

**Willamette Water Supply System Commission  
Board Meeting Agenda**

**Thursday, July 2, 2020 | 12:00 – 2:00 PM**

**Microsoft Teams Dial-in Conference**

To slow the spread of COVID-19, this meeting is dial-in only. It will not be held at a physical location.

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- If you wish to attend via conference call and need dial-in information, please contact [Faye.Branton@tvwd.org](mailto:Faye.Branton@tvwd.org) or call 971-329-5523. • If you wish to address the Willamette Water Supply System Board, please request the Public Comment Form and return it 48 hours prior to the day of the meeting. • **All testimony is electronically recorded.**
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**EXECUTIVE SESSION – 11:30 AM**

An executive session of the Board is called under ORS 192.660(2)(h) to consult with counsel concerning the legal rights and duties of a public body with regard to current litigation.

**REGULAR SESSION – 12:00 PM**

**CALL TO ORDER**

**1. GENERAL MANAGER'S REPORT – Dave Kraska**

*(Brief presentation on current activities relative to the WWSS Commission)*

**2. PUBLIC COMMENT**

*(This time is set aside for persons wishing to address the Board on items on the Consent Agenda, as well as matters not on the agenda. Additional public comment will be invited on agenda items as they are presented. Each person is limited to five minutes, unless an extension is granted by the Board. Should three or more people testify on the same topic, each person will be limited to three minutes.)*

**3. CONSENT AGENDA**

*(The entire Consent Agenda is normally considered in a single motion. Any Commissioner may request that an item be removed for separate consideration.)*

- A. Approve the June 4, 2020 meeting minutes.

**4. BUSINESS AGENDA**

- A. Acting as Local Contract Review Board: Adopt Resolution Declaring Exemption from Competitive Bidding for RES\_1.0/PLM\_5.3 – *Mike Britch*
- B. Approve WWSS IGA Exhibit 1 Amendment to Update Ownership on the North Transmission Line and South Transmission Line Emergency Connections, and Complete other Minor Updates – *Joelle Bennett*
- C. Adopt Resolution of Public Necessity for PLM\_5.3 – *Joelle Bennett*

**5. INFORMATION ITEMS**

- A. Planned August Business Agenda Items – *Joelle Bennett*
- B. The next Board meeting is scheduled on August 6, 2020, via Dial-In Conference

**6. COMMUNICATIONS AND NON-AGENDA ITEMS**

- A. None scheduled.

**ADJOURNMENT**

## Willamette Water Supply

*Our Reliable Water*

### Safety Minute

### Heat Illness Prevention

July 2, 2020

1

1

## Preventing Heat Illness

- Excess exposure to heat can cause illness and death. The most serious heat illness is heat stroke, a medical emergency.
- Other heat illnesses include heat exhaustion, heat cramps (muscle cramps) and heat rash. Muscle cramps are often a first symptom of heat illness.
- Take precautions any time temperatures are high and the job involves physical work.



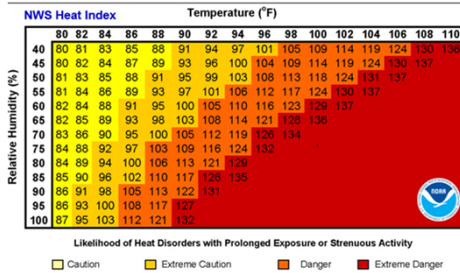
Willamette Water Supply

*Our Reliable Water*

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# Risk Factors for Heat Illness

- High temperature and humidity (heat index)
- Direct sun
- No breeze or wind
- Low liquid intake
- Heavy physical labor
- Impermeable clothing
- No recent exposure to hot workplaces



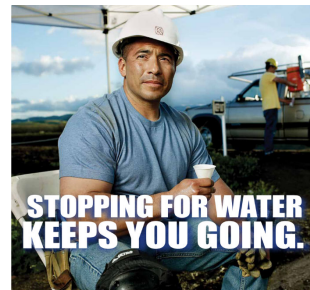
Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity
Extreme Danger	125°F or higher	Heat stroke highly likely

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3

# Heat Illness Prevention Elements

- Access to Water (1 pint to 1 quart/hr. condition dependent)
- Access to Shade
- Work Planning
- Weather Monitoring and Acclimatization
- Understanding Symptoms and Emergency Response



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Our Reliable Water

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## MEMO

**Date:** July 2, 2020  
**To:** Willamette Water Supply System Board of Commissioners  
**From:** David Kraska, P.E., General Manager  
**Re:** Willamette Water Supply System (WWSS) General Manager's Report

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The following items will be covered during the report by the General Manager (GM):

**1. Remote Meetings Etiquette:**

- a. Please mute your microphone when you are not talking to prevent adding echoes and background noise to the sound of the meeting.
- b. Please identify yourself before speaking for proper acknowledgement on the record.
- c. If someone other than a Board member would like to ask a question or make a comment, please use the chat feature to let the General Manager know and wait to be acknowledged.

**2. Safety Minute** – David Kraska will present today's [safety minute](#).

**3. Approvals and Procurements Forecast** – Attached to this GM report is the approvals and procurements forecast (Forecast) for June through August 2020. The Forecast presents a view of WWSP activities that have recently been approved or are scheduled for approval over the next two months by either the WWSP Director, WWSS Committees, or the WWSS Board.

The Forecast shows that at this time we anticipate having four business items on the August Board meeting agenda. Three of these pertain to the WWSP real estate activities, and the fourth pertains to a Beaverton ancillary project. Joelle Bennett will present a staff report later in this meeting on these anticipated August business agenda items.

The forecast also lists other real estate activities and intergovernmental agreements that are in process, and contracts that are being negotiated. These items are largely the same as they were presented last month.

**4. Projects Planning, Permitting, and Communications Updates** – Over the past month, we received several more permits for the RWF\_1.0 project and the PLW\_1.3 project. The contractor on the RWF\_1.0 project just received notice to proceed, and we expect the PLW\_1.3 project to break ground in August. Additional permit applications continue to be submitted for six other WWSP projects

## GM Report to the WWSS Board of Commissioners

July 2, 2020

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(PLM\_1.2, PLM\_4.2, PLM\_5.3, MPE\_1.0, PLW\_1.2, and PLW\_2.0), and many more are in development. We do not anticipate any delays on these permit applications.

Another important permit for the WWSS is our Section 401 Water Quality Certification for maintaining compliance with the Clean Water Act. Our compliance with the certification requires having a Thermal Trading Plan (TTP) approved by the Oregon Department of Environmental Quality (DEQ). The DEQ has been certifying TTPs since 2004, but ours will be the first that is related to a water withdrawal – all others to date have been related to wastewater discharges.

This week, WWSP staff presented the TTP at the DEQ's online public hearing. During the hearing, WWSP staff shared information on our proposed riverside restoration projects that are intended to increase shade to limit river temperature increases. These proposed projects are located at the Molalla River State Park and on Chicken Creek in the Tualatin River National Wildlife Refuge. The projects include the removal of non-native invasive species, replanting of native trees, and habitat restoration.

**5. Projects Design Status Updates** – Work continues on multiple design projects, including nine pipeline projects, the Water Treatment Plant (WTP\_1.0), the Distributed Controls System (DCS\_1.0), and the Terminal Storage project (RES\_1.0). All of the design projects are progressing according to plan.

**6. Projects Construction Status Updates** – There are five active construction projects:

Project	Description	Progress Since Last Month
1. RWF_1.0	Raw Water Facilities project located at the Willamette River Water Treatment Plant	Began mobilization efforts including erosion control, tree protection and installing trailers.
2. PLM_1.1	Raw water pipeline project in Wilsonville that extends from our RWF_1.0 project to Wilsonville Road	Prepared for creek and utility crossings work that will start mid-July.
3. PLM_1.2	Raw water pipeline project being completed in partnership with the City of Wilsonville's Garden Acres Road project	Will begin the first waterline installation activity this month.

**GM Report to the WWSS Board of Commissioners**

July 2, 2020

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4. PLM_5.1	Finished water pipeline project being completed in partnership with Washington County's Roy Rogers Road project	800 LF of waterline installed so far. Continued utility relocation efforts.
5. PLM_5.2	Finished water pipeline project along SW Scholls Ferry and SW Tile Flat roads that we are working to complete in advance of development work in the area	8,500 LF of waterline installed so far. Grabhorn reopened on time.

The PLW\_1.3 pipeline project will soon be added to this table as the contractor is scheduled to receive notice to proceed in August. All projects remain on track and are progressing according to plan, and all contractors are remaining in compliance with the Governor's Executive Order No. 20-12 regarding hygiene and social distancing.



# Willamette Water Supply System Commission

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**Approvals and Procurement Forecast: June 2020 through August 2020**

This report provides a three-month projection of (1) forthcoming actions under the WWSS Management Authority Matrix and (2) ongoing and forthcoming procurements.

a = Actual date  
e = Email approval  
FC = Finance Committee  
LCRB = Local Contract Review Board  
MC = Management Committee  
N/A = Not applicable  
OC = Operations Committee

Rec. = Recommendation  
t = Tentative date  
TBD = To be determined; sufficient information not available to project a date  
Note: Dates in **red text** indicate meetings needed outside the normal meeting schedule

Type	Description	Projected Action	Body/Position (projected action date)			
			Program Director	WWSS Committees	WWSS Board	
<b>Program Baseline or Related Plans</b>	1. WWSP 2020 Rebaseline Schedule and Budget; FY 2021 Revised WWSS Budget	Approve	N/A	MC: 5/21/2020 a	6/4/2020 a	
		Execute	N/A	N/A	N/A	
<b>Real Estate</b>	2. PLM_4.3 Resolution of Need	Approve	N/A	MC: 5/21/2020 a	6/4/2020 a	
	3. PLM_5.3 Resolution of Need	Approve	N/A	MC: 6/18/2020 t	7/2/2020 t	
	4. PLM_4.3 Resolution of Need (supplemental approval)	Approve	N/A	MC: 7/23/2020 t	8/6/2020 t	
	5. PLM_5.3 Resolution of Need (supplemental approval)	Approve	N/A	MC: 7/23/2020 t	8/6/2020 t	
	6. PLW_2.0 Resolution of Need	Approve	N/A	MC: 7/23/2020 t	8/6/2020 t	
<b>IGAs, MOUs, Permit Commitments, &amp; Similar Agreements</b>	7. PLW_1.2 WCLUT Design IGA Amendment 1	Approve	N/A	MC: 10/16/2019 a	12/5/2019 a	
		Execute	7/21/2020 t	N/A	N/A	
	8. WWSS IGA Exhibit 1 to modify Allocation of Reservoir Capacity	Approve	N/A	MC: 5/21/2020 a	6/4/2020 a	
		Execute	6/5/2020 a	N/A	N/A	
	9. WWSS IGA Exhibit 1 Amendment <ul style="list-style-type: none"> <li>Update Ownership on the North Transmission Line and South Transmission Line Emergency Connections</li> <li>Make other minor edits</li> </ul>	Approve	N/A	MC: 6/18/2020 t	7/2/2020 t	
		Execute	7/3/2020 t	N/A	N/A	
	10. MPE_1.0 COB_1.0 Design IGA Amendment 1 to add a City of Beaverton Hall Boulevard 16-inch pipeline to COB_1.0 <ul style="list-style-type: none"> <li></li> </ul>	Approve	N/A	MC: 7/23/2020 t	8/6/2020 t	
		Execute	8/7/2020 t	N/A	N/A	
	<b>Contracts</b>	11. PLW_1.3 Construction Contract <ul style="list-style-type: none"> <li>Goal: Construction Contractor for waterline construction from Farmington to Kinnaman</li> <li>Approximate value: \$29 M</li> <li>Contractor: Tapani</li> <li>Publish Request for Proposals: 2/21/2020 a</li> <li>Proposal Due Date: 4/16/2020 a</li> <li>Rec. of Award: 4/23/2020 a</li> <li>Notice of Intent to Award: 4/27/2020 a</li> <li>Limited Notice to Proceed: 6/5/2020 t</li> <li>Notice to Proceed: 8/6/2020 t</li> </ul>	Approve	N/A	MC: 5/21/2020 a	6/4/2020 a
			Execute	6/5/2020 a	N/A	N/A

Type	Description	Projected Action	Body/Position (projected action date)		
			Program Director	WWSS Committees	WWSS Commission Board
<b>Contract Amendments and Change Orders</b> (above Program Director's Authority)	12. WTP_1.0 Design Amendment for Scope Modifications	Approve	N/A	MC: 4/23/2020 a	5/7/2020 a
		Execute	5/12/2020 a	N/A	N/A
	<ul style="list-style-type: none"> <li>• Goal: Amend contract for design services related to additional engineering services</li> <li>• Value: \$885,133</li> <li>• Engineer: CDM Smith</li> </ul>				
	13. WWSP Program and Construction Management Services FY 2021 Annual Work Plan	Approve	N/A	MC: 5/21/2020 a	6/4/2020 a
Execute		6/4/2020 a	N/A	N/A	
<ul style="list-style-type: none"> <li>• Goal: Approve scope, staffing, and fee for program and construction management services for FY 2021</li> <li>• Value: \$13M</li> <li>• Contractor: Stantec</li> </ul>					
<b>Local Contract Review Board (LCRB) Actions</b>	14. Findings for Exemption from Competitive Bidding for RES_1.0, PLM_5.3	Approve	N/A	MC: 4/23/2020 a	7/2/2020 t
		Execute	N/A	N/A	N/A
<ul style="list-style-type: none"> <li>• Board approval to initiate public comment 5/7/2020 a</li> </ul>					

**Willamette Water Supply System Commission  
Board Meeting Minutes  
Thursday, June 4, 2020**

**Commissioners present:**

Tualatin Valley Water District (TVWD): Jim Duggan  
City of Hillsboro: David Judah  
City of Beaverton: Denny Doyle

**Committee Members present:**

TVWD: Tom Hickmann, Management Committee  
Paul Matthews, Finance Committee  
Carrie Pak, Operations Committee  
City of Hillsboro: Niki Iverson, Management Committee  
City of Beaverton: Chad Lynn, Management Committee  
David Winship, Operations Committee

**Managing Agency Administrative Staff present:**

Dave Kraska, Willamette Water Supply Program (WWSP) Director; WWSS Commission General Manager  
Joelle Bennett, WWSP Assistant Director  
Bill Van Derveer, WWSP Program Manager  
Lisa Houghton, WWSP Finance Manager  
Clark Balfour, TVWD General Counsel  
Faye Branton, WWSP Administrative Assistant; WWSS Commission Recorder

**Other Attendees:**

Mike Britch, WWSP Engineering and Construction Manager  
Christina Walter, WWSP Permitting and Outreach Manager  
Joel Cary, TVWD Water Resources Division Manager  
Chris Wilson, City of Hillsboro-JWC Water Treatment Manager  
Robert Annear, Senior Principal Engineer, Geosyntec Consultants

**CALL TO ORDER**

Chairman Duggan called the regular Willamette Water Supply System (WWSS) Commission meeting to order at 12:03 p.m.

**ROLL CALL**

Ms. Branton administered the roll call and noted attendance.

**1. GENERAL MANAGER'S REPORT**

Mr. Kraska presented a safety moment on avoiding buried utility lines when digging. (*See presentation.*)

The General Manager's report included an overview of etiquette for remote meetings; the Approvals and Procurement Forecast for May through July 2020; updates on projects planning, permitting, and communications; and status updates on the design and construction of projects.

**2. PUBLIC COMMENT**

There were no public comments.

**3. CONSENT AGENDA**

- A. Approve the May 7, 2020 meeting minutes.

Motion was made by Doyle, seconded by Judah, to approve the consent agenda as presented. The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

**4. BUSINESS AGENDA**

- A. Consider adopting Resolution No. WWSS-08-20 amending Exhibit 1 to the Willamette Water Supply System Intergovernmental Agreement to modify the reservoir capacity allocations, contingent upon execution of the Memorandum of Understanding for WWSS Reservoir RES\_1.0 Storage Reallocation. – *Staff Report – Dave Kraska*

Mr. Kraska presented the staff report requesting adoption of Resolution No. WWSS-08-20.

Motion was made by Judah, seconded by Doyle, to adopt Resolution No. WWSS-08-20 amending Exhibit 1 to the Willamette Water Supply System Intergovernmental Agreement to modify the reservoir capacity allocations, contingent upon execution of the Memorandum of Understanding for WWSS Reservoir RES\_1.0 Storage Reallocation. The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

- B. Consider approving an Annual Work Plan for Stantec Consulting Services Inc. to provide Program and Construction Management Services for the Willamette Water Supply Program during Fiscal Year 2021. – *Staff Report – Dave Kraska*

Mr. Kraska presented the staff report requesting approval of the Stantec FY 2021 Annual Work Plan for the Willamette Water Supply Program.

Motion was made by Doyle, seconded by Judah, to approve the Annual Work Plan for Stantec Consulting Services Inc. to provide Program and Construction Management Services for the Willamette Water Supply Program during Fiscal Year 2021. The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

- C. Consider approving Contract No. 2020-051 with Tapani, Inc. for PLW\_1.3 Pipeline Construction for the Willamette Water Supply Program. – *Staff Report – Mike Britch*

Mr. Britch presented the staff report requesting approval of Contract No. 2020-051 with Tapani, Inc. for PLW\_1.3 Pipeline Construction for the Willamette Water Supply Program.

In response to Commissioner's question, staff replied that it is too soon to tell if the construction market is trending toward more competitive project bids. Staff are cautiously optimistic for a favorably competitive construction market going forward.



Motion was made by Judah, seconded by Doyle, to approve Contract No. 2020-051 with Tapani, Inc. for PLW\_1.3 Pipeline Construction for the Willamette Water Supply Program. The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

- D.** Consider adopting Resolution No. WWSS-09-20 adopting a revised Annual Work Plan for the Willamette Water Supply System for fiscal year 2020-21 and WWSP Capital Improvement Plan (Baseline 5.2) and requiring staff to continue working closely with the WWSS Management Committee to control overall WWSS costs and to manage exposure to cost risks. – *Staff Report – Dave Kraska*

Mr. Kraska presented the staff report and presentation requesting adoption of Resolution WWSS-09-20. ([See presentation.](#))

Referencing Baseline cost trends to date, WWSS Management Committee members commented that typically, estimated cost trends this tight are not seen until approximately 90% design is reached. To hold this kind of stability from concept level to present date for a Program of this magnitude is a remarkable feat and a testament to the team.

Staff responded with appreciation stating they are endeavoring to provide the best financial information to support the partners in managing their costs.

Ms. Houghton presented an overview of the revised Fiscal Year 2021 WWSS Budget, followed by Mr. Kraska presenting closing considerations.

Commissioners expressed appreciation for the thorough, understandable update and the precedent set for managing costs over the next years, as well as for the anticipated positive impact on jobs for the life of the Willamette Water Supply Program.

Motion was made by Judah, seconded by Doyle, to adopt Resolution No. WWSS-09-20 adopting a revised Annual Work Plan for the Willamette Water Supply System for fiscal year 2020-21 and WWSP Capital Improvement Plan (Baseline 5.2). The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

- E.** Consider adopting Resolution No. WWSS-10-20 declaring public necessity to acquire property interests over, upon, under and through real property for pipeline section PLM\_4.3 for the Willamette Water Supply System. – *Staff Report – Joelle Bennett*

Ms. Bennett presented the staff report requesting adoption of Resolution WWSS-10-20.

Motion was made by Doyle, seconded by Judah, to adopt Resolution No. WWSS-10-20 declaring public necessity to acquire property interests over, upon, under and through real property for pipeline section PLM\_4.3 for the Willamette Water Supply System. The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

- F.** Consider adopting Resolution No. WWSS-11-20 establishing regular monthly meeting dates of the Willamette Water Supply System Board of Commissioners for fiscal year 2020-21. – *Staff Report – Dave Kraska*

Mr. Kraska presented the staff report requesting adoption of Resolution WWSS-11-20.

Motion was made by Judah, seconded by Doyle, to adopt Resolution No. WWSS-11-20 establishing regular monthly meeting dates of the Willamette Water Supply System Board of Commissioners for fiscal year 2020-21. The motion passed unanimously with Doyle, Duggan, and Judah voting in favor.

## **5. INFORMATION ITEMS**

### **A. Planned July Business Agenda items – Staff Report – Joelle Bennett**

Ms. Bennett presented information on anticipated business agenda items for the July 2, 2020 WWSS Commission Board meeting. Staff anticipates recommending approval of (1) Resolution of Public Necessity for PLM\_5.3; (2) Findings for Exemption from Competitive Bidding for RES\_1.0 and PLM\_5.3; (3) WWSS IGA Exhibit 1 amendment to update ownership on the North Transmission Line and South Transmission Line emergency connections and complete other minor updates; and (4) Adding a City of Beaverton Hall Boulevard 16-inch pipeline to the COB\_1.0 project.

- B.** The next Board meeting is scheduled on July 2, 2020, at Tualatin Valley Water District Board Room or via dial-in conference, to be determined based on the COVID-19 situation.

## **6. COMMUNICATIONS AND NON-AGENDA ITEMS**

- A.** None scheduled.

Commissioners exhorted everyone to continue to stay safe and expressed appreciation to staff for the thorough agenda packet and continued good work.

## **ADJOURNMENT**

There being no further business, Chairman Duggan adjourned the meeting at 1:14 p.m.

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James Duggan, Chair

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Denny Doyle, Vice Chair

**Willamette Water Supply**  
*Our Reliable Water*

Safety Minute:

**Call 811 Before Digging!**

1

It's That Time of Year!



- Landscape and gardening projects beckon!

KNOW WHAT'S BELOW. CALL 811 BEFORE YOU DIG



2

## Know what's below before you dig!

- More than **20 million miles** of buried utilities in the U.S.
- **45% of all homeowners** will not call 811 before digging, leading to an underground utility being damaged **every six minutes**.
- Your risk of causing damage is **less than 1%** if you call 811 and have utilities marked before you dig.

KNOW WHAT'S BELOW. CALL 811 BEFORE YOU DIG



3

## Know what's below before you dig!

- Avoid injury to yourself and others
- Avoid property damage
- Avoid the cost of utility repairs
- Avoid potential shutdowns for repairs (water, gas, electric, phone, internet)



**½" Natural Gas Line  
Only 18" Deep**

KNOW WHAT'S BELOW. CALL 811 BEFORE YOU DIG



4

## Prepare to Dig Safely

1. Call 811 before every digging job – planting a tree, putting in fence posts, building a deck, installing a mailbox...
  - 2-10 days before excavation
  - [www.callbeforeyoudig.org](http://www.callbeforeyoudig.org)
  - 1-800-332-2344
2. Wait for the utility markings – usually 2 full business days
3. Dig carefully around the markings

KNOW WHAT'S BELOW. CALL 811 BEFORE YOU DIG



5

Be Safe! Call 811 Before Digging!



KNOW WHAT'S BELOW. CALL 811 BEFORE YOU DIG



6

# Willamette Water Supply System Commission

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**Willamette Water Supply**  
*Our Reliable Water*

4.D Adopt Revised Fiscal Year 2020-  
2021 Annual Work Plan and Budget  
and WWSP Capital Improvement  
Plan (Baseline 5.2)

June 4, 2020

1

## Outline

- Preview of requested Board action
- Baseline background
- WWSP project contingency and management reserve
- Baseline history
- Proposed Baseline 5.2
- Proposed Revised FY 2021 WWSS Annual Work Plan and Budget
- Closing considerations and commitments
- Requested Board action

2

## Preview of Requested Board Action

Consider adopting a revised Annual Work Plan and Budget for the Willamette Water Supply System (WWSS) for fiscal year 2020-21 and WWSP Capital Improvement Plan (Baseline 5.2) and requiring staff to continue working closely with the WWSS Management Committee to control overall WWSS costs and manage exposure to cost risks

3

## BASELINE BACKGROUND

4



# What is the Baseline?



## Why adopt a Baseline and when?

- Board to adopt a capital improvement plan (IGA Section 5 & 8)
- Component of WWSS Financial Procedures (IGA Exhibit 6)
- Part of WWSS governance (WWSS MAM)
- Updated annually and modified if needed

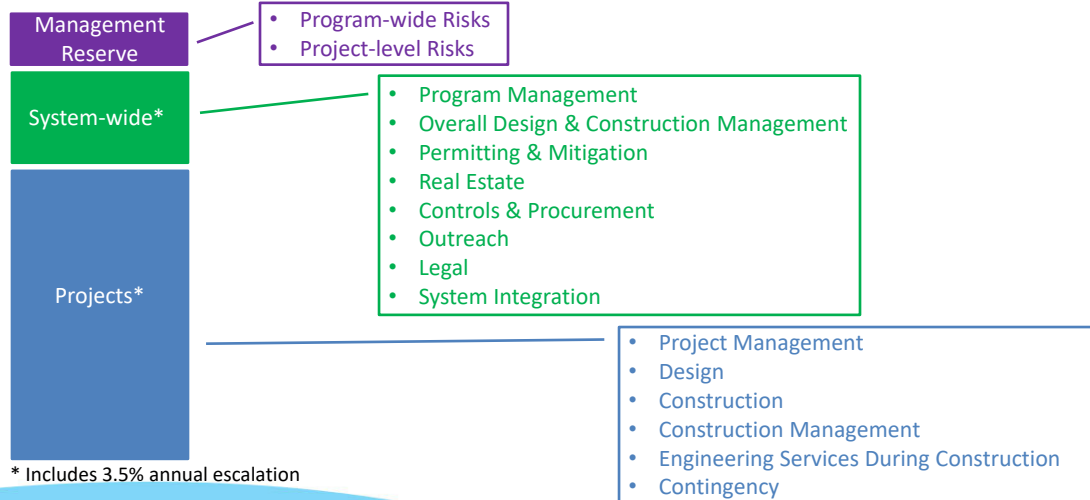
## How is it used?

- Planning and managing work
- Establishing fiscal year budgets
- Detecting potential changes or variances
- Input to risk analysis and management
- Reporting to Board, Partners, WIFIA, and public
- Input to financial forecasting by Partners

# Approach to annual Baseline preparation and review



## The Baseline cost estimate has 3 main components



## WWSP PROJECT CONTINGENCY AND MANAGEMENT RESERVE

# How is uncertainty reflected in the Baseline?

## Project Contingency

Changes within the scope of the project, anticipated design developments, planning/estimating evolution, and minor price fluctuations

### EXAMPLE USES

- Project details established through design progression
- Minor, within-scope changes during design
- Minor market variations
- Minor, within-scope changes during construction

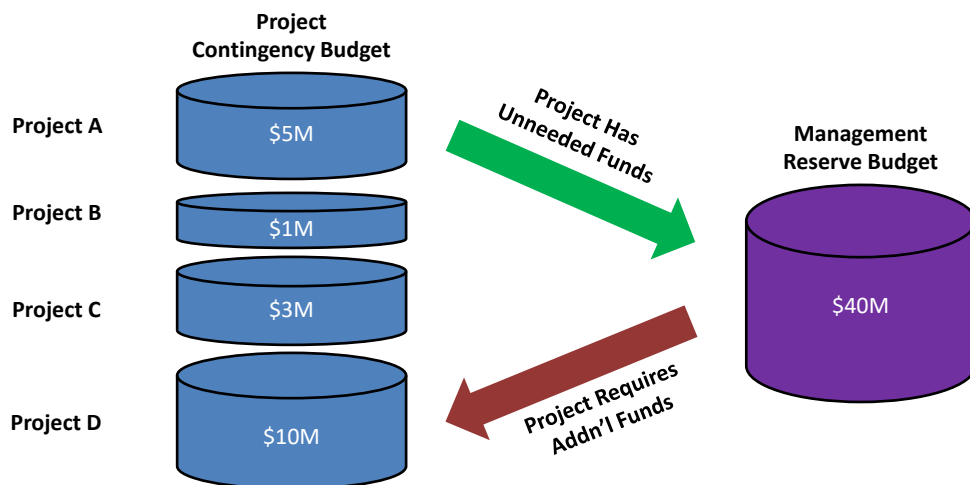
## Management Reserve

Changes to WWSS projects beyond the Project Contingency intent/amount, changes to System-wide costs, and coverage of Owner's discretionary costs

### EXAMPLE USES

- Unforeseen IGA adds project cost
- Property cost exceeds budget
- Major scope change during design
- Project bids above budget
- Major changes during construction
- New tax imposed
- Escalation exceeds assumed rate

# How do Project Contingency budgets and the WWSS Management Reserve budget interact?



Amounts shown are for demonstration purposes

## Examples of how changes can affect WWSP budgets

Example	Project Budget Change	Management Reserve Change	WWSP Total Baseline Change
A. Project Bids \$5M Below Budget	-\$5M	+\$5M	\$0M
B. New IGA Commitment of \$8M	+\$8M	-\$8M	\$0M
C. \$2M Expansion of Ancillary Project	+\$2M	\$0M	+\$2M
D. Annual Rebaseline Risk Analysis Indicates \$4M MR Shortfall	\$0M	+\$4M	+\$4M

11

## BASELINE HISTORY

12

## Are the Baseline estimates reliable?

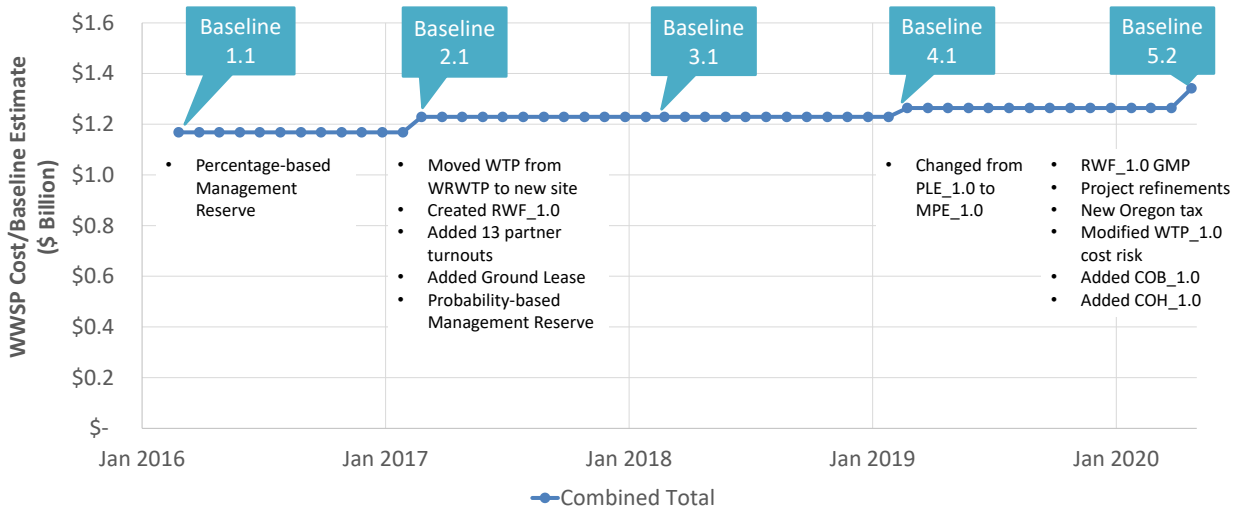
Projects Bid	WWSP Budget	Contractor's Bid & Contingency	Percent Difference from Budget	Difference
PLM_2.0	\$4,070,200	\$4,070,200	0%	\$0
PLM_3.0	\$11,628,032	\$11,361,106	-2%	\$266,926
PLW_1.1	\$6,949,989	\$6,452,248	-7%	\$497,741
PLM_5.1	\$19,221,178	\$18,096,002	-6%	\$1,125,176
PLM_5.2	\$22,549,998	\$16,395,981	-27%	\$6,154,017
PLM_1.2*	\$7,832,725	\$7,994,660	2%	(\$161,936)
PLM_1.1	\$3,968,167	\$2,872,507	-28%	\$1,095,660
RWF_1.0 Phase I GMP	\$41,779,232	\$51,095,816	22%	(\$9,316,584)
PLW_1.3**	\$35,359,893	\$31,888,054	-10%	\$3,471,839
<b>Overall</b>	<b>\$153,359,414</b>	<b>\$150,226,575</b>	<b>-2%</b>	<b>\$3,132,839</b>

\* PLM\_1.2 includes change order to add Day Road crossing

\*\* PLW\_1.3 draft Baseline 5.1 budget used for this comparison due to substantial scope differences from Baseline 4.1

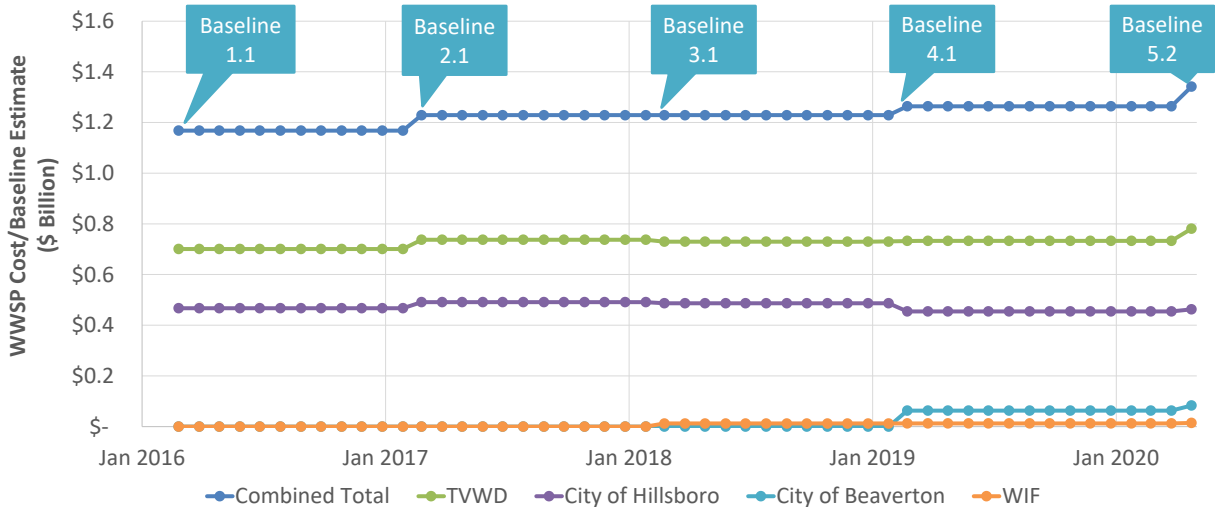
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## Is the Baseline cost estimate changing over time and why?



