursement to The Climate Trust from October 26, 2001. If at any time the index is no longer published, the Council shall select a comparable calculation of 2001 dollars. [Amendment 8]
 - (c) NWN shall offset excess carbon dioxide emissions using the monetary path as described in OAR 345-024-0710 and this Site Certificate. Contracting and selecting funds shall equal twenty (20) percent of the value of any offset funds up to the first \$250,000 (in 2001 dollars) and 4.286 percent of the value of any offset funds in excess of \$250,000 (in 2001 dollars). [Amendment 8]
- (3) Immediately upon execution of this Site Certificate Amendment 8, NWN shall pay cash to The Climate Trust in the full amount of the monetary path payment requirement (in 2001 dollars) as determined by the calculations set forth in Condition (2). [Amendment 8]
- (4) The department shall establish an “offset credit account.” The initial offset credit account shall be the total carbon dioxide offsets for which NWN has provided offset funds to The Climate Trust, pursuant to Condition (3). [Amendment 8]
- (5) Each year after beginning commercial operation of the new compressor (“annual carbon dioxide reporting period”), NWN shall report to the department the annual hours the new compressor operated and its fuel use in Btu. NWN shall provide the annual report to the department within 30 days of the anniversary date of beginning commercial operation of the new compressor. [Amendment 8]
 - (a) The department shall calculate the excess carbon dioxide emissions during each annual carbon dioxide reporting period

and subtract those emissions from the offset credit account annually. [Amendment 8]

- (b) If the offset credit account contains fewer than 6,000 tons of carbon dioxide offset credits, NWN shall replenish the offset credit account. NWN shall replenish the offset credit account equivalent to the full amount of the estimated future excess emissions. The department shall estimate excess emissions for the remaining period of the deemed 30-year life of the facility, based on the average annual excess carbon dioxide emissions in the prior three years. The department shall calculate the estimated future excess emissions of the new compressor and notify NWN of the amount of payment required, using the monetary path, to replenish the offset credit account. [Amendments 8, 9]
- (c) Notwithstanding the index identified in Condition (2)(b), pursuant to OAR 345-024-0710(6)(a) the formula to calculate the rate for the dollar value per ton of carbon dioxide offsets by which NWN shall replenish its offset credit account through the monetary path shall be $\$0.85 \text{ times } (1.0891 \text{ to the power } "t")$; where "t" is the elapsed time in years between October 26, 2001, and the date the Office notifies NWN that it must replenish its offset credit account, pursuant of OAR 345-024-0630(4). Fractional years shall be calculated by dividing the number of elapsed days in excess of a whole year by 365. [Amendment 8]
- (d) The department shall calculate additional contracting and selection funds pursuant to Condition 2(c).
- (e) NWN shall disburse in cash the additional monetary path payment requirement to replenish the offset credit account to The Climate Trust within 30 days after notification by the department of the amount that NWN owes. [Amendment 8]
- (6) The new gas turbine compressor shall be fueled solely with pipeline quality natural gas or with synthetic gas with a carbon content per million Btu no greater than pipeline quality natural gas. The department shall use a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel to calculate carbon dioxide emissions. [Amendment 8]

3. Conditions Applicable to Amendment 9

a. Condition under OAR 345 Division 27

- (1) Before beginning the construction authorized under Amendment 9, NWN shall submit to the State of Oregon, through the Council, a bond or letter of credit, satisfactory to the Council, in the amount of \$500,000 in 2003 dollars. This condition may be satisfied by a new financial instrument or by updating the bond submitted pursuant to Amendment 8. [Amendment 9]

4. Conditions Applicable to Amendments ~~11, and 12,~~ and 13

a. Conditions for DSL Removal Fill Permit

- (1) Prior to construction of the Amendment ~~11-13~~ components, the certificate holder shall submit to the department and DSL the final Site Rehabilitation of Temporary Impacts Plan consistent with the draft plan provided in Attachment ~~G-XX~~ of this order. The certificate holder shall obtain written concurrence from the department and DSL that the final plan demonstrates compliance with and is consistent with all applicable rules and requirements. If the department and DSL have not provided a response within 30 days following the site certificate holder's submission of the final Site Rehabilitation of Temporary Impacts Plan, the Plan will be considered approved. [Amendment ~~11-13~~ Removal-Fill Condition 1]
- (2) During operation of the Amendment ~~11-13~~ components, the certificate holder shall monitor temporarily impacted and restored wetland sites for three years following the year of construction completion. Annual monitoring shall occur during the growing season and shall include visual surveys to estimate the coverage area of native versus nonnative species. The certificate holder shall provide an annual report with the methodology and results of the surveys on an annual basis to USACE, DSL, and the department. [Amendment ~~11-13~~ Removal-Fill Condition 2]
- (3) Before beginning construction of the Amendment ~~11-13~~ components, the certificate holder must obtain and provide proof to the department that a removal-fill permit from DSL was obtained and that it includes the conditions recommended in Attachment ~~XX-H~~ of the final order. The certificate holder must comply with all

conditions of the removal-fill permit. [Amendment ~~11~~13 Removal-Fill Condition 3]

b. Conditions Related to Limited Water Use Permit – Amendment 11 and Amendment 12 (LL-1575, LL-1576 and LL-1709)

- (1) The use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate and shall be subordinate to all other authorized uses that rely upon the same source. (LL-1575 and LL-1576 Condition 5, LL-1709 Condition 6)
- (2) The certificate holder shall give notice to the Department and the Watermaster in the district where use is to occur not less than 15 days or more than 60 days in advance of using water under the limited water use licenses. The notice shall include the location of the diversion, the quantity of water to be diverted and the intended use and place of use. (LL-1575 and LL-1576 Condition 2, LL-1709 Condition 3)
- (3) Before water use may begin under LL-1575, LL-1576 and LL-1709, the certificate holder shall install a totalizing flow meter at each point of diversion. The totalizing flow meter must be installed and maintained in good working order. In addition, the certificate holder shall maintain a record of all water use, including the total number of hours of pumping, the total quantity pumped, and the categories of beneficial use to which the water is applied. During the period of the license, the record of use shall be submitted to the Department and Oregon Department of Water Resources within 90-days of completion of use from the point of diversion, and shall be supplied to the Watermaster on request. (LL-1575 and LL-1576 Condition 3, LL-1709 Condition 4)
- (4) The period rate and volume of use for LL-1575 shall be from June 1, 2017, through November 30, 2018, for the use of 2,000 gallons per minute, up to 4.46 million gallons total from Beaver Slough, for the purpose of hydrostatic testing of new pipeline, and drilling fluid for horizontal direction drilling. (LL-1575 Condition 1)
- (5) The period rate and volume of use for LL-1709 shall be from August 18, 2017, through November 30, 2017, for the use of 2,000 gallons per minute, up to 300,000 gallons total from Beaver Slough located at the NE ¼, NE ¼, Section 21, Township 8 North, Range 4 West,

W.M., for horizontal direction drilling and dust abatement. (LL-1709 Condition 1)

- (6) LL-1709 is not intended to authorize additional water withdrawal beyond that already allowed under LL-1575, and therefore contributes no additional impact to the water source. The use of water under LL-1709, or, in combination with license LL-1575, shall not exceed 2,000 gallons per minute, or up to 300,000 gallons of the total 4.46 million gallons allowed under LL-1575. (LL-1709 Condition 2)
- (7) The period rate and volume of use for LL-1576 shall be from June 1, 2017, through November 30, 2018, for the use of 2,000 gallons per minute, up to 2.2 million gallons total from Bradbury Slough, for the purpose of hydrostatic testing of new pipeline, and drilling fluid for horizontal direction drilling. (LL-1576 Condition 1)
- (8) For LL-1575 and LL-1576, the certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. Fish screens shall be installed consistent with the fish screening criteria provided as Attachment D to the site certificate. (LL-1575 and LL-1576 Condition 6)
- (9) For LL-1709, the certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. Fish screens shall be installed consistent with the fish screening criteria provided as Attachment D to the site certificate. (LL-1709 Condition 7).
 - (a) The certificate holder shall consult with ODFW Fish Screens and Passage Program Manager and shall provide the Department evidence of consultation prior to use under LL-1709 to demonstrate that the fish screen installed at the diversion point meets ODFW's applicable criteria.
- (10) The Council may, at the request of Oregon Department of Water Resources Director, revoke the right to use water for any reason described in ORS 537.143(2), and OAR 690-340-0030(6). Such revocation may be prompted by field regulatory activities or by any other information. (LL-1575 and LL-1576 Condition 4, LL-1709 Condition 5)

