

PDB in Action: Tacoma Water's First Step in the Pipeline 1 Program

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PNWS-AWWA Section Conference: Fri, May 8, 2026

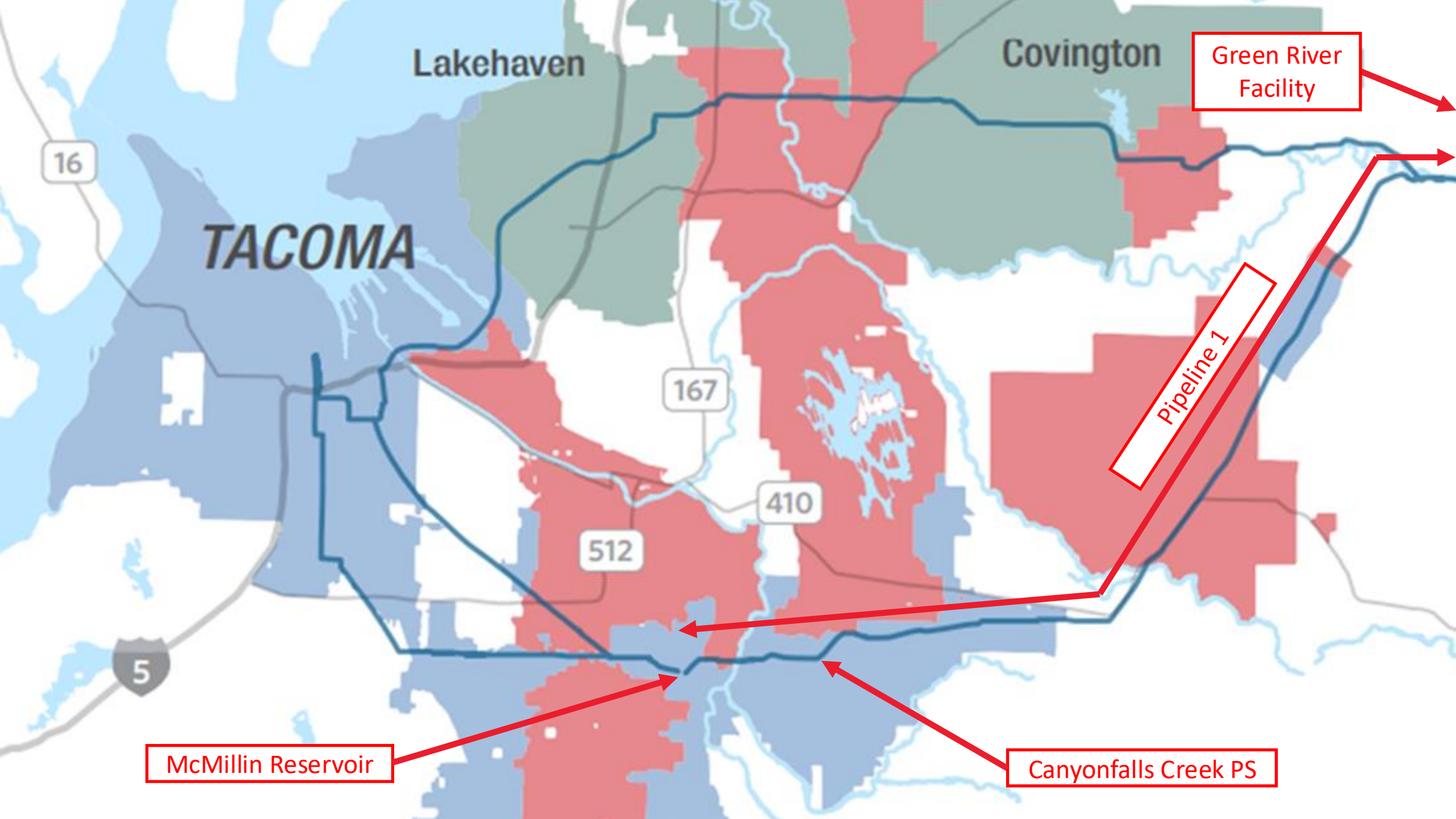
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Outline

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1. Pipeline 1 (P1) Program & Canyonfalls Creek Pump Station (CCPS) and Service Continuity Project overview
2. Why Progressive Design-Build (PDB) for CCPS?
3. Considerations for PDB delivery
4. What have we learned so far?


Lakehaven
Covington
Green River Facility
16
TACOMA
Pipeline 1
167
410
512
5
McMillin Reservoir
Canyonfalls Creek PS

Pipeline 1 Program

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1910s

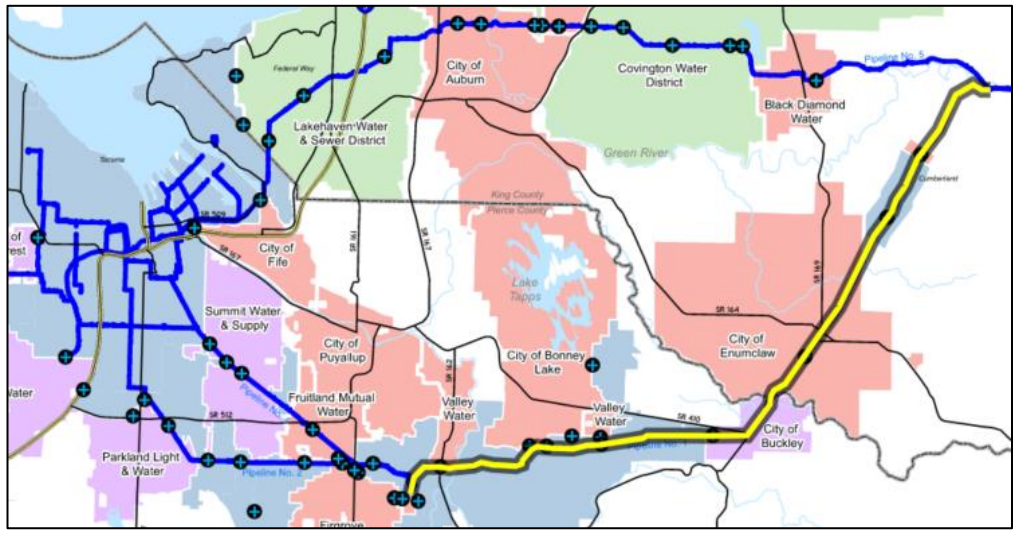
Pipeline 1 Constructed, Primarily with Wood Stave Pipe

1950s

Wood Stave Pipe Replaced with Concrete and Steel

1980s

New Regulations Resulted in Unpressurized/Fluming Condition





2018

DOH Sanitary Survey – Must Pressurize by 2051!

