

The Water Infrastructure and Supply Efficiency Design-Build Project

WISE D-B



Background

- Lump Sum Design-Build procurement
 - Two-Step procurement process
 - Proposal consisted of a Base Design and Alternate Design
 - Lump Sum Solutions for both

What is WISE?

- Innovative regional partnership
- One of the first of its kind in the country
- Several agencies will be **sharing water**
 - Connected systems to provide added options and redundancy during water emergencies
 - Reducing legal fees and water rights disputes between parties

Stakeholders

- Owner – South Metro WISE Authority
 - Ten water provider members:



Centennial Water & Sanitation District	Parker Water & Sanitation District
Rangeview Metropolitan District	Cottonwood Water & Sanitation District
Dominion Water & Sanitation District	Inverness Water & Sanitation District
Meridian Metropolitan District	Pinery Water & Wastewater District
Stonegate Village Metropolitan District	The Town of Castle Rock

- Other Stakeholders – ECCV, Willows Water District, City of Aurora, Denver Water, E-470, South Metro Fire District, Douglas County

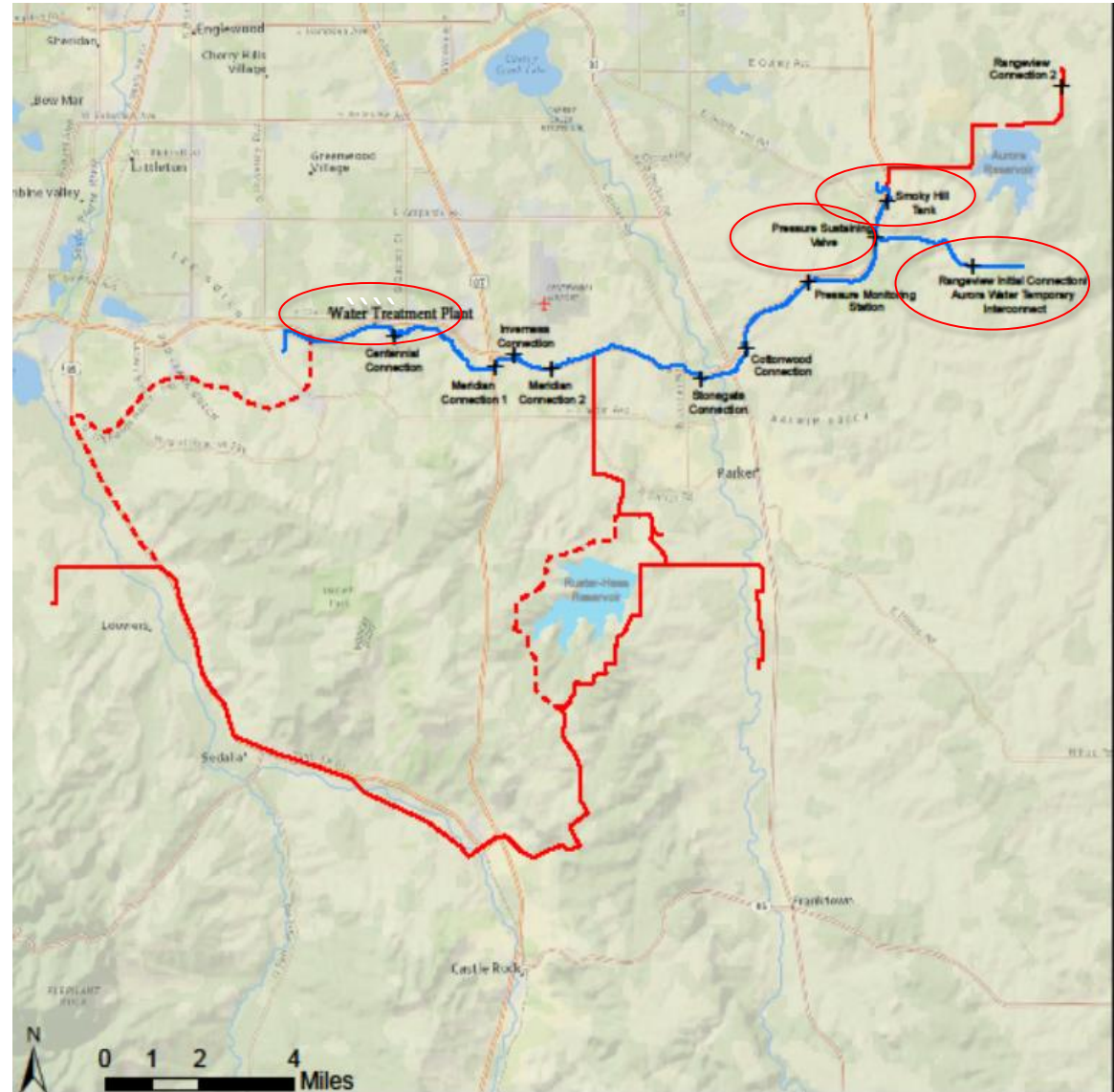
Team Members

- Design-Builder
 - Western Summit Constructors, Inc. - Builder
 - Tetra Tech, Inc. - Designer
- Key Subcontractors
 - DN Tanks – Industry expert in post-tension AWWA D-110 tanks
 - McDade Woodcock, Inc. – Industry leader in W/WW electrical systems and controls integration; Long history of working with Western Summit

Denver/Aurora Water System



Components of WISE Project



Design and Construction of WTP

- A new 4 MGD (expandable to 8 MGD) Water Treatment and Disinfection Facility at the Quebec Pump Station
 - Chloramine Disinfection - conversion from free chlorine to chloramination
 - Removal of Iron and Manganese



Design and Construction of WTP

- A new Water Treatment and Disinfection Facility
 - Split-case vertical centrifugal pumps
 - Two - 2MGD pressure filter vessels