- (11) Use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate, and shall be subordinate to all other authorized uses that rely upon the same source. (LL-1575 and LL-1576 Condition 5, LL-1709 Condition 6)
- (12) A copy of the licenses shall be kept at the place of use, and be available for inspection by the Department, Watermaster or other state authority. (LL-1575 and LL-1576 Condition 8, LL-1709 Condition 9)

[Amendment 11 and 12 Limited Water Use License Conditions]

c. Conditions under Noise Control Regulations (OAR 340, Division 35)

- (1) Prior to operation of the Amendment ~~44-13~~ components, the certificate holder shall submit an Operational Complaint-Based Noise Monitoring Protocol (protocol) to the department for review and approval. The protocol shall provide for testing at houses whose owners or occupants submit a complaint to EFSC or the department. The protocol shall include a schedule for completion of noise testing following complaints and when testing results will be transmitted to the department and EFSC. [Amendment ~~44-13~~ Noise Control Condition 1]
- (2) During operation of the Amendment ~~44-13~~ components, public complaints received by the certificate holder of noise generated from operation of the Amendment ~~44-13~~ components shall be documented, responded to, and reported to the department within 72-hours of complaint receipt. NWN shall provide to the department a report summarizing the noise complaint, date complaint received, proposed noise monitoring activities, or other action deemed appropriate to respond to the noise complaint, and results (in dBA) of noise monitoring to determine compliance with the DEQ noise control regulation. [Amendment ~~44-13~~ Noise Control Condition 2]

VIII. SUCCESSORS AND ASSIGNS

This agreement is binding upon NWN and any co-owners, partners or joint venturers of NWN in the construction and operation of the underground storage facility and related and supporting facilities and upon any successors in interest to or assignees of either NWN or any co-owner, partner or joint venturer.

IN WITNESS WHEREOF, this Site Certificate Agreement has been executed by the State of Oregon, acting by and through its Energy Facility Siting Council, and Northwest Natural Gas Company as below subscribed on this 22nd day of September, 2017.

Energy Facility Siting Council

Date:

Northwest Natural Gas Company

By: _____
Northwest Natural Gas Company

Date: _____
1

APPENDIX 1: Map of Bruer-Flora Storage Area and Miller Station

APPENDIX 2: Map of Calvin Creek Storage Area

APPENDIX 3: Map of North Mist Expansion Project Area

APPENDIX 4: Oregon Department of Fish and Wildlife Fish Screen Criteria, Section 11 of "Anadromous Salmonid **Passage** Facility Design," NMFS July 2011.

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Attachment 2. Inadvertent Return Response Plan

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Inadvertent Return Response Plan

Preventative Measures

Prior to the start of construction, the Horizontal Directional Drilling (HDD) contractor will be required to read the HDD Design report, if applicable. The contractor will be required to follow the recommendations presented in that report for preventing Inadvertent Returns during construction.

Wetlands and Perennial Streams

In the event of an Inadvertent Return (IR), or unintentional release of drilling mud under pressure into perennial streams or wetlands, the following response plan would be implemented.

1. Pre-drilling.

Pipeline construction personnel and inspection staff would be adequately trained prior to construction to identify and use appropriate response materials. The following materials would be on-site during drilling and available for transport to the vent location within 30 minutes:

- Vacuum Truck with sufficient capacity for an immediate response; arrangements for additional trucks as needed prior to commencing bores
- Certified Weed Free Straw or hay bales
- Stakes to secure bales
- Silt fence
- Sand bags
- Leak-free hose(s) and pump(s)
- Straw logs (wattles, or fiber rolls)
- Heavy-duty push brooms
- Light tower(s) (if necessary, deliver to site as soon as practicable)
- Boat with appropriate personal safety equipment, of sufficient capacity to safely conduct clean up from (if necessary, deliver to site as soon as practicable)

A sufficient pumping system would be in place to accommodate all drilling fluids at the bore entry and exit location to contain all drilling fluids within the bore entry and exit pits.

2. Event response.

Contact NWN Environmental Management immediately 503-226-4211 x4330

In addition to previously stated measures to avoid and minimize IR related impacts, the following response measures would be implemented upon discovery of the loss of drilling fluid into streams or wetlands:

- Directional drilling will stop immediately.
- The drill fluids will be contained immediately. Types of containment may be straw bales, sediment fence, 55 gallon barrel, culvert, or sandbags. It is up to the Environmental Inspector to determine the appropriate containment method in order to best protect the site-specific resource.
- The following entities would be contacted by phone immediately, but no later than 24 hours; USACE, DSL, DEQ or Ecology, ODFW or WDFW. NMFS and USFWS would also be contacted in the event of impacts to federally listed species.
- In flowing streams, qualified fisheries biologists would be on alert to conduct fish salvage operations (under the appropriate permits to be acquired prior to construction) in the reach prior to any bentonite removal activities, and block nets would be employed to ensure no fish or other aquatic species reenter the affected area until after the sediments are removed.
- In delineated wetlands, qualified wetland scientists would be on-site to identify resources and monitor effects.
- Commercially available non-toxic polymers may be used in an attempt to seal the fracture.
- If an IR vent cannot be sealed, where practical, the drill pipe would be removed from the existing drill hole to a point where a new drill path can be attempted by drilling out of the existing hole and creating a new hole. The old hole would be abandoned.
- If the original drill path cannot be utilized, the drill rig would be moved to a new, adjacent location, staff would verify that the new, adjacent location meets the requirements of all applicable project permits and approvals.
- If an IR occurs during “pull-back”, adjustments to the pull-back operations will be made to minimize inadvertent returns.

In flowing streams the following approach would generally be followed after the vent (IR) is stopped. Due to the unpredictable nature of the location and environment in which vents may appear, this description cannot encompass all possible approaches to clean up under all conditions. Agency staff and other experts would be consulted with to the extent practicable to develop ad hoc clean up techniques as needed. The following are standard response techniques that would be applied:

- If the bentonite material flows overland prior to entering the stream, installation of silt fencing or sandbag dams at the point of entry would be

used to reduce or stop the flow; if the vent is directly into the stream, other means to isolate the vent site from the flowing stream would be used.

- Using a vacuum truck, with a sufficient hose, personnel would remove the bentonite, working from downstream to upstream, to allow maximum visibility. Hand tools may be used to scarify the sediments and ensure removal to maximum extent practicable.
- If necessary water may be diverted using a coffer dam to isolate the impact area. Only a portion of the stream would be diverted to minimize dewatering impacts. Water would be able to pass through the site in its natural condition.
- If it is impracticable to remove the drill fluid from the stream, a clear, written explanation would be submitted to the Corps. The Corps would coordinate with USFWS and/or NOAA Fisheries. Any fluids left in the stream channel would receive a written approval from the Corps.
- Any disturbed soils would be stabilized immediately.
- Exposed mineral soils would be seeded with native vegetation immediately.
- Disturbance of vegetation would be kept to a minimum and all disturbed vegetation would be restored and/or replanted with native species, to eventually recreate the functional values of the lost vegetation
- Damaged riffle and pool sediment strata would be re-contoured to the extent practicable under the direction of Agency personnel.
- NWN would compensate for the loss of aquatic habitat by mitigating at a ratio of 2:1. A mitigation plan would be submitted to the Corps within 7 days of an IR occurring. The mitigation plan would include detailed information about the IR, how the drill fluid was contained and removed, the amount, if any, of drill fluid left in the stream, the impact area drawn on a map, the location of the mitigation site, type of mitigation to be performed, and types of plantings.

Ephemeral Streams

In the event of an Inadvertent Return (IR) into dry ephemeral streams, a response plan similar to the above described would be implemented, with the following exceptions:

- Fisheries personnel would not be required to respond unless the IR produced sufficient flow to introduce bentonite into downstream perennial streams.
- Qualified wetlands scientists would be on-site to evaluate conditions, and to assist with minimization of further impacts resulting from clean up activities (e.g. equipment entering sensitive wetland areas).
- Mitigation would only be required for material that must be left as permanent fill in a delineated wetland.

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Attachment 3. Division 21 Exhibits

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Given their size, the Division 21 Exhibits have been included as separate files to maintain ease of use.