14

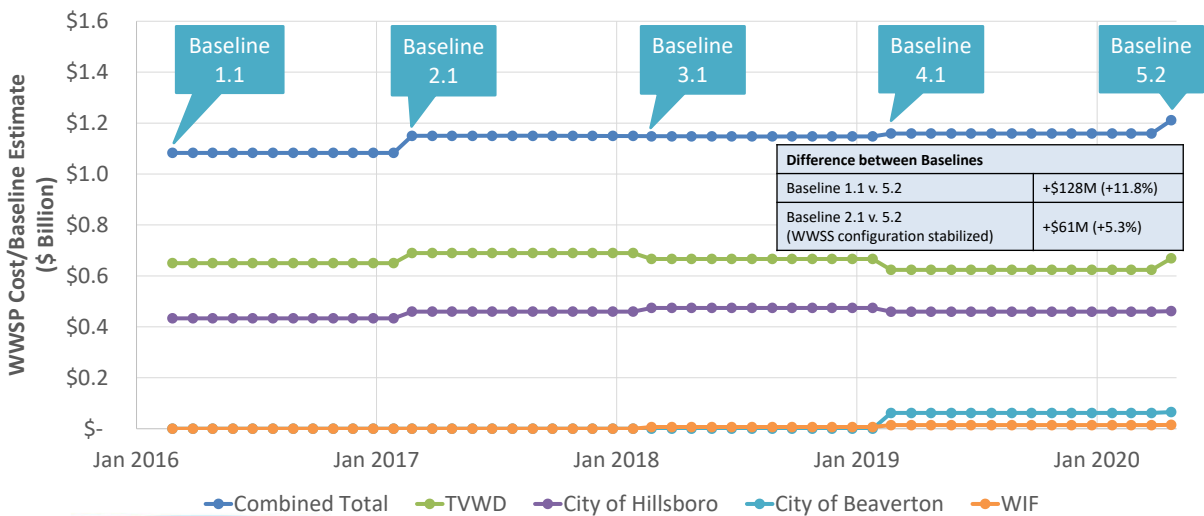
# How have Baseline estimates changed by Partner?



15

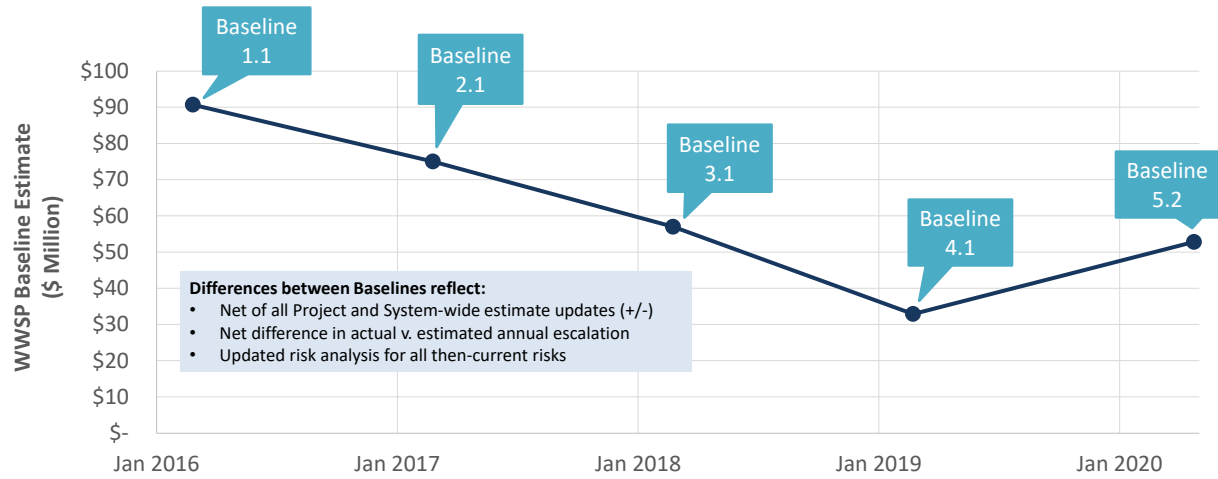
# WWSS-only Baseline cost estimates by Partner

(Ancillary Projects removed; no adjustments to System-wide estimates)



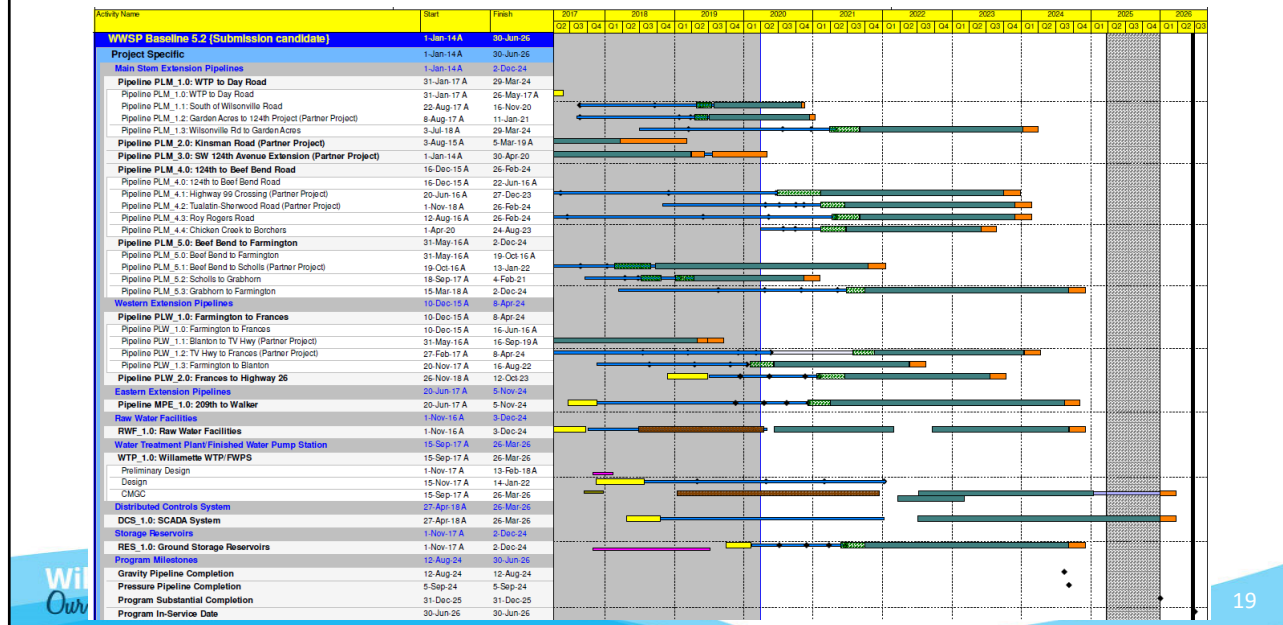
16

## WWSS Management Reserve estimate for each Baseline



## PROPOSED BASELINE 5.2

# The Baseline schedule establishes work sequencing



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## Baseline 5.2 Partner Cost Summary

Partner	Baseline 4.1	Baseline 5.2 <sup>1</sup>	Change (\$)	Change (%)
Beaverton	\$61,764,311	\$83,247,980	\$21,483,669	35%
Hillsboro	\$459,265,062	\$462,657,631	\$3,392,569	1%
TVWD	\$729,037,856	\$780,603,831	\$51,565,975	7%
WIF	\$13,885,102	\$15,019,653	\$1,134,551	8%
<b>Total Estimated Cost</b>	<b>\$1,263,952,331</b>	<b>\$1,341,529,095</b>	<b>\$77,576,764</b>	<b>6%</b>

<sup>1</sup> Based on Program cost data and preliminary cost shares, including ancillary projects.

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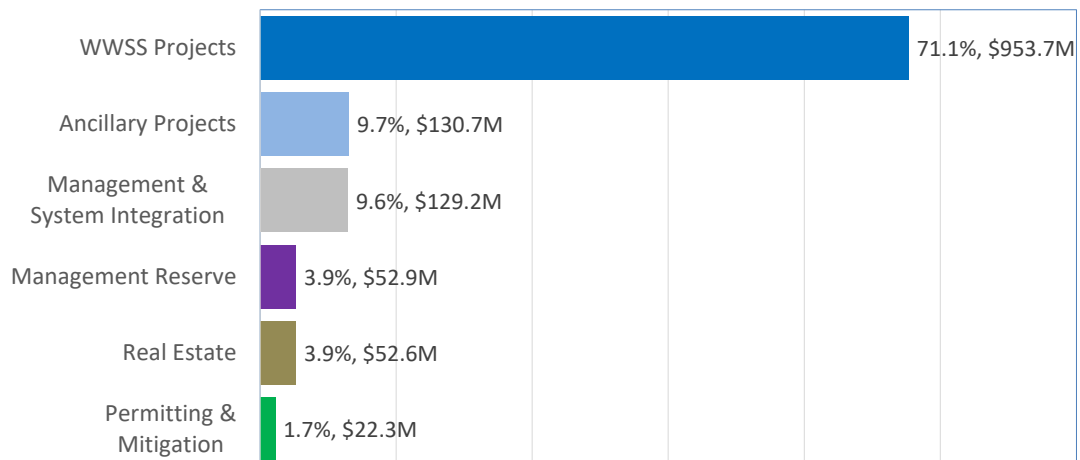


## Key changes from Baseline 4.1 to 5.2

Budget Element	Change (\$M)	Change (%)	Change Summary
RWF_1.0	\$14.3	15%	Recognizing Phase 1 GMP and projected Phase 2 GMP
WTP_1.0	\$32.6	11%	Recognizing estimated project cost increase approved in May 2019
RES_1.0	\$1.4	2%	Chemical feed facility and expected increase in rock excavation
Pipelines	-\$13.3	-3%	Net of numerous design refinements
<b>WWSS Projects</b>	<b>\$35.0</b>	<b>4%</b>	
MPE_1.0	\$6.9	7%	Design development, adding Metzger turnout, and changing Beaverton-Hillsdale tie-in
COH_1.0	\$1.1		Adding ancillary project
COB_1.0	\$17.7		Adding ancillary project
<b>Ancillary Projects</b>	<b>\$25.7</b>	<b>25%</b>	
Management Reserve	\$20.0	61%	Updated risk analysis, including WTP_1.0 cost risk
System-wide	-\$4.7	-3%	Design/construction management staff optimization and utilization of SMEs
Real Estate	\$2.2	4%	Additional easements and increased market valuation
<b>Overall</b>	<b>\$78.2</b>	<b>6%</b>	

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## How are costs distributed within Baseline 5.2?

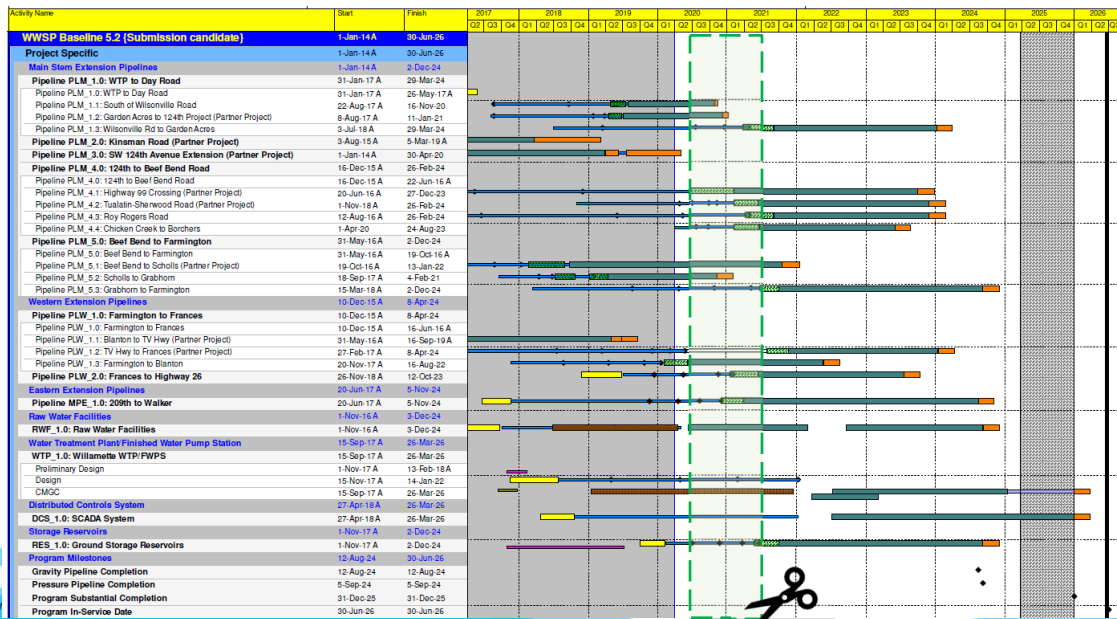


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# PROPOSED REVISED FY 2021 WWSS ANNUAL WORK PLAN AND BUDGET

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## The FY 2021 Budget is a “slice” of Baseline 5.2



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## Revised FY 2021 WWSS Budget

PERSONNEL SERVICES			
ADOPTED BUDGET FY20	DETAILED DESCRIPTION	REVISED BUDGET FY21	% CHG FROM FY20
\$0	TOTAL PERSONNEL SERVICES	\$0	N/A

MATERIALS & SERVICES			
ADOPTED BUDGET FY20	DETAILED DESCRIPTION	REVISED BUDGET FY21	% CHG FROM FY20
\$834,788	TOTAL MATERIALS & SERVICES	\$948,555	13.6%

CAPITAL OUTLAY			
ADOPTED BUDGET FY20	DETAILED DESCRIPTION	REVISED BUDGET FY21	% CHG FROM FY20
\$90,289,012	TOTAL CAPITAL OUTLAY	\$137,831,538	52.7%

TRANSFERS & CONTINGENCY			
ADOPTED BUDGET FY20	DETAILED DESCRIPTION	REVISED BUDGET FY21	% CHG FROM FY20
\$83,000	GENERAL OPERATING CONTINGENCY	\$80,000	-3.6%
\$83,000	TOTAL TRANSFERS AND CONTINGENCY	\$80,000	-3.6%

TOTAL APPROPRIATIONS			
ADOPTED BUDGET FY20	DETAILED DESCRIPTION	REVISED BUDGET FY21	% CHG FROM FY20
\$91,206,800	TOTAL FUND APPROPRIATIONS	\$138,860,093	52.2%

## Key changes from Initial FY 2021 WWSS Budget

MATERIALS & SERVICES			
DETAILED DESCRIPTION	ADOPTED BUDGET FY21	REVISED BUDGET FY21	% CHG ADOPTED TO REVISED
TOTAL MATERIALS & SERVICES	\$808,555	\$948,555	17.3%

CAPITAL OUTLAY			
DETAILED DESCRIPTION	ADOPTED BUDGET FY21	REVISED BUDGET FY21	% CHG ADOPTED TO REVISED
TOTAL CAPITAL OUTLAY	\$125,763,556	\$137,831,538	9.6%

TOTAL APPROPRIATIONS			
DETAILED DESCRIPTION	ADOPTED BUDGET FY21	REVISED BUDGET FY21	% CHG ADOPTED TO REVISED
TOTAL FUND APPROPRIATIONS	\$126,652,111	\$138,860,093	9.6%

## CLOSING CONSIDERATIONS AND COMMITMENTS

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### Cost control will remain a key challenge for years to come

- WWSP understands the Partners' desire for cost certainty and will collaborate to address their concerns as they arise
- WWSP will continue to employ robust processes to maximize value and control costs
- When changes occur, WWSP will communicate as early as possible to enable their management
- Baseline is updated annually, and can be updated more frequently as necessary

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## Anticipated impact of WWSP on jobs



Source: U.S. EPA Public Benefits Report for WWSP WIFIA loans

## Requested Board Action

Consider adopting a revised Annual Work Plan and Budget for the Willamette Water Supply System (WWSS) for fiscal year 2020-21 and WWSP Capital Improvement Plan (Baseline 5.2) and requiring staff to continue working closely with the WWSS Management Committee to control overall WWSS costs and manage exposure to cost risks

# QUESTIONS

**STAFF REPORT**

**To:** WWSS Board of Commissioners  
**From:** David Kraska, P.E., WWSP Program Director, WWSS Commission General Manager  
**Date:** July 2, 2020  
**Subject:** Request to Local Contract Review Board for Exemption from Competitive Bidding for RES\_1.0 (Combined with PLM\_5.3)

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**Requested Board Action:**

Acting as the Local Contract Review Board (LCRB), consider adopting a resolution declaring an exemption from competitive bidding for RES\_1.0 Storage Reservoirs<sup>i</sup> and approving the use of the Construction Manager/General Contractor (CM/GC) delivery method for construction, following a hearing of oral testimony or written comments.

**Key Concepts:**

- The resolution declaring an exemption from competitive bidding under ORS 279C.300 allows the use of CM/GC delivery method for construction contractors for Willamette Water Supply System RES\_1.0 project.
- The project is recommended for CM/GC delivery method based on evaluations by WWSP and the engineer for the RES\_1.0 project, Black & Veatch.
- CM/GC approach would enable value engineering at 60% design and an early Phase 1 construction.
- Both local and national contractors with bonding capacity of over approximately \$121 million would be eligible to submit proposals for the project.
- Proposal of a resolution declaring an exemption from competitive bidding under ORS 279C.300, approval to issue notice of public hearing regarding intent to approve said resolution, and direction to bring the resolution to the Board for adoption in July 2020 occurred at the regular Board meeting on May 7, 2020.
- On June 1, 2020, the Local Contract Review Board issued notice of a public hearing to be conducted on July 2, 2020 under ORS 297C.335 to provide opportunity for comments on the Findings as described in Exhibit 1 of the resolution.

**Background:**

The delivery method for the RES\_1.0 project was evaluated by WWSP and Black & Veatch and the CM/GC approach was selected over the design-bid-build, lump sum design-build, and progressive design-build approaches. Under ORS 279C.300, construction contractors are selected through bidding low bid, open-competitive, or low bid with prequalification, unless an exemption is adopted by the LCRB. The WWSP is seeking approval from the LCRB for an exemption to use CM/GC delivery for the RES\_1.0 project that would enable CM/GC contractor participation during design and consideration of cost (CM/CG fees) and non-cost factors such as technical approach and specialized expertise in the selection of a CM/CG contractor.

**Budget Impact:**

There are no known budgetary impacts anticipated from this item. CM/GC delivery was anticipated in the current baseline budget.

**Staff Contact Information:**

David Kraska, P.E., WWSP Program Director; 503-941-4561; [david.kraska@tvwd.org](mailto:david.kraska@tvwd.org)

Mike Britch, P.E., WWSP Engineering & Construction Manager; 503-941-4565; [mike.britch@tvwd.org](mailto:mike.britch@tvwd.org)

**Attachments:**

1. Findings for an exemption from competitive bidding for RES\_1.0 CM/GC approach
2. Proposed Local Contract Review Board resolution
3. RES\_1.0 Construction Delivery Approach Evaluation

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<sup>i</sup> RES\_1.0 Storage Reservoirs consist of two new pre-stressed concrete water reservoirs, each with capacity of 15 million gallons (MG), located on the parcel east of the intersection of SW Grabhorn Road and SW Stone Creek Drive on Cooper Mountain, near the western edge of the City of Beaverton. This project includes the construction of PLM\_5.3, approximately 20,280 linear feet of new 66-inch steel pipeline.



**RESOLUTION NO. WWSS-12-20**

A RESOLUTION BY THE LOCAL CONTRACT REVIEW BOARD DECLARING AN EXEMPTION FROM COMPETITIVE BIDDING FOR THE RES\_1.0 PROJECT (COMBINED WITH THE PLM\_5.3 PROJECT) AND APPROVING A CONSTRUCTION MANAGER/GENERAL CONTRACTOR (CM/GC) DELIVERY METHOD.

WHEREAS, this matter came before the Board of Commissioners of the Willamette Water Supply System Commission (Commission), acting as the Local Contract Review Board for the Commission; and

WHEREAS, the Commission, formed by the Tualatin Valley Water District, the City of Hillsboro, and the City of Beaverton, has designated Tualatin Valley Water District as its Managing Agency to manage and deliver the Willamette Water Supply System (WWSS) which includes the RES\_1.0 project and PLM\_5.3 project; and

WHEREAS, the Managing Agency operates the Willamette Water Supply Program (WWSP) to construct the WWSS; and

WHEREAS, the WWSP staff and design consultant evaluated the RES\_1.0 project, which includes construction of the PLM\_5.3 project, and determined it is best suited for a CM/GC delivery method; and

WHEREAS, based on WWSP staff's and design consultant's evaluation, CM/GC provides the greatest degree of owner control and enables value engineering input during design and an early construction phase; and

WHEREAS, the WWSP staff developed findings required by ORS 297C.335 for an exemption from competitive bidding, as described in Exhibit 1, attached hereto and incorporated by reference, concluding that the exemption is unlikely to encourage favoritism in the awarding of the contract or substantially diminish competition for the contract and that awarding a contract under the exemption will likely result in cost savings and other substantial benefits; and

WHEREAS, the Local Contract Review Board has noticed a public hearing on June 1, 2020 and conducted a public hearing on July 2, 2020 under ORS 297C.335 to provide opportunity for comments on the Findings as described in Exhibit 1, and being advised,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE WILLAMETTE WATER SUPPLY SYSTEM COMMISSION, ACTING AS THE LOCAL CONTRACT REVIEW BOARD, THAT:

Section 1: The Commission hereby adopts the Findings attached as Exhibit 1 and grants the exemption from competitive bidding for the RES\_1.0 project (combined with the PLM\_5.3 project); and

Section 2: The Commission hereby directs and authorizes WWSP staff to take all action to adopt CM/GC delivery method for the RES\_1.0 project (combined with the PLM\_5.3 project).

Approved and adopted at a regular meeting held on the 2<sup>nd</sup> day of July 2020.

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James Duggan, Chair

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Denny Doyle, Vice Chair

# Willamette Water Supply System Commission

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**FINDINGS IN SUPPORT OF AN EXEMPTION FROM COMPETITIVE BIDDING****WILLAMETTE WATER SUPPLY SYSTEM****RES\_1.0 (COMBINED WITH PLM\_5.3) CONSTRUCTION MANAGER/GENERAL CONTRACTOR (CM/GC)  
DELIVERY METHOD****I. BACKGROUND**

Willamette Water Supply System Commission ("Owner") was formed to develop the Willamette Water Supply System ("WWSS") as a new water source through the work of the Willamette Water Supply Program ("WWSP"). The WWSS is a drinking water infrastructure project that will provide the Owner's members with a seismically resilient water supply to meet future demands and redundancy in case of an emergency event. The WWSS includes more than thirty (30) miles of transmission pipelines from the Willamette River Water Treatment Plant ("WRWTP") in Wilsonville, Oregon north to Tualatin Valley Water District, Hillsboro and Beaverton, Oregon. The WWSS also includes constructing finished water storage tanks (terminal storage), upgrades of the existing raw water facilities at the WRWTP, and a new water treatment plant.

**A. Project Description – Willamette Water Supply System, RES\_1.0 and PLM\_5.3 Projects**

The RES\_1.0 project consists of two new pre-stressed concrete water reservoirs, each with capacity of 15 million gallons, located east of the intersection of SW Grabhorn Road and SW Stone Creek Drive on Cooper Mountain, near the western edge of the City of Beaverton. The primary elements of the project include:

- Two 15 million-gallon circular pre-stressed concrete storage tanks (AWWA D110).
- Four vaults for 66-inch diameter finished water pipelines and appurtenances.
- Yard piping to allow parallel and/or series operation of the two tanks, if elected by WWSP.
- A building to house a chemical feed system, electrical, and supervisory control and data acquisition (SCADA) equipment.
- Site grading, including extensive rock excavation.
- Soil nail and rock bolt reinforcement walls at the north, east, and west areas of the site.
- Stormwater basin retention, treatment, and conveyance.
- Site access roadways.

The PLM\_5.3 project consists of approximately 21,000 feet of 66-inch diameter welded steel pipeline to convey treated water to and from the RES\_1.0 project. This reach of pipeline will travel north along Grabhorn Road to the RES\_1.0 project, and then west to an alignment approximately parallel to Clark Hill Road, then north across Farmington Road along the alignment of a proposed future extension of Cornelius Pass Road to SW Rosedale road that connects to PLW\_1.3 pipeline project.

The RES\_1.0 and PLM\_5.3 projects are being designed by different design consultants; however, as explained below, they will be constructed together under a single construction contract. The combined RES\_1.0 and PLM\_5.3 projects are hereinafter referred to as "RES\_1.0/PLM\_5.3".

ORS 279C.335 (1) requires, with certain exceptions, that all public contracts be based on competitive bidding and, under ORS 279C.375, be awarded to the lowest responsive and responsible bidder. ORS 279C.335 (2) permits an exemption from this general requirement pending approval from the local contract review board. An exemption may be granted for a public improvement project or a class of public improvement contracts if the conditions described in ORS 279C.335(2) are met. The draft findings in this document demonstrate that those conditions are met and that the project may be delivered through the CM/GC approach.

## **B. The Construction Manager/General Contractor (CM/GC) Approach**

The CM/GC delivery approach is a type of alternative delivery that secures contractor involvement earlier, during the design phase, and establishes a relationship between the owner and contractor that is carried through all phases of the project, from design through construction and startup of the facility. Generally with this approach, the owner procures a design firm to develop the design documents. A CM/GC contractor is procured in the design phase (often around 60% design) to provide input during design to enhance constructability of the project and mitigate construction risks that may lead to schedule and cost overruns. A request for proposal (RFP) is typically used for obtaining the CM/GC contractor, which allows selection to be based on qualifications, experience, and cost.

The expected benefits of the CM/GC delivery approach include:

- Providing the owner the ability to select the CM/GC contractor based, in part, on qualifications.
- Inclusion of a CM/GC firm in workshops with the WWSP and future operations staff to understand the operational preferences for the reservoirs and, thereby, enable safe and thorough planning for the WWSS commissioning and startup.
- Mitigating potential schedule delays and cost overruns by including the contractor during design, thereby achieving higher confidence that the project will be completed on time and within the project budget.
- Shifting some project delivery risk to the CM/GC contractor, thereby encouraging the contractor to work collaboratively and focus on avoiding construction issues.
- Obtaining value engineering input from the CM/GC contractor throughout the design, resulting in cost savings, reduction of claims, and reduced project risk.
- Having a CM/GC contractor involved early in design to identify and mitigate possible safety and public outreach concerns early on, creating a safer construction environment.
- Allowing for an early phase 1 of construction for required earthwork for site preparation.

CM/GC has been implemented on the WWSP, as well as many projects across the United States and in the Pacific Northwest. It has also been used successfully by TVWD and Hillsboro for their individual projects and by the Joint Water Commission, of which they are members. This delivery approach is desirable for the WWSS RES\_1.0 /PLM\_5.3 project because CM/GC enables engagement of a highly-qualified contractor throughout the design and construction phases to mitigate and manage delivery risks for this complex project.

## **II. FINDINGS REGARDING COMPETITION**

**ORS 279C.335 (2) requires that an agency make certain findings as a part of exempting certain public contracts or classes of public contracts from competitive bidding. ORS 279C.335 (2) (a) requires an agency to find that: *“It is unlikely that such exemption will encourage favoritism in the awarding of public contracts or substantially diminish competition for public contracts.”***

### **A. Procurement Approach**

The WWSP intends to advertise in the Oregon Daily Journal of Commerce, the WWSP website, and other publications to notify local, regional, and national CM/GC contractors of the RFP. Based on the availability of qualified contractors and information from recent projects in the area, it is anticipated that at least three to five CM/GC contractors will submit proposals.

Using the RFP process, selection of the CM/GC contractor will be based on qualifications and cost criteria, which may include the CM/GC's health and safety record, relevant experience, proposed key staff, project understanding and delivery approach, proposed cost for preconstruction phase services, and proposed rates for construction phase services, among other criteria. A selection committee will review each proposal received and may determine a shortlist of CM/GC contractors, based on the initial evaluation of qualifications, technical approach, and cost evaluations. Shortlisted CM/GC contractors may be invited to participate in interviews to determine the final selection.

The RFP will include requirements to divide the work into packages and competitively bid the packages among subcontractors, as opposed to the CM/GC contractor presumptively self-performing the work. The CM/GC contractor would also be required to competitively bid on packages for which it desires to self-perform the work. For work packages the CM/GC contractor intends to self-perform, bids would be submitted to the Owner for full transparency to the bidding community. This further encourages competition and provides a better value to the Owner.