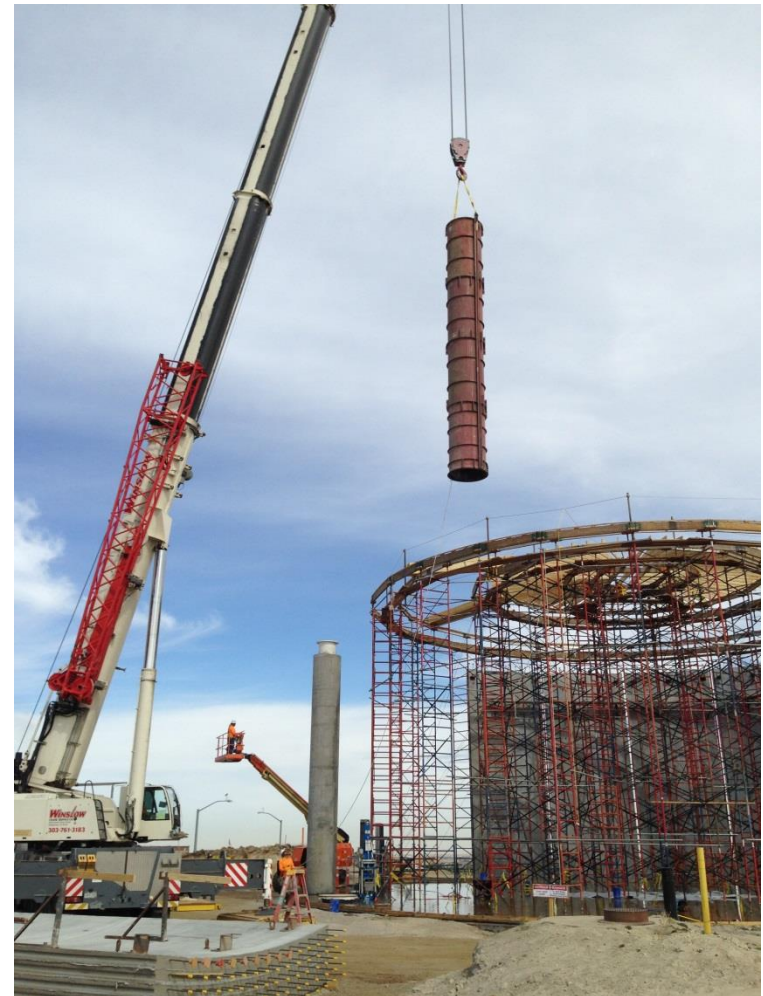
Benefits of D-B for WTP

- In the field faster due to design packaging
- Permitting process was accelerated
- Ability to shape means and methods to match requirements of design
 - Routing pipe
 - Equipment location
 - Coordination of existing pump station operations without interruption



Smoky Hill Tank

- A new 2 MG Water Storage Tank
- 100-Foot diameter, 40-Foot tall
- Built on E-470 ROW
- 13 Feet of imported structural fill
- Overflow



Benefits of D-B for Smoky Hill Tank

- Onsite precast concrete panels
- Condensed 2 mobilizations into one – completed in one season only