2021

Jacobs Completed Implementation Plan – 7 Alternatives for Pressurization

2023

Brown and Caldwell Prepared a Capital Program with ~30 Discrete Projects

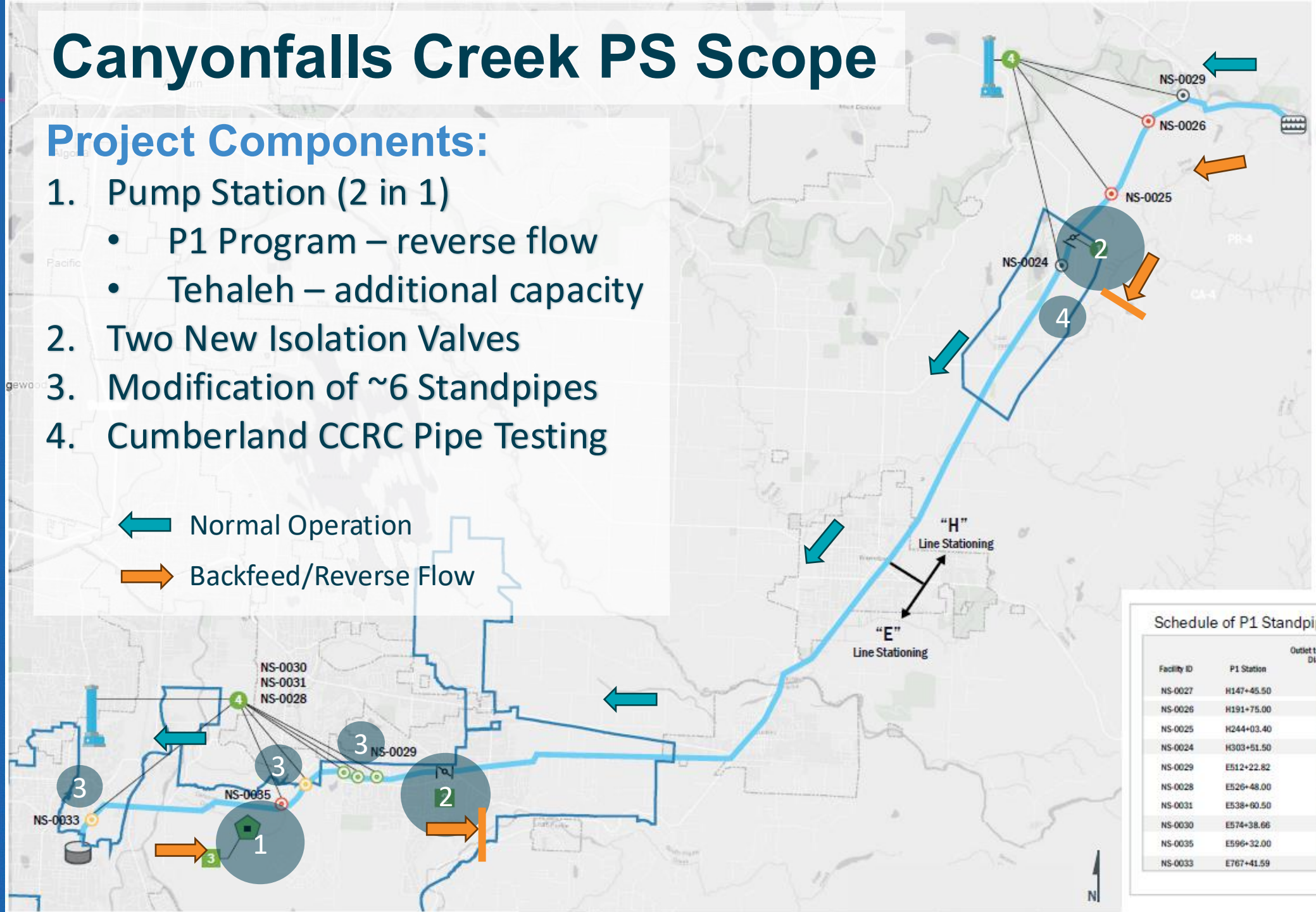
Canyonfalls Creek PS Scope

Project Components:

1. Pump Station (2 in 1)
   - P1 Program – reverse flow
   - Tehaleh – additional capacity
2. Two New Isolation Valves
3. Modification of ~6 Standpipes
4. Cumberland CCRC Pipe Testing

Normal Operation

Backfeed/Reverse Flow



Legend

- P1 Clearwell
- McMillin Reservoir
- Existing Pipeline 1
- Canyonfalls Creek PS
- New P1 Isolation Valve
- P1 Standpipe
- Tacoma Water Service Area