## **FINDINGS REGARDING SUBSTANTIAL COST SAVINGS**

**ORS 279C.335 (2) requires that a public agency make certain findings as part of exempting certain public contracts or classes of public contracts from competitive bidding. ORS 279C.335(2)(b) requires an agency to find that: *“Awarding a public improvement contract under the exemption will likely result in substantial cost savings and other substantial benefits to the contracting agency or the state agency that seeks the exemption or, if the contract is for a public improvement described in ORS 279A.050(3)(b), to the contracting agency or the public.”* ORS 279C.335(2)(b) further provides that: *“In approving a finding under this paragraph, the Director of the Oregon Department of Administrative Services, the Director of Transportation or the local contract review board shall consider the type, cost and amount of the contract and, to the extent applicable to the particular public improvement contract or class of public improvement contracts, the following:***

***(A) How many persons are available to bid;***

***(B) The construction budget and the projected operating costs for the completed public improvement;***

***(C) Public benefits that may result from granting the exemption;***

***(D) Whether value engineering techniques may decrease the cost of the public improvement;***

***(E) The cost and availability of specialized expertise that is necessary for the public improvement;***

***(F) Any likely increases in public safety;***

*(G) Whether granting the exemption may reduce risks to the contracting agency, the state agency or the public that are related to the public improvement;*

*(H) Whether granting the exemption will affect the sources of funding for the public improvement;*

*(I) Whether granting the exemption will better enable the contracting agency to control the impact that market conditions may have on the cost of and time necessary to complete the public improvement;*

*(J) Whether granting the exemption will better enable the contracting agency to address the size and technical complexity of the public improvement;*

*(K) Whether the public improvement involves new construction or renovates or remodels an existing structure;*

*(L) Whether the public improvement will be occupied or unoccupied during construction;*

*(M) Whether the public improvement will require a single phase of construction work or multiple phases of construction work to address specific project conditions; and*

*(N) Whether the contracting agency or state agency has, or has retained under contract, and will use contracting agency or state agency personnel, consultants and legal counsel that have necessary expertise and substantial experience in alternative contracting methods to assist in developing the alternative contracting method that the contracting agency or state agency will use to award the public improvement contract and to help negotiate, administer and enforce the terms of the public improvement contract.*

The following section presents WWSP staff findings relative to each of the factors required to be addressed by ORS 279C.335(2)(b)(A) through (N), with captions edited for space.

#### **A. How Many Persons are Available to Bid**

A sufficient number of CM/GC contactors are available to respond to the RFP. Some of the qualified CM/GC contractors with offices in the Pacific Northwest that may respond the RFP are listed below:

- Hoffman Construction Company
- Kiewit Infrastructure West, Co.
- M.A. Mortenson Company
- Slayden Construction Group, Inc.

It is also anticipated that qualified national CM/GC contractors, not already located in the Pacific Northwest, may respond the RFP. WWSP's prior RFPs using the CM/GC process attracted multiple, competitive contractors.

*Finding Summary: The process the Owner intends to use to select the CM/GC contractor and the number of contractors available to propose makes the exemption unlikely to encourage favoritism in the awarding of the public improvement project or substantially diminish competition for the contract.*

#### **B. Construction Budget**

There are no known budgetary impacts anticipated at this time. CM/GC was not anticipated in the baseline plan; therefore, the professional services portion of CM/GC delivery were not anticipated. The cost associated with professional services range in value but are typically less than one percent of the expected construction cost. During construction, CM/GC profit margins and labor cost are typically higher than low-bid projects. While these items could negatively impact the project budget,

allowing the CM/GC contractor to participate in value engineering efforts around 60% design, provides opportunities for construction cost savings, compared to the traditional DBB approach. Additional narrative and references regarding the likely benefits to the project's construction budget through the use of value engineering with contractor participation are provided below in Section D.

*Finding Summary: Alternative delivery through CM/GC will not increase costs and, based on other regional projects of similar type and size, construction cost savings are likely.*

### **C. Public Benefits**

The WWSS, including the RES\_1.0/PLM\_5.3 project, is expected to provide long term public benefits including:

- Seismically resilient water supply
- Sustainable water supply for future growth
- Clean, high quality water for potable use
- Redundancy in case of an emergency event

Delivery of the RES\_1.0/PLM\_5.3 project is a challenging component of the WWSS. An experienced contractor is necessary to complete this work to ensure the final product meets the WWSS and project-specific goals. Project-specific challenges including site excavation work involving a large volume of rock removal, traffic control, and limited site access. A CM/GC approach enables the selection of a contractor based on qualifications and previous similar technical work experience. The contractor's approach to traffic control, health and safety, and impact to the public can also be evaluated as part of the selection process.

*Finding Summary: The use of a RFP for a CM/GC contractor enables the selection of a contractor that has previously demonstrated the capability to deliver complex water storage and transmission projects on time and within budget. This will ultimately result in a higher quality product that will benefit the public for years to come.*

### **D. Value Engineering**

Value engineering (VE) is an effort to independently review a project's design documents and recommend changes that decrease its construction or operations cost, reduce construction or safety risks, or otherwise improve the overall long-term value of the project. To achieve the best results, the VE efforts should be started early in the design phase. The traditional DBB approach prevents the contractor from participating in an early VE process, because the contractor does not see the design documents until the design is complete. Alternatively, the CM/GC approach uses a competitive process to procure an experienced and qualified contractor early in the design phase, so that the contractor can participate in early VE processes.

Allowing the contractor to participate in early VE of the project is beneficial, because it enables collaboration among the designer, owner and contractor before the design is finished. This effort takes advantage of the contractor's experience and construction knowledge to improve the design documents and allow for a more constructible design. This process also allows the contractor more time than the traditional DBB approach to become familiar with the design and the designer's goals and intentions. Being more familiar with these aspects of the design decreases the uncertainty of how the contractor will approach the work and reduces risk-based price increases that contractors add

when design documents are unclear. Reducing constructability risks also has the added benefit of reducing the potential for change orders and claims during construction, which likely further reduces overall project cost.

The following references provide additional discussion of the benefits of including the CM/GC contractor in VE efforts:

1. "Cost Benefits to Construction Manager/General Contractor Approach", Office of Budget and Policy, Federal Transit Administration, Washington D.C., April, 2016

<https://www.transit.dot.gov/regulations-and-guidance/cost-benefits-construction-manageregeneral-contractor-approach>

2. "Oregon Public Contracting Coalition Guide to CM/GC Contracting", Construction Engineering Management Program, Department of Civil, Construction, and Environmental Engineering, Oregon State University, Corvallis OR, February 2002

[https://www.agc-oregon.org/wp-content/uploads/2011/10/CM\\_GC\\_Guide\\_05.pdf](https://www.agc-oregon.org/wp-content/uploads/2011/10/CM_GC_Guide_05.pdf)

Granting the exemption will allow the WWSP to select a qualified CM/GC contractor to participate in value engineering efforts early and throughout the design phase. The CM/GC contractor will improve constructability of the project, likely reducing project risk and cost.

*Finding Summary: The CM/GC approach facilitates contractor-led value engineering early in the design, continuing throughout design and construction, which provides opportunity to reduce the overall cost and delivery risk of the project.*

#### **E. The Cost and Availability of Specialized Expertise Necessary for the Project**

Construction of the project will require specialized technical expertise to properly plan and execute work to address the complex technical and logistical challenges of the project. Using the CM/GC alternative delivery approach will allow the selection of the most qualified contractor with relevant experience in similar water storage and transmission projects.

*Finding Summary: Using a competitive RFP process for procurement of the CM/GC contractor will allow the opportunity to evaluate and select a contractor based on previous experience and key staff qualifications, securing the experience and expertise required to meet the criteria established for the project.*

#### **F. Public Safety**

It is important to build the project with safety foremost in the contractor's approach, to ensure safe working conditions for the contractor, neighbors, and public.

The CM/GC approach allows historical safety performance and commissioning work on similar water storage and transmission projects to be considered as a selection criterion. It also permits the WWSP to work closely with the CM/GC contractor to verify that the design and work sequences include appropriate safety measures, that the contractor understands the safety concerns, and that the contractor will take appropriate steps to address them.



*Finding Summary: The CM/GC delivery approach promotes collaboration among the WWSP safety personnel, design consultants, and the contractor during design to vet and refine construction methods, thereby enhancing construction and operational safety.*

### **G. Risk Reduction**

In a traditional design-bid-build delivery approach, the design consultant develops the work sequence. Communicating that information to the contractors during the bid phase can be challenging due to the level of detail needed. However, the use of the CM/GC delivery approach enables the contractor to fully understand the work constraints during the design phase and develop a work sequence with the design consultants (RES\_1.0 and PLM\_5.3 have different design consultants) and WWSP staff that fits the CM/GC's available equipment and preferred methods of construction. The work sequence will also include detailed logistical planning for extensive, yet physically constrained, working conditions at and near the RES\_1.0 site. This involvement during design and sequence planning reduces the risk of cost overruns, schedule delays, and safety hazards. Furthermore, the reduction in project uncertainty achieved by having the contractor involved during design translates into potential cost savings to the Owner in the form of reduced contingency within construction pricing and reduces the risk to the Owner of CM/GC-requested change orders related to design issues.

*Finding Summary: The collaboration between Owner, operations staff, CM/GC contractor, and design consultants throughout the design process will allow the involved parties to identify and mitigate risks as the project is developed.*

### **H. Impact on Project Funding**

Using the CM/GC delivery approach will not impact the funding source or method of the project.

*Finding Summary: No impact.*

### **I. Market Conditions**

During recent years, the demand for resources to deliver public works projects has increased as a result of commercial construction across the country and specifically in the Pacific Northwest. The recent COVID-19 pandemic may have near-term impacts on this historical trend; however, any longer-term impact that may be experienced during the life of the RES\_1.0/PLM\_5.3 project cannot be determined. The recent historical increase in demand has led to a shortage of construction professionals, skilled craftsmen, and laborers as well as increased costs for building materials impacting construction costs. Using the CM/GC approach, provides additional flexibility to react quickly to changes in market conditions. An example of this may be early procurement of strategic portions of the project to mitigate risks due to changing market conditions.

Further, the RFP for the CM/GC contractor will include requirements to divide the work into packages and competitively bid the packages among subcontractors, which would promote competition based on the market conditions at time of bidding.

*Finding Summary: Using the CM/GC approach offers additional flexibility to quickly react to market conditions.*

## **J. Technical Complexity**

Characteristics of the project that lead to its technical complexity include four major work packages that will likely be constructed by different contractors or subcontractors. These include prestressed tanks, rock excavation and wall reinforcement, large diameter linear (pipeline) work, and balance of RES\_1.0 on-site facilities. These packages are somewhat unrelated and will need to be coordinated for a smooth construction process. Additionally, the RES\_1.0 site is very small for the facilities being provided, requiring that construction staging be accommodated across SW Grabhorn Road. As a result, traffic control and staging will be extremely critical aspects of the project. The CM/GC delivery approach will allow the WWSP to acquire a highly qualified general contractor with commensurate experience with complex projects. Establishing a collaborative relationship among the design consultants, WWSP, and contractor early on using CM/GC will enable the technically complex aspects of this project to be fully addressed. Furthermore, the collaborative relationship enables the CM/GC to understand the different components of the work, the site and schedule constraints and allow for an early phase of construction for the rock excavation.

*Finding Summary: The project will require an experienced contractor to understand the components of the work, site and schedule constraints, and plan accordingly. Selecting a highly qualified contractor through a RFP process will facilitate successful completion of this complex project.*

## **K. New Construction, Renovation, or Remodel?**

The project includes new construction on a newly developed site. The project will require a contractor that has experience developing new sites and utilities. The design collaboration inherent in the CM/GC delivery approach allows for adequate time to develop a work sequence for planning successful construction, commissioning, startup and operations.

*Summary Finding: A CM/GC delivery approach will allow the WWSP to select a CM/GC contractor that has demonstrated capability of delivering large-scale water storage and transmission projects on new sites.*

## **L. Occupied or Unoccupied During Construction?**

A chemical feed/electrical building will be constructed on the RES\_1.0 site. During construction, the facility will be unoccupied, until the commissioning and startup steps. During commissioning and startup, the Owner's operations staff will be present on-site and participate in training and commissioning activities. Allowing the CM/GC contractor to work with the operators early on to address any of their concerns and receive their input on design will enhance the value of the project. CM/GC allows for this early collaboration and will likely yield a higher quality final project and ensure successful operation of the reservoir following construction.

*Finding Summary: The CM/GC contractor will be better prepared for a successful commissioning and startup phase because of early involvement with the operations staff.*

#### **M. Is the Construction Phased?**

Construction of the project is anticipated to be completed by one CM/GC firm in one or more work phases, depending on the best value to the Owner. It is anticipated that an early work package will be beneficial for the earthwork on this site.

#### **N. Finding Summary:**

The CM/GC delivery method is beneficial when multiple phases of work are needed as the coordination and planning can occur early in the project.

#### **O. Project Staff Qualifications**

The WWSP has consultants and legal counsel retained under contract that have the necessary expertise and experience in alternative delivery approaches. These resources will be utilized to develop procurement documents for obtaining a qualified CM/GC contractor and to support the delivery of both the design and construction aspects of the project.

*Finding Summary: The WWSP and its consultants have the experience to administer a CM/GC delivery approach.*

### **III. Conclusion**

In accordance with ORS 279C, the WWSP finds that the use of the CM/GC alternative delivery approach for the project allows:

- Collaboration among the WWSP, Owners' operations staff, design consultants, and contractor throughout design and construction to improve the quality of decisions.
- Use of value engineering to make informed decisions that increase the opportunity to reduce the overall cost and delivery risk of the project.
- Dividing the work into smaller packages to allow for competitive bidding and selection of suppliers, equipment, materials, and subcontractors, with solicitations managed by the CM/GC contractor.
- Phasing of the work to allow for greater control of construction sequencing and coordination.
- Coordinated responsibility for worker safety.
- Selection of a contractor based on qualifications with experience in new construction of complex water storage and transmission projects.

# Willamette Water Supply System Commission

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## **SUBTASK 4.4.2 - CONSTRUCTION DELIVERY APPROACH EVALUATION**

Design, Bidding Phase, and Services  
During Construction for RES\_1.0

**B&V PROJECT NO. 404397**

**Willamette Water Supply** *Our Reliable Water*

**PREPARED FOR**

**Willamette Water Supply Program**

**FEBRUARY 12, 2020**

# Willamette Water Supply System Commission

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## 1.0 INTRODUCTION

The Willamette Water Supply System (WWSS) Commission is an Oregon intergovernmental entity formed by Tualatin Valley Water District (TVWD), the City of Hillsboro (Hillsboro), and the City of Beaverton (Beaverton), collectively referred to as Owner. The WWSS Commission was formed to build the WWSS in response to planned growth in the TVWD, Hillsboro, and Beaverton service areas. The WWSS will provide an additional, resilient water supply for Washington County.

TVWD has been designated the Managing Agency for the WWSS Commission and operates the Willamette Water Supply Program (WWSP) to plan, design, and construct the WWSS.

The WWSP program team has performed an analysis of the construction delivery approach alternatives for RES\_1.0, incorporating the decision to combine two individual projects - RES\_1.0 and PLM\_5.3. This evaluation by Black & Veatch reviews WWSP's analysis in light of the unique aspects and current status of the project.

### 1.1 Project Description

The RES\_1.0 project consists of two new pre-stressed concrete water reservoirs, each with capacity of 15 million gallons (MG), located east of the intersection of SW Grabhorn Road and SW Stone Creek Drive on Cooper Mountain, near the western edge of the City of Beaverton. The primary elements of the project include:

- Two 15 MG circular pre-stressed concrete storage tanks (AWWA D110).
- Four vaults for 66" diameter finished water pipelines and appurtenances.
- Yard piping to allow parallel and/or series operation of the two tanks, if elected by WWSP.
- A building to house a chemical feed system, electrical, and SCADA equipment.
- Site grading, including extensive rock excavation.
- Soil nail and rock bolt reinforcement walls at the north, east, and west areas of the site.
- Storm water retention, treatment, and conveyance.
- Site access roadways.

The PLM\_5.3 project, designed by Jacobs Engineering (Jacobs), consists of approximately 21,000 feet of 66-inch diameter welded steel pipeline to convey treated water from the WWSS Water Treatment Plant (WTP\_1.0) to RES\_1.0. This reach of pipeline will travel north along Grabhorn Road to the new water storage tanks on Cooper Mountain, and then west to Clark Hill Road then north to Farmington Road.

## 2.0 RES\_1.0/PLM\_5.3 CONSTRUCTION DELIVERY EVALUATION

On March 13, 2019, the Program issued its final report entitled “Willamette Water Supply Program – PLM\_5.3/RES\_1.0 Packaging and Delivery Alternatives Evaluation (Report),” a copy of which is included as Attachment 1. The objective of the Program’s delivery alternatives evaluation was to:

- Provide background and progress on the PLM\_5.3 alignment.
- Evaluate sequencing alternatives for constructing PLM\_5.3 and RES\_1.0 to avoid construction conflicts near the reservoir site.
- Evaluate different construction delivery approaches for the recommended alternative.

### 2.1 Summary of Program Evaluation

In the Report, the Program presented the following analysis:

*“Although PDB and, to a lesser extent, LS DB offer advantages for some criteria, those delivery approaches do not readily accommodate sustained progress on the PLM\_5.3 design. A single, new procurement would be required for design and construction of PLM\_5.3 and RES\_1.0. Suspending the PLM\_5.3 design and potentially transferring the design to a new design consultant that is part of the design-build team poses considerable schedule risk and would result in rework for PLM\_5.3 design. Because of these disadvantages, PDB and LS DB were dismissed from further consideration.*

*Both DBB and CM/GC would accommodate the existing PLM\_5.3 design contract and enable continued design progress. Those delivery approaches would also enable separation of PLM\_5.4 from PLM\_5.3 if WCLUT is able to partner on PLM\_5.4.*

*CM/GC could provide some advantages over DBB, principally through the benefits of contractor involvement during design for improved VE, constructability, and pricing. CM/GC may also enable greater control of construction sequencing and coordinated (shorter duration) construction in the reservoir area.*

*DBB would secure the most competitive construction pricing. With approval of special exemptions, construction contractor qualifications and safety record could be considered as part of a DBB selection process (i.e., best-value selection).*

*During the January 31, 2019 meeting, the potential benefits of CM/GC delivery for this project were judged to be slight. Comparable project delivery outcomes could be achieved by a well-executed DBB delivery approach. Contractor selection could use a best-value approach that considers project-specific qualifications and safety record in conjunction with cost. Additional information about RES\_1.0 will be developed during detailed design, which is scheduled to begin in late 2019. That information can be used to confirm a final delivery approach for PLM\_5.3 and RES\_1.0 construction.”*

The Report made the following recommendation:



*“It is recommended that the DBB delivery approach, as reflected in the current baseline, be retained for planning delivery of PLM\_5.3 and RES\_1.0. However, the baseline would be modified to accommodate a best-value selection process for the construction contractor and the packaging of PLM\_5.3 and RES\_1.0 (as recommended in Section 3.2). After a design consultant is engaged for RES\_1.0, a final review of delivery approaches would be performed to confirm or modify the plan.”*

## **2.2 Delivery Options for Evaluation**

Black & Veatch’s analysis concurs with the recommendation to remove PDB and LS DB from further consideration for the reasons stated in the Report. Therefore, our analysis focused on the merits of DBB and CM/GC for delivery of the combined RES\_1.0 and PLM\_5.3 project.

## **2.3 Factors Unique to RES\_1.0**

In evaluating the remaining delivery options, there are a few unique aspects to this combined project that should be considered in the evaluation. These include:

- There are four major work packages that will likely be constructed by different contractors (general or sub) – prestressed tanks, rock excavation and wall reinforcement, large diameter linear work, and balance of plant. These packages are somewhat unrelated and will need to be coordinated for a smooth construction process.
- The prestressed tank construction is specialized construction with very limited companies performing this type of work. It is possible there will be only one bidder for this portion of the work.
- The construction package will be designed by two different consultants, Black & Veatch for RES\_1.0 and Jacobs for PLM\_5.3.
- The site is very small for the facilities being provided, requiring that construction staging be accommodated across SW Grabhorn Road. As a result, traffic control and staging will be extremely critical aspects of the project.

## **2.4 Black & Veatch Evaluation**

Black & Veatch’s evaluation was based on the analysis already completed while considering the unique aspects of the project. In general, we concur with the criteria, and assessment of each, made for the two delivery approaches except for the “Promotes competitive construction pricing that benefits owner”.

Due to the potential sole source package for the prestressed tanks, there is a concern that it could result in premium pricing. One approach to mitigate this potential impact is to have an open book, negotiation with the subcontractor. With DBB, this approach is difficult to accommodate within the bidding process, though it can be a separate process with the negotiated contract assigned to the successful contractor. The downside of this process is the potential gaps in packaging and terms and conditions that conflict with the contractor’s approach. With a CM/GC approach, this negotiation process can be a more collaborative activity.

This open book concept can be applied to the other major packages as well, providing greater assurance of reasonable pricing.

Another advantage of a CM/GC approach is early input on the site constraints/constructability issues. While the designers both have construction staff that can provide input on these issues, engaging the party that will have responsibility for implementing the requirements will result in a smoother transition into construction.

There are two additional potential advantages of a CM/GC approach. First would be coordination of the two design packages to avoid any potential conflicts or change order opportunities due to different conditions in the two packages. Second, if necessary to meet schedule, the CM/GC approach would allow for early procurement or start of individual construction packages.

## **2.5 Recommendation**

Based on the unique features of this project, it appears a CM/GC approach has the potential to more effectively address the need for competitive pricing and eliminate the need for a special bidding exemption while bringing the other, already identified advantages.

## **ATTACHMENT 1**

### **Willamette Water Supply Program – PLM\_5.3/RES\_1.0 Packaging and Delivery Alternatives Evaluation**

# Willamette Water Supply System Commission

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**Willamette Water Supply**  
*Our Reliable Water*

**Willamette Water Supply Program**  
**PLM\_5.3/RES\_1.0 Packaging**  
**and Delivery Alternatives**  
**Evaluation**  
**Final**

**March 13, 2019**

For Internal Use Only



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## List of Abbreviations and Acronyms

BCA	Business Case Analysis
BPA	Bonneville Power Administration
DB	Design-Build
DBB	Design-Bid-Build
CM/GC	Construction Manager/General Contractor
GMP	Guaranteed Maximum Price
Hillsboro	City of Hillsboro
Jacobs	Jacobs Engineering Group
LS DB	Lump Sum Design-Build
mg	million gallon
mgd	million gallons per day
O&M	operation and maintenance
OPCC	Opinion of Probable Construction Cost
PDB	Progressive Design-Build
PLM	Pipeline Main
PLW	Pipeline West
Project Participants	Tualatin Valley Water District and the City of Hillsboro
RES	Reservoir
ROW	right-of-way
SW	southwest
TVWD	Tualatin Valley Water District
VE	value engineering
WTP	Water Treatment Plant
WCLUT	Washington County Land Use and Transportation
WWSP	Willamette Water Supply Program
WWSS	Willamette Water Supply System



Section 1.0

# Introduction

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## 1.0 Introduction

Tualatin Valley Water District (TVWD) and the City of Hillsboro (Hillsboro), collectively referred to as the Project Participants, identified the Willamette Water Supply System (WWSS) as the best option for future delivery of drinking water to their service areas in Washington County. The Willamette Water Supply Program (WWSP) is led by the Project Participants to develop the WWSS. Other water providers in the region are looking at options for future participation. The mid-Willamette River at Wilsonville will be the new water supply source for the WWSS. Although current demands are met through other sources, the addition of a new source will provide improved water supply reliability and system resiliency. Developing an additional water supply through a partnership supports the region's plans for responsible growth within the urban growth boundary.

### 1.1 Overview and Purpose

Pipeline Main (PLM) 5.3 is a segment of the PLM\_5.0 project (Scholls Area Pipeline Project) with approximately 20,940 linear feet of 66-inch diameter pipeline that was initially planned to extend from southwest (SW) Grabhorn Road at SW Tile Flat to SW Farmington Road at SW 209<sup>th</sup> Avenue. The pipeline would have connected to the Pipeline West (PLW)\_1.3 project (South Hillsboro Area Pipeline Project) at the intersection of SW Farmington Road and SW 209<sup>th</sup> Avenue.

The Reservoir (RES)\_1.0 project is located within and connected to the PLM\_5.3 project (see **Figure 1-1**). RES\_1.0 will consist of two aboveground water storage tanks with a total storage capacity of 30 million gallons (mg) distributed between the two. The proposed location is in the Cooper Mountain area southeast of intersection SW Grabhorn Road and SW Stone Creek Road. RES\_1.0 will receive and store finished water treated at the water treatment plant (WTP)\_1.0. Flows within PLM\_5.3 that enter RES\_1.0 from the south will be pumped, and flows exiting RES\_1.0 to the west and north will leave by gravity.

Based on the current WWSP master schedule and budget, construction of PLM\_5.3 and RES\_1.0 is anticipated between 2022 and 2024. The concurrent construction schedule will be complex due to access to the RES\_1.0 site during construction and availability of the staging area, located on a property immediately west of RES\_1.0, for two contractors. As a result, WWSP staff used a Business Case Analysis (BCA) approach to evaluate several options for combining the two projects.

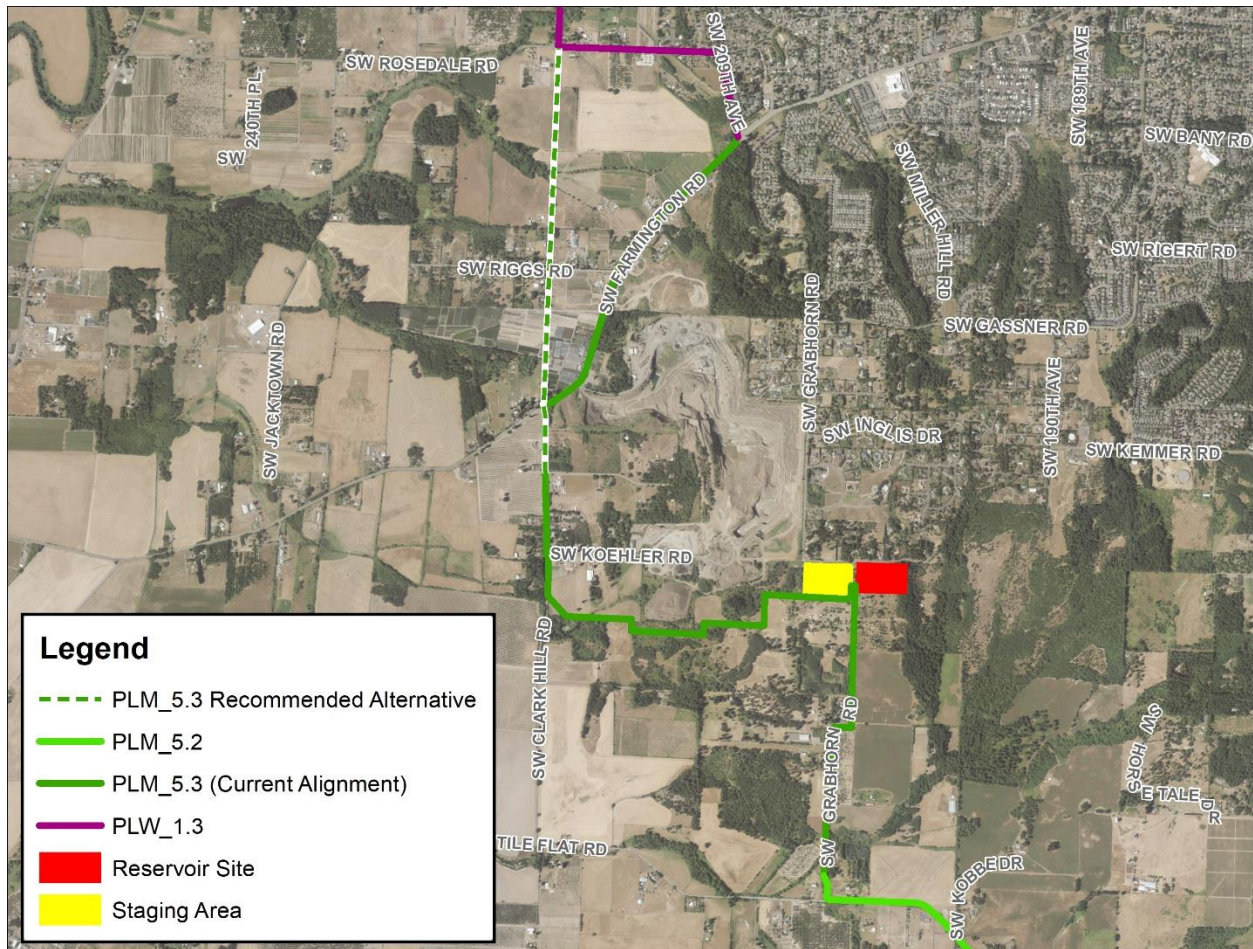


Figure 1-1. Plan Profile of PLM\_5.3 and RES\_1.0 Projects

The objectives of this delivery alternatives evaluation are to:

- Provide background and progress on the PLM\_5.3 alignment.
- Evaluate sequencing alternatives for constructing PLM\_5.3 and RES\_1.0 to avoid construction conflicts near the reservoir site.
- Evaluate different construction delivery approaches for the recommended alternative.

Section 2.0

## **PLM\_5.3 Alignment Alternative Evaluation**

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## 2.0 PLM\_5.3 Alignment Alternative Evaluation

In September 2017, CH2M Hill, referred to as Jacobs Engineering Group (Jacobs) in this document and serving as the design consultant, conducted a geotechnical investigation that identified significant seismic hazards along SW Farmington Road. Jacobs determined it would require extensive ground improvements or other mitigations to protect the pipeline during a Cascadia Subduction Zone Earthquake event. To avoid and reduce the geotechnical concerns and potential mitigation requirements, WWSP explored alternative alignments for PLM\_5.3.

After evaluating several alternatives using WWSP’s standard alignment selection criteria, Jacobs (2018)<sup>1</sup> recommended the corridor shown in **Figure 2-1** as the preferred alternative for PLM\_5.3. After further input from property owners and site investigations, an additional alignment was located further east, parallel to the Bonneville Power Administration (BPA) easement. This route heads north from SW Clark Hill Road to connect with the PLW\_1.3 project at SW Rosedale Road. To maintain a connection to the TVWD system at SW Farmington Road and SW 209<sup>th</sup> Avenue, the PLW\_1.3 pipeline alignment along SW Rosedale Road and SW 209<sup>th</sup> Avenue will be used to convey 17 mgd to the TVWD system.

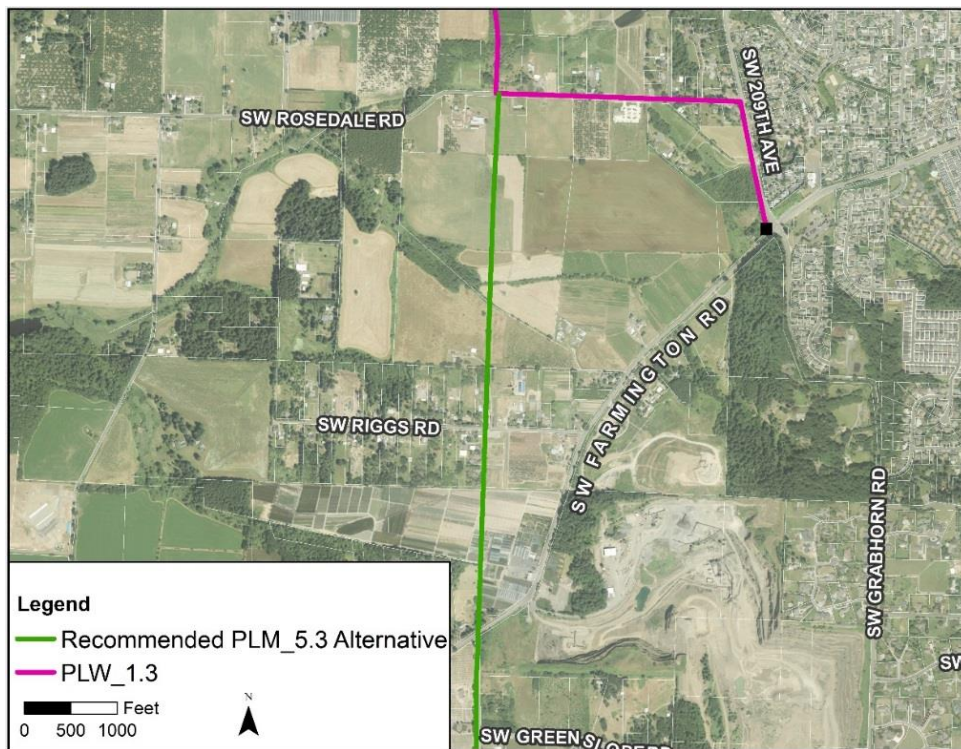


Figure 2-1. PLM\_5.3 Preferred Alternative (approximate alignment)

The proposed pipeline corridor is located mainly on private property at the north/south main line between SW Farmington Road and SW Rosedale Road. It parallels the existing BPA high

<sup>1</sup> The recommendations in Jacob’s *Farmington Road Alternatives Evaluation for PLM\_5.3* (2018) apply only to the proposed pipeline corridor. These have since been refined and will be detailed as design progresses in 2019.

voltage transmission lines, but does not encroach on BPA's easement except to cross it. Due to the rural nature of the area, there are no roadway corridors like SW Farmington Road in which to site the pipeline. Therefore, this proposed alignment cannot meet WWSP's preference to use public rights-of-way (ROWs), as they are not available.