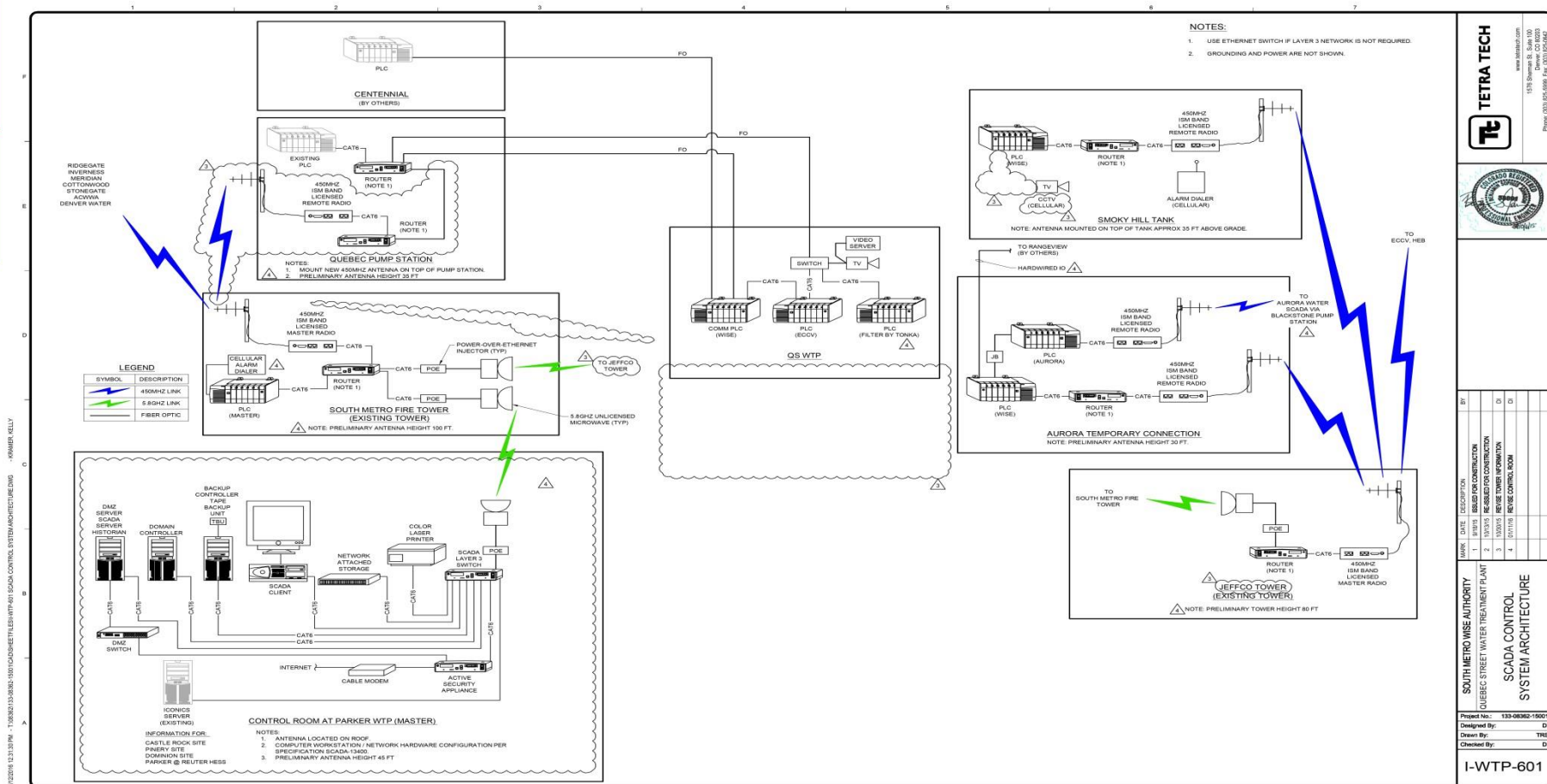


Other Project Components

- Integrated SCADA system - Control Center for SCADA system to remotely control and operate all WISE system facilities

00-Dashboard

G-WTP-001



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SCADA CONTROL SYSTEM ARCHITECTURE

MARK	DATE	DESCRIPTION
1	10/15/10	ISSUED FOR CONSTRUCTION
2	11/03/10	REVISION: REVISION FOR CONSTRUCTION
3	11/03/10	REVISION: REVISION FOR CONSTRUCTION
4	11/03/10	REVISION: REVISION FOR CONSTRUCTION

Project No.: 133-08362-15001
Designed By: TMS
Drawn By: TMS
Checked By: DT

I-WTP-601

Other Project Components

- Aurora Water connection to state Land Board line
- PRV vault –
Hydraulic analysis to confirm pressure settings



Design-Build Challenges

- Value Engineering after win and before project start
- A responsibility to satisfy each of the 10 water districts within the WISE Authority and all stakeholders
 - Truly understand each stakeholder's individual expectations and requirements appropriately



Design-Build Challenges

- Permitting Agencies
 - Broad geography of job crosses multiple permitting agency boundaries
 - Each permit agency has different requirements and timelines
 - Know their requirements and incorporate into design to maintain schedule

US Fish & Wildlife Service	Colorado Parks & Wildlife
State of Colorado - CDPHE	Douglas County
Arapahoe County	E-470
City of Parker	City of Aurora
PA 73 South Association	Highlands Ranch Community Association
Native American monitoring – Northern Cheyenne and Arapahoe Tribe	

Design-Build Challenges

- Schedule:
 - Very aggressive
 - Independent schedules of permitting agencies