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Attachment 4. Property Owner List

(also attached as an Excel file)

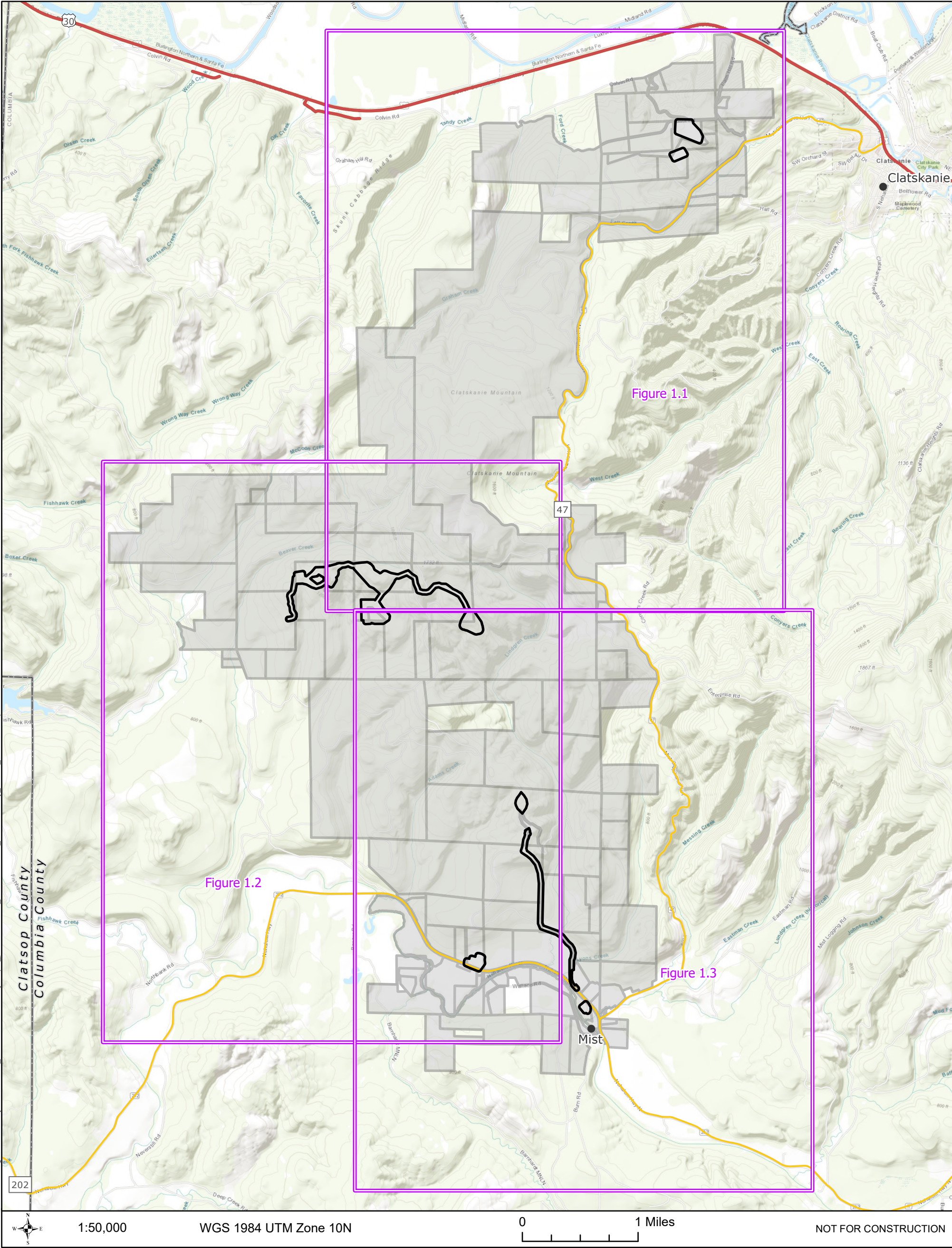
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Map Tax Lot	First Name	Last Name	Name 2	Company/Organization	C/O-Attn.	Address	City	State	Zip Code
6N5W 100 200				DICKINSON FAM TRT&KALESSE&KALESSE RL TRT		13195 SW 17TH ST	BEAVERTON	OR	97008
6N5W 100 700				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W00 100				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
6N5W00 200				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
6N5W00 300				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
6N5W00 600				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
6N5W00 700				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W00 2500				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
6N5W00 2501				NORTHWEST NATURAL GAS CO		220 2ND AVE NW	PORTLAND	OR	97231
6N5W00 2502				NORTHWEST NATURAL GAS CO		250 SW TAYLOR ST	PORTLAND	OR	97204-3034
6N5W00 2600				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W00 2700				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
6N5W00 2800	ROBERT MICHAEL	BUSCH	WILLIAM CARTER			13153 CANYON WREN CT	MOORPARK	CA	93201
6N5W00 2900	ROBERT MICHAEL	BUSCH	WILLIAM CARTER			13153 CANYON WREN CT	MOORPARK	CA	93201
6N5W00 3000	ROBERT MICHAEL	BUSCH	WILLIAM CARTER			13153 CANYON WREN CT	MOORPARK	CA	93201
6N5W00 3100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W00 3200				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W00 3300				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W00 4600				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W1000 100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W1300 300				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W13C0 100	STANLEY L	RIDER	LISA A			69143 HIGHWAY 27	MIST	OR	97106
6N5W13C0 101				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W13CC 1800	CARMELA	HANSON				6800 MONTGOMERY RD	MIDLOTHIAN	TX	76065
6N5W13CC 2000	RICHARD C	BYERS	ELIZABETH A			69005 HIGHWAY 47	MIST	OR	97016
6N5W13CC 2300	RICHARD C	BYERS	ELIZABETH A			69005 HIGHWAY 47	MIST	OR	97016
6N5W1400 100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W1400 200	MICHAEL R	JAMIESON				30180 NW FERN FLAT RD	NORTH PLAINS	OR	97133
6N5W1400 300	BRANDON	HOLM				PO BOX 121	VERNONIA	OR	97064
6N5W1400 400	JOHN	FERGUSON	RANDY AND REBECCA ZUBER			71004 NEER CITY RD	RAINIER	OR	97048
6N5W1400 401	JOHN	FERGUSON	RANDY AND REBECCA ZUBER	FERGUSON JOHN & ZUBER RANDY & REBECCA		71004 NEER CITY RD	RAINIER	OR	97048
6N5W1400 500	CINDY	NELSON				14998 HIGHWAY 202	MIST	OR	97016
6N5W1400 501				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W1400 502	ERIC S	HANEY	JULIE			14919 HIGHWAY 202	MIST	OR	97016
6N5W1400 503				SHOESMITH DAVID & NANCY REVOC LIVING TRT		5560 NW PEREGRINE PL	PORTLAND	OR	97231
6N5W1400 600	CINDY DARLENE	NELSON	KENDELL			14998 HWY 202	MIST	OR	97016