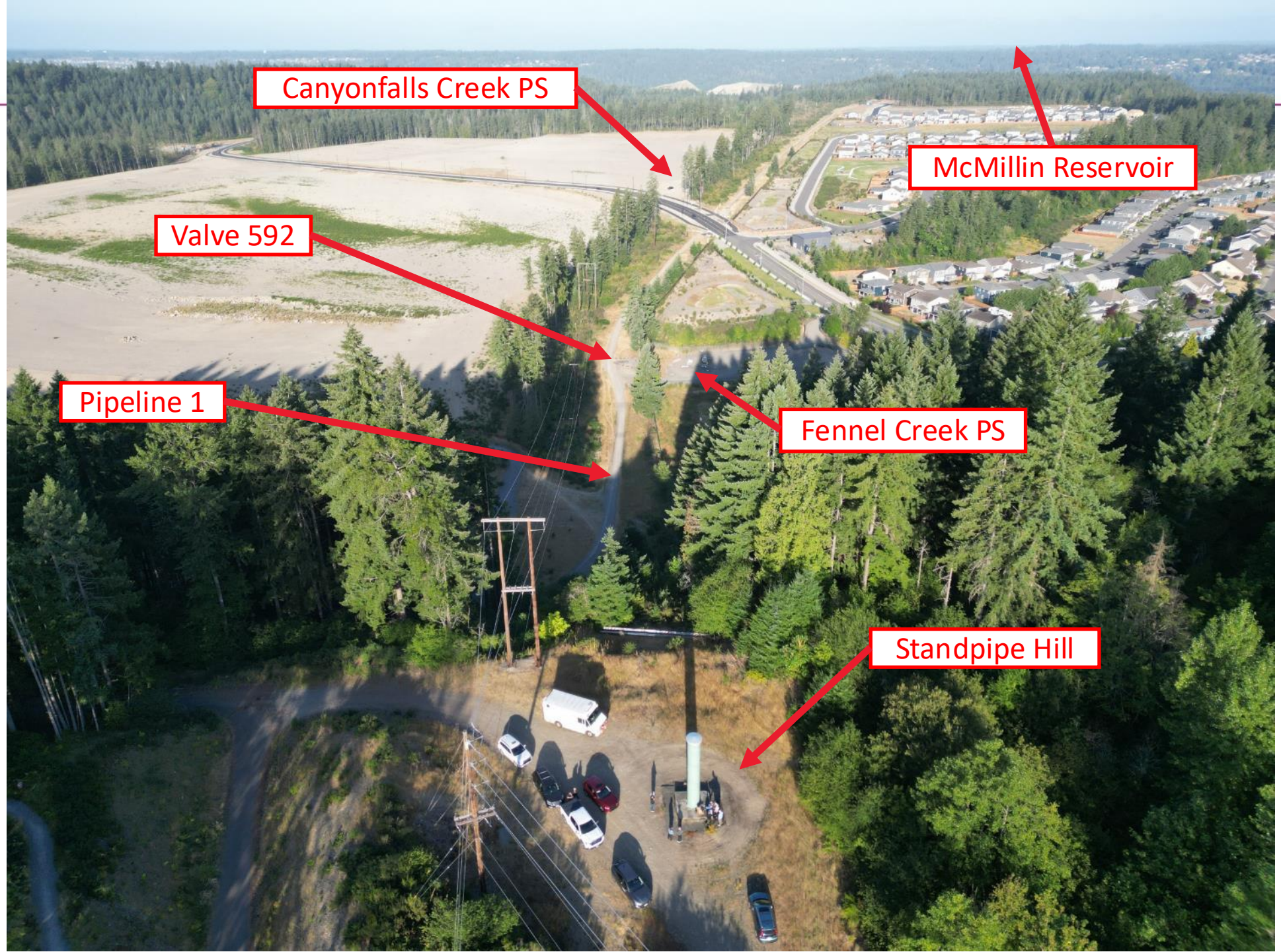
No.	Captial Improvements
1	Construct Cumberland Valve and Perform Forensic Study / Condition Assessment on Existing Hume Pipe
2	Construct 214th Valve
3	Construct Canyonfalls Creek PS
4	Standpipe Remote Site with Probability of Need for Modifications under CCPS Project

- Very Likely
- Possible
- Not Likely
- No Modifications

Schedule of P1 Standpipes and Associated Improvements

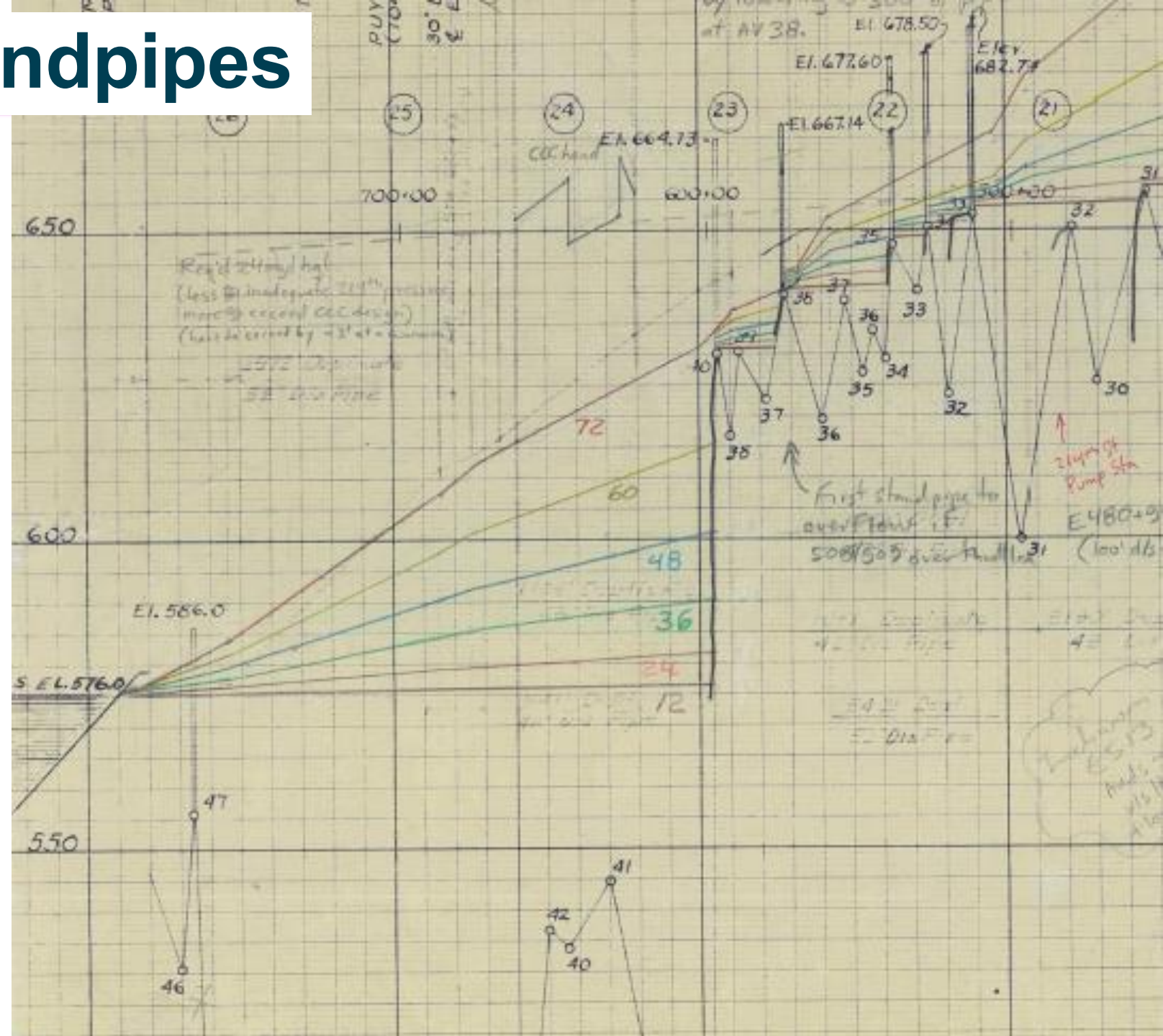
Facility ID	P1 Station	Outlet to Standpipe Diameter (in)	P1 Material at Outlet	Approx. Standpipe Height* (ft.)	Tacoma As-built Ref. Drawing
NS-0027	H147+45.50	52	Steel	20	9-26-2
NS-0026	H191+75.00	30	Concrete	20	529-8
NS-0025	H244+03.40	4	Concrete	10	10-99
NS-0024	H303+51.50	30	Concrete	20	1748-8
NS-0029	E512+22.82	8	Steel	20	10-99
NS-0028	E526+48.00	8	Steel	20	10-99
NS-0031	E538+60.50	8	Steel	25	10-99
NS-0030	E574+38.66	4	Concrete	15	10-99
NS-0035	E596+32.00	36	Steel	25	2-46-3
NS-0033	E767+41.59	30	Steel	15	N/A