To connect PLM\_5.3 to the existing TVWD system at SW Farmington Road and SW 209<sup>th</sup> Avenue, it was recommended to use the existing field work (survey, geotechnical, environmental, and cultural resources) and design to develop this smaller 17 mgd, 30-inch diameter pipeline.



Section 3.0

## **Alternative Project Packaging Evaluation**

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### 3.0 Alternative Project Packaging Evaluation

In the current schedule, PLM\_5.3 and RES\_1.0 construction phases overlap, which present many risks to WWSP. Several schedule modifications and project packaging alternatives were evaluated to address these construction phase challenges. The status of each affected project influences alternative project packaging, as follows:

- RES\_1.0 is currently in pre-design; procurement of a design consultant is expected to begin in October 2019.
- PLM\_5.3 is currently in early design, with field work (survey, geotechnical, environmental, and cultural resources) under way to provide base data for development of the 30% design, which is expected by April 2019.
- PLW\_1.3 is currently progressing toward 60% design, with design submittals due in May 2019. However, the connection point of PLM\_5.3 to PLW\_1.3 on Rosedale Avenue is still unknown due to PLM\_5.3 alignment not being finalized yet.

To minimize public disruption from overlapping construction, four potential alternatives and a baseline (see **Table 1, Appendix A**) were evaluated. The baseline option represents PLM\_5.3 and RES\_1.0 as two independent projects with overlapping construction schedules, as currently planned.

*Baseline* – PLM\_5.3 and RES\_1.0 construction would be procured and executed as separate projects. Because construction will overlap, there will be some spatial and temporal construction conflicts around the reservoir site related to construction traffic and staging.

*Alternative A* – RES\_1.0 construction would proceed first, followed by PLM\_5.3, lengthening overall construction activities on and around the reservoir site.

*Alternative B* – PLM\_5.3 construction would proceed first, followed by RES\_1.0, lengthening overall construction activities on and around the reservoir site.

*Alternative C* – PLM\_5.3 and RES\_1.0 would be procured and executed as a single construction project, maximizing coordination of construction traffic and staging (see **Figure 3-1**).

*Alternative D* – Separate PLM\_5.3 alignment into two different construction projects: PLM\_5.3 and PLM\_5.4. To avoid construction conflicts at the reservoir site, PLM\_5.3 segment from SW Tile Flat Road to SW Green Slope Road at Clark Hill Road would be combined with RES\_1.0. The remaining length of pipeline from SW Green Slope Road at Clark Hill Road to SW Rosedale Road (PLW\_1.3 connection) would become PLM\_5.4 and constructed as a separate project (see **Figure 3-1**).

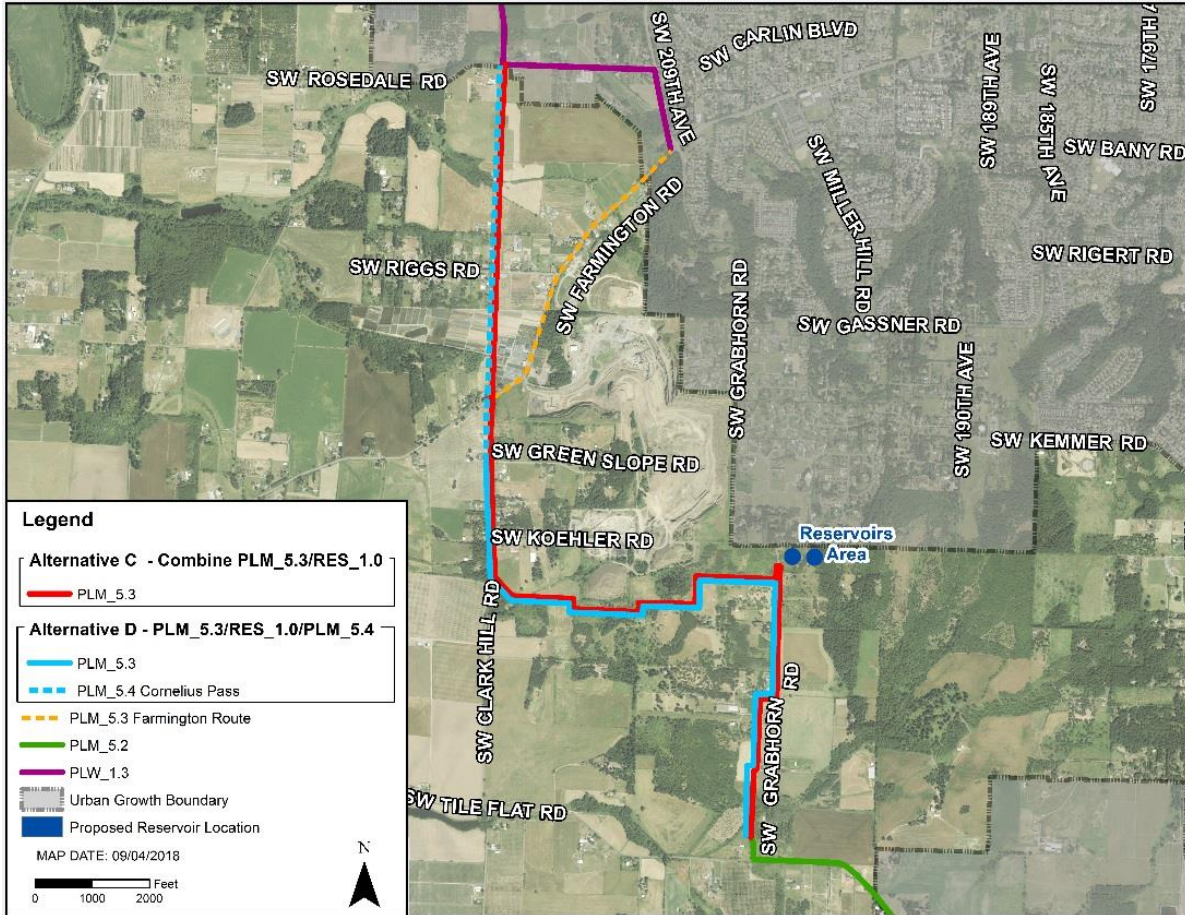


Figure 3-1. Alternative C and Alternative D

### 3.1 Evaluation: Criteria and Results

The alternatives for packaging PLM\_5.3 and RES\_1.0 were evaluated based on WWSP’s BCA approach, which included the following criteria:

- Cost impact
- Schedule impact
- Financial capacity
- Procurement impact
- Design impact
- Construction impact
- Quality optimization
- Public disruption and public affairs
- Environmental/permitting impact
- Real estate and ROW acquisition
- Performing agency partnership
- Substantial limitation identified

An evaluation workshop was held August 14, 2018, with key WWSP staff and managers. The team discussed the benefits and challenges of packaging alternatives for each BCA criterion and, as a result, the alternative selection is based on multidisciplinary input. Results from the workshop are provided in **Table 1, Appendix A** and summarized below.

*Baseline* – By weighing the benefits and challenges, the baseline was determined to be more impactful compared to the other alternatives. This was determined because the projects would have limited coordination, and overlapping construction would complicate construction traffic and staging that may cause greater public disruption. The team’s recommendation was to eliminate this option.

*Alternative A* – This alternative was abandoned, as it presented several challenges to other alternatives, including:

- Longer construction duration near the RES\_1.0 site (two years for both PLM\_5.3 and RES\_1.0), resulting in increased public disruption.
- Accelerating RES\_1.0 design and construction could delay PLW\_2.0<sup>2</sup> design and construction to balance WWSP cash flow.
- Accelerating RES\_1.0 design could compress the duration of design, which would present quality and cost challenges.
- Creating significant challenges for testing and disinfection of the reservoir, as RES\_1.0 construction would finish earlier than PLM\_5.3, limiting access to and disposal of water for reservoir testing.
- Leaving RES\_1.0 to spend years in long-term storage before placement into service.

*Alternative B* – This alternative was removed due to challenges similar to Alternative A, including public disruption from extended construction, potential PLW\_2.0 timing and WWSP cash flow impacts, and startup and commissioning challenges.

*Alternative C* – This was chosen as the preferred alternative because it lacked substantial limitations and offered several benefits, including:

- Allows one construction procurement rather than two, as required for Alternatives A and B.
- Enables coordinated construction, limiting public disruption.
- May attract larger and more qualified contractors that can manage the work more efficiently.
- Given the large quantity of rock excavation necessary for the reservoir, a single construction contract would provide opportunities for the contractor to reuse or rebalance earth resources, create optimized haul routes for import and export of soils to and from the

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<sup>2</sup> PLW\_2.0 project (Cornelius Pass Pipeline Project) can accommodate some construction schedule adjustments to modify overall WWSP cash flow.

nearby quarry, and efficiently manage use of the staging area for pipeline or reservoir activities.

*Alternative D* – This alternative is considered a contingent variation of Alternative C, as there is a possibility of partnership with Washington County Land Use and Transportation (WCLUT) on PLM\_5.4. However, there is limited likelihood of WCLUT being ready to present a road alignment and profile to coordinate with the pipeline design. Should a partnering opportunity arise, WWSP would weigh the benefits and risks of partnering with WCLUT by conducting another BCA evaluation. Implementing this alternative would entail greater complexity than Alternative C, agreements and coordination with WCLUT, additional pipeline design submittals, an additional project to manage, and, depending on timing of PLM\_5.4, WWSP cash flow balancing. Nonetheless, construction in the reservoir area would be coordinated, limiting public disruption and offering similar constructability opportunities like Alternative C.

### 3.2 Recommendation

Following the BCA approach, Alternative C was selected as the preferred packaging alternative. Packaging PLM\_5.3 and RES\_1.0 projects together will gain the benefit of coordinated construction in an area with limited transportation routes. Alternative D will be retained as an option should WCLUT partnering become an opportunity in the future.

Section 4.0

## **Alternative Delivery Approaches Evaluation**



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## 4.0 Alternative Delivery Approaches Evaluation

With the preferred packaging alternative chosen, the next step was selecting a delivery approach for Alternative C. An evaluation workshop was held August 29, 2018, with key WWSP staff and managers. The team reviewed and discussed the potential delivery approaches against the evaluation criteria, which are summarized below<sup>3</sup>. The evaluation results were reviewed in a meeting held January 31, 2019.

### *Design-Bid-Build (DBB)*

DBB is the traditional method of delivery for most water and wastewater infrastructure projects and is the current delivery approach for this project; it is best suited for less complex projects that are budget-sensitive. It involves separate contracts between the owner and design consultant, and between the owner and construction contractor. It is a linear process, where one task follows completion of another, with no overlap. One of the primary advantages of conventional DBB is the owner controls completion of the design before advertising the project for bid. The owner selects a design consultant based on professional qualifications. The design consultant assists the owner with the detailed definition of the project and provides an Opinion of Probable Construction Cost (OPCC). Plans and specifications are completed and then a construction contractor is solicited for the project. DBB is not well suited for projects that are sequence-, schedule-, or change-sensitive. Unlike Construction Manager/General Contractor (CM/GC) and Design-Build (DB), described below, the DBB method typically has no contractor input during design development. Primary disadvantages are the schedule impact or time required to proceed through the sequential DBB process and the potential for costly changes or loss of value due to the lack of contractor input.

### *Construction Manager/General Contractor (CM/GC)*

In the CM/GC process, the owner hires a contractor to provide input during the design phase before the start of construction. The CM/GC process is broken into two contract phases. The first phase, design, allows the contractor to work with the design consultant and owner to identify risks, provide cost projections, and refine the project schedule. Once design is complete, a Guaranteed Maximum Price (GMP) is established through competitive bidding of work packages and negotiation of general conditions and construction supervision. The second contract phase, construction, begins after finalizing the GMP.

CM/GC is becoming a common alternate (to both DBB and DB) delivery approach for large, complex public works contracts. The owner works with both the design consultant and construction contractor throughout the design process. The design consultant works to provide technical solutions for the design. The CM/GC provides constructability input, value management, and cost estimating throughout design, as it requires overlap of design and construction activities. The owner benefits from input and collaboration with both the design

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<sup>3</sup> Based on current project status, some delivery options have diminishing benefits, as a design consultant is already established for the pipeline work and design currently under way.

consultant and CM/GC. The CM/GC approach provides the owner more control over the design than the DB approach, as described below.

#### *Lump Sum Design-Build (LS DB) and Progressive Design-Build (PDB)*

The DB delivery approach is popular when project schedule and clarity of contractual responsibility are critical. The project can be expedited by starting selected aspects of construction as the design proceeds. Within the conventional LS DB approach, the total cost for both design and construction services is developed by the DB team, which consists of the design consultant and construction contractor, and presented as part of the initial selection process. This pricing model can result in significant contingency being held in the DB price to accommodate risks inherent in pricing construction for an unfinished design (typically 30% completion).

More recently, a hybrid approach between CM/GC and conventional DB, known most commonly as PDB, has been employed. This approach still provides contractor input into design, but defers fixing the construction price until near the end of design. This approach allows the owner continued input on the design. This approach also allows for the reduction of risk contingencies, but subjects the owner to less certainty of cost until design is complete.

The primary advantage with DB is the speed of completion. A secondary advantage is the single source responsibility for design and construction activities on the project. The main disadvantage to DB is the owner must focus early on its project objectives and communicate performance criteria in the project definition. Otherwise, the owner relinquishes a greater degree of control to the DB.

Some of the benefits typically attributed to the CM/CG delivery approach can be obtained from the PDB approach by employing innovative contractual requirements. Terms and conditions that establish two distinct contract phases (i.e., first contract phase - design through GMP and second contract phase - construction), separate pricing structures for each agreement, and open book subcontractor qualification and bidding procedures can be used in PDB contracts.

#### **4.1 Evaluation: Criteria and Results**

During the evaluation workshop, the team reviewed and discussed the following potential delivery approaches for Alternative C:

- Owner Control
- Operations
- Contractor Input
- Cost
- Risk Allocation
- Safety
- Schedule
- Other (added to accommodate unique considerations for PLM\_5.3 and RES\_1.0)

A screening-level comparison of the delivery approaches was conducted against the above-mentioned criteria; each delivery approach was assigned one of the following: "- / + / 0." The "-" indicated inability or significant drawbacks to meeting the criteria; "+" indicated the ability to meet the criteria with advantages relative to the other alternatives; "0" indicated a neutral ranking to meet the criteria. Results are presented in **Table 4-1**.

Rankings were determined by comparing the number of "+" benefit scores each option received while considering the "-" challenges scores. No weighting was applied to individual criteria. The team recognized that some "-" challenges would be more difficult to overcome than others.

**Table 4-1. Delivery Approaches Evaluation Criteria**

CRITERIA	DBB	CMGC	LS DB	PDB
<b>OWNER CONTROL</b>				
Enables owner to control decision-making throughout design (i.e., maintain ability to affect design changes without incurring extra cost)	+	+	-	+
Enables owner to use qualifications in selection of design consultant	+	+	0	0
Enables owner to use qualifications in selection of construction contractor	0 (+ with exemption approvals)	+	0	0
Ability to separate work into distinct packages for design and/or construction delivery, including cash flow	-	+	-	+
<b>OPERATIONS</b>				
Ability to incorporate owner's O&M staff review and input during design and construction	0	+	-	+
Ability to facilitate owner's O&M staff training during construction	0	+	0	+
<b>CONTRACTOR INPUT</b>				
Secures contractor input on innovation, efficiency of design, constructability, and VE concepts throughout design	-	+	+	+
Secures contractor input on pricing and schedule	-	+	-	+
<b>COST</b>				
Enables owner to accrue innovation and VE savings during design	0	+	0	+
Maximizes owner's share of innovation and VE savings during construction	-	+	-	+
Promotes competitive construction pricing that benefits owner	+	0	+	0
Minimizes risk and contingency pricing within construction bids	0	+	-	+
Promotes competitive design pricing that benefits owner	-	-	+	+

CRITERIA	DBB	CMGC	LS DB	PDB
Maximizes long-term value / lower life cycle costs	0	+	-	+
<b>RISK ALLOCATION</b>				
Enables owner to define role in resolving changes and disputes among parties	+	+	0	0
Contracting arrangement enables allocation of risk to party best able to manage risk (operations, performance design, warranty, permit compliance)	0	+	+	+
<b>SAFETY</b>				
Enables owner to require and coordinate "Safety by Design"	+	+	-	+
Enables owner to consider safety record in contractor selection	0 (+ with exemption approvals)	+	0	+
Contracting arrangement enables owner to influence construction safety program	0	+	-	+
<b>SCHEDULE</b>				
Enables project (PLM_5.3 and RES_1.0) to achieve construction completion by Q3 2024	+	+	+	0
<b>OTHER</b>				
Accommodates existing PLM_5.3 design contract and enables continued design progress	+	+	-	-
Enables separation of PLM_5.4 from PLM_5.3 to partner with WCLUT if an opportunity develops	+	+	-	-
Enables greater owner control of public outreach and compliance with land use and permitting requirements	0	+	-	+

Key: CMGC – Construction Manager/General Contractor; DBB – Design-Bid-Build; LS DB – Lump Sum Design-Build; O&M – operation and maintenance; PDB – Progressive Design-Build; Q3 – quarter 3; VE – value engineering; WCLUT – Washington County Land Use and Transportation

Although PDB and, to a lesser extent, LS DB offer advantages for some criteria, those delivery approaches do not readily accommodate sustained progress on the PLM\_5.3 design. A single, new procurement would be required for design and construction of PLM\_5.3 and RES\_1.0. Suspending the PLM\_5.3 design and potentially transferring the design to a new design consultant that is part of the design-build team poses considerable schedule risk and would result in rework for PLM\_5.3 design. Because of these disadvantages, PDB and LS DB were dismissed from further consideration.

Both DBB and CM/GC would accommodate the existing PLM\_5.3 design contract and enable continued design progress. Those delivery approaches would also enable separation of PLM\_5.4 from PLM\_5.3 if WCLUT is able to partner on PLM\_5.4.

CM/GC could provide some advantages over DBB, principally through the benefits of contractor involvement during design for improved VE, constructability, and pricing. CM/GC may also enable greater control of construction sequencing and coordinated (shorter duration) construction in the reservoir area.

DBB would secure the most competitive construction pricing. With approval of special exemptions, construction contractor qualifications and safety record could be considered as part of a DBB selection process (i.e., best-value selection).

During the January 31, 2019 meeting, the potential benefits of CM/GC delivery for this project were judged to be slight. Comparable project delivery outcomes could be achieved by a well-executed DBB delivery approach. Contractor selection could use a best-value approach that considers project-specific qualifications and safety record in conjunction with cost. Additional information about RES\_1.0 will be developed during detailed design, which is scheduled to begin in late 2019. That information can be used to confirm a final delivery approach for PLM\_5.3 and RES\_1.0 construction.

#### 4.2 Recommendation

It is recommended that the DBB delivery approach, as reflected in the current baseline, be retained for planning delivery of PLM\_5.3 and RES\_1.0. However, the baseline would be modified to accommodate a best-value selection process for the construction contractor and the packaging of PLM\_5.3 and RES\_1.0 (as recommended in Section 3.2). After a design consultant is engaged for RES\_1.0, a final review of delivery approaches would be performed to confirm or modify the plan.

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Section 5.0

## **Conclusion and Summary**

## 5.0 Conclusion and Summary

Combining PLM\_5.3 and RES\_1.0 construction would give WWSP greater control over the construction schedule and sequencing. Based on results from the BCA criteria evaluation and multidisciplinary input from key WWSP staff, Alternative C (combined PLM\_5.3 and RES\_1.0 projects) has more benefits and less challenges compared to the other alternatives. It offers the advantage of coordinated construction in an area with limited transportation routes and less public disruption. Therefore, Alternative C is selected as the preferred alternative for constructing PLM\_5.3 and RES\_1.0. Alternative D is preserved as an option to Alternative C due to the possibility of partnership with WCLUT.

WWSP has determined to continue with a DBB delivery approach for the combined projects. However, the baseline will be modified to accommodate a best-value selection process for the construction contractor. Additionally, CM/GC will remain an option for further review, when the RES\_1.0 design process has progressed and more details are available.



Section 6.0

## **Next Steps**

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## 6.0 Next Steps

Implementing recommendations from **Section 5** includes the following near-term steps:

- Validate the recommendations to (1) combine construction of the PLM\_5.3 and RES\_1.0 projects and (2) plan for a best-value contractor selection through the WWSP change process.
- Commence the procurement process for a RES\_1.0 design consultant in October 2019.
- Continue coordination with WCLUT concerning the potential PLM\_5.4 project to determine if packaging Alternative D should be pursued.

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Section 7.0

## References

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## 7.0 References

Jacobs Engineering Group. 2018. Willamette Water Supply Program (WWSP), Farmington Road Alternatives Evaluation for PLM\_5.3. July 2018

Willamette Water Supply Program. 2016. Opportunity Project Business Case Analysis Approach. January 2016

Willamette Water Supply Program. 2016. Raw Water Facilities (RWF 1.0) Delivery Approach Evaluation Process and Recommendation. October 2016

Willamette Water Supply Program. 2018. Water Treatment Plant (WTP\_1.0) Delivery Approach Evaluation and Recommendation. September 2018

# Willamette Water Supply System Commission

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Appendix A

# **PLM\_5.3 and RES\_1.0 Packaging Alternatives Evaluation Criteria**

# Willamette Water Supply System Commission

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Appendix A- Table 1: PLM\_5.3 and RES\_1.0 Packaging Alternatives

Criterion	Baseline	A	B	C	D
	RES_1.0 and PLM_5.3 construction proceed per current plan (complex spatial and temporal construction coordination required)	RES_1.0 construction proceeds first, followed by PLM_5.3	PLM_5.3 construction proceeds first, followed by RES_1.0	Combined RES_1.0/PLM_5.3 construction (total PLM_5.3 length)	Combined RES_1.0/ PLM_5.3 construction (from Tile Flat to Clark Hills) (Create PLM_5.4 from Clark Hill at Green Slope RD to Rosedale at the future CPR)
<b>Cost Impact</b>	No significant impact	No significant impact	No significant impact	No significant impact	Additional pipeline design submittal, another project phase to manage
<b>Schedule Impact</b>	<ul style="list-style-type: none"> <li>No schedule change</li> </ul>	<ul style="list-style-type: none"> <li>Require procuring design consultant in 2019 for RES_1.0</li> <li>Results in RES_1.0 having several years of long-term storage prior to system startup</li> </ul>	<ul style="list-style-type: none"> <li>Balance cash flow (to extent practicable) by delaying PLW_2.0 to construct PLM_5.3 earlier</li> <li>Changes to RES_1.0 schedule, TBD</li> </ul>	<ul style="list-style-type: none"> <li>No schedule change, but need to make sure water is available for RES_1.0 testing</li> </ul>	<ul style="list-style-type: none"> <li>No schedule change required for RES_1.0</li> <li>New schedule for PLM_5.4 TBD</li> <li>Washington County schedule may affect PLM_5.4 schedule (Clark Hill Extension)</li> </ul>
<b>Financial Capacity</b>	No cash flow change	Balance cash flow (to extent practicable) by delaying PLW_2.0 to construct RES_1.0 earlier	Balance cash flow (to extent practicable) by delaying PLW_2.0 to construct PLM_5.3 earlier	Assuming no extra cost	Depending on timing of PLM_5.4, cash flow balancing may be necessary
<b>Procurement Impact</b>	<ul style="list-style-type: none"> <li>Pipeline: DBB Low-bid or DBB Best Value</li> <li>RES_1.0: CM/GC; DBB Low-bid; or DBB Best Value</li> </ul>	<ul style="list-style-type: none"> <li>Pipeline: DBB Low-bid or DBB Best Value</li> <li>RES_1.0: CM/GC; DBB Low-bid; or DBB Best Value</li> </ul>	<ul style="list-style-type: none"> <li>Pipeline: DBB Low-bid or DBB Best Value</li> <li>RES_1.0: CM/GC; DBB Low-bid; or DBB Best Value</li> </ul>	<ul style="list-style-type: none"> <li>CM/GC</li> <li>DBB Low-bid</li> <li>DBB Best Value</li> </ul>	<ul style="list-style-type: none"> <li>Pipeline: DBB Best Value</li> <li>RES_1.0: CM/GC; DBB Low-bid; or DBB Best Value</li> </ul>
<b>Design Impact</b>	Changes in pipeline project boundaries for PLM_5.3 and PLW_1.3	Accelerated RES_1.0 design could require compressed design duration presenting challenges to quality or cost of design	Greater chance of retaining same design team for completing PLM_5.3	Combined projects will require coordinated specifications	Combined projects will require coordinated specifications
<b>Construction Impact</b>	<ul style="list-style-type: none"> <li>Overlapping construction traffic on limited local routes</li> <li>Pipe construction will restrict construction traffic</li> <li>RES_1.0 staging area property will not be available for the pipeline contractor</li> <li>Lack of coordination between construction contractors</li> </ul>	<ul style="list-style-type: none"> <li>Late PLM_5.3 construction could limit finished water pump station (FWPS) startup</li> <li>Late PLM_5.3 construction could limit RES_1.0 testing (access to testing water)</li> </ul>	<ul style="list-style-type: none"> <li>Late RES_1.0 construction could limit FWPS startup</li> </ul>	<ul style="list-style-type: none"> <li>More control over sequencing of work</li> <li>Larger project may attract larger, more sophisticated contractor</li> <li>Combined project is large enough to attract CM/GC contractors</li> <li>CM/GC approach may provide greater control over neighborhood impacts</li> <li>Single procurement phase and coordinate with one contractor versus two</li> </ul>	<ul style="list-style-type: none"> <li>Larger project may attract larger, more sophisticated contractor</li> <li>Combined project is large enough to attract CM/GC contractors</li> <li>CM/GC approach may provide greater control over neighborhood impacts</li> <li>Depend upon PLM_5.4 timing, could bundle construction with PLW_1.3 (brings challenges, two designers for one construction package, the Butternut Creek development may preclude this)</li> </ul>
<b>Quality Optimization</b>	No significant impact	Accelerated RES_1.0 design could present challenges to quality of design	No significant impact	No significant impact	No significant impact
<b>Public Disruption and Public Affairs</b>	<ul style="list-style-type: none"> <li>Construction duration 2.5 years (projects completely overlap)</li> <li>High neighborhood impact due to overlapping but separate construction projects)</li> <li>No coordination between construction contractors</li> </ul>	<ul style="list-style-type: none"> <li>Construction duration 4 years (2 years RES, 2 years PLM_5.3)</li> <li>High neighborhood impact</li> </ul>	<ul style="list-style-type: none"> <li>Construction duration 4 years (2 years RES_1.0, 2 years PLM_5.3)</li> <li>High neighborhood impact</li> </ul>	<ul style="list-style-type: none"> <li>Construction duration 2 years (assumes two teams)</li> <li>Lower neighborhood impact because of coordination between contractor's teams</li> </ul>	<ul style="list-style-type: none"> <li>2 years + 1 year (possibly overlapping)</li> <li>Disperses the neighborhood impact</li> </ul>
<b>Environmental/ Permitting/ Impact</b>	<ul style="list-style-type: none"> <li>Concerns about haul routes or excavations impacting seasonal stream west of staging area, more difficult to control with two contractors (assumes that pipeline corridor will be used as an access route)</li> <li>Provide description of construction sequencing in PLM_5.3 land use application</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> <li>Schedule challenges related to modifying the permitting schedule (may force Clark Hill Ext. to be own package)</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>
<b>Real Estate &amp; ROW Acquisition</b>	No significant difference between alternatives	No significant difference between alternatives	No significant difference between alternatives	No significant difference between alternatives	No significant difference between alternatives
<b>Performing Agency Partnership</b>	<ul style="list-style-type: none"> <li>No difference between alternatives</li> <li>No opportunity projects</li> <li>Utilizes WWSP-owned property</li> <li>No known development projects outside UGB</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>	<ul style="list-style-type: none"> <li>Same as the baseline</li> </ul>
<b>Substantial Limitation Identified</b>	Yes, overlapping construction periods will complicate construction traffic and staging and cause considerably greater community disruption than other alternatives	Yes, the sequence does not support RES_1.0 startup & commissioning, changes to cash flow	Yes, the sequence does not support RES_1.0 startup & commissioning, changes to cash flow	No, however WWSP would need to secure approvals for alternative delivery approach	No, however, may require changing of pipeline project boundaries

# Willamette Water Supply System Commission

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**Willamette Water Supply**  
*Our Reliable Water*

RES\_1.0 (Combined with PLM\_5.3)  
Project Delivery Approach

July 2, 2020

1

**Outline**

- Recommendation preview
- Project overview
- Evaluation process and results
- Implementation steps
- Recommendation

**Willamette Water Supply**  
*Our Reliable Water*

2

2

## Recommendation Preview

Consider adoption of a resolution declaring an exemption from competitive bidding for RES\_1.0 Storage Reservoirs and approving the use of the Construction Manager/General Contractor (CM/GC) delivery method for construction, following a hearing of oral testimony or written comments.

3

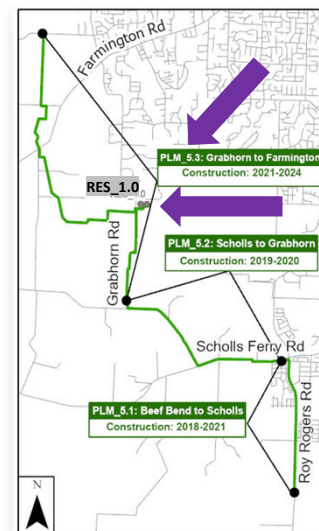
## Project Overview & Challenges

### Overview

- Two 15 MG circular pre-stressed concrete storage tanks (AWWA D110)
- Four vaults for 66" diameter finished water pipelines and appurtenances
- Yard piping
- Building
- Site grading/rock excavation
- Soil nail and rock bolt reinforcement
- Storm water retention, treatment, and conveyance
- Site access roadways
- Approximately 21,000 feet of 66-inch diameter welded steel pipeline (PLM\_5.3)

### Key Challenges

- Coordination among specialty contractors
- Site constraints
- Rock removal
- Schedule constraints
- Public outreach
- Traffic control



4

## Delivery Approach Evaluation

### WWSP Packaging and Delivery Alternatives Evaluation (Mar. 2019)

- Evaluated sequencing alternatives for constructing PLM\_5.3 and RES\_1.0 to avoid construction conflicts near the reservoir site
- Evaluated different construction delivery approaches
  - Progressive Design Build
  - Lump Sum Design Build
  - CM/GC
  - Design Bid Build
- Deferred delivery approach decision

### Black & Veatch Construction Delivery Approach Evaluation (Feb. 2020)

- Reviewed updated RES\_1.0 elements and schedule
- Understand delivery options
- Reviewed advantages and disadvantages of each delivery option
- **Identified recommendation for CM/GC delivery**

5

## Expected Benefits of CM/GC Delivery Approach

- Provides ability to select the contractor based, in part, on qualifications
- Secures contractor participation during design, including value engineering
- Enables early contractor planning to mitigate potential schedule/cost risks
- Shifts some project delivery risk to the contractor, encouraging collaboration and focus on avoiding construction issues
- Enables early identification/mitigation of safety and public outreach concerns
- Allows for an early phase of construction for schedule-critical earthwork
- Accommodates different design consultants for RES\_1.0 and PLM\_5.3

6

## Exemption Summary

The use of CM/GC delivery for construction RES\_1.0/PLM\_5.3:

- Is unlikely to encourage favoritism or reduce competition
- Will likely result in cost savings and other substantial benefits

7

## Implementation Steps



8



## Recommendation

Consider adoption of a resolution declaring an exemption from competitive bidding for RES\_1.0 Storage Reservoirs and approving the use of the Construction Manager/General Contractor (CM/GC) delivery method for construction, following a hearing of oral testimony or written comments.