Map Tax Lot	First Name	Last Name	Name 2	Company/Organization	C/O-Attn.	Address	City	State	Zip Code
6N5W1400 700	MICHAEL	GALASSI				14431 WALLACE RD	MIST	OR	97016
6N5W1400 801	JOHN	WELLER	VICKI			14291 WALLACE RD	MIST	OR	97016
6N5W1400 806	JOHN A	WELLER	VICKY LYN			14291 WALLACE RD	CLATSKANIE	OR	97016
6N5W1400 900	FOREST L	HEMEON	GERALDINE L			14090 WALLACE RD	MIST	OR	97016
6N5W1400 903	JOHN A	WELLER	VICKY LYN			14291 WALLACE RD	MIST	OR	97016
6N5W1500 100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W1500 200	RANDALL C	HANSEN	KARI H			13950 HIGHWAY 202	CLATSKANIE	OR	97016-7220
6N5W1500 201	RANDALL C	HANSEN	KARI H			13990 HIGHWAY 202	MIST	OR	97016
6N5W1500 202	RANDALL C	HANSEN	KARI H			13990 HIGHWAY 202	MIST	OR	97016
6N5W1500 300	SHERRI RAE	CHENETTE-MANNING				13753 HIGHWAY 202	MIST	OR	97016
6N5W1500 400	ANDREW	KAWAFUNE				13247 HIGHWAY 202	CLATSKANIE	OR	97016
6N5W1500 500				NORTHRUP CREEK FARMS LLC		85748 NORTHRUP CREEK RD	BIRKENFELD	OR	97016
6N5W1500 501	DANIEL EDWARD	CANO	JULIE DIANE			85748 NORTHRUP CREEK RD	BIRKENFELD	OR	97016
6N5W1500 502				NORTHRUP CREEK FARMS LLC		85748 NORTHRUP CREEK RD	BIRKENFELD	OR	97016
6N5W1500 503				NORTHRUP CREEK FARMS LLC		85748 NORTHRUP CREEK RD	BIRKENFELD	OR	97016
6N5W1500 504	DANIEL EDWARD	CANO	JULIE DIANE			85748 NORTHRUP CREEK RD	BIRKENFELD	OR	97016
6N5W1500 800	JARED KYLER	BUSCH	JASON CHRISTOP BUSCH			13215 BUSCH LN	MIST	OR	97016
6N5W1500 801	MARY LOU	BUSCH				13161 BUSCH LN	MIST	OR	97016
6N5W1500 802	JASON C	BUSCH	KELLY L			13215 BUSCH LN	MIST	OR	97016
6N5W1500 803	JARED K	BUSCH	KATIE ANN			13207 BUSCH LN	MIST	OR	97016
6N5W1500 900	AMARA ELAYNE	TEMPLIN	WILLIAM HANSEN			13950 HIGHWAY 202	CLATSKANIE	OR	97016
6N5W2300 100	SHUXIAN	CHEN				68901 NEHALEM HWY N	VERNONIA	OR	97064
6N5W2300 200	JAMES E	WOODS				68760 BURN RD	CLATSKANIE	OR	97016
6N5W2300 202	PEKKA O	HALME	SUSAN A			22514 NE 72ND AVE	BATTLE GROUND	WA	98604
6N5W2300 400				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
6N5W2300 500				MIDDLETON M & WHITEMAN V & CARTER B		13607 SW LAUREN LN	TIGARD	OR	97223
6N5W2400 300				RAU FAMILY LIVING TRUST		68912 NEHALEM HWY N	VERNONIA	OR	97064
6N5W2400 301				RAU FAMILY LIVING TRUST		68912 NEHALEM HWY N	VERNONIA	OR	97064
6N5W2400 302	TEMPEST	ROBERTS				69000 HWY 47	MIST	OR	97016
6N5W2400 400				OREGON DEPARTMENT OF TRANSPORTATION		6000 RAAB RD SW	PORTLAND	OR	97231
7N4W 600 1400				WEYERHAEUSER NR COMPANY		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N4W 700 1000				EVENSON LOGGING CO		PO BOX 127	CLATSKANIE	OR	97016
7N4W 700 1001	NORMA	DAVIS	THOMAS MITCH			76886 PALM HILL	CLATSKANIE	OR	97016
7N4W 700 1100				WEYERHAEUSER NR COMPANY		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N4W 700 1600	RANDE	EILERTSON	PACHOLL C			418 DENNIS LN N	KEIZER	OR	97303
7N4W 700 1703	WILLIAM A	BALDWIN				16101 HALL RD	CLATSKANIE	OR	97016

Map Tax Lot	First Name	Last Name	Name 2	Company/Organization	C/O-Attn.	Address	City	State	Zip Code
7N5W 100 2400	ZEPH	FRIEDMAN-SOWDER				17817 NW SKYLINE BLVD	PORTLAND	OR	97231
7N5W 100 2500	ZEPH	FRIEDMAN-SOWDER				17817 NW SKYLINE	PORTLAND	OR	97231
7N5W 100 2600	SARA	CARSON	NATHAN			PO BOX 843	CLATSKANIE	OR	97016
7N5W 100 2700	WILLIAM D	HIGDON				15520 COLVIN RD	CLATSKANIE	OR	97016
7N5W 100 2702	JEFFERY L	WHITTAKER				145 TALKEETNA HEIGHTS PL	LONGVIEW	WA	98632
7N5W00 1300				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 1500				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 2200				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 2500				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W00 2501				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 2600				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W00 2800				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 2900				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 3000				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 3100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 3500				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W00 3600				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 4300				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
7N5W00 4400				BASCOM PACIFIC LLC		8809 LENOX POINTE DR STE B	CHARLOTTE	NC	28273
7N5W00 4500				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W00 4600				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 4700				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 4701				NORTHWEST NATURAL GAS COMPANY		220 NW SECOND AVE	PORTLAND	OR	97231
7N5W00 4800				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 4900				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 5000				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W00 5100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 5200				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W00 5300				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W1100 600				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W1100 601				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W1200 100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W1200 200				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W1200 201				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W1200 202				SCION LUMBER LLC		PO BOX 157	SHERIDAN	OR	97378
7N5W1200 300	SKYLER	ENGEN	KYLEIGH			15608 ELLIOTT RD	CLATSKANIE	OR	97016

Map Tax Lot	First Name	Last Name	Name 2	Company/Organization	C/O-Attn.	Address	City	State	Zip Code
7N5W1200 400				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W1200 401				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W1200 500				BERGMAN JUDY LIVING TRUST		15910 ELLIOT RD	CLATSKANIE	OR	97016
7N5W1200 600	MARK A	BRADSHAW				76144 HIGHWAY 47	CLATSKANIE	OR	97016
7N5W3200 100				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W3200 1300				WEYERHAEUSER TIMBER HOLDINGS INC		220 OCCIDENTAL AVE S	SEATTLE	WA	98104
7N5W3200 1400	ROBERT BRUCE	ELLIOT	TERESSA M			68998 NORTH BANK RD	BIRKENFELD	OR	97016
7N5W3200 1500				HUNTINGTON FARMS LLC		12576 S GROSHONG RD	MOLALLA	OR	97038
7N5W36B0 900				CLARUTH INC WILLNA INC FRANBEA INC EA1/3		PO BOX 127	CLATSKANIE	OR	97016
7N5W36B0 1000				CLARUTH INC 1/2&WILLNA INC 1/2		PO BOX 127	CLATSKANIE	OR	97016