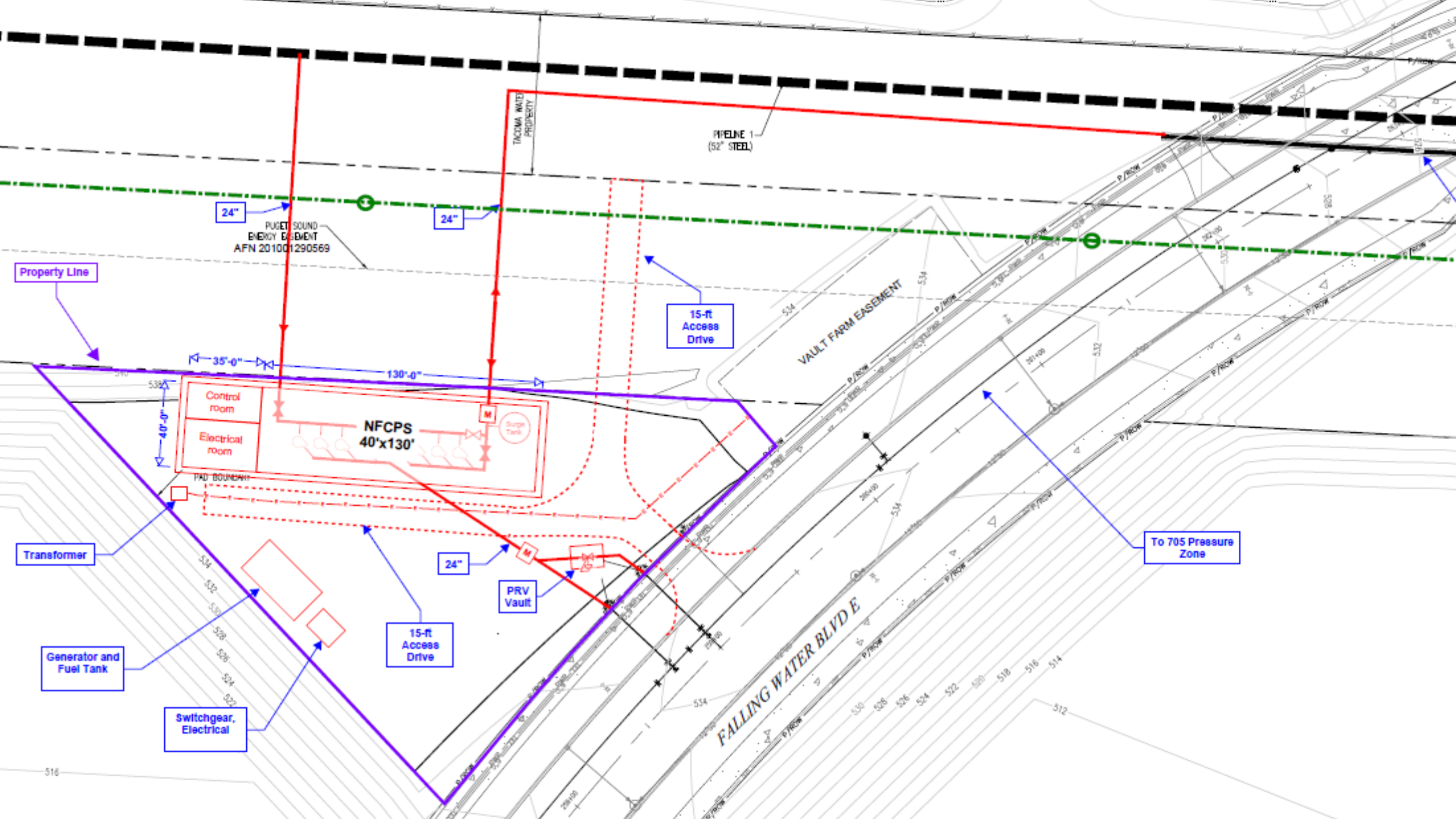
*above ground surface


Canyonfalls Creek PS
McMillin Reservoir
Valve 592
Pipeline 1
Fennel Creek PS
Standpipe Hill