# Willamette Water Supply System Commission

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**STAFF REPORT**

**To:** WWSS Board of Commissioners

**From:** David Kraska, P.E., Willamette Water Supply System General Manager

**Date:** July 2, 2020

**Subject:** WWSS IGA Exhibit 1 Amendment to Update Ownership on the North Transmission Line and South Transmission Line Emergency Connections, and Complete Other Minor Updates

**Requested Board Action:**

Consider adopting a resolution approving an amendment to the WWSS intergovernmental agreement Exhibit 1 to update ownership on the North Transmission Line and South Transmission Line emergency connections, and complete other minor updates.

**Key Concepts:**

Since execution of the WWSS IGA in July 2019, one turnout-related change has been requested and several edits have been identified that require updating Exhibit 1. These changes include:

- Update the ownership indicated in the turnout tables for the WWSS emergency connections to the North Transmission Line and South Transmission Line
- Update other information to correct minor inaccuracies such as turnout name changes and revised turnout capacities (minor changes with no impact to transmission pipeline capacity or ownership)

**Background:**

The final WWSS IGA Exhibit 1 included the following turnout specifics in Section 3.6:

**Ultimate Capacities for the Turnouts on the Finished Water Pipeline - Gravity**

<b>Turnout (T.O.)</b>	<b>Turnout Capacity (MGD)</b>	<b>Capacity used for Sizing Transmission Pipeline (MGD)</b>
209th and Farmington (TVWD)	17.0	17.0
Cornelius Pass/Rosa (COH)	10.0	NA
Blanton (COH)	10.0	10.0
Tualatin Valley Highway - STL Emergency Intertie (COH)	25.0	NA
Tualatin Valley Highway (COB)	5.0	5.0
Francis (COH)	10.0	NA
Baseline (COH)	10.0	10.0
Walbridge (COH)	10.0	NA
Old Evergreen (COH)	16.2	NA
Highway 26 - NTL Emergency Intertie (COH)	16.0	16.2
Highway 26 (TVWD)	11.0	11.0
<b>Total</b>	<b>N/A</b>	<b>69.2</b>

Figure 1. Turnouts on the Finished Water Pipeline – Gravity from WWSS IGA Exhibit 1, Section 3.6 (July 2019)

Since the execution of the IGA, design has progressed on the WWSS projects and WWSS Owners continue their own system master planning. This work has resulted in a collection of recommended updates to the turnout details included in the WWSS IGA Exhibit 1.

In early 2020, Hillsboro requested an update to the information in Exhibit 1 on the WWSS emergency connections to the North Transmission Line and the South Transmission Line. In the original Section 3.6, it is implied that these connections are owned by the city of Hillsboro. Hillsboro prefers clarifying the matter to indicate that these connections are to benefit the Joint Water Commission (JWC) even though they will be paid for by Hillsboro. Accordingly, a footnote was added to the summary table for the turnouts in Section 3.6 of the WWSS IGA Exhibit 1. This change has been recommended by the Management Committee for Board adoption.

Other minor updates to the turnout information are recommended to be included at this time. These updates are to correct minor inaccuracies such as turnout name changes and revised turnout capacities (minor changes with no impact to transmission pipeline capacity or ownership). These changes have been recommended by the Management Committee for Board adoption. The changes are also reflected in Section 5.0 of Exhibit 1, Ownership Allocation Summary.

**Ultimate Capacities for the Turnouts on the Finished Water Pipeline – Gravity  
 (Revised July 2020)**

<b>Turnout (T.O.)<sup>1</sup></b>	<b>Turnout Capacity (MGD)</b>	<b>Capacity used for Sizing Transmission Pipeline (MGD)</b>
209th and Farmington (TVWD)	17.0	17.0
Cornelius Pass/Rosa (COH)	10.0	NA
Blanton (COH)	10.0	10.0
Tualatin Valley Highway – STL Emergency Intertie <sup>2</sup>	25.0	NA
Tualatin Valley Highway (COB)	5.0	5.0
Frances (COH)	10.0	NA
Baseline (COH)	10.0	10.0
Walbridge (COH)	16.2	NA
Old Evergreen (COH)	16.2	NA
Highway 26 – NTL Emergency Intertie <sup>2</sup>	16.2	16.2
Cornelius Pass PRV Facility (TVWD)	11.0	11.0
<b>Total</b>	N/A	69.2

1. Turnout location names are approximate
2. WWSS turnouts for emergency interties with Joint Water Commission (JWC) South Transmission Line and North Transmission Line have or will be paid for by Hillsboro on the WWSS side of that asset. The JWC IGA governs the ownership of the asset on the JWC side of that asset. Use of the turnouts at the interties for emergency purposes shall be pursuant to a separate Emergency Water Supply Agreement between WWSS and the JWC.

*Figure 2. Revised Turnouts on the Finished Water Pipeline – Gravity from WWSS IGA Exhibit 1, Section 3.6 (pending amendment July 2020)*

**Budget Impact:**

None of the changes have budgetary impacts to the WWSS.

Page 3 of 3

July 2, 2020

WWSS IGA Exhibit 1 Amendment - Turnouts

**Staff Contact Information:**

David Kraska, PE; Willamette Water Supply Program Director; 503-941-4561; david.kraska@tvwd.org

Joelle Bennett, PE; WWSP Assistant Director; 503-941-4577; Joelle.bennett@tvwd.org

**Attachments:**

Proposed resolution

Revised WWSS IGA Exhibit 1 Section 3.6 and Section 5

# Willamette Water Supply System Commission

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**RESOLUTION NO. WWSS-13-20**

**A RESOLUTION AMENDING EXHIBIT 1 TO THE WILLAMETTE WATER SUPPLY SYSTEM  
INTERGOVERNMENTAL AGREEMENT.**

WHEREAS, the above-entitled matter came before the Willamette Water Supply System Commission (WWSS Commission) at its regular meeting on July 2, 2020; and,

WHEREAS, the Willamette Water Supply System Intergovernmental Agreement (Agreement) between Tualatin Valley Water District (TVWD), the City of Hillsboro (Hillsboro), and the City of Beaverton (Beaverton) (collectively, Members) created the WWSS Commission, an ORS Chapter 190 intergovernmental entity, effective July 1, 2019, to exercise the powers and duties set forth in the Agreement; and,

WHEREAS, the WWSS Members desire to modify Exhibit 1, Section 3.6 to update ownership on the North Transmission Line and South Transmission Line emergency connections on the Finished Water Pipeline – Gravity and complete other minor updates,

WHEREAS, the WWSS Commission finds that amendment by resolution to the Exhibit 1, Section 3.6 and Section 5.0, to modify the turnouts as described herein for the WWSS is necessary and being so advised,

NOW, THEREFORE, BE IT RESOLVED BY THE WILLAMETTE WATER SUPPLY SYSTEM COMMISSION THAT:

Section 1: The above recitals shall form an integral part of this resolution and shall have the same force and effect as if fully stated herein.

Section 2: Exhibit 1, Section 3.6 and Section 5.0, of the WWSS IGA, attached hereto as Exhibit A and Exhibit B and incorporated by reference, are hereby adopted.

Section 3: The Managing Agency is directed to remove the current Exhibit 1, Section 3.6 and Section 5.0, from the WWSS IGA and replace them with the attached Exhibit A and Exhibit B. The Managing Agency shall provide a copy of this executed resolution to the Members.

Approved and adopted at a regular meeting held on the 2<sup>nd</sup> day of July 2020.

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James Duggan, Chair

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Denny Doyle, Vice Chair

# Willamette Water Supply System Commission

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Exhibit A:

**3.6 Finished Water Pipeline – Gravity (Revised July 2020)**

The finished water pipeline - gravity conveys water from the Reservoirs to turnouts that connect the pipeline to the distribution systems. The capacity of the Finished Water Pipeline – Gravity varies along its length according to the planned flows through each of the turnouts.

The Ultimate Capacity of the first portion of the finished water pipeline – gravity is 69.2-MGD, which is a total of the planned maximum water flows delivered to each of the turnouts shown in the table below while operating at a Reservoir water surface elevation of 500.0-feet NGVD29 (i.e., water depth 20-feet below its maximum depth). Note that flows through the emergency connections are not included in the calculation of the pipeline capacity. The Finished Water Pipeline – Gravity is designed to contain a pressure based on a maximum hydraulic gradient that is static at reservoir elevation 520.0-feet NGVD29 (i.e., the reservoirs are full, connected to the pipeline, and the flow rate is zero).

**Ultimate Capacities for the Turnouts on the Finished Water Pipeline – Gravity (Revised July 2020)**

Turnout (T.O.) <sup>1</sup>	Turnout Capacity (MGD)	Capacity used for Sizing Transmission Pipeline (MGD)
209th and Farmington (TVWD)	17.0	17.0
Cornelius Pass/Rosa (COH)	10.0	NA
Blanton (COH)	10.0	10.0
Tualatin Valley Highway – STL Emergency Intertie <sup>2</sup>	25.0	NA
Tualatin Valley Highway (COB)	5.0	5.0
Frances (COH)	10.0	NA
Baseline (COH)	10.0	10.0
Walbridge (COH)	16.2	NA
Old Evergreen (COH)	16.2	NA
Highway 26 – NTL Emergency Intertie <sup>2</sup>	16.2	16.2
Cornelius Pass PRV Facility (TVWD)	11.0	11.0
<b>Total</b>	<b>N/A</b>	<b>69.2</b>

1. Turnout location names are approximate
2. WWSS turnouts for emergency interties with Joint Water Commission (JWC) South Transmission Line and North Transmission Line have or will be paid for by Hillsboro on the WWSS side of that asset. The JWC IGA governs the ownership of the asset on the JWC side of that asset. Use of the turnouts at the interties for emergency purposes shall be pursuant to a separate Emergency Water Supply Agreement between WWSS and the JWC.

**Exhibit A (continued):**

<b><u>Ultimate Pipeline Capacity</u></b>	
<b>Pipe Section</b>	<b>Ultimate Pipeline Capacity per Section (MGD)</b>
1. Reservoirs to 209 <sup>th</sup> and Farmington	69.2
2. 209 <sup>th</sup> and Farmington to Cornelius Pass and Rosa	52.2
3. Rosa to Blanton	52.2
4. Blanton to Tualatin Valley Highway	42.2
5. Tualatin Valley Highway to Frances	37.2
6. Frances to Baseline	37.2
7. Baseline to Walbridge	27.2
8. Walbridge to Old Evergreen	27.2
9. Old Evergreen to Highway 26	27.2

**3.6.1 Real Property**  
 Property interests owned by the WWSS, all of which are sized at the Ultimate Capacity:

1. Fee title, easements, licenses/permits, including the Tanabe property for gravity pipeline Section 1.
2. Property acquired for appurtenances such as blow-offs and air-relief valves

**3.6.2 Structure**

1. Vaults for pipeline access, valves, and appurtenances

**3.6.3 Civil**

1. Pipeline from the point of connection to the reservoirs discharge pipe to the terminus near the intersection of Cornelius Pass Road and Highway 26, including all valves and appurtenances.

**3.6.4 Mechanical**  
 None.

**3.6.5 Electrical**  
 None.

**3.6.6 Instrumentation and Controls**  
 None.

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*Willamette Water Supply System IGA – July 1, 2019  
 Exhibit 1 (Amended) – July 2, 2020*



Exhibit B:

5. Ownership Allocation Summary

ELEMENT	TVWD		Hillsboro		Beaverton	
	Capacity (MGD)	Ownership (%)	Capacity (MGD)	Ownership (%)	Capacity (MGD)	Ownership (%)
<b>Raw Water Pump Station</b>						
Fixed	59.1	58.92%	36.2	36.09%	5.0	4.99%
Incremental	40.0	66.67%	15.0	25.00%	5.0	8.33%
<b>Raw Water Pipeline</b>	59.1	58.92%	36.2	36.09%	5.0	4.99%
<b>Water Treatment Plant</b>						
Fixed	59.1	58.92%	36.2	36.09%	5.0	4.99%
Incremental						
Initial 60-MGD Capacity	40.0	66.67%	15.0	25.00%	5.0	8.33%
Following 20% Re-Rating	48.7	67.68%	18.3	25.38%	5.0	6.94%
After Adding Process Train	54.8	57.08%	36.2	37.71%	5.0	5.21%
<b>Finished Water Pipeline - Pumped</b>	59.1	58.92%	36.2	36.09%	5.0	4.99%
<b>Reservoirs</b>						
Capacity Owned Outright	0.0	--	0.0	--	0.0	--
Shared Capacity Owned	16.5	--	12.1	--	1.4	--
Total	16.5	54.90%	12.1	40.47%	1.4	4.63%
<b>Finished Water Pipeline - Gravity</b>						
Reservoirs to 209th and Farmington	28.0	40.46%	36.2	52.31%	5.0	7.23%
209th and Farmington to Cornelius Pass and Rosa	11.0	21.07%	36.2	69.35%	5.0	9.58%
Rosa to Blanton	11.0	21.07%	36.2	69.35%	5.0	9.58%
Blanton to Tualatin Valley Highway	11.0	26.07%	26.2	62.09%	5.0	11.85%
Tualatin Valley Highway to Frances	11.0	29.57%	26.2	70.43%	0.0	0.00%
Frances to Baseline	11.0	29.57%	26.2	70.43%	0.0	0.00%
Baseline to Walbridge	11.0	40.44%	16.2	59.56%	0.0	0.00%
Walbridge to Old Evergreen	11.0	40.44%	16.2	59.56%	0.0	0.00%
Old Evergreen to Highway 26	11.0	40.44%	16.2	59.56%	0.0	0.00%
<b>Turnouts</b>						
Roy Rogers Road and Scholls Ferry Road	33.5	100.00%	0.0	0.00%	0.0	0.00%
Tile Flat Road	0.0	0.00%	0.0	0.00%	5.0	100.00%
209th Avenue and Farmington Road	17.0	100.00%	0.0	0.00%	0.0	0.00%
Cornelius Pass Road and Rosa	0.0	0.00%	10.0	100.00%	0.0	0.00%
Cornelius Pass Road and Blanton Street	0.0	0.00%	10.0	100.00%	0.0	0.00%
Tualatin Valley Highway - JWC STL	0.0	0.00%	25.0	100.00%	0.0	0.00%
Cornelius Pass Road and Tualatin Valley Highway	0.0	0.00%	0.0	0.00%	5.0	100.00%
Cornelius Pass Road and Francis Street	0.0	0.00%	10.0	100.00%	0.0	0.00%
Cornelius Pass Road and Baseline Road	0.0	0.00%	10.0	100.00%	0.0	0.00%
Cornelius Pass Road and Walbridge Drive	0.0	0.00%	10.0	100.00%	0.0	0.00%
Cornelius Pass and Old Evergreen Road	0.0	0.00%	16.2	100.00%	0.0	0.00%
Highway 26 - JWC NTL	0.0	0.00%	16.2	100.00%	0.0	0.00%
Cornelius Pass Road and Highway 26	11.0	100.00%	0.0	0.00%	0.0	0.00%
<b>Distributed Control System</b>	59.1	58.92%	36.2	36.09%	5.0	4.99%

Willamette Water Supply System IGA – July 1, 2019  
 Exhibit 1 (Amended) – July 2, 2020

# Willamette Water Supply System Commission

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**STAFF REPORT**

**To:** Board of Commissioners

**From:** Dave Kraska, P.E., Willamette Water Supply System General Manager

**Date:** July 2, 2020

**Subject:** Resolution Declaring Public Necessity to Acquire Property Interests Over, Upon, Under, and Through Real Property for Pipeline Section PLM\_5.3 for the Willamette Water Supply System

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**Requested Board Action:**

Consider adopting an updated resolution declaring public necessity to acquire permanent and temporary construction easements over, upon, under, and through real property for pipeline section PLM\_5.3 for the Willamette Water Supply System (WWSS).

**Key Concepts:**

The WWSS includes a section of pipeline referred to as PLM\_5.3.

- The Willamette Water Supply Program (WWSP) has progressed the design of this pipeline section to enable identification of property requirements for construction and long-term operation and maintenance of the pipeline.
- After consideration of various alignments and alternatives, the identified route will be located in a manner that will be most compatible with the greatest public good and the least injury to private property owners.
- This resolution declares the public need for the property interests and enables the WWSS Commission's agents, including the WWSP team, to begin negotiating with respective property interest holders.

**Background:**

The pipeline alignment for PLM\_5.3 is located along SW Grabhorn Road, across private property from the RES\_1.0 location to near Clark Hill Road, and across private property to the connection point with PLW\_1.3 at SW Rosedale Road and the future Cornelius Pass Road. The majority of this pipeline is located in unincorporated Washington County. The project area is shown in the attached map. The pipeline will be a 66-inch diameter welded steel pipe.

The PLM\_5.3 pipeline alignment, due to its unique location, requires different types of permanent and temporary easements than other pipeline projects to, among other purposes, fulfill WWSP standard construction work zone requirements and to provide for future maintenance and operations of the WWSS. This portion of the pipeline will include easements for:

- The WWSS pipeline and associated water system facilities
- Access roads to provide access to pipeline sections not located adjacent to the public right of way
- Limited use easements that protect the pipeline and associated water system facilities from potentially damaging activities such as aggregate mining

- Temporary easements for construction, access to construction areas, and access and monitoring/maintenance of restoration areas

WWSP staff also are aware of additional property needs for pipeline section PLM\_5.3 that are still being finalized and are not included in this resolution. This resolution is being brought to the Board now to allow the majority of real estate acquisition work needed for pipeline PLM\_5.3 to begin on-schedule. A second resolution will be brought to the Board, likely in August, for authorization to proceed on additional property needs for pipeline section PLM\_5.3.

In summary, the WWSS Commission has authority to acquire real property for the WWSS. The pipeline section PLM\_5.3 requires the acquisition of real property for the construction, operation, and maintenance of the WWSS. The PLM\_5.3 pipeline alignment was selected through an extensive alternatives evaluation, and the preferred location was selected based the best interests of the public and the least injury to private property owners. The resolution enables the initiation of the property acquisition process, including negotiations with interest holders, and also authorizes the acquisition of the property interests by eminent domain, to the extent negotiations fail.

**Budget Impact:**

The WWSP real estate team has completed an estimate that represents, in the professional judgment of the real estate team, the budget-level cost required to acquire the easements. The total estimated cost for PLM\_5.3 real property needs identified in this proposed resolution is \$2,900,000. Funds for purchase of these easements are included in the WWSP baseline budget.

**Staff Contact Information:**

Dave Kraska, WWSS General Manager, 503-941-4561, david.kraska@tvwd.org

Clark Balfour, General Counsel, 503-848-3061, clark.balfour@tvwd.org

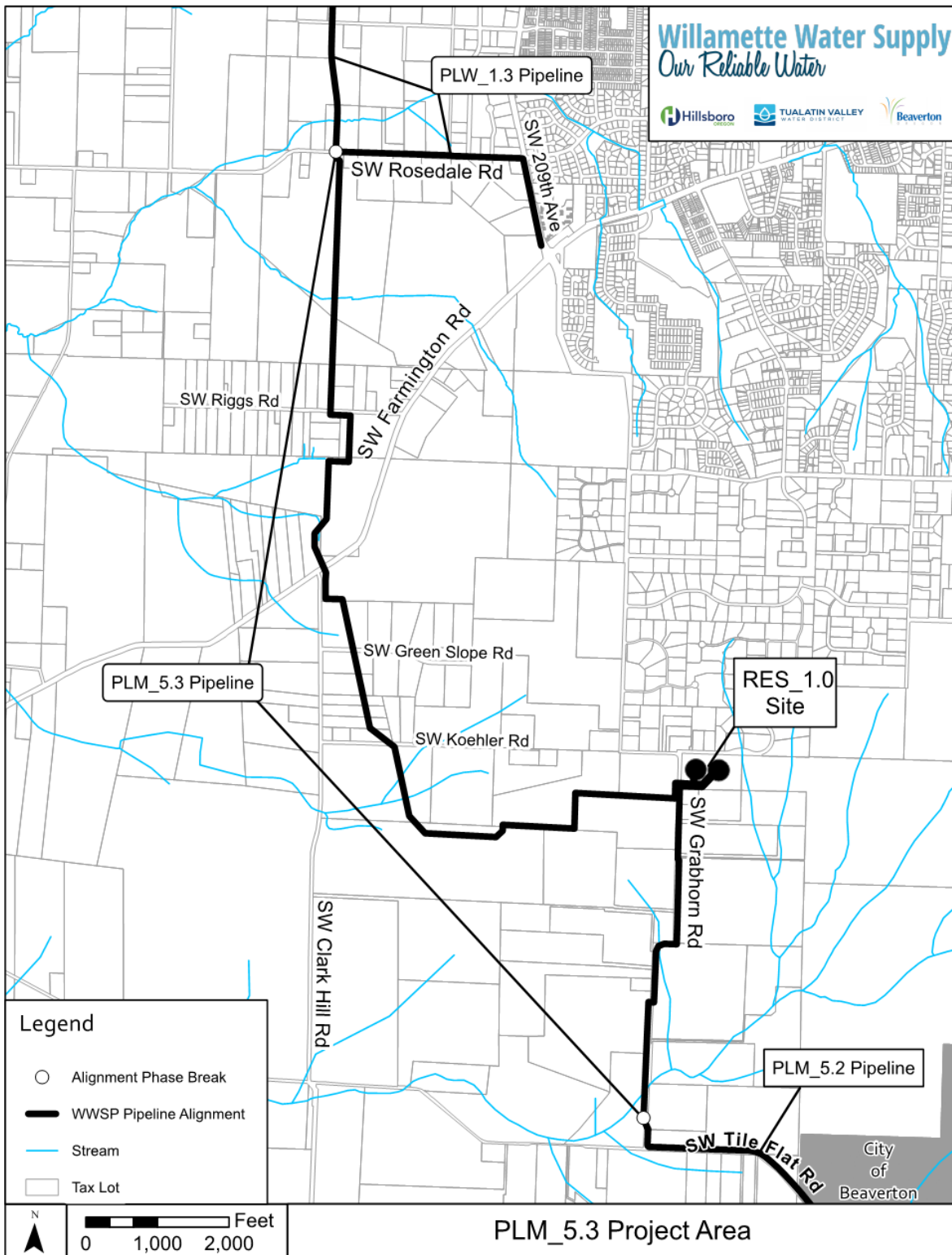
**Attachments:**

Project area map

Proposed Resolution

Exhibit 1: Property Interests (including Exhibit A Legal Descriptions and Exhibit B Acquisition Maps)

**Project area map:**



# Willamette Water Supply System Commission

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**RESOLUTION NO. WWSS-14-20**

RESOLUTION DECLARING PUBLIC NECESSITY TO ACQUIRE PROPERTY INTERESTS OVER, UPON, UNDER AND THROUGH REAL PROPERTY FOR PIPELINE SECTION PLM\_5.3 FOR THE WILLAMETTE WATER SUPPLY SYSTEM.

WHEREAS, the above-entitled matter came before the Willamette Water Supply System Commission (WWSS Commission) at its regular meeting on July 2, 2020; and,

WHEREAS, the Willamette Water Supply System Intergovernmental Agreement (Agreement) between Tualatin Valley Water District (TVWD), the City of Hillsboro (Hillsboro), and the City of Beaverton (Beaverton) (collectively, Members) created the WWSS Commission, an ORS Chapter 190 intergovernmental entity, effective July 1, 2019, to exercise the powers and duties set forth in the Agreement; and,

WHEREAS, pursuant to the Agreement, TVWD has been designated as the Managing Agency of the WWSS Commission; and,

WHEREAS, the Willamette Water Supply System (WWSS) includes, but is not limited to, an expanded and improved water intake on the Willamette River in the City of Wilsonville currently owned by TVWD and the City of Wilsonville, along with a new raw water pipeline, potable water treatment plant, finished water pipelines, pumping, storage, and other necessary water system facilities to enable the WWSS to utilize existing water rights to provide water system ownership and reliability to the Members' water system users; and,

WHEREAS, the WWSS Commission has been delegated authority by its Members under the Agreement and ORS Chapter 190 pursuant to City Charters, ORS 223.005 to 223.105, ORS 264.240 and Oregon Revised Statutes Chapter 35 to acquire real property by purchase or through eminent domain proceedings; and,

WHEREAS, the WWSS Commissioners determine, consistent with the powers and purposes of the WWSS Commission, that it is necessary for the economic well-being, public health, safety and welfare of the WWSS Commission and the Members' water system users, to acquire fee title to certain real property, as well as necessary rights-of-way, easements, and other property interests, in order to design, locate, construct, operate, and implement the WWSS; and,

WHEREAS, after investigation of various routes for a water pipeline and related water system facilities, the WWSS Commission has determined that certain property interests, are necessary for the construction, location, and operation of the WWSS, and in particular, pipeline section PLM\_5.3, and that such use is planned and located in a manner that is most compatible with the greatest public benefit and the least private injury; and,

WHEREAS, such property interests are preliminarily described on Exhibits A and depicted for illustration purposes only on Exhibits B attached hereto and incorporated by reference, with final legal descriptions and easement documents to be determined by TVWD staff, including the Willamette Water Supply Program (WWSP) and its consultants, as the Managing Agency and on behalf of the WWSS

Commission, to be reasonably necessary to accommodate the design and operation of the WWSS (the Easement Interests); and,

WHEREAS, the WWSS Commission finds that declaration by resolution to acquire the Easement Interests for the WWSS is necessary and being so advised.

NOW, THEREFORE, BE IT RESOLVED BY THE WILLAMETTE WATER SUPPLY SYSTEM COMMISSION THAT:

Section 1: The above recitals shall form an integral part of this resolution and shall have the same force and effect as if fully stated herein.

Section 2: It is necessary for the preservation of economic well-being, public health, safety and welfare of the public served by the Members and the WWSS that the WWSS Commission commence the acquisition process for the Easement Interests through exercise of the power of eminent domain.

Section 3: TVWD staff, including the WWSP, and counsel are authorized to retain real estate appraisers, negotiators, and other consultants, with said appraisals to be prepared under the auspices of WWSS Commission counsel, for initiation of proceedings as described below.

Section 4: TVWD staff, including WWSP, consultants, and counsel, are authorized to negotiate in good faith necessary agreements to acquire the Easement Interests on behalf of and in the name of the WWSS Commission and to pay just compensation and applicable compensable damages in accordance with applicable law without necessity of further approval by the WWSS Commission.

Section 5: TVWD staff, including WWSP, and counsel, are authorized to file complaints in condemnation, on behalf of and in the name of the WWSS Commission, and to take other steps as they determine necessary as the Managing Agency, and to prosecute to final determination such actions to acquire title to the Easement Interests if negotiations fail.

Section 6: Upon the trial of any suit or action instituted to acquire the Easement Interests, counsel acting for and on behalf of the WWSS Commission are authorized to make such stipulation, agreement or admission as in their judgment may be for the best interest of the WWSS Commission and to take possession of the Easement Interests at such time as appropriate in their judgment without necessity of further WWSS Commission approval.

Approved and adopted at a regular meeting held on the 2<sup>nd</sup> day of July 2020.

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James Duggan, Chair

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Denny Doyle, Vice Chair

**EXHIBIT A**

**Willamette Water Supply**  
**June 19, 2020**

**Gary L. Oberg**  
**Tax Map No. 1S2230002800**

**PARCEL 1 – PERMANENT FACILITIES EASEMENT**

A parcel of land lying in the Section 23, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Gary L. Oberg, recorded February 20, 2001 as Document No. 2001013423, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, variable in width, lying on each side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
 thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
 thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
 thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
 thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
 thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
 thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
 thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
 thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
 thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
 thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
 thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
 thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
 thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
 thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
 thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
 thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
 thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
 thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
 thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
 thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
 thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
 thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
 thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
 thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

**EXHIBIT A**

**Willamette Water Supply  
June 19, 2020**

**Gary L. Oberg  
Tax Map No. 1S2230002800**

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
1078+00.00		1079+20.70	57.00
1079+20.70		1079+80.08	30.00
1079+80.08		1085+50.00	15.00

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
1078+00.00		1085+50.00	15.00

The parcel of land to which this description applies contains 24,129 square feet (0.55 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Oberg property included in a strip of land 75.00 feet in width, lying 55.00 feet Westerly and 20.00 feet Easterly of the Pipeline Centerline described in Parcel 1.

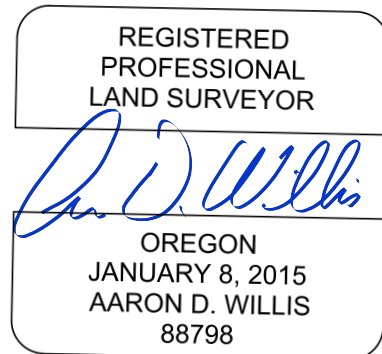
EXCEPT THEREFROM that portion lying within the above described Parcel 1.

The parcel of land to which this description applies contains 25,852 square feet (0.59 acre), more or less.

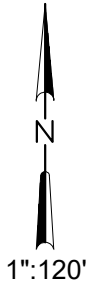
**PARCEL 3 – PERMANENT ACCESS ROAD EASEMENT**

That portion of said Oberg property included in a strip of land 72.00 feet in width, lying 57.00 feet Westerly and 15.00 feet Easterly of the Pipeline Centerline described in Parcel 1, between Engineer's Stations 1078+00.00 and 1079+20.70.

The parcel of land to which this description applies contains 6,165 square feet (0.14 acre), more or less.



# EXHIBIT B



TLID 1S2230002900

66" WATER PIPELINE

1086+00

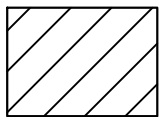
BPA EASEMENT  
BK. 387, PG. 55

1084+00

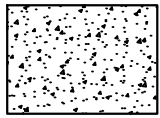
TLID 1S2230002800  
Gary L. Oberg  
Doc No. 2001013423



PARCEL 1 PERMANENT FACILITIES EASEMENT ACQUISITION  
AREA = 24,129 S.F.  
(0.55 ac)



PARCEL 2 TEMPORARY CONSTRUCTION EASEMENT ACQUISITION  
AREA = 25,852 S.F.  
(0.59 ac)



PARCEL 3 PERMANENT ACCESS ROAD EASEMENT ACQUISITION  
AREA = 6,165 S.F.  
(0.14 ac)

75.00'

1082+00

55.00'

30.00'

15.00'

1080+00

STA 1079+80.08

30.00'

STA 1079+20.70

57.00'

72.00'

SEC 23  
SEC 26

1078+00

TLID 1S226B001700

## WILLAMETTE WATER SUPPLY PROGRAM

PIPELINE MAIN STEM, SECTION 5.3

## ACQUISITION MAP

PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No: PLM\_5.3-066

SUBMITTAL DATE: June 19, 2020

TAX LOT: 1S2230002800

ADDRESS:

TAX MAP: T1S R2W Sec23

# Willamette Water Supply System Commission

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## EXHIBIT A

**Willamette Water Supply  
June 26, 2020**

**Leticia Vasquez-Izquierdo  
Noe Torres Amacende  
Tax Map No. 1S226B003002**

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### PARCEL 1 – PERMANENT FACILITIES EASEMENT

A parcel of land lying in the Northwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Leticia Vasquez-Izquierdo and Noe Torres Amacende, recorded April 25, 2018 as Document No. 2018-028591, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 38.00 feet in width, lying 15.00 feet on the southerly and westerly side, and 23.00 feet on the northerly and easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36" E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21" W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34" E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline

## EXHIBIT A

**Willamette Water Supply  
June 26, 2020**

**Leticia Vasquez-Izquierdo  
Noe Torres Amacende  
Tax Map No. 1S226B003002**

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description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

EXCEPT THEREFROM that portion lying within the right-of-way of Riggs Rd (CR 1694).