Mist Resiliency Project

Figure 1 Taxlots

COLUMBIA COUNTY, OREGON

Site Boundary

Grid Index Feature

Taxlot Boundary¹

City/Town

County Boundary

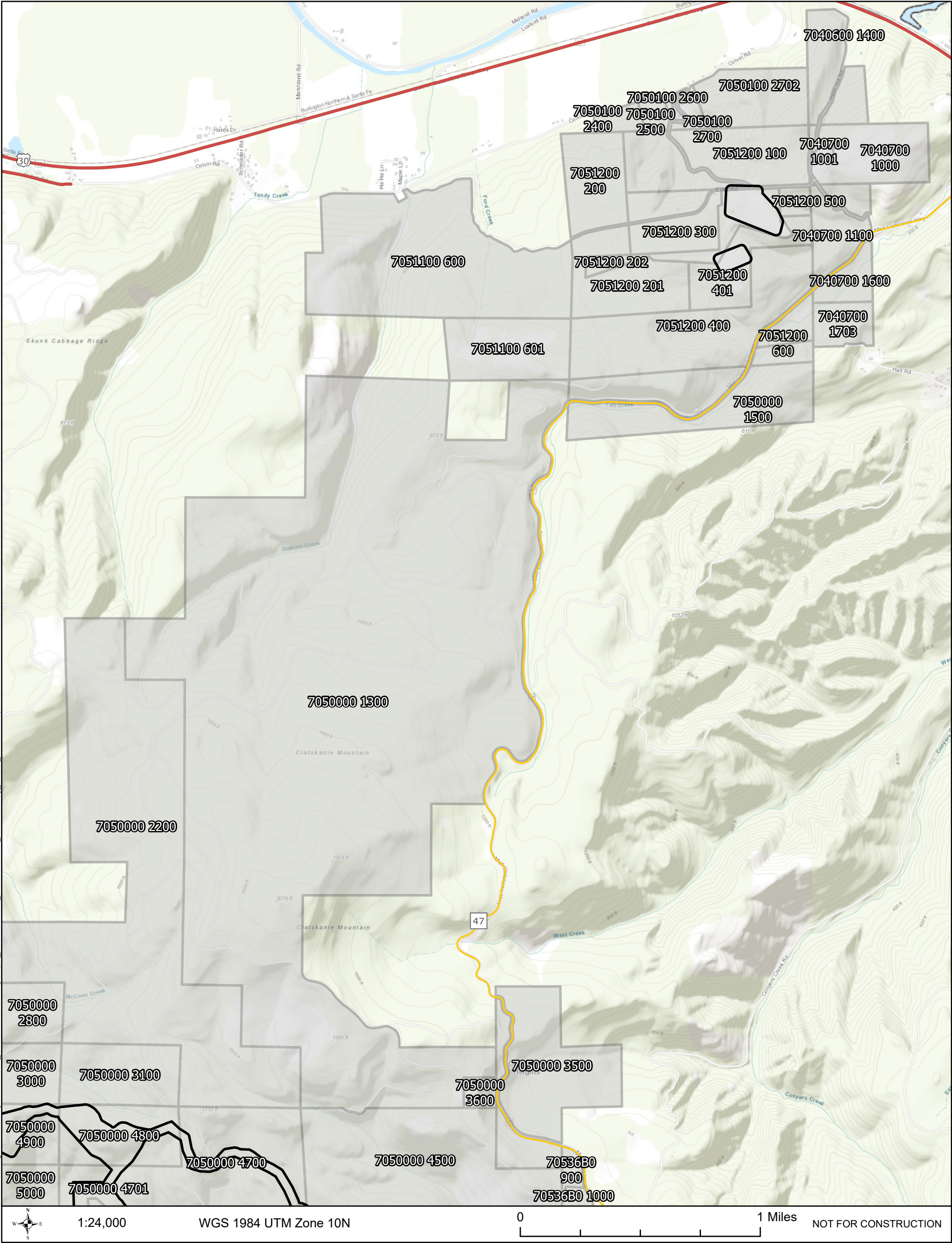
US Highway

State Highway

¹Data downloaded from Columbia County on 7/22/2024
<https://gis.columbiacountymaps.com/ColumbiaCountyWebMaps/>

TETRA TECH

NW Natural



Mist Resiliency Project

Figure 1.1 Taxlots

COLUMBIA COUNTY, OREGON

Site Boundary

Taxlot Boundary¹

County Boundary

US Highway

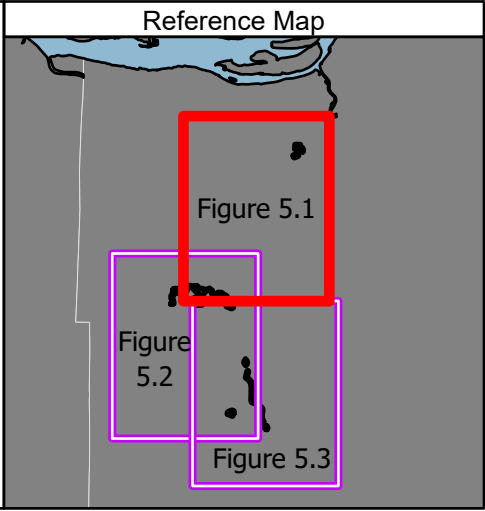
State Highway

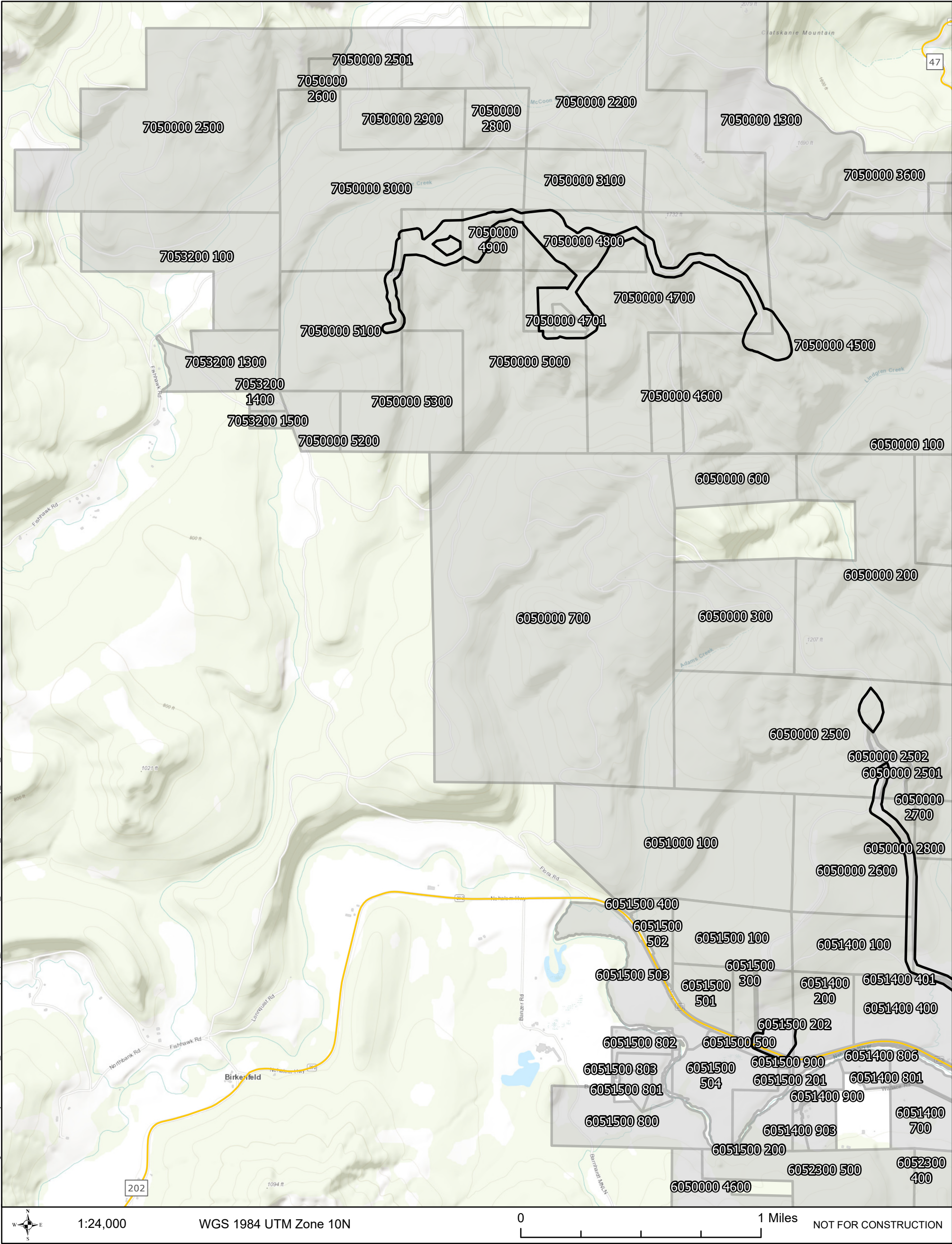
¹Data downloaded from Columbia County on 7/22/2024

<https://gis.columbiacountymaps.com/ColumbiaCountyWebMaps/>

TETRA TECH

NW Natural





Mist Resiliency Project

Figure 1.2 Taxlots

COLUMBIA COUNTY, OREGON

Site Boundary

Taxlot Boundary¹

County Boundary

State Highway

¹Data downloaded from Columbia County on 7/22/2024
<https://gis.columbiacountymaps.com/ColumbiaCountyWebMaps/>

