


COTTONWOODS CONNECTION –



Presentation & Initial Discussion

WORK SESSION
OCTOBER 17, 2022



The intent of this presentation is to provide technical information regarding the Cottonwoods Connection project so informed discussions with the public may determine the appropriate manner for construction.

Outline of Presentation:

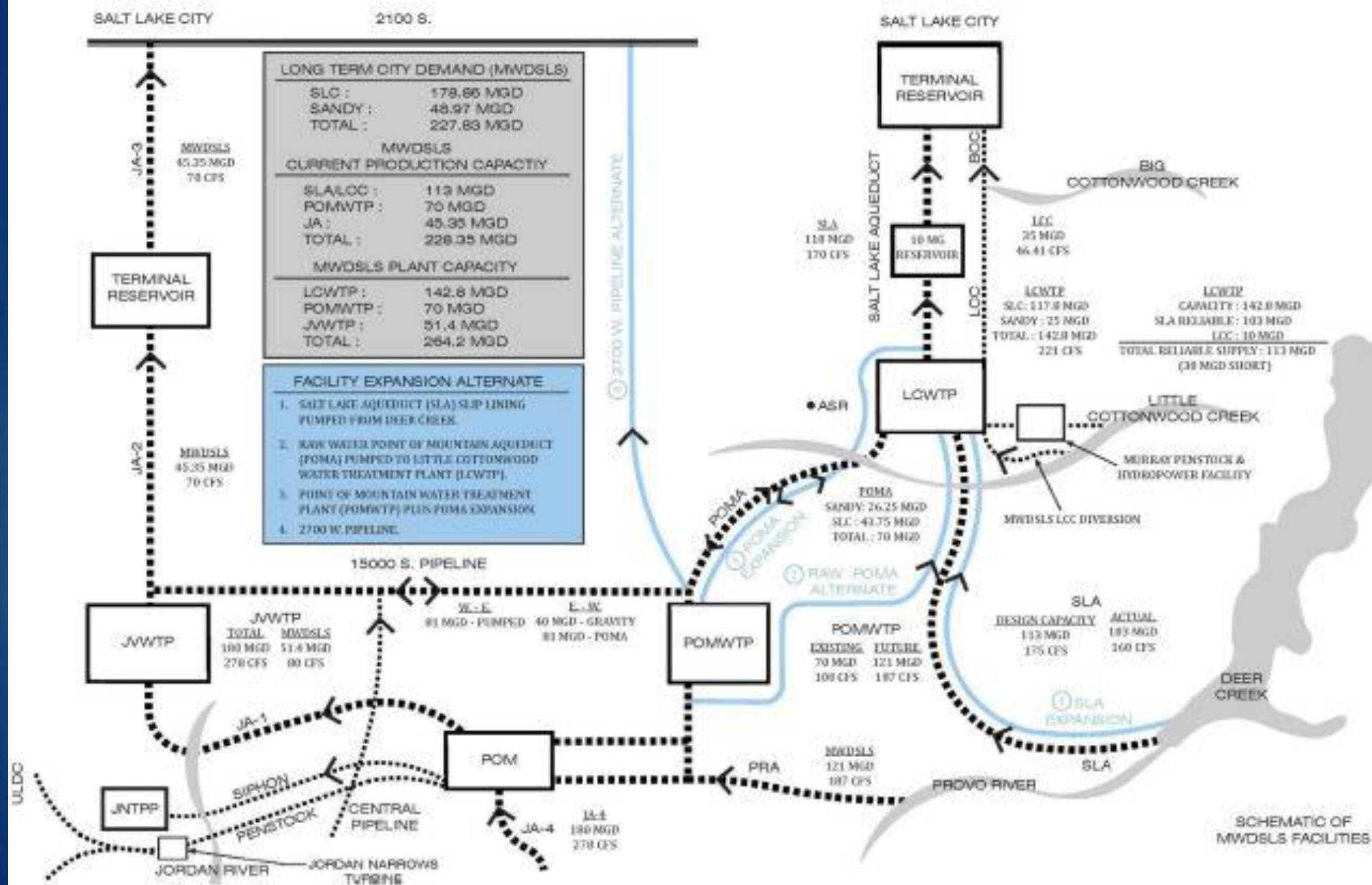
- MWDSLS Background
- Why the project?
- What is the Project?
- How the project is to function?:
 - Initial Phase
 - Intermediate Phases
 - Ultimate
- Policy discussion Re: Surface restoration
 - Public impact – approach, managing expectations