The parcel of land to which this description applies contains 4,668 square feet (0.18 acre), more or less.

### **PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Leticia Vasquez-Izquierdo and Noe Torres Amacende property described as follows;

BEGINNING at a the Northeast corner of said property, said point being at Engineer's Station 1069+41.40, 23.00 feet right of Pipeline Centerline; thence along the easterly line of said property, S 0°34'19" W, 135.52 feet to Station 1069+41.40, 112.52 feet left of Pipeline Centerline; thence N 89°27'19" W, 250.66 feet; thence N 0°32'41" E, 63.76 feet; thence N 52°34'17" W, 119.85 feet to the South right of way line of Riggs Road (CR 1694), said point being Station 1071+51.05, 160.00 feet left of Pipeline Centerline; thence along said South line S 89°25'41" E, 346.58 feet to the POINT OF BEGINNING.

EXCEPT THEREFROM that portion lying within the above described Parcel 1.

The parcel of land to which this description applies contains 29,773 square feet (0.68 acre), more or less.

### **PARCEL 3 – TEMPORARY ACCESS EASEMENT**

That portion of said Leticia Vasquez-Izquierdo and Noe Torres Amacende property described as follows;

BEGINNING at a the Northeast corner of said property, said point being at Engineer's Station 1069+41.40, 23.00 feet right of Pipeline Centerline; thence along the easterly line of said property, S 0°34'19" W, 110.52 feet to Station 1069+41.40, 87.52 feet left of Pipeline Centerline; thence N 89°27'19" W, 250.67 feet; thence N 0°32'41" E, 38.76 feet; thence N 52°34'17" W, 119.85 feet to the South right of way line of Riggs Road (CR 1694), said point being Station 1071+51.05, 160.00 feet left of Pipeline Centerline; thence along said South line S 89°25'41" E, 346.58 feet to the POINT OF BEGINNING.

The parcel of land to which this description applies contains 31,168 square feet (0.72 acre), more or less.



**EXHIBIT A**


**Willamette Water Supply  
June 26, 2020**

**Leticia Vasquez-Izquierdo  
Noe Torres Amacende  
Tax Map No. 1S226B003002**

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Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR



OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20

SIGNED: *6-24-20*

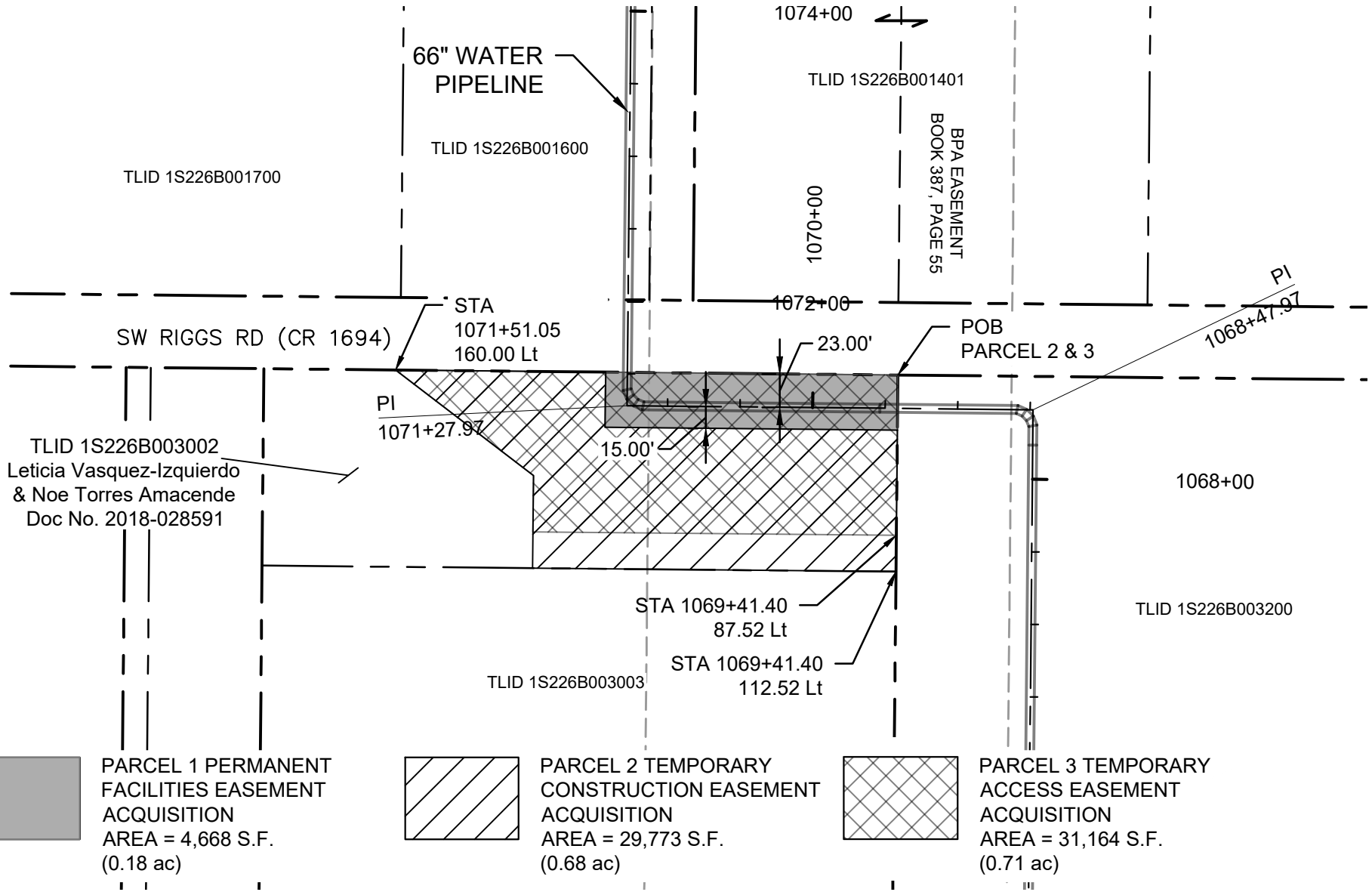
# Willamette Water Supply System Commission

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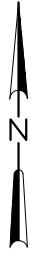
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# EXHIBIT B



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1":100'

<b>WILLAMETTE WATER SUPPLY PROGRAM</b> PIPELINE MAIN STEM, SECTION 5.2		<b>ACQUISITION MAP</b> PAGE 1 OF 1	
FILE No: PLM_5.3-087	SUBMITTAL DATE: JUNE 26, 2020		
TAX LOT: 1S226B003002	ADDRESS:		
TAX MAP: T1S R2W Sec26B	<b>Jacobs</b> SURVEY & MAPPING 2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201 PH: (503) 235-5000		

# Willamette Water Supply System Commission

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## EXHIBIT A

Willamette Water Supply  
June 26, 2020

Peter S. Lee and  
Young H. Lee  
Tax Map No. 1S226B003100

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### PARCEL 1 – PERMANENT FACILITIES EASEMENT

A parcel of land lying in the Northwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Peter S. Lee and Young H. Lee, recorded November 12, 1998 as Document No. 98127222, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land variable in width, lying on each side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Peter S. Lee and  
Young H. Lee  
Tax Map No. 1S226B003100**

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description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly and Southerly Side of Centerline</u>
1062+01.48		1070+00.00	15.00

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly and Northerly Side of Centerline</u>
1062+01.48		1067+71.30	15.00
1067+71.30		1067+71.44	15.00 in a straight line to 30.00
1067+71.44		1068+21.81	30.00
1068+21.81		1068+21.88	30.00 in a straight line to 80.00

Thence along the following courses;  
N 0°32'40" E, 49.06 feet to the South right of way of Riggs Road (CR 1694), being Station 1071+50.80, 360.00 feet right of Pipeline Centerline;  
Thence N 89°25'41" W, 232.02 feet along the South right of way of Riggs Road (CR 1694), being Station 1070+00.00, 23.00 feet right of Pipeline Centerline.

EXCEPT THEREFROM that portion lying within the right-of-way of Riggs Rd (CR 1694).

The parcel of land to which this description applies contains 25,966 square feet (0.60 acre), more or less.

**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Lee property described as follows;

The westerly 218.57 feet of said Lee property.

EXCEPT THEREFROM that portion lying within the above described Parcel 1.

The parcel of land to which this description applies contains 112,655 square feet (2.59 acre), more or less.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Peter S. Lee and  
Young H. Lee  
Tax Map No. 1S226B003100**

**PARCEL 3 – TEMPORARY ACCESS EASEMENT**

That portion of said Lee property described as follows;

The easterly 78.44 feet of the northerly 70.00 feet.

The parcel of land to which this description applies contains 5,485 square feet (0.13 acre), more or less.

**PARCEL 4 – PERMANENT ACCESS ROAD EASEMENT**

That portion of said Lee property described as follows;

BEGINNING at a point on the South right of way of Riggs Road (CR 1694) which bears S 89°25'41" E, 78.42 feet from the Northwest corner of said property, said point being at Engineer's Station 1068+62.98, 23.00 feet right of Pipeline Centerline; thence continuing along said South right of way S 89°25'41" E, 95.00 feet to Station 1071+50.80, 360.00 right of Pipeline Centerline; thence S 0°32'40" W, 49.06 feet to Station 1068+21.88, 80.00 feet right of Pipeline Centerline; thence N 89°31'33" W, 95.00 feet to Station 1068+21.76, 15.00 feet left of Pipeline Centerline; thence N 0°32'41" E, 49.22 feet to the POINT OF BEGINNING.

The parcel of land to which this description applies contains 4,668 square feet (0.11 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

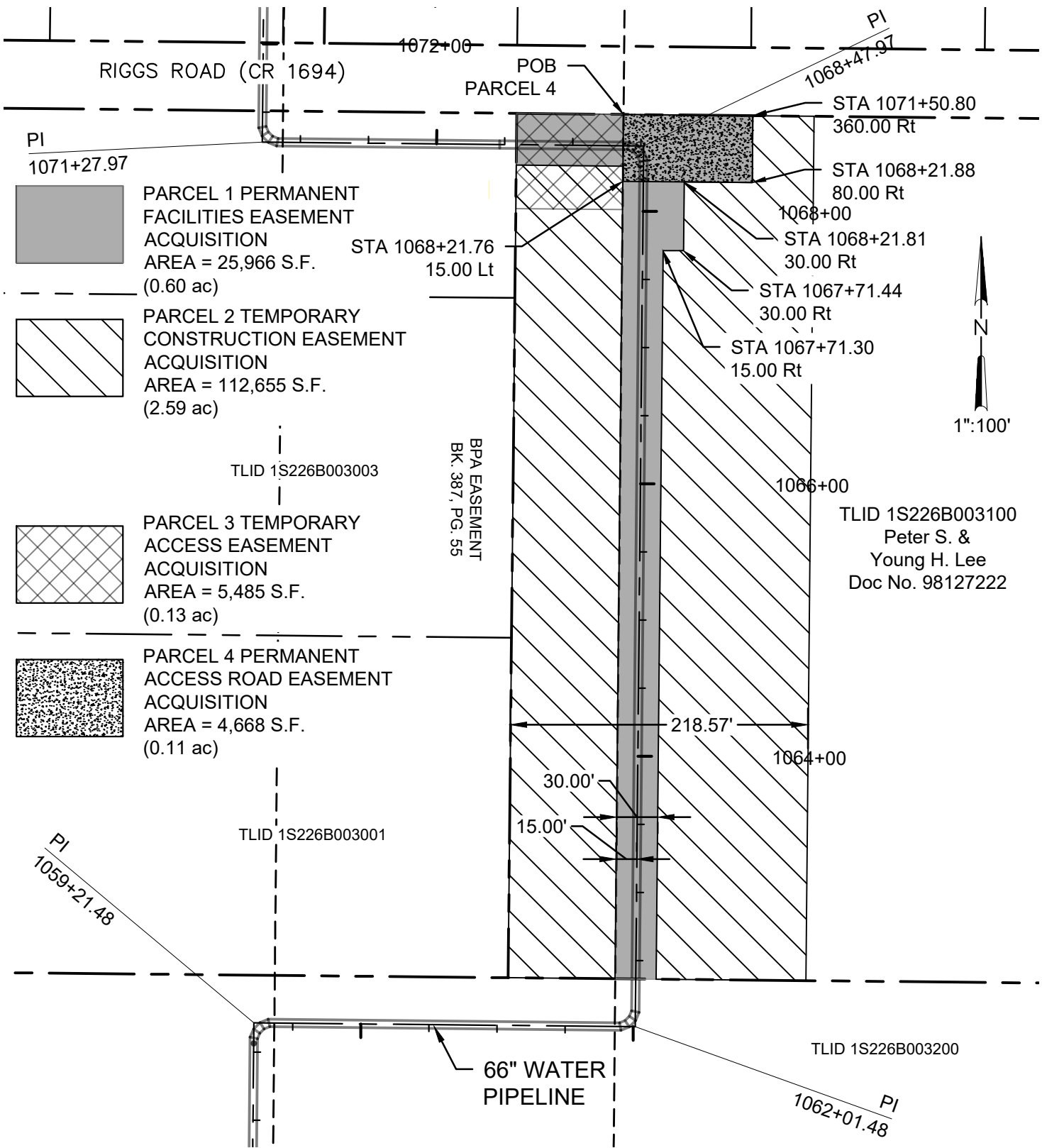
REGISTERED  
PROFESSIONAL  
LAND SURVEYOR



OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20  
SIGNED: *6-24-20*

# EXHIBIT B



## WILLAMETTE WATER SUPPLY PROGRAM

PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM\_5.3-070

SUBMITTAL DATE: JUNE 26, 2020

TAX LOT: 1S226B003100

ADDRESS:

TAX MAP: T1S R2W Sec26B

## ACQUISITION MAP

PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201

PH: (503) 235-5000



## EXHIBIT A

**Willamette Water Supply  
June 19, 2020**

**Martin Cole  
Tax Map No. 1S226C000200**

### PARCEL 1 – PERMANENT FACILITIES EASEMENT

A parcel of land lying in the Southwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Martin Cole, recorded February 5, 2009 as Document No. 2009-009226, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 50.00 feet in width, lying 25.00 feet on each side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of

**EXHIBIT A**

**Willamette Water Supply  
June 19, 2020**

**Martin Cole  
Tax Map No. 1S226C000200**

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the Hiram Johnson D.L.C. number 55.

EXCEPT THEREFROM that portion lying within the right-of-way of Farmington Rd (CR 1553).

The parcel of land to which this description applies contains 3,734 square feet (0.09 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Cole property included in a strip of land 100.00 feet in width, lying 50.00 feet on each side of the Pipeline Centerline described in Parcel 1:

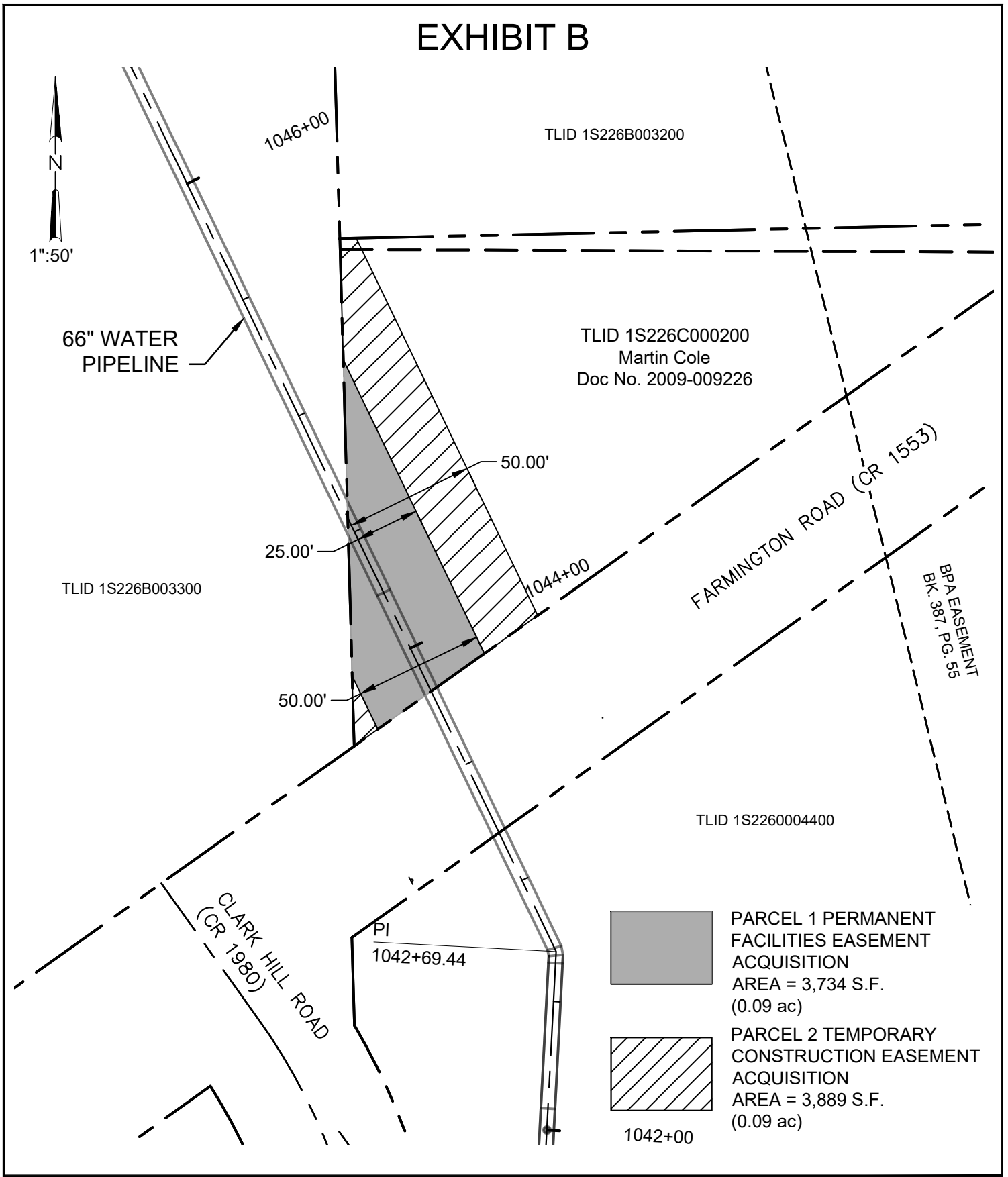
EXCEPT THEREFROM that portion lying within the right-of-way of Farmington Rd (CR 1553), and the above described Parcel 1.

The parcel of land to which this description applies contains 3,889 square feet (0.09 acre), more or less.



EXPIRES: 6/30/20  
SIGNED: 6-21-20

# EXHIBIT B



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**WILLAMETTE WATER SUPPLY PROGRAM**  
 PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM_5.3-099	SUBMITTAL DATE: June 19, 2020
TAX LOT: 1S226C000200	ADDRESS:
TAX MAP: T1S R2W Sec26C	

**ACQUISITION MAP**  
 PAGE 1 OF 1

**Jacobs**  
 SURVEY & MAPPING  
 2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
 PH: (503) 235-5000

# Willamette Water Supply System Commission

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**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Robert A. Long and  
Rose M. Long  
Tax Map No. 1S2360000302**

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**PARCEL 1 – PERMANENT FACILITIES EASEMENT**

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Robert A. Long and Rose M. Long, recorded November 4, 1970 in Book 797, Page 428, in Washington County Document Records, said parcel being that portion of said property included in a strip of land variable in width, lying on the westerly side of the following described Pipeline Centerline:

Beginning at Engineer’s Centerline Station 901+98.99, said point being N 62°00’18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;

thence N 89°26'02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26'02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55'28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53'14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03'53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55'50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48'13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45'49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41’14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01'21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11’57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
932+60.00		934+80.00	41.90 in a straight line to 51.07

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 1,050 square feet (0.02 acre), more or less.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Robert A. Long and  
Rose M. Long  
Tax Map No. 1S2360000302**

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**PARCEL 2 – PERMANENT ACCESS ROAD EASEMENT**

That portion of said Long property included in a strip of land, variable in width, lying on the westerly side of the Pipeline Centerline described in Parcel 1:

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
932+60.00		934+80.00	41.90 in a straight line to 51.07

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

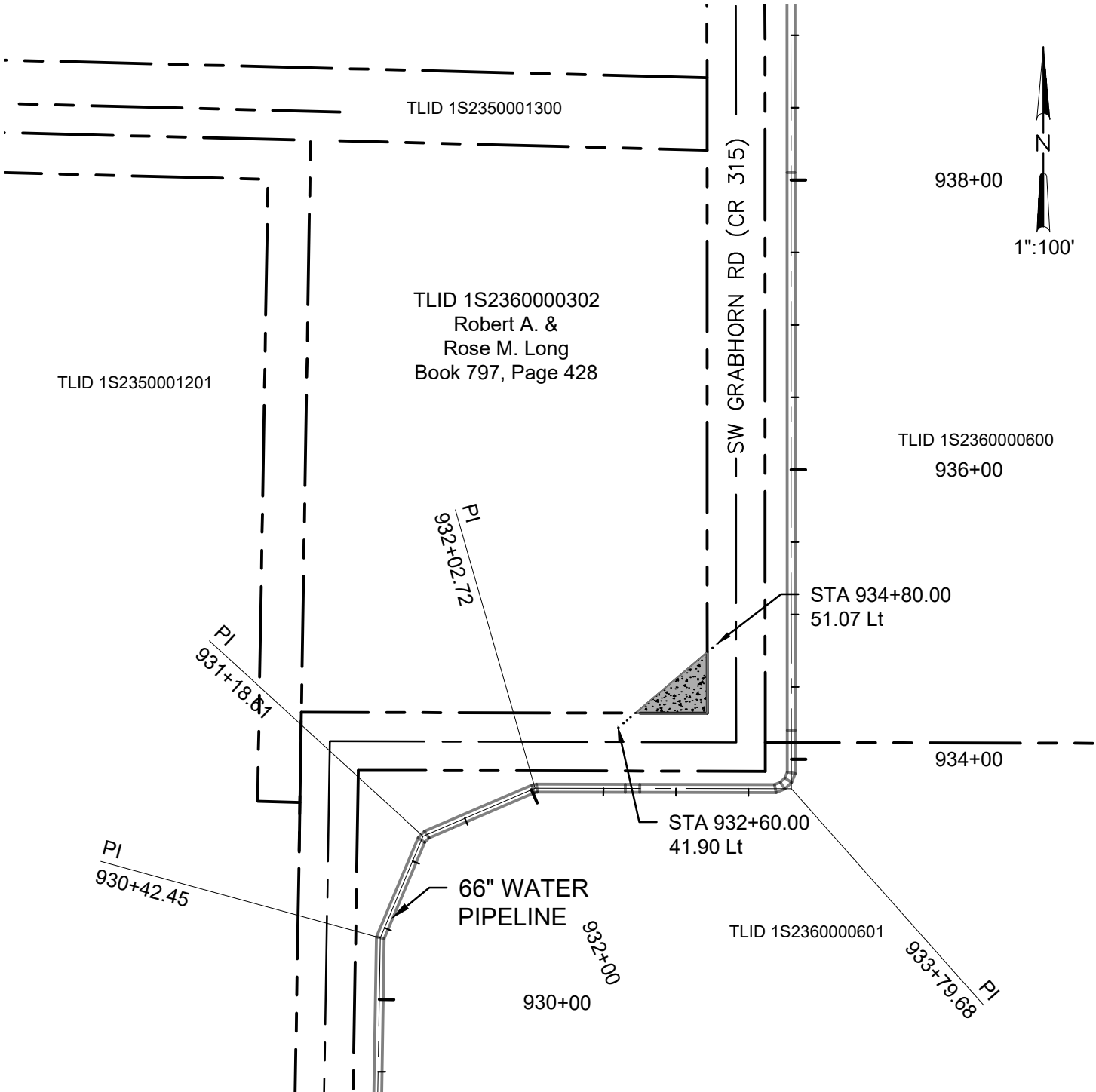
The parcel of land to which this description applies contains 1,050 square feet (0.02 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

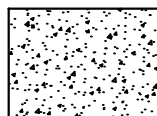


EXPIRES: 6/30/20  
SIGNED: *6-24-20*

# EXHIBIT B



PARCEL 1 PERMANENT FACILITIES EASEMENT ACQUISITION  
 AREA = 1,050 S.F.  
 (0.02 ac)



PARCEL 2 PERMANENT ACCESS ROAD EASEMENT ACQUISITION  
 AREA = 1,050 S.F.  
 (0.02 ac)

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**WILLAMETTE WATER SUPPLY PROGRAM**  
 PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM_5.3-028	SUBMITTAL DATE: JUNE 26, 2020
TAX LOT: 1S2360000302	ADDRESS:
TAX MAP: T1S R2W Sec36	

**ACQUISITION MAP**  
 PAGE 1 OF 1



**SURVEY & MAPPING**  
 2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
 PH: (503) 235-5000

# Willamette Water Supply System Commission

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# EXHIBIT A

Willamette Water Supply  
June 26, 2020

METRO  
Tax Map No. 1S2360000100

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## PARCEL 1 – TEMPORARY CONSTRUCTION EASEMENT

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to METRO, recorded February 7, 1997 in Document No. 97011860, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, 55.00 feet in width, lying easterly of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 901+98.99, said point being N 62°00'18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;

thence N 89°26'02" W, 9.73 feet to Station 902+08.72;

thence N 44°26'02" W, 27.23 feet to Station 902+35.95;

thence N 0°55'28" E, 224.95 feet to Station 904+60.90;

thence N 25°53'14" W, 159.59 feet to Station 906+20.49;

thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;

thence S 89°03'53" E, 75.00 feet to Station 923+26.47;

thence N 0°55'50" E, 715.98 feet to Station 930+42.45;

thence N 22°48'13" E, 76.16 feet to Station 931+18.61;

thence N 66°45'49" E, 84.11 feet to Station 932+02.72;

thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41'14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;

thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;

thence N 45°01'21" W, 25.46 feet to Station 945+78.41;

thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11'57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 900 square feet (0.02 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**METRO  
Tax Map No. 1S2360000100**

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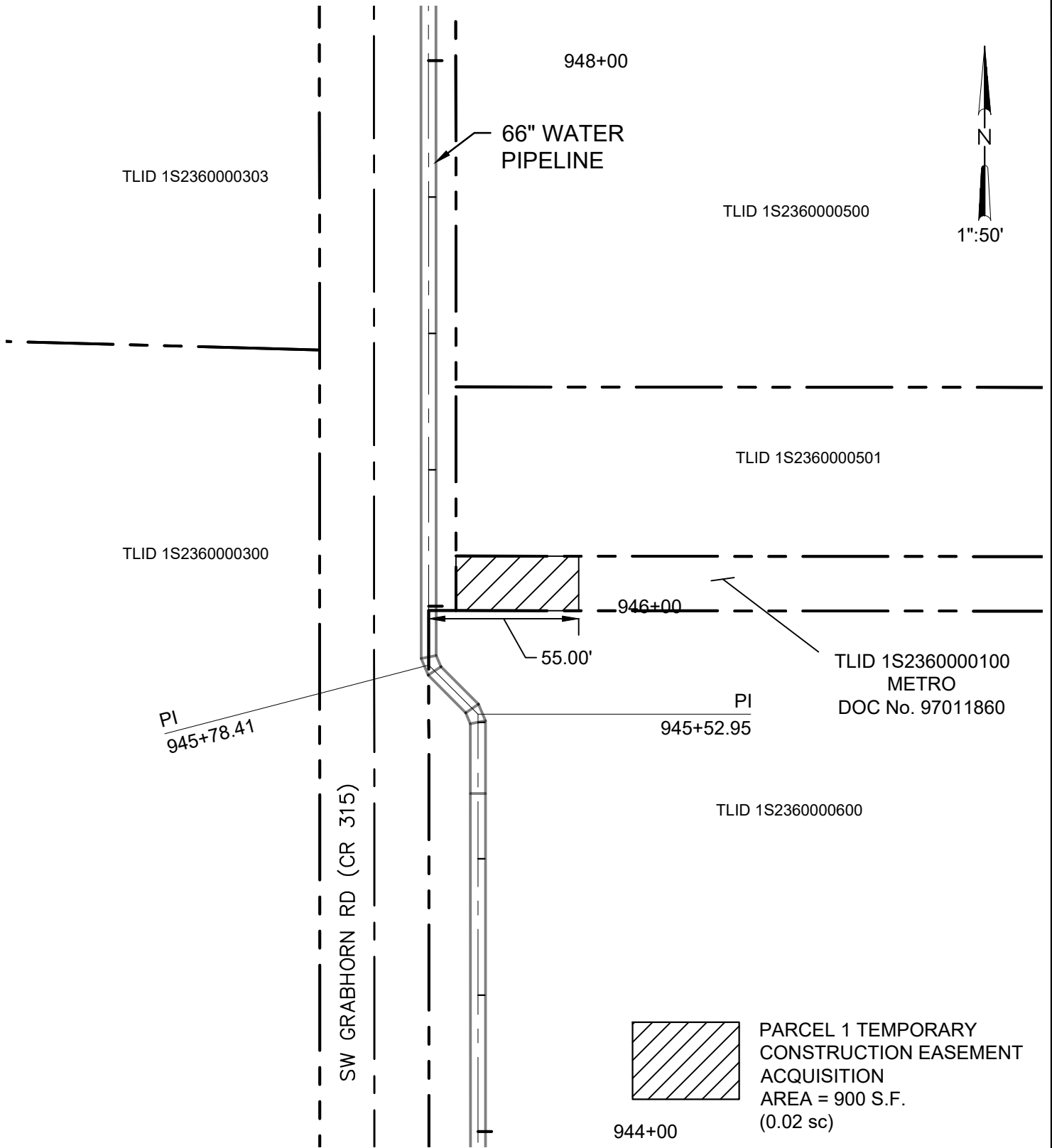
REGISTERED  
PROFESSIONAL  
LAND SURVEYOR



OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20  
SIGNED: 6-24-20

# EXHIBIT B



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**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM_5.3-026	SUBMITTAL DATE: JUNE 26, 2020
TAX LOT: 1S2360000100	ADDRESS:
TAX MAP: T1S R2W Sec36	

**ACQUISITION MAP**  
PAGE 1 OF 1



**SURVEY & MAPPING**  
2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

# Willamette Water Supply System Commission

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## EXHIBIT A

Willamette Water Supply  
June 26, 2020

METRO  
Tax Map No. 1S2360000400

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### PARCEL 1 – TEMPORARY ACCESS EASEMENT

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to METRO, recorded December 3, 1999 in Document No. 99132663, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, 55.00 feet in width, lying 55.00 feet on the Easterly side of the following described Pipeline Centerline, between Engineer's Stations 951+00.00 and 952+18.92:

Pipeline Centerline described as follows:

Beginning at Engineer's Centerline Station 901+98.99, said point being N 62°00'18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;  
thence N 89°26'02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26'02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55'28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53'14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03'53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55'50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48'13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45'49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41'14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01'21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11'57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 3,150 square feet (0.07 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**METRO  
Tax Map No. 1S2360000400**

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**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said METRO property included in a strip of land, 55.00 feet in width, lying on the easterly side of the Pipeline Centerline described in Parcel 1:

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 9,215 square feet (0.21 acre), more or less.