TETRA TECH

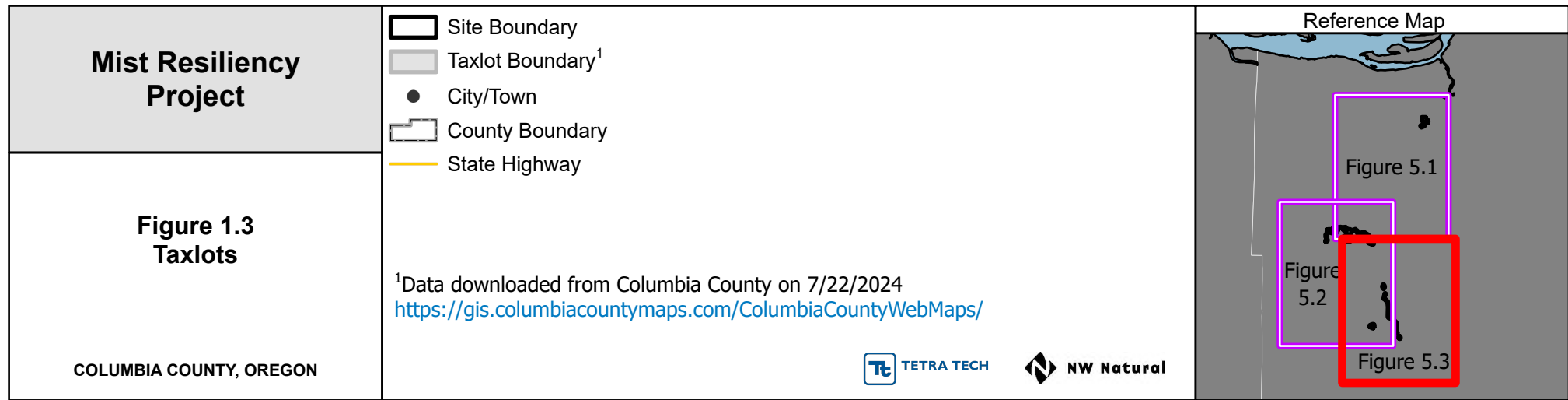
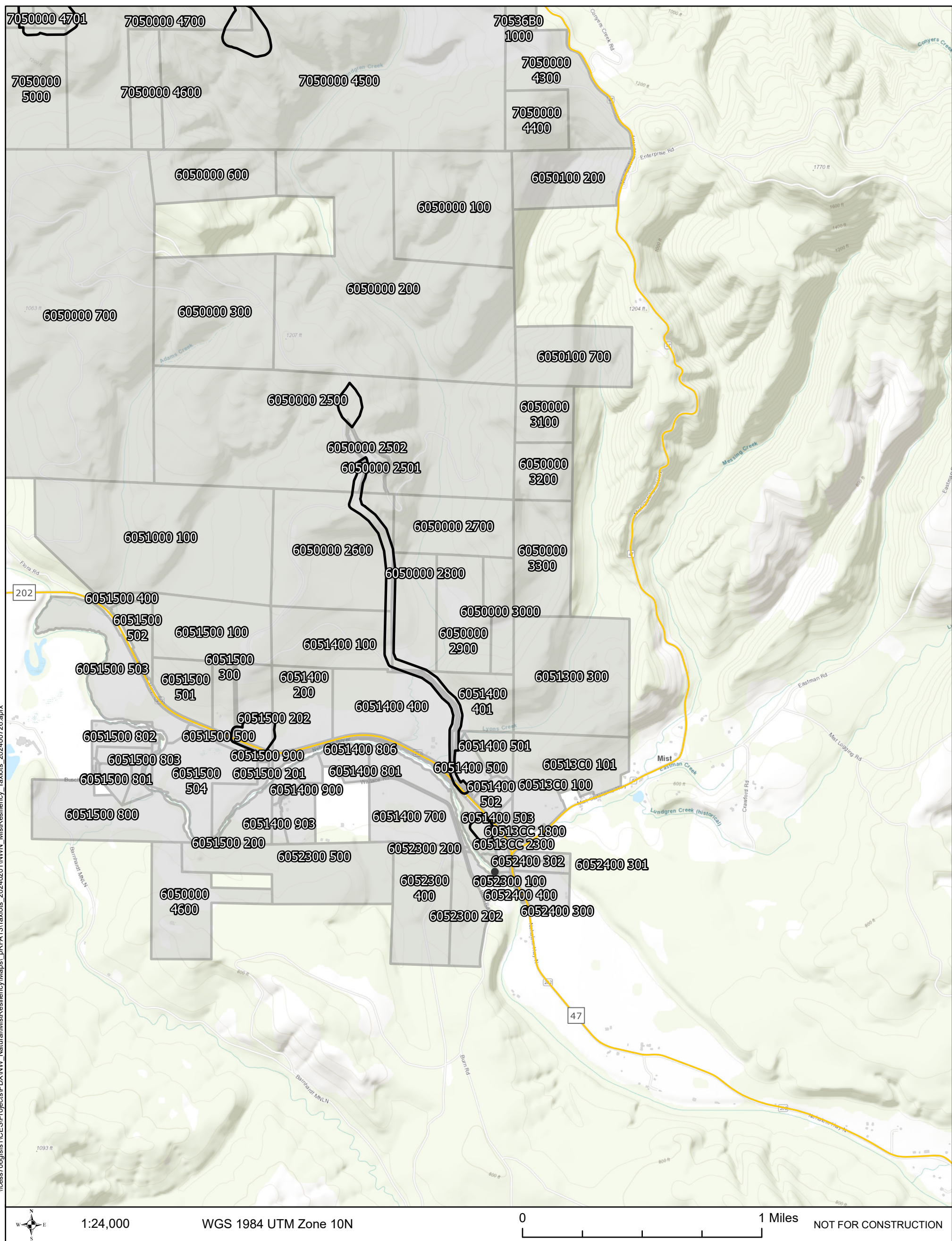
NW Natural

Reference Map

Figure 5.1

Figure 5.2

Figure 5.3



Attachment 5. Amended and Restated Articles of Incorporation

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RESTATED ARTICLES OF INCORPORATION
of
NORTHWEST NATURAL GAS COMPANY

as Filed and Amended June 3, 2008

**AMENDED AND RESTATED ARTICLES OF INCORPORATION
OF
NORTHWEST NATURAL GAS COMPANY**

(These Amended and Restated Articles of Incorporation of Northwest Natural Gas Company supersede its theretofore existing Restated Articles of Incorporation and all amendments thereto.)

ARTICLE I

The name of this corporation is NORTHWEST NATURAL GAS COMPANY, and its duration shall be perpetual.

ARTICLE II

The purposes of the corporation are to engage in any lawful activity for which corporations may be organized under the Oregon Business Corporation Act.

ARTICLE III

- A. The aggregate number of shares of capital stock which the corporation shall have authority to issue is 103,500,000 shares, divided into 3,500,000 shares of Preferred Stock, issuable in series as hereinafter provided, and 100,000,000 shares of Common Stock.
- B. A statement of the preferences, limitations and relative rights of each class of capital stock of the corporation, namely, the Preferred Stock and the Common Stock, of the variations in the relative rights and preferences as between series of the Preferred Stock, insofar as the same are fixed by these Restated Articles of Incorporation, and of the authority vested in the board of directors of the corporation to establish series of Preferred Stock and to fix and determine the variations in the relative rights and preferences as between series insofar as the same are not fixed by these Restated Articles of Incorporation, is as follows:

Preferred Stock

- 1. The shares of the Preferred Stock may be divided into and issued in series. Each series shall be so designated as to distinguish the shares thereof from the shares of all other series of the Preferred Stock and all other classes of capital stock of the corporation. To the extent that these Restated Articles of Incorporation shall not have established series of the Preferred Stock and fixed and determined the variations in the relative rights and preferences as between series, the board of directors shall have authority, and is hereby expressly vested with authority, to divide the Preferred Stock into series and, within the limitations set forth in these Restated Articles of Incorporation and such limitations as may be provided by law, to fix and determine the relative rights and preferences of any series of the Preferred Stock so established. Such action by the board of directors shall be expressed in a resolution or resolutions adopted by it prior to the issuance of shares of each series, which resolution or resolutions shall also set forth the distinguishing designation of the particular series of the Preferred Stock established thereby. Without limiting the generality of the foregoing, authority is hereby expressly vested in the board of directors so to fix and determine with respect to any series of the Preferred Stock:
 - (a) The rate of dividend and the relative preference of each series in the payment of dividends;
 - (b) The price at which and the terms and conditions on which shares may be redeemed;
 - (c) The amount payable upon shares in the event of voluntary and involuntary liquidation and the relative preference of each series on liquidation;
 - (d) Sinking fund provisions, if any, for the redemption or purchase of shares;
 - (e) The terms and conditions, if any, on which shares may be converted if the shares of any series are issued with the privilege of conversion; and

(f) Any other relative right or preference as permitted by law.

All shares of the Preferred Stock of the same series shall be identical except that shares of the same series issued at different times may vary as to the dates from which dividends thereon shall be cumulative; and all shares of the Preferred Stock, irrespective of series, shall constitute one and the same class of stock and shall be identical except as to the designation thereof, the date or dates from which dividends on shares thereof shall be cumulative, and the relative rights and preferences set forth above in clauses (a) through (f) of this subdivision, as to which there may be variations between different series. Except as otherwise may be provided by law or by the resolutions establishing any series of Preferred Stock in accordance with the foregoing provisions of this subdivision, whenever the written consent, affirmative vote, or other action on the part of the holders of the Preferred Stock may be required for any purpose, such consent, vote or other action shall be taken by the holders of the Preferred Stock as a single class irrespective of series and not by different series.