MWDSLS Background

MWDSLS:

- Established in 1935
- Wholesale water to Member Cities – Salt Lake City, Sandy City
- Our Board consists of seven trustees:
 - 5 – SLC, 2 – Sandy (appointed by respective City Council)
- Local sponsor of the Provo River Project (PRP) – Aqueduct Division

SALT LAKE AQUEDUCT



Why the Project?

Existing Facilities

Capacities:

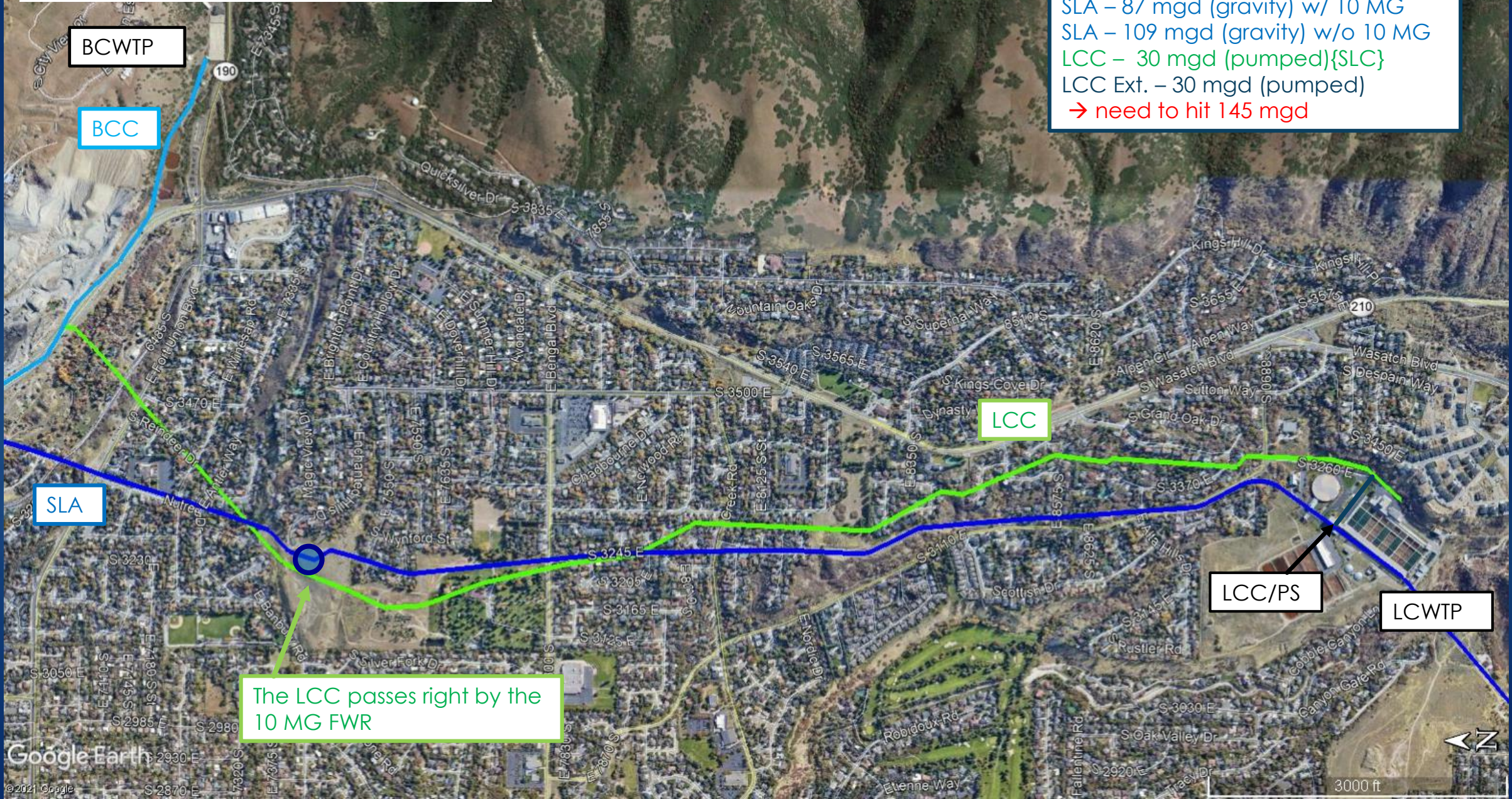
SLA – 87 mgd (gravity) w/ 10 MG

SLA – 109 mgd (gravity) w/o 10 MG

LCC – 30 mgd (pumped){SLC}

LCC Ext. – 30 mgd (pumped)

→ need to hit 145 mgd



SALT LAKE AQUEDUCT CAPACITY -

- ▶ The SLA was originally designed to convey 150 cubic feet per second (cfs), or approximately 97 million gallons per day (mgd); (*SLA Designers' Operating Criteria, 1951*)
- ▶ Flow tests in 1966 indicated that the raw water portion of the SLA could safely carry 174 cfs (112 mgd).
 - ▶ *This is the stated or 'understood' capacity of the SLA or 175 cfs (113 mgd)*

RAW WATER:

- ▶ Current conditions have reduced RW capacity to 160 cfs (103.4 mgd) down to 140 cfs (90 mgd) in the summer – (*2020 Master Plan Update*)

SALT LAKE AQUEDUCT CAPACITY –

FINISHED WATER

- ▶ The ‘*understood*’ capacity of the FW SLA is 170 cfs (110 mgd).