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

*Aaron D. Willis*

OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

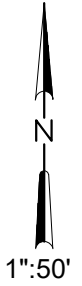
EXPIRES: 6/30/20

SIGNED: *6-24-20*

# EXHIBIT B

TLID 1S2360000401

954+00



TLID 1S2360000303

SW GRABHORN RD (CR 315)

TLID 1S2360000400  
METRO  
Doc No: 99132663

55.00'

STA 952+18.92

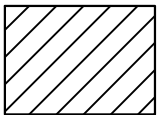
952+00

TLID 1S2360000402

66" WATER  
PIPELINE



PARCEL 1 TEMPORARY  
ACCESS EASEMENT  
ACQUISITION  
AREA = 3,150 S.F.  
(0.07 ac)



PARCEL 2 TEMPORARY  
CONSTRUCTION EASEMENT  
ACQUISITION  
AREA = 9,215 S.F.  
(0.21 ac)

**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

**ACQUISITION MAP**  
PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No: PLM\_5.3-026

SUBMITTAL DATE: JUNE 26, 2020

TAX LOT: 1S2360000400

ADDRESS:

TAX MAP: T1S R2W Sec36

# Willamette Water Supply System Commission

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## EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Stanley L. Allmer and  
Cathye A. Allmer  
Tax Map No. 1S226C002100**

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### PARCEL 1 – PERMANENT LIMITED USE EASEMENT

A parcel of land lying in the Southwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Stanley L. Allmer and Cathye A. Allmer, recorded October 1, 2008 in Document No. 2008-082758, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 200.00 feet in width, lying on the easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of

**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Stanley L. Allmer and  
Cathye A. Allmer  
Tax Map No. 1S226C002100**

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the Hiram Johnson D.L.C. number 55.

EXCEPT THEREFROM that portion lying within the right-of-way of SW Koehler Rd (CR 226).

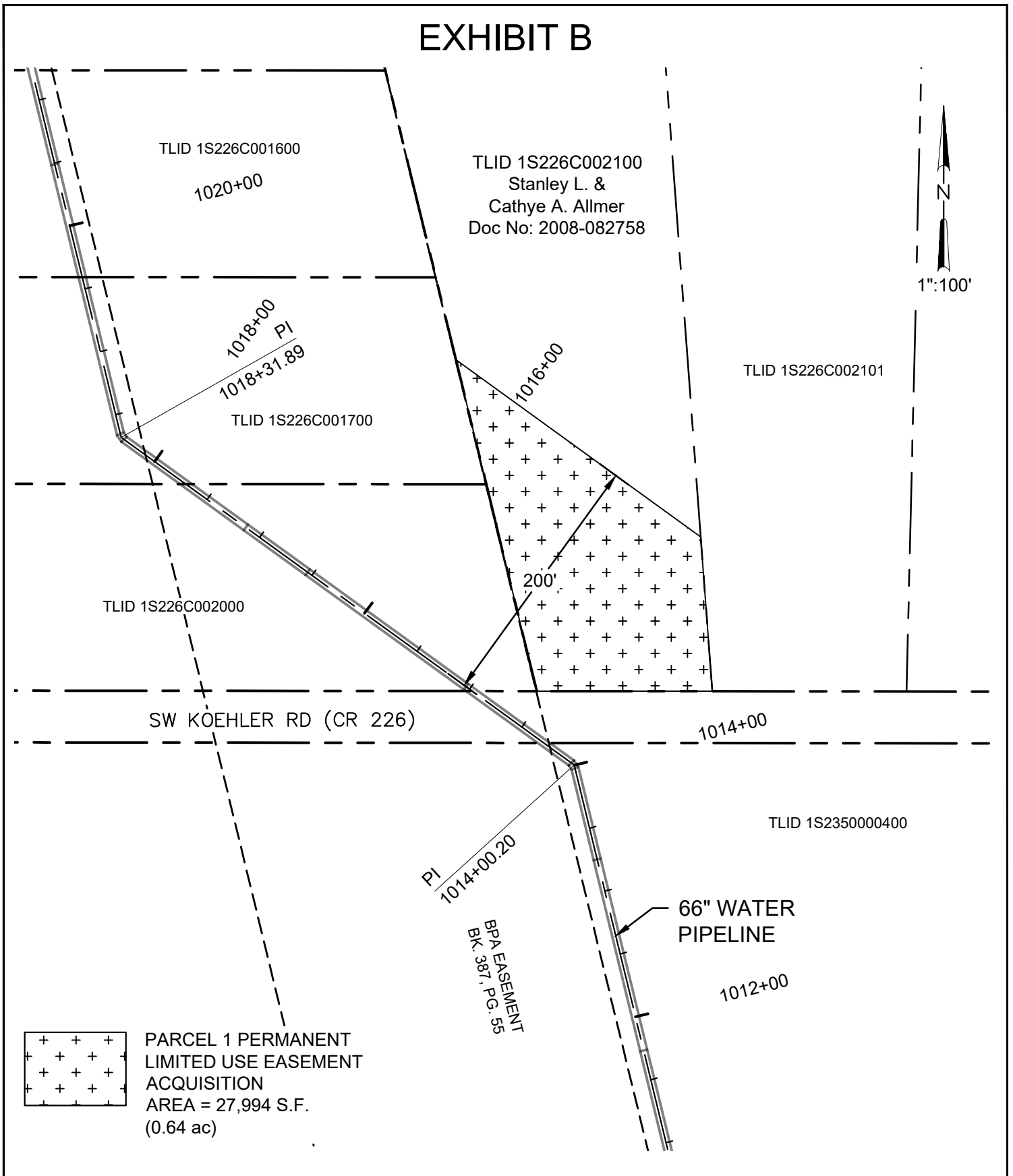
The parcel of land to which this description applies contains 27,994 square feet (0.64 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.



EXPIRES: 6/30/20  
SIGNED: *6-29-20*

# EXHIBIT B



c:\pwworking\adem001\kcong\1520129\pms-3\_easement\_exhibitb.dwg

**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

**ACQUISITION MAP**  
PAGE 1 OF 1



**SURVEY & MAPPING**

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No:	SUBMITTAL DATE: JUNE 30, 2020
TAX LOT: 1S226C002100	ADDRESS:
TAX MAP: T1S R2W Sec26C	

# Willamette Water Supply System Commission

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## EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Ames Living Trust  
Tax Map No. 1S226B001500**

### PARCEL 1 – TEMPORARY CONSTRUCTION EASEMENT

A parcel of land lying in the Northwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Ames Living Trust, recorded October 17, 2017 as Document No. 2017-082084, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, variable in width, lying on the easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Ames Living Trust  
Tax Map No. 1S226B001500**

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
1071+27.97		1076+18.07	45.00
1076+18.07		1078+50.00	20.00

EXCEPT THEREFROM that portion lying within the right-of-way of Riggs Rd (CR 1694).

The parcel of land to which this description applies contains 13,807 square feet (0.32 acre), more or less.

**PARCEL 2 – TEMPORARY ACCESS EASEMENT**

That portion of said Ames property included in a strip of land, 45.00 feet in width, lying on the easterly side of the Pipeline Centerline described in Parcel 1, between Stations 1071+50.00 and 1073+80.27.

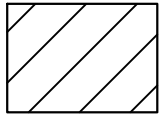
The parcel of land to which this description applies contains 5,429square feet (0.12 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

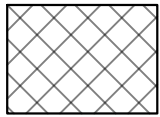


EXPIRES: 6/30/20  
SIGNED: *6-29-20*

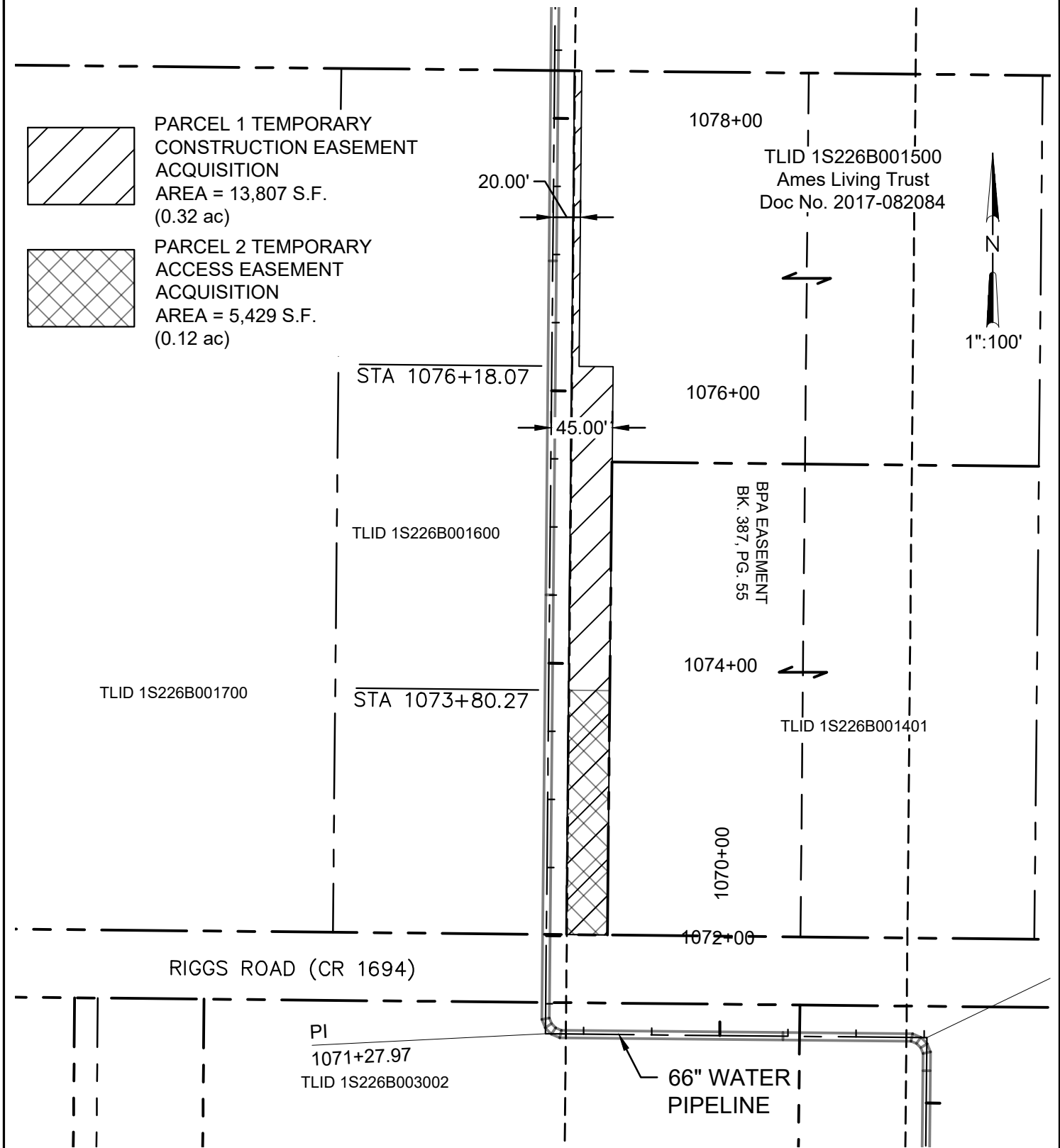
# EXHIBIT B



PARCEL 1 TEMPORARY  
CONSTRUCTION EASEMENT  
ACQUISITION  
AREA = 13,807 S.F.  
(0.32 ac)



PARCEL 2 TEMPORARY  
ACCESS EASEMENT  
ACQUISITION  
AREA = 5,429 S.F.  
(0.12 ac)



**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

**ACQUISITION MAP**

PAGE 1 OF 1



SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No: PLM\_5.3-075

SUBMITTAL DATE: JUNE 30, 2020

TAX LOT: 1S226B001500

ADDRESS:

TAX MAP: T1S R2W Sec26B

# Willamette Water Supply System Commission

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**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Bierly Family Trust  
Tax Map No. 1S2360000600**

**PARCEL 1 – PERMANENT FACILITIES EASEMENT**

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Bierly Family Trust, recorded July 19, 2000 in Document No. 2000057488, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, variable in width, lying on each side of the following described Pipeline Centerline:

Beginning at Engineer’s Centerline Station 901+98.99, said point being N 62°00’18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;  
thence N 89°26’02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26’02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55’28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53’14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55’50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03’53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55’50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48’13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45’49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51’32" E, 176.96 feet to Station 933+79.68, said point being S 33°41’14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01’21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01’21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01’21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11’57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
934+00.00		946+50.00	18.00
<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
934+00.00		938+94.98	12.00
938+94.98		939+99.92	30.00
939+99.92		944+90.66	12.00
944+90.66		946+50.00	30.00 in a straight line to 48.00

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Bierly Family Trust  
Tax Map No. 1S2360000600**

The parcel of land to which this description applies contains 39,071 square feet (0.90 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Bierly property included in a strip of land, variable in width, lying on the easterly side of the Pipeline Centerline described in Parcel 1:

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
934+00.00		946+50.00	47.00 in a straight line to 65.00

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315) and above described Parcel 1.

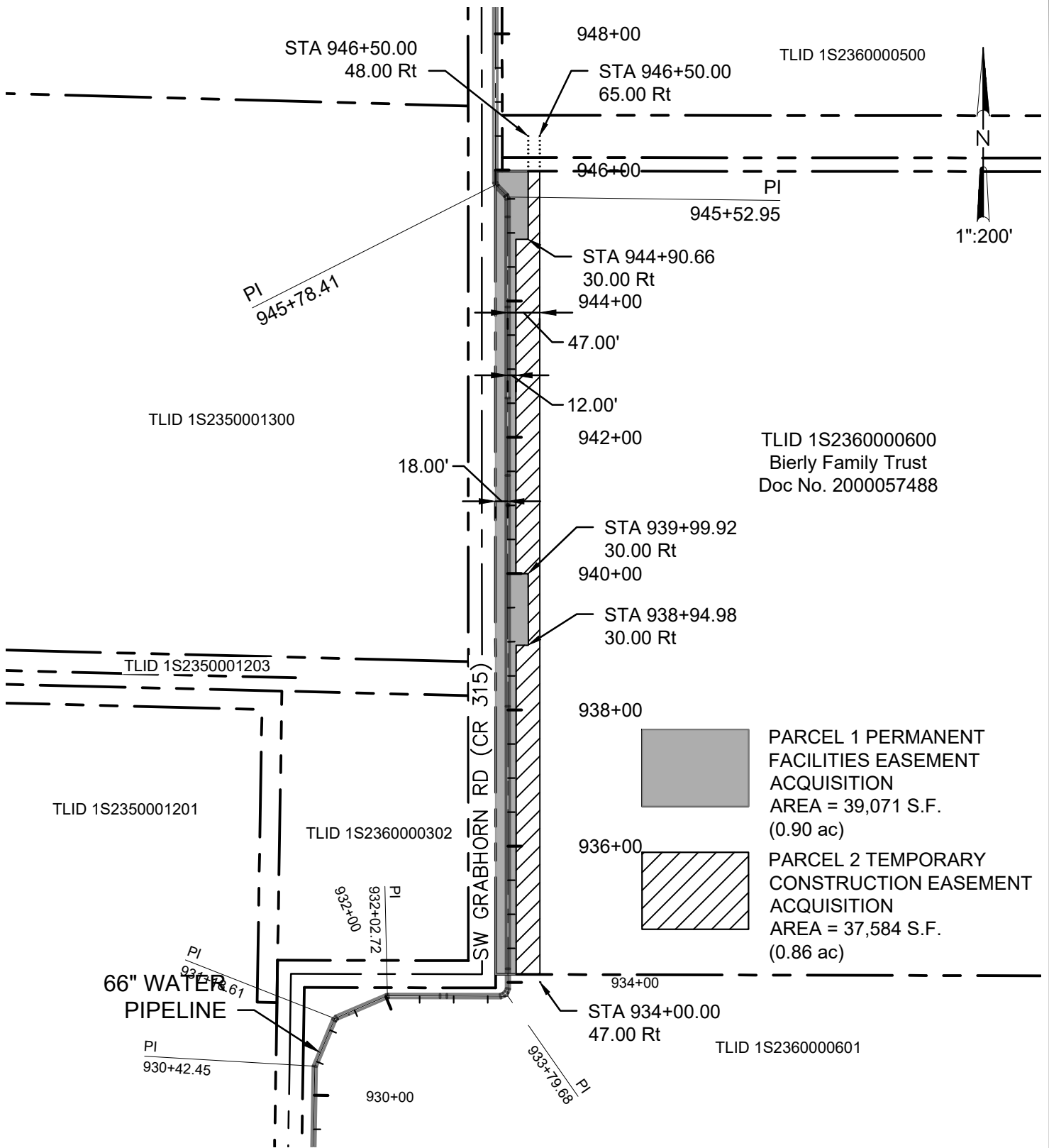
The parcel of land to which this description applies contains 37,584 square feet (0.86 acre), more or less.

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20  
SIGNED: 6-24-20

# EXHIBIT B



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**WILLAMETTE WATER SUPPLY PROGRAM**  
 PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM_5.3-035	SUBMITTAL DATE: JUNE 26, 2020
TAX LOT: 1S2360000600	ADDRESS:
TAX MAP: T1S R2W Sec36	

**ACQUISITION MAP**  
 PAGE 1 OF 1

**Jacobs**  
 SURVEY & MAPPING  
 2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
 PH: (503) 235-5000

# Willamette Water Supply System Commission

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**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Cristopher Clark and  
Chelsey Clark  
Tax Map No. 1S2360000401**

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**PARCEL 1 – PERMANENT FACILITIES EASEMENT**

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Christopher Clark and Chelsey Clark, recorded April 18, 2018 in Document No. 2018-026905, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land variable in width, lying Easterly of the following described Pipeline Centerline:

Beginning at Engineer’s Centerline Station 901+98.99, said point being N 62°00’18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;  
thence N 89°26'02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26'02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55'28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53'14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03'53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55'50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48'13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45'49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41’14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01'21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11’57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
953+50.00		954+54.62	30.00
954+54.62		956+00.00	15.00

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 4,729 square feet (0.11 acre), more or less.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**Cristopher Clark and  
Chelsey Clark  
Tax Map No. 1S2360000401**

**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Clark property included in a strip of land variable feet in width, lying Easterly of the Pipeline Centerline described in Parcel 1:

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
953+50.00		955+23.27	55.00
955+23.27		956+00.00	110.00

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315), and the above described Parcel 1.

The parcel of land to which this description applies contains 9,546 square feet (0.22 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

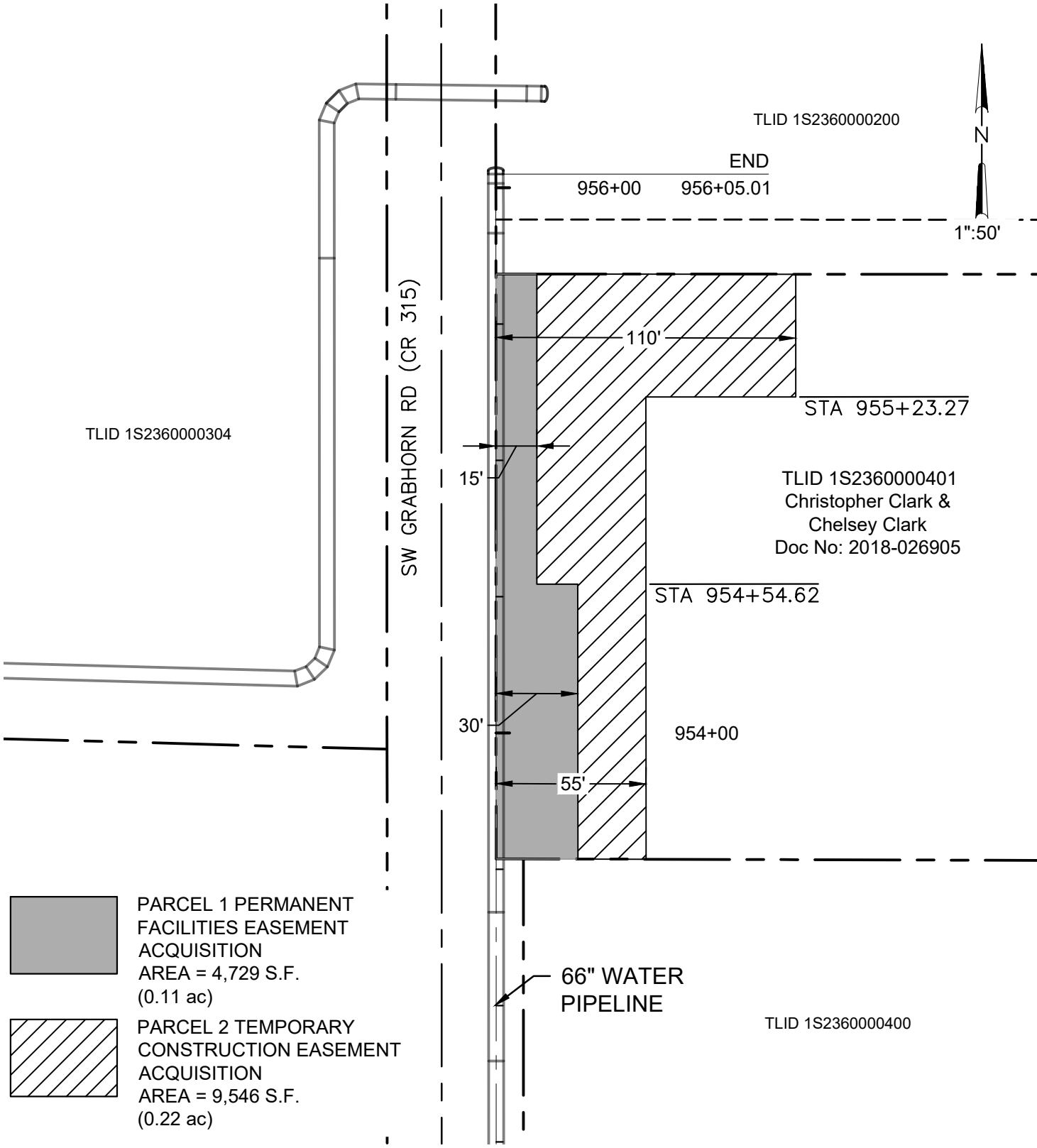


OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

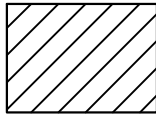
EXPIRES: 6/30/20

SIGNED: 6.24.20

# EXHIBIT B



PARCEL 1 PERMANENT FACILITIES EASEMENT ACQUISITION  
 AREA = 4,729 S.F.  
 (0.11 ac)



PARCEL 2 TEMPORARY CONSTRUCTION EASEMENT ACQUISITION  
 AREA = 9,546 S.F.  
 (0.22 ac)

## WILLAMETTE WATER SUPPLY PROGRAM

PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM\_5.3-031

SUBMITTAL DATE: JUNE 26, 2020

TAX LOT: 1S2360000401

ADDRESS:

TAX MAP: T1S R2W Sec36

## ACQUISITION MAP

PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201

PH: (503) 235-5000

# Willamette Water Supply System Commission

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**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Carl F. Dyess  
Tax Map No. 1S2350001000**

**PARCEL 1 – PERMANENT FACILITIES EASEMENT**

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Carl F. Dyess, recorded August 23, 2000 in Document No. 2000067834, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, variable in width, on each side of the following described Pipeline Centerline:

Beginning at Engineer’s Centerline Station 901+98.99, said point being N 62°00’18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;  
thence N 89°26’02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26’02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55’28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53’14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55’50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03’53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55’50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48’13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45’49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51’32" E, 176.96 feet to Station 933+79.68, said point being S 33°41’14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01’21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01’21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01’21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11’57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly and Northerly Side of Centerline</u>
915+50.00		917+53.26	12.00
917+53.26		918+53.26	30.00
918+53.26		923+26.47	12.00

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
915+50.00		922+51.47	To the Westerly right-of-way of Grabhorn Road (CR 315)

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Carl F. Dyess  
Tax Map No. 1S2350001000**

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The parcel of land to which this description applies contains 22,479 square feet (0.52 acre), more or less.

**PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Dyess property included in a strip of land, 47.00 feet in width, lying on the Westerly and Northerly side of the Pipeline Centerline described in Parcel 1;

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315), and above described Parcel 1.

The parcel of land to which this description applies contains 24,583 square feet (0.56 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

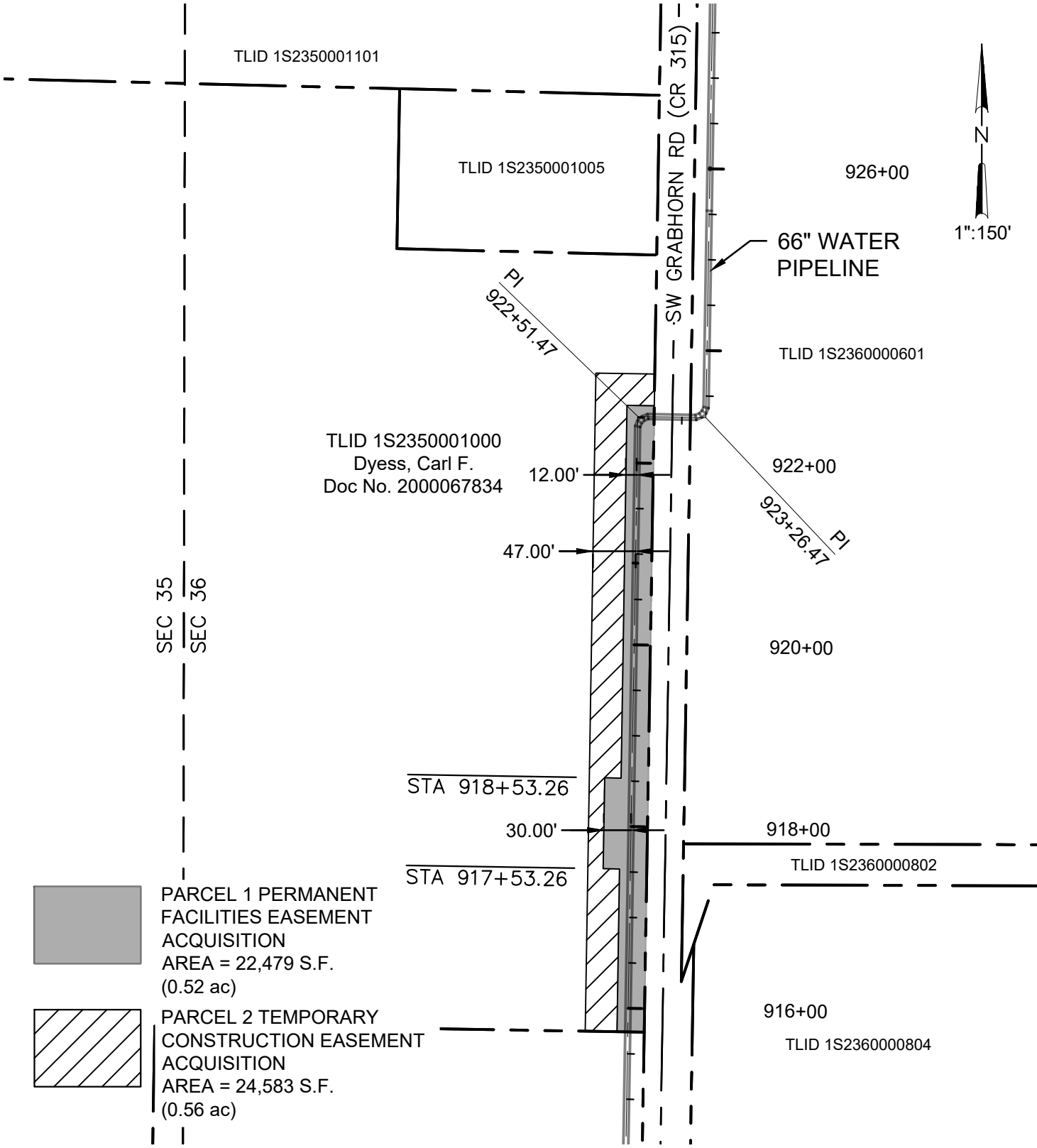
REGISTERED  
PROFESSIONAL  
LAND SURVEYOR



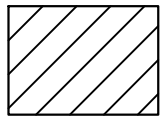
OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20  
SIGNED: 6-29-20

# EXHIBIT B



PARCEL 1 PERMANENT FACILITIES EASEMENT ACQUISITION  
 AREA = 22,479 S.F.  
 (0.52 ac)



PARCEL 2 TEMPORARY CONSTRUCTION EASEMENT ACQUISITION  
 AREA = 24,583 S.F.  
 (0.56 ac)

©20202021:11:55 AM KIKONG c:\p\work\delidemo01\kikong\1520129\pms-3\_essament\_exhibitb.dwg

## WILLAMETTE WATER SUPPLY PROGRAM

PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM\_5.3-020

SUBMITTAL DATE: JUNE 30, 2020

TAX LOT: 1S2350001000

ADDRESS:

TAX MAP: T1S R2W Sec35

## ACQUISITION MAP

PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201

PH: (503) 235-5000

# Willamette Water Supply System Commission

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## EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Hammond-Clayton Trust u/i/d  
Tax Map No. 1S226C001300**

### PARCEL 1 – PERMANENT FACILITIES EASEMENT

A parcel of land lying in the Southwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Hammond-Clayton Trust, recorded August 17, 2015 as Document No. 2015-070086, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land, variable in width, lying on each side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36" E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21" W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34" E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline description. Said Terminus also being N 0°46'24" E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

# EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Hammond-Clayton Trust u/i/d  
Tax Map No. 1S226C001300**

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
1026+00.00		1027+17.99	57.00
1027+17.99		1029+50.00	15.00

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
1026+00.00		1029+50.00	15.00

EXCEPT THEREFROM that portion lying within the right-of-way of Green Slope Road.

The parcel of land to which this description applies contains 13,608 square feet (0.31 acre), more or less.

## **PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Hammond-Clayton property included in a strip of land, variable in width, lying on each side of the Pipeline Centerline described in Parcel 1;

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
1026+25.00		1028+96.38	196.45 in a straight line to 138.47
1028+96.38		1029+12.89	138.47 in a straight line to 206.52
1029+12.89		1029+61.80	206.52 in a straight line to 196.07
			To the South right-of-way of Green Slope Road

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
1025+50.00		1027+70.48	20.00
1027+70.48		1028+50.00	20.00 in a straight line to 264.86
			To the South right-of-way of Green Slope Road

EXCEPT THEREFROM that portion lying within the right-of-way of Green Slope Road and above described Parcel 1.

The parcel of land to which this description applies contains 62,245 square feet (1.43 acre), more or less.

## **PARCEL 3 – TEMPORARY ACCESS EASEMENT**

That portion of said Hammond-Clayton property described as follows;

**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Hammond-Clayton Trust u/i/d  
Tax Map No. 1S226C001300**

BEGINNING at the Northeast corner of said property, also being Engineer's Station 1028+50.00, 264.86 feet westerly from Pipeline Centerline; thence S 89°57'28" W, 474.30 feet along the South right-of-way of Green Slope Road to Engineer's Station 1029+61.80, 196.07 feet westerly of Pipeline Centerline; thence S 1°36'57" E, 50.02 feet to Engineer's Station 1029+12.89, 206.52 feet westerly of Pipeline Centerline; thence N 89°57'28" E, 70.03 feet to Engineer's Station 1028+96.38, 138.47 feet westerly of Pipeline Centerline; thence S 1°36'57" E, 85.03 feet to Engineer's Station 1028+13.23, 156.24 feet westerly of Pipeline Centerline; thence N 89°57'28" E, 181.35 feet to Engineer's Station 1027+70.48, 20.00 feet easterly of Pipeline Centerline; thence N 58°19'52" E, 257.45 feet to the POINT OF BEGINNING.