Pipeline 1 Standpipes

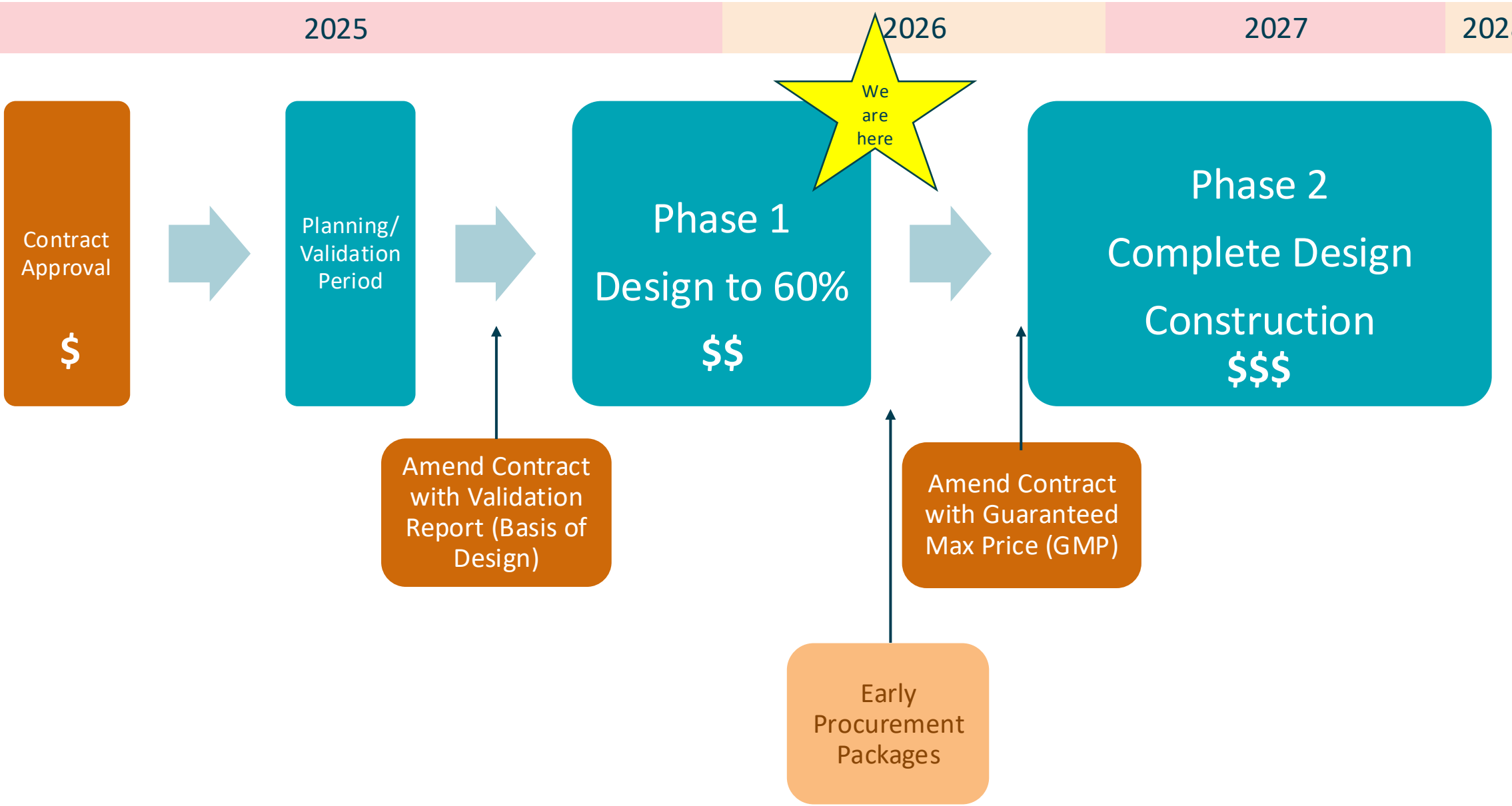





TACOMA WATER PROPERTY
PIPELINE 1
(52" STEEL)
24"
24"
PUGET SOUND
ENERGY EASEMENT
AFN 201001290569
Property Line
15-ft
Access
Drive
VAULT FARM EASEMENT
35'-0"
130'-0"
40'-0"
Control
room
Electrical
room
NFCPS
40'x130'
Surge
Tank
PAD BOUNDARY
Transformer
24"
PRV
Vault
15-ft
Access
Drive
To 705 Pressure
Zone
Generator and
Fuel Tank
Switchgear,
Electrical
FALLING WATER BLVD E