 - Owner's first-time experience with Design-Build



Design-Build Challenges

- Design Challenges
 - Available space
 - Multiple entities – owner, operator, controls, water providers
 - Design phasing and permitting
- First time Design-Builder worked with Owner
- First time D-B procurement was part of several agencies

Design-Build Triumphs

- Schedule – On Schedule
 - Minimized shutdowns from 30 days to only 5 days
 - Separate design packages to meet permit agency requirements
 - Accelerate design for weather conditions
 - All stakeholders bought-in to schedule from day one
- Permitting agency coordination – our determination to be pro-active on permits resulted in being on schedule



Design-Build Triumphs

- Collaboration with all stakeholders -
 - Daily coordination with Owner
 - Communication with stakeholders
- Commitment and participation of Owner
- Early involvement of key subcontractors –
 - Chose premium subcontractors
 - The best of the best are involved on this project



Value of Design-Build

- Owner – advanced their project/deliverable earlier
 - ✓ Allowed owner collaboration throughout design and construction.
 - ✓ Owner involvement has been key to success – D-B DOES have owner involvement and advantages
 - ✓ Early price certainty
- Designer - incorporated most efficient construction methods into design the FIRST time
 - limited RFIs, limited submittals
- Builder – ability to shape the design for the most efficient construction operations
- Major Subcontractors – Shaped design to make efficient means & methods in construction phase



Thank you!

Questions?

Contacts

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