The parcel of land to which this description applies contains 43,031 square feet (0.99 acre), more or less.

**PARCEL 4 – PERMANENT LIMITED USE EASEMENT**

That portion of said Hammond-Clayton property included in a strip of land, variable in width, lying on each side of the Pipeline Centerline described in Parcel 1;

Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
1026+00.00		1027+17.99	57.00
1027+17.99		1029+50.00	15.00
<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
1026+00.00		1029+50.00	200.00

EXCEPT THEREFROM that portion lying within the right-of-way of Green Slope Road.

The parcel of land to which this description applies contains 70,692 square feet (1.62 acre), more or less.

**PARCEL 5 – PERMANENT ACCESS ROAD EASEMENT**

That portion of said Hammond-Clayton property included in a strip of land, variable in width, lying on each side of the Pipeline Centerline described in Parcel 1;

**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Hammond-Clayton Trust u/i/d  
Tax Map No. 1S226C001300**

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Widths in feet of said strip of land are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Westerly Side of Centerline</u>
1026+00.00		1027+17.99	57.00
1027+17.99		1029+50.00	15.00

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
1026+00.00		1029+50.00	15.00

EXCEPT THEREFROM that portion lying within the right-of-way of Green Slope Road.

The parcel of land to which this description applies contains 13,608 square feet (0.31 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR



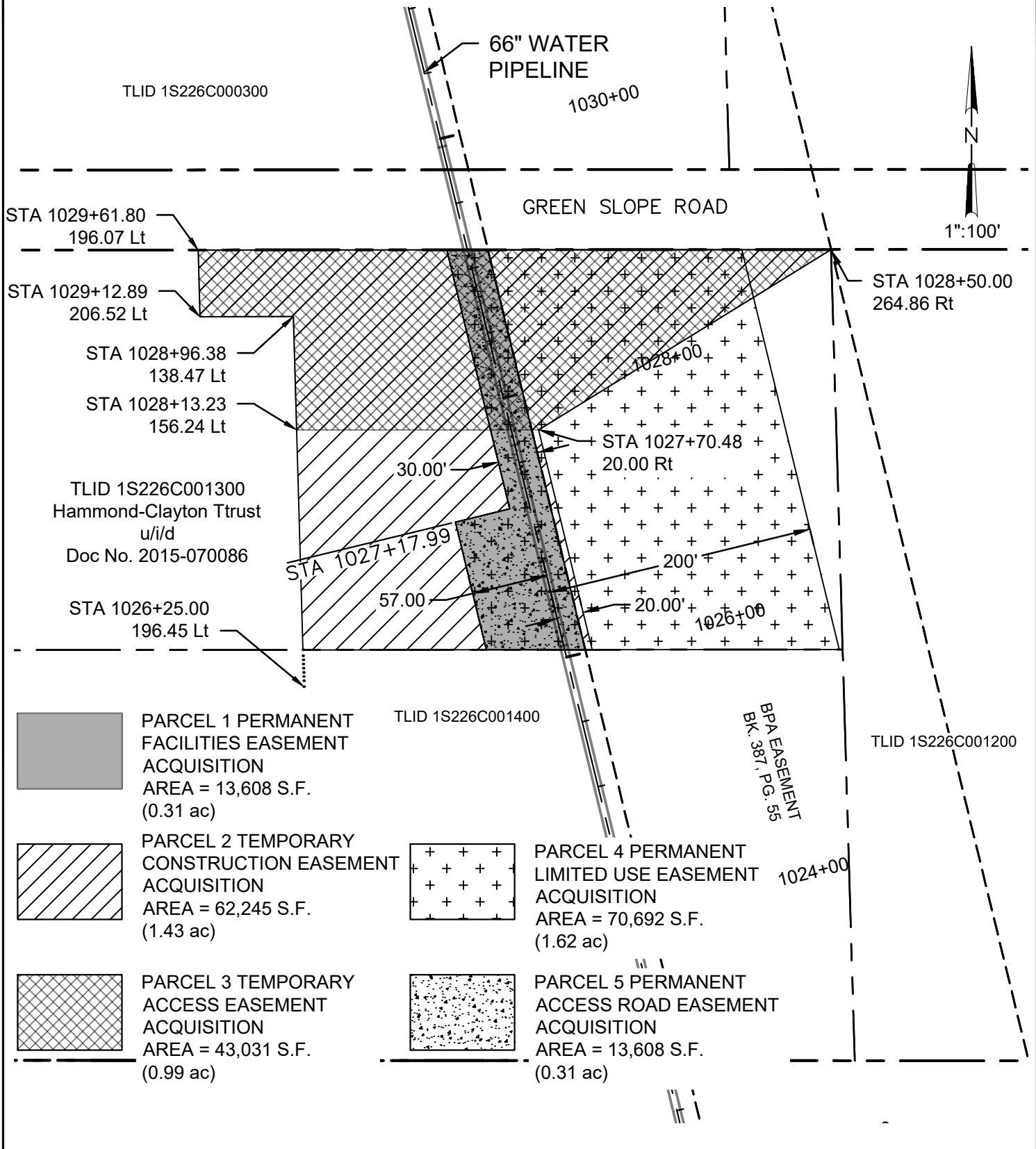
OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20

SIGNED: 6-29-20



# EXHIBIT B



**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

**ACQUISITION MAP**  
PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No: PLM\_5.3-001

SUBMITTAL DATE: JUNE 30, 2020

TAX LOT: 1S226C001300

ADDRESS:

TAX MAP: T1S R2W Sec26C

# Willamette Water Supply System Commission

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## EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Heusser Revocable Trust  
Tax Map No. 1S226C001200**

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### PARCEL 1 – PERMANENT LIMITED USE EASEMENT

A parcel of land lying in the Southwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Heusser Revocable Trust, recorded December 9, 2019 in Document No. 2019-088801, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 200.00 feet in width, lying easterly of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Heusser Revocable Trust  
Tax Map No. 1S226C001200**

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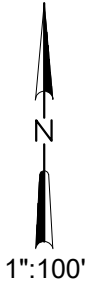
The parcel of land to which this description applies contains 9,401 square feet (0.22 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.



EXPIRES: 6/30/20  
SIGNED: *6-29-20*

# EXHIBIT B



TLID 1S226C001300

1028+00

BPA EASEMENT  
BK. 387, P.G. 55

1026+00

TLID 1S226C001200  
Heusser Revocable Trust  
Doc No. 2019-088801

TLID 1S226C001400

1024+00

200'

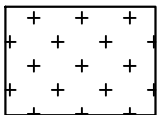
TLID 1S226C001500

1022+00

66" WATER  
PIPELINE

TLID 1S226C001600

1020+00



PARCEL 1 PERMANENT  
LIMITED USE EASEMENT  
ACQUISITION  
AREA = 9,401 S.F.  
(0.22 ac)

c:\pwworking\dem07\kcong\1520129\pms-3 easement exhibit.bldg

**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

**ACQUISITION MAP**  
PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No:	SUBMITTAL DATE: JUNE 30, 2020
TAX LOT: 1S226C001200	ADDRESS:
TAX MAP: T1S R2W Sec26C	

# Willamette Water Supply System Commission

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## EXHIBIT A

Willamette Water Supply  
June 26, 2020

METRO  
Tax Map No. 1S2360000500

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### PARCEL 1 – TEMPORARY CONSTRUCTION EASEMENT

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to METRO, recorded August 6, 1999 in Document No. 99092525, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 55.00 feet in width, lying on the easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 901+98.99, said point being N 62°00'18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;

thence N 89°26'02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26'02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55'28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53'14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03'53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55'50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48'13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45'49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41'14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01'21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11'57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 18,837 square feet (0.43 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**METRO  
Tax Map No. 1S2360000500**

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REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

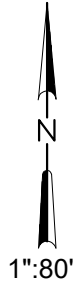


OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20  
SIGNED: *6-24-20*



# EXHIBIT B



TLID 1S2360000303

SW GRABHORN RD (CR 315)

66" WATER PIPELINE

TLID 1S2360000402

950+00

TLID 1S2360000500  
METRO  
Doc No. 99092525

55.00'

948+00

TLID 1S2360000501

TLID 1S2360000100

946+00

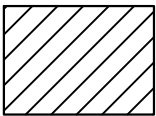
PI

945+52.95

PI

945+78.41

TLID 1S2360000300



PARCEL 1 TEMPORARY  
CONSTRUCTION EASEMENT  
ACQUISITION  
AREA = 18,837 S.F.  
(0.43 ac)

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## WILLAMETTE WATER SUPPLY PROGRAM

PIPELINE MAIN STEM, SECTION 5.3

## ACQUISITION MAP

PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201

PH: (503) 235-5000

FILE No: PLM\_5.3-026

SUBMITTAL DATE: JUNE 26, 2020

TAX LOT: 1S2360000500

ADDRESS:

TAX MAP: T1S R2W Sec36

# Willamette Water Supply System Commission

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## EXHIBIT A

Willamette Water Supply  
June 26, 2020

METRO  
Tax Map No. 1S2360000501

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### PARCEL 1 – TEMPORARY CONSTRUCTION EASEMENT

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to METRO, recorded February 7, 1997 in Document No. 97011860, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 55.00 feet in width, lying on the easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 901+98.99, said point being N 62°00'18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;

thence N 89°26'02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26'02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55'28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53'14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03'53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55'50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48'13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45'49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41'14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01'21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11'57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 2,790 square feet (0.06 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

**EXHIBIT A**

**Willamette Water Supply  
June 26, 2020**

**METRO  
Tax Map No. 1S2360000501**

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REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

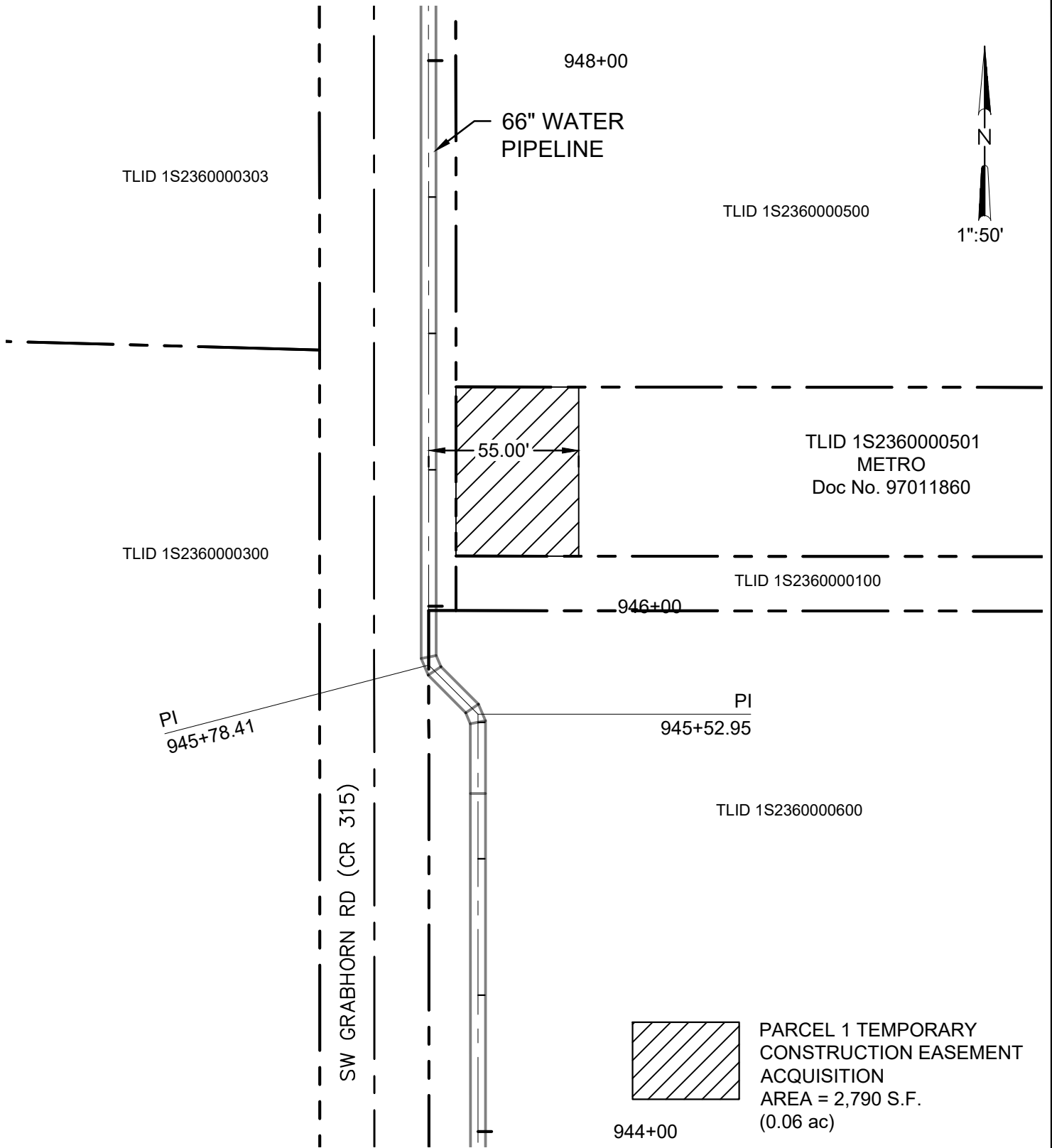
*Aaron D. Willis*

OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20

SIGNED: *6-24-20*

# EXHIBIT B



c:\pw\_wor\delidemo07\kcong\1520129\pms-3 assessment exhibitb.dwg 6/22/2020 1:51:39 AM KICONG

**WILLAMETTE WATER SUPPLY PROGRAM**  
PIPELINE MAIN STEM, SECTION 5.3

FILE No: PLM_5.3-026	SUBMITTAL DATE: JUNE 26, 2020
TAX LOT: 1S2360000501	ADDRESS:
TAX MAP: T1S R2W Sec36	

**ACQUISITION MAP**  
PAGE 1 OF 1



**SURVEY & MAPPING**  
2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

# Willamette Water Supply System Commission

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# EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Schwinn-Reynolds  
Living Trust  
Tax Map No. 1S226C002101**

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## PARCEL 1 – PERMANENT LIMITED USE EASEMENT

A parcel of land lying in the Southwest Quarter of Section 26, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Schwinn-Reynolds Living Trust, recorded April 24, 2012 in Document No. 2012-032589, in the Washington County Book of Records, said parcel being that portion of said property included in a strip of land 200.00 feet in width, lying on the easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 957+00.00, said point being S 64°13'36 E, 956.35 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian.

Thence along said pipeline the following courses;

N 89°15'16" W, 78.67 feet to Station 957+78.67;  
thence S 0°01'21" E, 215.81 feet to Station 959+94.49;  
thence N 88°27'18" W, 1393.61 feet to Station 973+88.10;  
thence S 0°03'04" E, 496.73 feet to Station 978+84.82;  
thence N 88°36'55" W, 1001.32 feet to Station 988+86.14;  
thence S 0°10'16" W, 84.89 feet to Station 989+71.03;  
thence S 45°46'40" W, 126.13 feet to Station 990+97.16;  
thence N 88°36'55" W, 988.72 feet to Station 1000+85.88;  
thence N 44°14'56" W, 328.47 feet to Station 1004+14.36;  
thence N 13°40'36" W, 985.84 feet to Station 1014+00.20, said point being S 86°03'21 W, 530.54 feet from the North 1/4 corner of Section 35;  
thence continuing along said pipeline N 54°06'50" W, 431.69 feet to Station 1018+31.89;  
thence N 13°40'36" W, 1838.00 feet to Station 1036+69.89;  
thence N 89°58'26" W, 235.89 feet to Station 1039+05.77;  
thence N 1°36'57" W, 264.23 feet to Station 1041+70.00;  
thence N 2°57'43" E, 99.44 feet to Station 1042+69.44;  
thence N 25°40'02" W, 395.23 feet to Station 1046+64.67;  
thence N 1°37'05" W, 187.89 feet to Station 1048+52.56;  
thence N 38°06'59" E, 260.68 feet to Station 1051+13.24, said point being S 77°11'34 E, 84.29 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55;  
thence continuing along said pipeline N 0°32'41" E, 808.24 feet to Station 1059+21.48;  
thence S 89°26'00" E, 280.00 feet to Station 1062+01.48;  
thence N 0°32'40" E, 646.49 feet to Station 1068+47.97;  
thence N 89°25'41" W, 280.00 feet to Station 1071+27.97;  
thence N 0°32'41" E, 3542.23 feet to Station 1106+70.20;  
thence N 44°09'05" W, 88.58 feet to Station 1107+58.78;  
thence N 0°50'55" E, 47.38 feet to Station 1108+06.17 and the Terminus of said pipeline

## EXHIBIT A

**Willamette Water Supply  
June 30, 2020**

**Schwinn-Reynolds  
Living Trust  
Tax Map No. 1S226C002101**

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description. Said Terminus also being N 0°46'24 E, 5,089.47 feet from the Northeast corner of the Hiram Johnson D.L.C. number 55.

EXCEPT THEREFROM that portion lying within the right-of-way of SW Koehler Rd (CR 226).

The parcel of land to which this description applies contains 7,113 square feet (0.16 acre), more or less.

### **PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT**

That portion of said Schwinn-Reynolds property described as follows;

The easterly 60.00 feet of the southerly 50.00 feet, when measured parallel with the easterly line of said property and the northerly right-of-way of SW Koehler Rd (CR 226).

EXCEPT THEREFROM that portion lying within the right-of-way of SW Koehler Rd (CR 226).

The parcel of land to which this description applies contains 3,001 square feet (0.07 acre), more or less.

### **PARCEL 3 – TEMPORARY ACCESS EASEMENT**

That portion of said Schwinn-Reynolds property described as follows;

The easterly 60.00 feet of the southerly 15.00 feet, when measured parallel with the easterly line of said property and the northerly right-of-way of SW Koehler Rd (CR 226).

EXCEPT THEREFROM that portion lying within the right-of-way of SW Koehler Rd (CR 226).

The parcel of land to which this description applies contains 900 square feet (0.02 acres), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.



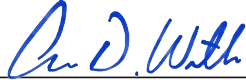
**EXHIBIT A**

**Willamette Water Supply  
June 30, 2020**

**Schwinn-Reynolds  
Living Trust  
Tax Map No. 1S226C002101**

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REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

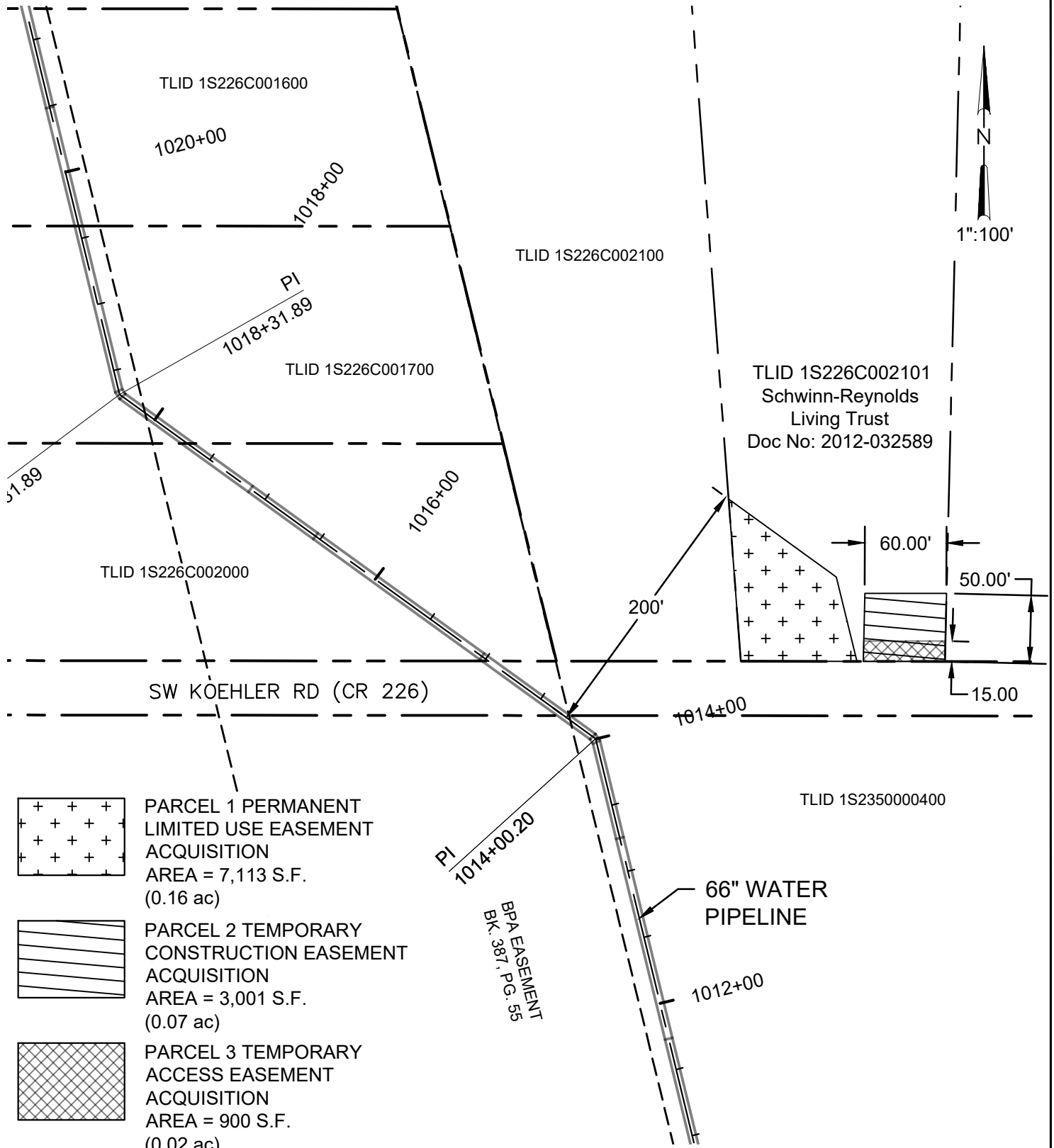


OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20

SIGNED: 6-29-20

# EXHIBIT B



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## WILLAMETTE WATER SUPPLY PROGRAM PIPELINE MAIN STEM, SECTION 5.3

## ACQUISITION MAP

PAGE 1 OF 1

### Jacobs

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No:	SUBMITTAL DATE: JUNE 30, 2020
TAX LOT: 1S226C002101	ADDRESS:
TAX MAP: T1S R2W Sec26C	

## EXHIBIT A

**Willamette Water Supply  
June 26, 2020**

**Patrick Dennis Selman and  
Carol J. Selman  
Tax Map No. 1S2360000402**

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### PARCEL 1 – PERMANENT FACILITIES EASEMENT

A parcel of land lying in Section 36, Township 1 South, Range 2 West of the Willamette Meridian, Washington County, Oregon and being a portion of that property conveyed to Patrick Dennis Selman and Carol J. Selman, recorded September 5, 1975 in Book 1042, Page 437, in Washington County Document Records, said parcel being that portion of said property included in a strip of land 15.00 feet in width, lying on the easterly side of the following described Pipeline Centerline:

Beginning at Engineer's Centerline Station 901+98.99, said point being N 62°00'18 E, 72.12 feet from the Southeast corner of the John Landess D.L.C. number 37.

Thence along said pipeline the following courses;  
thence N 89°26'02" W, 9.73 feet to Station 902+08.72;  
thence N 44°26'02" W, 27.23 feet to Station 902+35.95;  
thence N 0°55'28" E, 224.95 feet to Station 904+60.90;  
thence N 25°53'14" W, 159.59 feet to Station 906+20.49;  
thence N 0°55'50" E, 1630.98 feet to Station 922+51.47;  
thence S 89°03'53" E, 75.00 feet to Station 923+26.47;  
thence N 0°55'50" E, 715.98 feet to Station 930+42.45;  
thence N 22°48'13" E, 76.16 feet to Station 931+18.61;  
thence N 66°45'49" E, 84.11 feet to Station 932+02.72;  
thence S 89°51'32" E, 176.96 feet to Station 933+79.68, said point being S 33°41'14 E, 561.69 feet from the Northeast corner of the John Landess D.L.C. number 37;  
thence continuing along said pipeline N 0°01'21" W, 1173.27 feet to Station 945+52.95;  
thence N 45°01'21" W, 25.46 feet to Station 945+78.41;  
thence N 0°01'21" W, 1026.61 feet to Station 956+05.01 and the Terminus of said pipeline description. Said Terminus also being S 62°11'57 E, 954.76 feet from the Northwest corner of Section 36, Township 1 South, Range 2 West of the Willamette Meridian;

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315).

The parcel of land to which this description applies contains 751 square feet (0.02 acre), more or less.

Basis of Bearings is the Oregon Coordinate Reference System (OCRS), Portland Zone.

# EXHIBIT A

Willamette Water Supply  
June 26, 2020

Patrick Dennis Selman and  
Carol J. Selman  
Tax Map No. 1S2360000402

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## PARCEL 2 – TEMPORARY CONSTRUCTION EASEMENT

That portion of said Selman property included in a strip of land, variable in width, lying on the easterly side of the Pipeline Centerline described in Parcel 1:

Widths in feet are described as follows:

<u>Station</u>	to	<u>Station</u>	<u>Width on Easterly Side of Centerline</u>
950+50.00		951+33.86	95.00
951+33.86		952+00.00	55.00

EXCEPT THEREFROM that portion lying within the right-of-way of Grabhorn Rd (CR 315) and above described Parcel 1.

The parcel of land to which this description applies contains 3,400 square feet (0.08 acre), more or less.

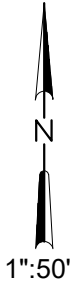
REGISTERED  
PROFESSIONAL  
LAND SURVEYOR



OREGON  
JANUARY 8, 2015  
AARON D. WILLIS  
88798

EXPIRES: 6/30/20  
SIGNED: 6-24-20

# EXHIBIT B



TLID 1S2360000400

952+00

TLID 1S2360000303

SW GRABHORN RD (CR 315)

15.00'

55.00'

STA 951+33.86

95.00'

TLID 1S2360000402  
Selman, Patrick Dennis  
& Carol J.  
Book 1042, Page 437

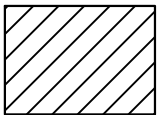
TLID 1S2360000501

950+00

66" WATER  
PIPELINE



PARCEL 1 PERMANENT  
FACILITIES EASEMENT  
ACQUISITION  
AREA = 751 S.F.  
(0.02 ac)



PARCEL 2 TEMPORARY  
CONSTRUCTION EASEMENT  
ACQUISITION  
AREA = 3,400 S.F.  
(0.08 ac)

## WILLAMETTE WATER SUPPLY PROGRAM

PIPELINE MAIN STEM, SECTION 5.3

## ACQUISITION MAP

PAGE 1 OF 1

**Jacobs**

SURVEY & MAPPING

2020 SW 4TH AVE. SUITE 300 PORTLAND, OR 97201  
PH: (503) 235-5000

FILE No: PLM\_5.3-032

SUBMITTAL DATE: JUNE 26, 2020

TAX LOT: 1S2360000402

ADDRESS:

TAX MAP: T1S R2W Sec36

# Willamette Water Supply System Commission

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**STAFF REPORT**

**To:** Willamette Water Supply System Board of Commissioners  
**From:** David Kraska, P.E., Willamette Water Supply System General Manager  
**Date:** July 2, 2020  
**Subject:** Anticipated Business Agenda Items for the August 6, 2020, Meeting of the Willamette Water Supply System Board of Commissioners

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**Key Concepts:**

The next Willamette Water Supply System (WWSS) Commission Board meeting agenda is anticipated to include staff recommendations to approve the following business agenda items:

1. PLM\_4.3 and PLM\_5.3 Supplemental Resolutions of Public Necessity
2. PLW\_2.0 Resolution of Public Necessity
3. Add a City of Beaverton Hall Boulevard 16-inch pipeline to COB\_1.0

**Background:**

The following actions are anticipated business agenda items for the August 6, 2020, meeting of the WWSS Board of Commissioners. Due to the dynamic nature of the WWSS work, request for approval of some items may be delayed or new items may emerge on the business agenda next month. WWSS staff strive to provide preliminary information one month prior to requesting action, and a full staff report describing the recommended action during the appropriate month.

1. PLM\_4.3 and PLM\_5.3 Supplemental Resolutions of Public Necessity Approval Recommendation

WWSS staff are aware of additional property needs for pipeline sections PLM\_4.3 and PLM\_5.3 that are still being finalized and were not included in the first resolutions of need for those projects. Utilizing a sequence of two resolutions allows the majority of the real estate acquisition work needed for pipeline sections PLM\_4.3 and PLM\_5.3 to begin on-schedule.

At the August WWSS Board meeting, WWSP staff will present the supplemental project area and easement needs, with a recommendation to the Board to adopt the supplemental Resolutions of Public Necessity to allow WWSP staff to begin the process to acquire permanent and temporary construction easements for PLM\_4.3 and PLM\_5.3.

2. PLW\_2.0 Resolution of Public Necessity Approval Recommendation

The WWSS includes a section of pipeline along Cornelius Pass Road, from SW Frances Street to Highway 26, mostly within the City of Hillsboro. The WWSP has progressed the design of this pipeline section to enable identification of property requirements for construction and long-term operation and maintenance of the pipeline. The pipeline alignment was selected through an extensive alternatives evaluation, and the preferred location was selected based upon the best interests of the public and the least injury to private property owners. The proposed resolution will enable the initiation of the property

acquisition process, including negotiations with the Property owner and any other applicable interest holders.

At the August WWSS Board meeting, WWSP staff will present the project area and easement needs, with a recommendation to the Board to adopt the Resolution of Public Necessity to allow WWSP staff to begin the process to acquire permanent and temporary construction easements for PLW\_2.0.

3. Intergovernmental Agreement Between the City of Beaverton and the Willamette Water Supply Commission Design of SW Nimbus/Scholls Ferry to SW Beaverton-Hillsdale Highway Pipe Project (COB\_1.0 Design IGA) Amendment 1 to add a City of Beaverton Hall Boulevard 16-inch Pipeline Approval Recommendation

The City of Beaverton has requested an additional ancillary project be added to the COB\_1.0 work that is currently coordinated with TVWD's MPE\_1.0 project under the executed Intergovernmental Agreement Between the City of Beaverton and the Willamette Water Supply Commission Design of SW Nimbus/Scholls Ferry to SW Beaverton-Hillsdale Highway Pipe Project (COB\_1.0 Design IGA). The additional project is a 16-inch pipeline, approximately 2,500 feet, to be located in SW Hall Boulevard from SW Scholls Ferry Road to SW Oleson Road. The requested change is progressing through WWSP Change Committee review and then Management Committee review. Adding the project requires an amendment to the COB\_1.0 Design IGA.

WWSS and Beaverton staff are finalizing the details and expect to bring an amendment approval recommendation to the August WWSS Board meeting.

**Budget Impact:**

Anticipated costs for all of the actions described are reflected in the WWSP 2020 budget. The cost changes for ancillary projects and additional equipment (such as a turnout) are borne entirely by the requesting Partner.

**Staff Contact Information:**

Dave Kraska, P.E., WWSS General Manager, 503-941-4561, david.kraska@tvwd.org

Joelle Bennett, P.E., WWSP Assistant Program Director, 503-941-4577, joelle.bennett@tvwd.org

**Attachments:**

None.