2. The holders of shares of the Preferred Stock of each series shall be entitled to receive dividends, when and as declared by the board of directors, out of any funds legally available for the payment of dividends, at the annual rate fixed and determined with respect to each series either by these Restated Articles of Incorporation or in accordance with subdivision III. B. 1., and no more, payable quarterly on the 15th day of February, May, August and November in each year or on such other date or dates as the board of directors shall determine in the resolutions establishing such series. Such dividends shall be cumulative in the case of shares of each series either from the date of issuance of shares of such series or from the first day of the current dividend period within which shares of such series shall be issued, as the board of directors shall determine, so that if dividends on all outstanding shares of each particular series of the Preferred Stock, at the annual dividend rates fixed and determined either by these Restated Articles of Incorporation or in accordance with subdivision III. B. 1., shall not have been paid or declared and set apart for payment for all past dividend periods and for the then current dividend periods, the deficiency shall be fully paid or dividends equal thereto declared and set apart for payment at said rates before any dividends on the Common Stock shall be paid or declared and set apart for payment. No interest, or sum of money in lieu of interest, shall be payable in respect of any dividend payment or payments which may be in arrears.
3. In the event of any dissolution, liquidation or winding up of the corporation, before any distribution or payment shall be made to the holders of the Common Stock, the holders of the Preferred Stock of each series then outstanding shall be entitled to be paid out of the net assets of the corporation available for distribution to its shareholders the respective amounts per share fixed and determined with respect to each series either by these Restated Articles of Incorporation or in accordance with subdivision III. B. 1., and no more. If upon dissolution, liquidation or winding up of the corporation, whether voluntary or involuntary, the net assets of the corporation available for distribution to its shareholders shall be insufficient to pay the holders of all outstanding shares of Preferred Stock of all series the full amounts to which they shall be respectively entitled as aforesaid, the net assets of the corporation so available for distribution shall be distributed to the holders of Preferred Stock in accordance with the relative preferences of each series of Preferred Stock established either by these Restated Articles of Incorporation or in accordance with subdivision III. B. 1. For the purposes of this subdivision, any dissolution, liquidation or winding up which may arise out of or result from the condemnation or purchase of all or a major portion of the properties of the corporation by (i) the United States Government or any authority, agency or instrumentality thereof (ii) a State of the United States or any political subdivision, authority, agency or instrumentality thereof, or (iii) a district, cooperative or other association or entity not organized for profit, shall be deemed to be an involuntary dissolution, liquidation or winding up; and a consolidation, merger or amalgamation of the corporation with or into any other corporation or corporations shall not be deemed to be a dissolution, liquidation or winding up of the corporation, whether voluntary or involuntary.
4. The holders of shares of the Preferred Stock shall have no right to vote in the election of directors or for any other purpose, except as may be otherwise provided by law or by resolutions establishing any series of Preferred Stock in accordance with subdivision III. B. 1. Holders of Preferred Stock shall be entitled to notice of each meeting of shareholders at which they shall have any right to vote, but shall not be entitled to notice of any other meeting of shareholders.

Common Stock

5. Subject to the limitations set forth in subdivisions III. B. 2. (and subject to the rights of any class of stock hereafter authorized), dividends may be paid upon the Common Stock when and as declared by the board of directors of the corporation out of any funds legally available for the payment of dividends.
6. Subject to the limitations set forth in subdivisions III. B. 3. (and subject to the rights of any other class of stock hereafter authorized), upon any dissolution, liquidation or winding up of the corporation, whether voluntary or involuntary, the net assets of the corporation shall be distributed ratably to the holders of the Common Stock.
7. Except as may be otherwise provided by law or by the resolutions establishing any series of Preferred Stock in accordance with subdivision III. B. 1., the holders of the Common Stock shall have the exclusive right to vote for the election of directors and for all other purposes. In the election of directors of the corporation, every holder of record of any share or shares of the Common Stock of the corporation shall have the right to cast as many votes for one candidate as shall equal the number of such shares multiplied by the number of directors to be elected, or to distribute such number of votes among any two or more candidates for such election.
8. Upon the issuance for money or other consideration of any shares of capital stock of the corporation, or of any security convertible into capital stock of the corporation, no holder of shares of the capital stock, irrespective of the class or kind thereof, shall have any preemptive or other right to subscribe for, purchase or receive any proportionate or other amount of such shares of capital stock, or such security convertible into capital stock, proposed to be issued; and the board of directors may cause the corporation to dispose of all or any of such shares of capital stock, or of any such security convertible into capital stock, as and when said board may determine, free of any such right, either by offering the same to the corporation's then shareholders or by otherwise selling or disposing of such shares of other securities, as the board of directors may deem advisable.

ARTICLE IV

- A. The business and affairs of the corporation shall be managed by a board of directors. Except as provided in subdivision B. below, the number of members of the board, their classifications and terms of office, and the manner of their election and removal shall be as follows:
 1. The number of directors shall be that number, not less than nine or more than thirteen, determined from time to time by resolution adopted by affirmative vote of a majority of the entire board of directors. The directors shall be divided into three classes, designated Class I, Class II, and Class III. Each class shall consist, as nearly as possible, of one-third of the total number of directors. At the 1984 annual meeting of shareholders, Class I directors shall be elected for a one-year term, Class II directors for a two-year term, and Class III directors for a three-year term. At each succeeding annual meeting of shareholders, successors to directors whose terms expire at that annual meeting shall be of the same class as the directors they succeed, and shall be elected for three-year terms. If the number of directors should be changed by resolution of the board of directors, any increase or decrease shall be apportioned among the classes so as to maintain the number of directors in each class as nearly equal as possible, but in no case shall a decrease in the number of directors shorten the term of any incumbent director.
 2. A director shall hold office until the annual meeting for the year in which his or her term shall expire and until his or her successor shall have been elected and qualified, subject, however, to prior death, resignation, retirement or removal from office. Any newly created directorship resulting from an increase in the number of directors and any other vacancy on the board of directors, however caused, may be filled by the affirmative vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director.
 3. One or more of the directors may be removed with or without cause by the affirmative vote of the holders of not less than two-thirds of the shares entitled to vote thereon at a meeting of the shareholders called

expressly for that purpose; provided, however, that for as long as the corporation shall have cumulative voting, if fewer than all the directors should be candidates for removal, no one of them shall be removed if the votes cast against his or her removal would be sufficient to elect him or her if then cumulatively voted at an election of the class of directors of which he or she shall be a part.

4. No person, except those persons nominated by the board, shall be eligible for election as a director at any annual or special meeting of shareholders unless a written request that his or her name be placed in nomination shall be received from a shareholder of record entitled to vote at such election by the secretary of the corporation not later than the latter of (a) the thirtieth day prior to the date fixed for the meeting, or (b) the tenth day after the mailing of notice of that meeting, together with the written consent of the nominee to serve as a director.
- B. Notwithstanding the provisions of subdivision A. above, whenever the holders of any one or more classes of the capital stock of the corporation shall have the right, voting separately as a class or classes, to elect directors at an annual or special meeting of shareholders, the election, term of office, filling of vacancies and other features of such directorships shall be governed by the provisions of these Restated Articles of Incorporation applicable thereto. Directors so elected shall not be divided into classes unless expressly provided by such provisions, and during their prescribed terms of office, the board of directors shall consist of such directors in addition to the directors determined as provided in subdivision A. above.
- C. This Article IV may not be repealed or amended in any respect unless such action shall be approved by the affirmative vote of the holders of not less than two-thirds of the shares entitled to vote at an election of directors determined as provided in subdivision A. above, at a meeting of the shareholders called expressly for that purpose.

ARTICLE V

A. For purposes of this Article V:

1. The term "Affiliate", as used to indicate a relationship with a specified "Persons" (as hereinafter defined), shall mean a Person that directly or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the Person specified.
2. The term "Associate", as used to indicate a relationship with a specified Person, shall mean (a) any Person (other than the corporation) of which such specified Person is a director, officer, partner, trustee, guardian, fiduciary or official or is, directly or indirectly, the beneficial owner of 10% or more of any class of equity securities or any beneficial interest, (b) any Person who is a director, officer, partner, trustee, guardian, fiduciary or official or is, directly or indirectly, the beneficial owner of 10% or more of any class of equity securities or any beneficial interest of or in such specified Person (other than the corporation), and (c) any relative or spouse of such specified Person, or any relative of such spouse who has the same home as such specified Person.
3. The term "Beneficial Owner" shall have the meaning set forth in Rule 13d-3 of the General Rules and Regulations under the Securities Exchange Act of 1934 as in effect on April 9, 1984; provided, however, that, notwithstanding the provisions of such Rule, a Person shall be deemed to be the Beneficial Owner of any share of the capital stock of the corporation that such Person shall have the right to acquire at any time pursuant to any agreement, contract, arrangement or understanding, or upon exercise of conversion rights, warrants or options, or otherwise, and any such share of capital stock shall be deemed to be outstanding for purposes of subdivision V.A.9.
4. The term "Business Transaction" shall include, without limitation, (a) any merger, consolidation or plan of exchange of the corporation, or any Person controlled by or under common control with the corporation, with or into any "Related Person" (as hereinafter defined), (b) any merger, consolidation or plan of exchange of a Related Person with or into the corporation or any Person controlled by or under common control with the corporation, (c) any sale, lease, exchange, transfer or other disposition (in one transaction or a series of transactions) including without limitation a mortgage or any other security device, of all or

any "Substantial Part" (as hereinafter defined) of the property and assets of the corporation, or any Person controlled by or under common control with the corporation, to or with a Related Person, (d) any purchase, lease, exchange, transfer or other acquisition (in one transaction or a series of transactions), including without limitation a mortgage or any other security device, of all or any Substantial Part of the property and assets of a Related Person, by or with the corporation or any Person controlled by or under common control with the corporation, (e) any recapitalization of the corporation that would have the effect of increasing the voting power of a Related Person, (f) the issuance, sale, exchange or other disposition of any securities of the corporation, or of any Person controlled by or under common control with the corporation, by the corporation or by any Person controlled by or under common control with the corporation, (g) any liquidation, spinoff, splitoff, splitup or dissolution of the corporation, and (h) any agreement, contract or other arrangement providing for any of the transactions described in this subdivision.