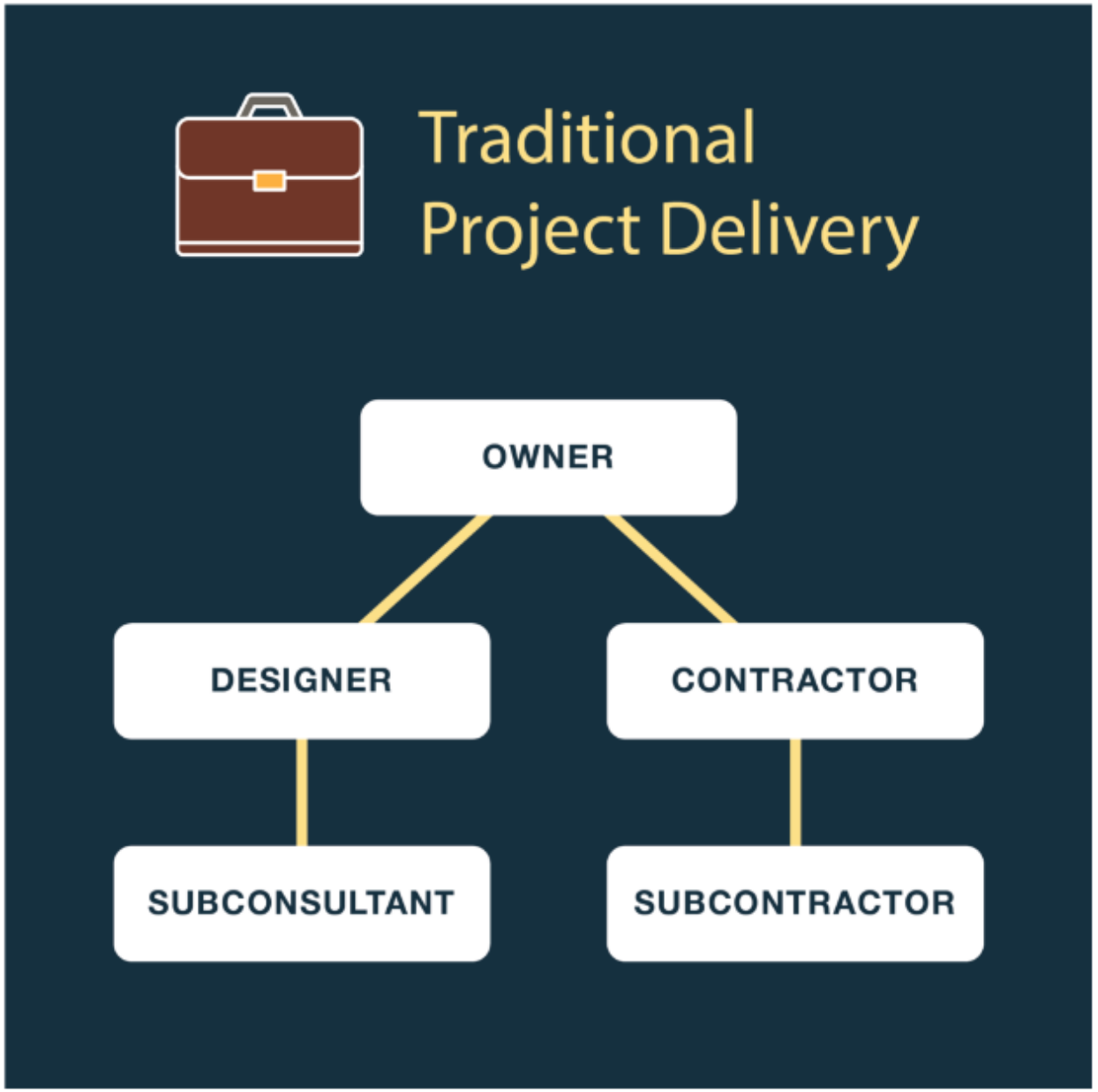
Progressive Design-Build Phases

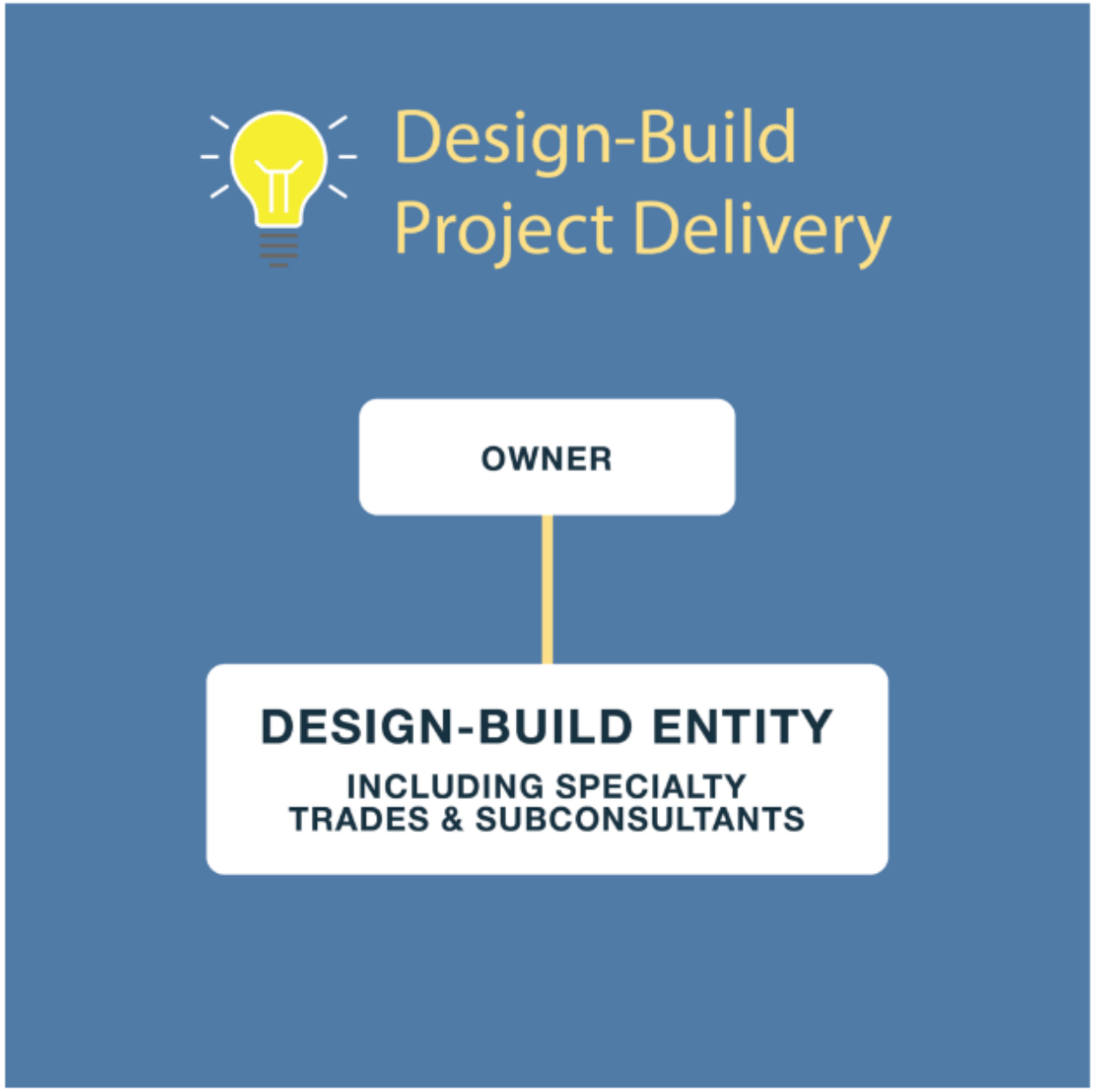
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Progressive Design-Build

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Progressive Design Build

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Design-Build Team Selection

- Owner's Advisor
  - Brown and Caldwell
- External Legal Council
  - Robynne Thaxton, Thaxton Parkinson
- Design-Build RFQ – 5 Respondents
- Design-Build RFP – Issued to 3 Finalists
- Final Selection
  - Tapani, Inc. (Contractor)
  - Windsor Engineers (Designer)
    - Consor Engineers (Subconsultant)

TAPANI INC.

WINDSOR ENGINEERS

consor

Brown AND Caldwell

Why use PDB?