5. The term "Continuing Director" shall mean a director who was a director of the corporation on April 9, 1984 and a director who shall become a director subsequent thereto whose election, or whose nomination for election by the shareholders, shall have been approved by a vote of a majority of the then Continuing Directors.
 6. The term "Highest Purchase Price" shall mean, with respect to the shares of any class or series of the capital stock of the corporation, the highest amount of consideration paid by a Related Person for a share of the same class and series at any time regardless of whether the share was acquired before or after such Related Person became a Related Person; provided, however, that the Highest Purchase Price shall be appropriately adjusted to reflect the occurrence of any reclassification, recapitalization, stock split, reverse stock split or other readjustment in the number of outstanding shares of that class or series, or the declaration of a stock dividend thereon. The Highest Purchase Price shall include any brokerage commissions, transfer taxes and soliciting dealers' fees paid by such Related Person with respect to any shares of the capital stock acquired by such Related Person.
 7. The term "Other Consideration" shall include, without limitation, capital stock to be retained by the shareholders of the corporation in a Business Transaction in which the corporation shall be the survivor.
 8. The term "Person" shall mean any natural person, corporation, partnership, trust, firm, association, government, governmental agency or any other entity whether acting in an individual, fiduciary or other capacity.
 9. The term "Related Person" shall mean (a) any Person which, together with its Affiliates and Associates, shall be the Beneficial Owner in the aggregate of 10 percent or more of the capital stock of the corporation, and (b) any Affiliate or Associate (other than the corporation or a wholly owned subsidiary of the corporation) of any such Person. Two or more Persons acting in concert for the purpose of acquiring, holding or disposing of the capital stock of the corporation shall be deemed to be a "Related Person". A Related Person shall be deemed to have acquired a share of capital stock at the time when such Related Person became the Beneficial Owner thereof. With respect to the shares of the capital stock of the corporation owned by any Related Person, if the price paid for such shares cannot be determined by a majority of the Continuing Directors, the price so paid shall be deemed to be the market price of the shares in question at the time when such Related Person became the Beneficial Owner thereof.
 10. The term "Substantial Part" shall mean 10% or more of the fair market value of the total assets of a Person, as reflected on the most recent balance sheet of such Person available to the Continuing Directors on the date of mailing of the notice of the meeting of shareholders called for the purpose of voting with respect to a Business Transaction involving the assets constituting any such Substantial Part.
- B. The corporation shall not enter into any Business Transaction with a Related Person or in which a Related Person shall have an interest (except proportionately as a shareholder of the corporation) without first obtaining both (1) the affirmative vote of the holders of not less than two-thirds of the outstanding shares of the capital stock of the corporation not held by such Related Person, and (2) the determination of a majority of the Continuing Directors that the cash or fair market value of the property, securities or Other Consideration to be received per share by the holders, other than such Related Person, of the shares of each class or series of the

capital stock of the corporation in such Business Transaction shall not be less than the Highest Purchase Price paid by such Related Person in acquiring any of its holdings of shares of the same class or series, unless the Continuing Directors by a majority vote shall either (a) have expressly approved the acquisition of the shares of the capital stock of the corporation that caused such Related Person to become a Related Person, or (b) have expressly approved such Business Transaction.

- C. For the purposes of this Article V, a majority of the Continuing Directors shall have the power to make a good faith determination, on the basis of information known to them, of: (1) the number of shares of capital stock of the corporation of which any Person shall be the Beneficial Owner, (2) whether a Person is an Affiliate or Associate of another Person, (3) whether a Person has an agreement, contract, arrangement or understanding with another Person as to the matters referred to in subdivision V.A.3. or clause (h) of subdivision V.A.4., (4) the Highest Purchase Price paid by a Related Person for shares of any class or series of the capital stock, (5) whether the assets subject to any Business Transaction constitute a Substantial Part, (6) whether any Business Transaction is one in which a Related Person has an interest (except proportionately as a shareholder of the corporation), and (7) such other matters with respect to which a determination may be required under this Article V.
- D. In determining whether to give their approval as provided in subdivision V.B., the Continuing Directors shall give due consideration to all relevant factors involved, including, without limitation, (1) the value of the corporation in a freely negotiated transaction and its future value as an independent entity, (2) the recognition of gain or loss to the corporation for tax purposes or the postponement of such recognition in a tax-free transaction, (3) the anticipated developments of the business of the corporation not yet reflected in the price of its shares, and (4) the impact on employees, customers, suppliers and the public generally within the geographical area it serves.
- E. This Article V may not be repealed or amended in any respect unless such action shall be approved by the affirmative vote of the holders of not less than two-thirds of the capital stock of the corporation not held by a Related Person at a meeting of the shareholders called expressly for that purpose.

ARTICLE VI

No director of the corporation shall be personally liable to the corporation or its shareholders for monetary damages for conduct as a director; provided that this Article VI shall not eliminate the liability of a director for any act or omission for which such elimination of liability is not permitted under the Oregon Business Corporation Act. No amendment to the Oregon Business Corporation Act that further limits the acts or omissions for which elimination of liability is permitted shall affect the liability of a director for any act or omission which occurs prior to the effective date of such amendment.

ARTICLE VII

The corporation shall indemnify to the fullest extent then permitted by law any person who is made, or threatened to be made, a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative, investigative or otherwise (including an action, suit or proceeding by or in the right of the corporation) by reason of the fact that the person is or was a director or officer of the corporation or is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise against all judgments, amounts paid in settlement, fines and such expenses (including attorneys' fees), actually and reasonably incurred in connection therewith. This Article shall not be deemed exclusive of any other provisions for indemnification of directors and officers that may be included in any statute, bylaw, agreement, vote of shareholders or directors or otherwise, both as to action in any official capacity and as to action in another capacity while holding an office.

As amended June 3, 2008.

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Attachment 6. 1200-c Permit

(Pending)

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Attachment 7. Air Containment Discharge Permit

**(In progress, finalizing with Stephen Wozab of Department of
Environmental Quality)**

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Bauer, Andrew

From: WOZAB Stephen * DEQ <Stephen.WOZAB@deq.oregon.gov>
Sent: Thursday, March 14, 2024 2:27 PM
To: ESTERSON Sarah * ODOE; Bauer, Andrew
Cc: Laurel Peterson; ALEXANDER Joshua * DEQ
Subject: [External]NW Natural - North Mist Station (ACDP No. 05-0026-ST-01)

CAUTION: This email originated outside NW Natural. Please **DO NOT CLICK LINKS OR OPEN ATTACHMENTS** unless you recognize the sender and know the content is safe.

Hello Sarah,

I am writing to confirm that ODEQ is working with Northwest Natural Gas regarding the proposed installation of new equipment that will emit regulated air pollutants at their North Mist Station. To date, the facility has submitted a draft of their modeling protocol related to short-term NAAQS emissions, which ODEQ has returned with comment. Northwest Natural has communicated they will submit their application for permit modification once they've received final approval of their modeling protocol. If you require any further information from us, please do not hesitate to contact me.

Thanks,



Stephen Wozab (he/him/his)

Air Permit Writer | NW Region

Oregon Department of Environmental Quality
700 NE Multnomah St, Suite 600
Portland, OR 97232

Cell/Primary: (971) 303-6575

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