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- Select contractor based primarily on qualifications
- Single contract for the owner
  - Reduced risk of change order claims from errors / omissions
- Early contractor input to mitigate technical, schedule, and cost risks
  - Often used for complex, risky, or specialized projects, where means and methods of construction may be critical
- Encourages collaboration and innovation between owner, engineer, and contractor
  - Educated / informed decisions made collaboratively based on cost effectiveness, durability, and availability
- Opportunity for early procurement / construction packages to shorten schedule
- Guaranteed Maximum Price (GMP) provides earlier cost certainty

Why use PDB for CCPS?

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- Complex pump station operation (5+ modes)
- Early field investigation for constructability of connections
  - P1 originally built in 1913, and then later modified
  - Centrifugally Cast Reinforced Concrete (CCRC / Hume) and steel pipe
  - New large inline valves
  - Standpipe replacement with air valves
- Contractor input for novel approaches to construction sequencing, testing, etc.
- Plan for and minimize outages of live transmission main



Considerations for PDB Delivery

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- **Governing regulations:**
  - Washington: RCW 39.10
  - Idaho: Idaho Code 67-5711a and 67-2309
  - Oregon: Design-Build: ORS 279B.060, OAR 137-049-0670
- **Approvals:**
  - Washington: Project Review Committee (PRC) approval required to use
  - All: Internal agency or governance board authorizations may be required



Tacoma Water
New Fennel Creek Pump Station

State of Washington
Capital Projects Advisory Review Board (CPARB)
Project Review Committee (PRC)

Application for Approval to Utilize
Progressive Design-Build Project Delivery

Submitted by
Tacoma Water
February 20, 2024

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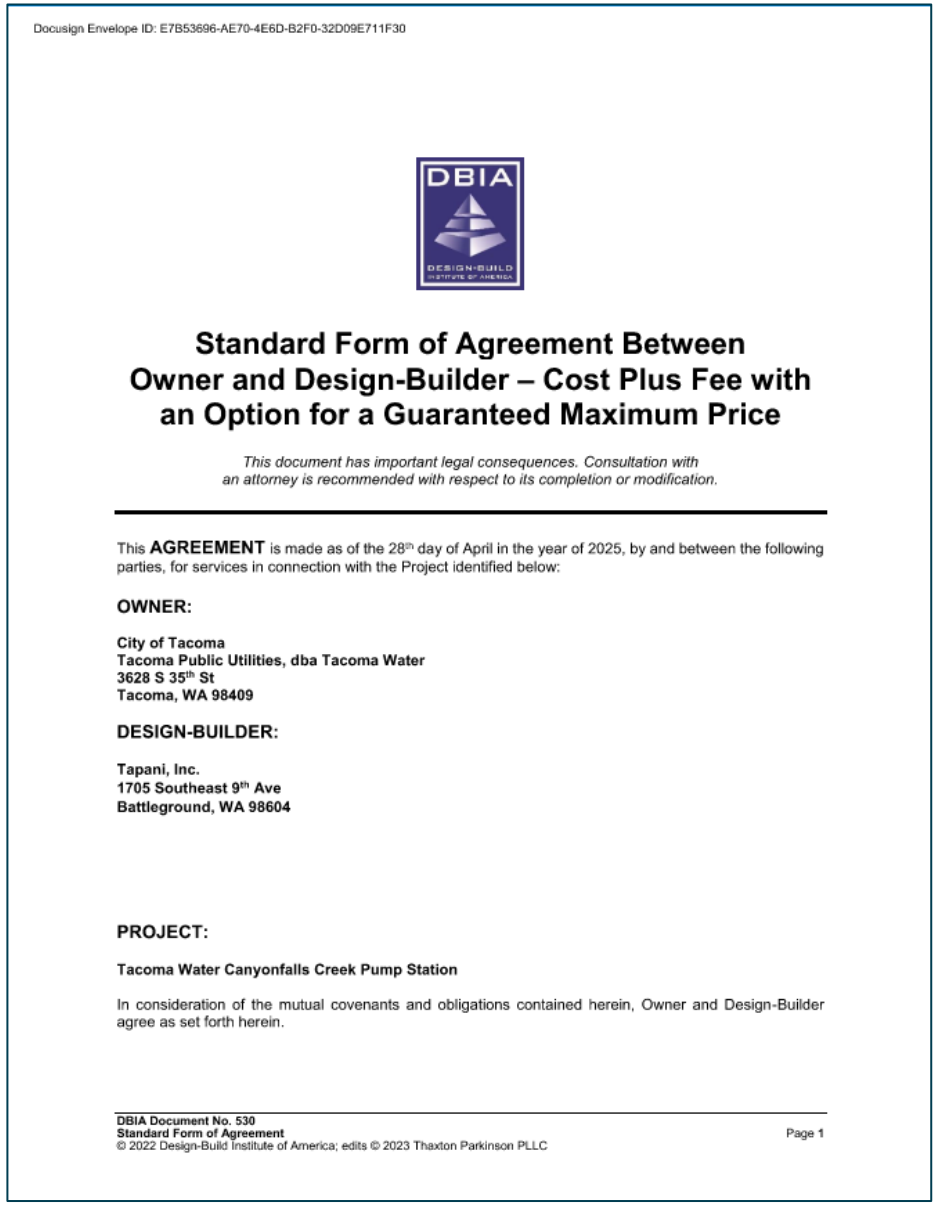
Revised 7/27/2023

Page 1 of 20

Considerations for PDB Delivery

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- **PDB contract**
  - The “north star” for procurement and project delivery processes and requirements
  - Industry templates available, but can be time and labor intensive to develop a first owner-specific contract
  - Contractors are sensitive to legal and commercial terms



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DBIA
DESIGN-BUILD INSTITUTE OF AMERICA

Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the 28th day of April in the year of 2025, by and between the following parties, for services in connection with the Project identified below:

OWNER:

City of Tacoma
Tacoma Public Utilities, dba Tacoma Water
3628 S 35th St
Tacoma, WA 98409

DESIGN-BUILDER:

Tapani, Inc.
1705 Southeast 9th Ave
Battleground, WA 98604

PROJECT:

Tacoma Water Canyonfalls Creek Pump Station

In consideration of the mutual covenants and obligations contained herein, Owner and Design-Builder agree as set forth herein.

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Considerations for PDB Delivery

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PDB Procurement Phase

Select delivery method → State (PRC) application and approval → Two-step procurement process (RFQ/RFP) → Select, negotiate, contract with PDB

Preconstruction/Design Phase

Design to 60% → GMP negotiation, execution → Final design to 100%

Construction Phase

Possible Early Works / Site Prep → Construction → Acceptance Test and Substantial Completion

Insights / Lessons Learned

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- **Project Specific**
  - Line between P1 program engineers and CCPS project engineers
  - State loan
  - Staffing changes
- **Owner Specific**
  - Public Utility Board coordination
  - Land acquisition

	Approx. Amount with Tax
Original Contract	$ 2 M
Amendment 1	$ 6 M
Estimated Future Amendment 2	$ 14 M
Other Contracts and Internal	$ 3 M
Total	$ 25 M

Insights / Lessons Learned (cont'd)

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- **Scope adjustments during validation**
  - More flow, wholesale connection
  - More standpipes
  - Moved isolation valves
  - Undocumented fill
  - Transient and fluming pipeline analyses
- **General PDB**
  - Know and use your contract (submittals, etc.)
  - Training: DBIA certification
  - Detailed pricing (alternative and overall)
  - Partnering document

Partnering Agreement

1. Lead with respect and humility, leaving egos at the door
2. Follow through
3. Communicate early, clearly, and directly
4. Focus on finding solutions
5. Invite input and ask questions
6. Support each other's strengths
7. Prioritize the project's big picture
8. Celebrate progress
9. Create a model PDB project
10. Build strong partnerships

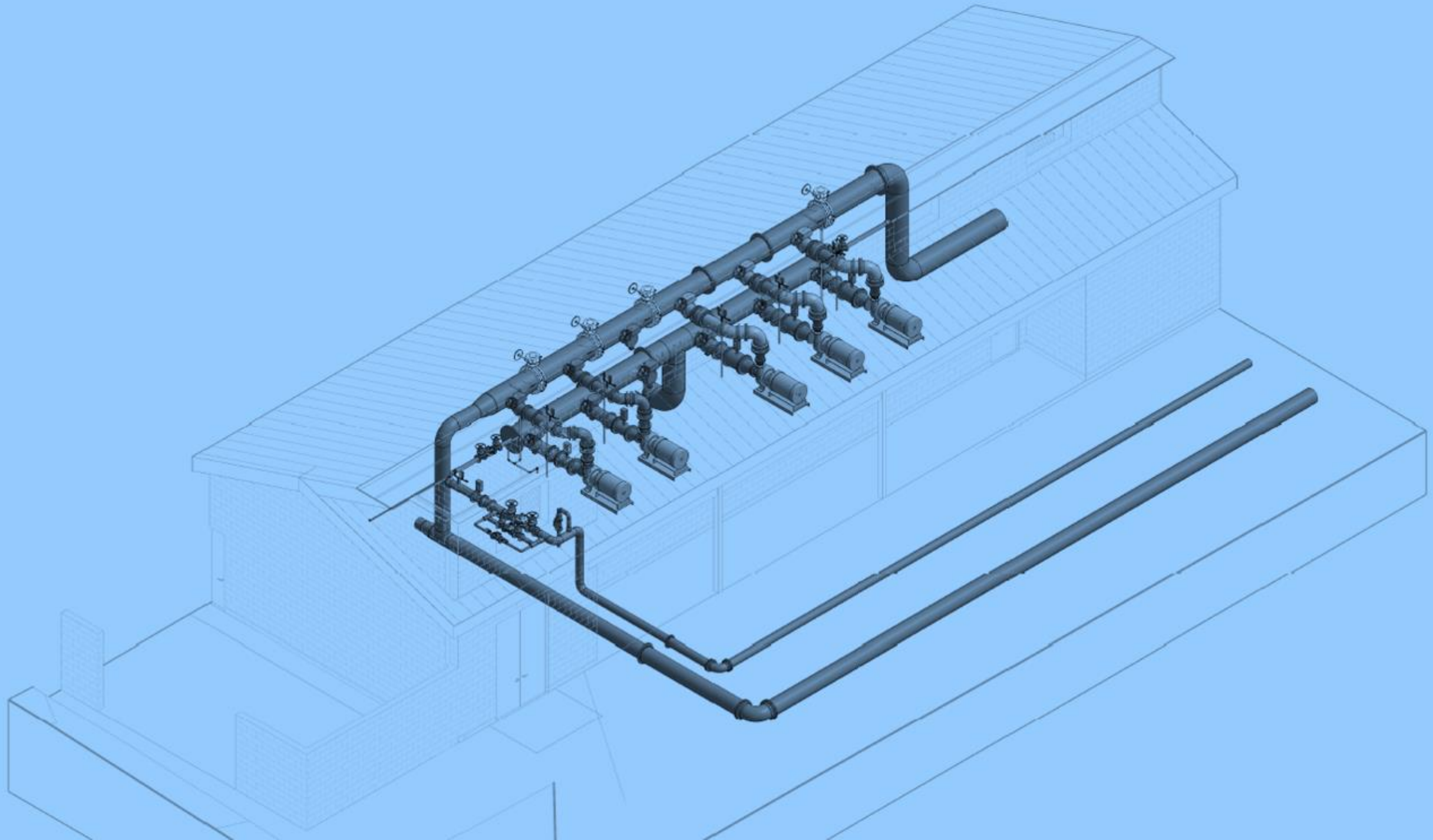



Questions

Canyonfalls Creek Pump Station

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Task	*Budget*	*Percent*
Pump Station Construction	$ 7.7 M	31%
Offsite Piping Construction for Pump Station	$ 1.0 M	4%
P1 Valves, Standpipes, and Pipeline Construction	$ 3.3 M	13%
Design and Permits	$ 4.2 M	17%
Construction and P1 Engineering	$ 1.8 M	7%
Internal Labor	$ 2.1 M	8%
Contingency	$ 3.1 M	12%
Tax	$ 1.8 M	7%
Projected Project Total	**$25.0 M**	



Considerations for PDB Delivery

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- **Key differences from Design-Bid-Build**
  - Single integrated design/construction team
  - Design-Builder selection based on qualifications and pricing factors
  - Construction price (Guaranteed Maximum Price [GMP]) negotiated at ~60% design