- ▶ Actual capacity found to be between 135 cfs (87 mgd) with 10 MG Reservoir online or 169 cfs (109 mgd) using the 10 MG Reservoir bypass. (*SLA Hazard Assessment Project – Phase 2 & 3, 2022, pg. 3-10*)
 - ▶ *10 MG Reservoir placed into service 1994*
- ▶ MWDSLS obligated to convey 224 cfs (145 mgd) from LCWTP to Terminal Reservoir via –
 - ▶ SLA/FW 170 cfs (110 mgd) - MWDSLS Facility
 - ▶ LCC 54 cfs (35 mgd) - SLCDPU Facility

RESTORE ‘*UNDERSTOOD*’ CAPACITY:

- What’s driving the objective of restoring the “understood” capacity of conveyance?

Total Peak Deliveries from LCWTP*

Description	Max. Scenario	Limited Scenario
LCWTP FW	142.8 mgd (221 cfs)	94 mgd (146 cfs)
POMWTP FW	43.75 mgd(67.7 cfs)	43.74 mgd (67.7 cfs)
Subtotal available	187 mgd(290 cfs)	138 mgd (214 cfs)
To Sandy City (from LCWTP)	25 mgd (39 cfs)	25 mgd (39 cfs)
To Westside	0.5 mg (0.8 cfs)	0.5 mgd (0.8 cfs)
To SLC via SLA	110 mgd (170 cfs)	110 mgd (170 cfs)
To SLC via LCC	35 mgd (54 cfs)	30 mgd (46 cfs)
TOTAL DELIVERIES	170.5 mgd (264 cfs)	165.5 mgd (257 cfs)
SLA Capacity (+/-)	16.5 mgd (26 cfs) Excess	27.5 mgd(43 cfs) shortage

* From Master Plan of System Improvements, 2020 Update, Table 5-1

RESTORE '*UNDERSTOOD*' CAPACITY:

TOP OPTIONS:

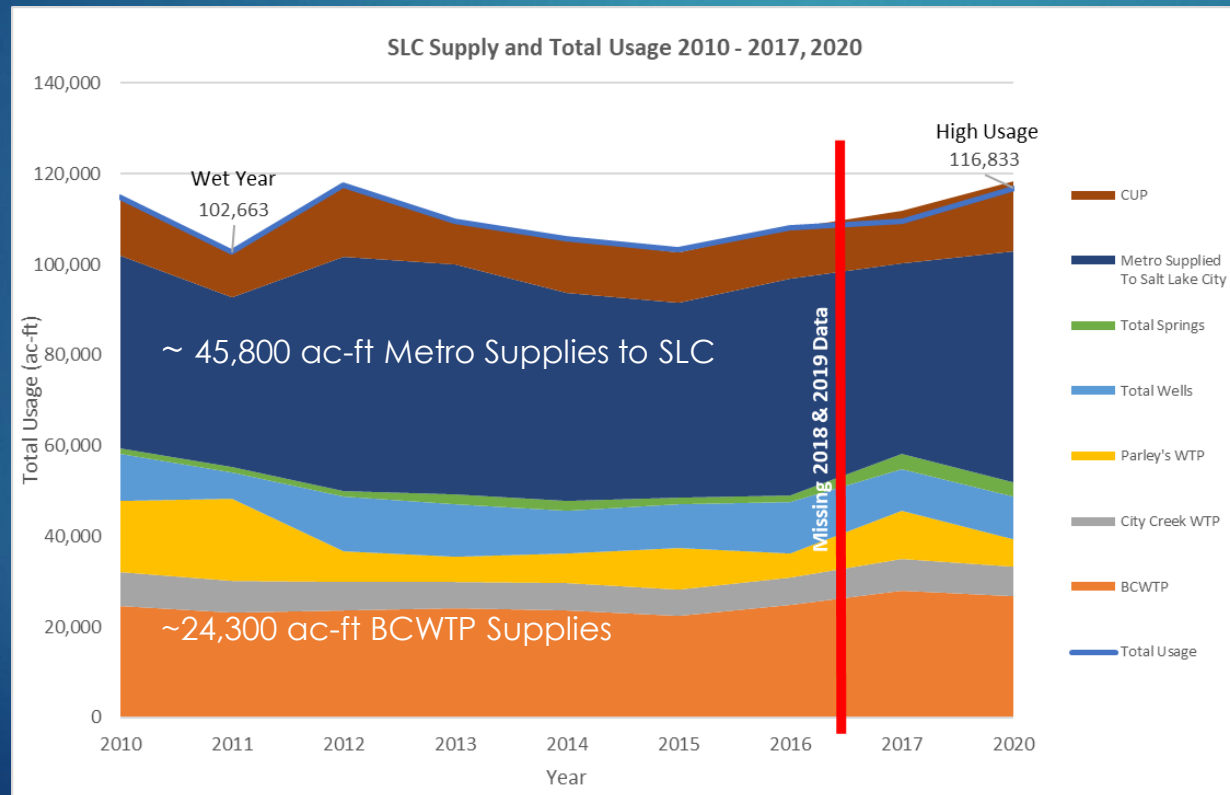
1. Slipline existing SLA; and 24/7 pumping = 175 cfs
2. Slipline existing SLA = 95 cfs gravity flow; Add parallel pipeline (54" – 45" diameter) = 80 cfs gravity flow. (95 cfs + 80 cfs = 175 cfs)

RECOMMENDATION:

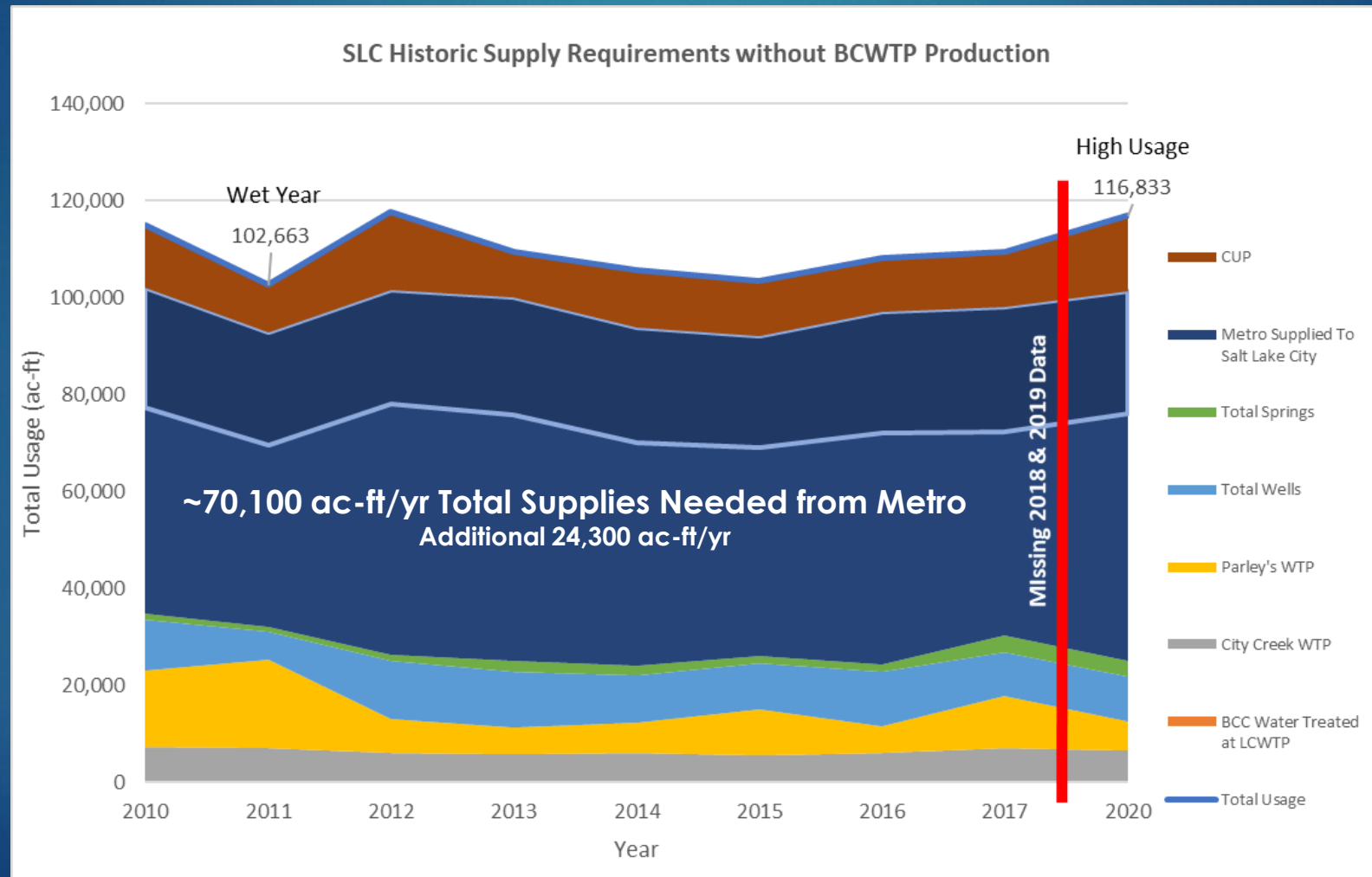
- Option 2 recommended to restore existing ('understood') capacity:
 - Re-establishes capacity
 - Provides redundancy
 - Improves resiliency

Salt Lake City Public Utilities –

- Required to replace the BCWTP
- Three year timeframe to rebuild
- What to do with the BCC Annual Supplies of 24,300 ac-ft?



SLC Total Usage without BCWTP Production



Supply Use for Water Year 2022
Volume in Acre Feet
Last update: March 21st, 2022

Estimated Holdover on 10/31

59,651

Month	Total Supply Used	Little Cottonwood Creek (SLC)	Little Cottonwood Creek (Sandy)	Bell Canyon	Ontario Drain Tunnel (SLC)	Ontario Drain Tunnel (Sandy)	Provo River Project	Central Utah Project	Central Utah Project - Utah Lake System	Utah Lake Distributing Company
November	2,735	777	388	118	43	184	1,225	-	-	-
December	3,016	531	359	25	15	137	1,950	-	-	-
January	3,130	467	349	-	27	177	2,111	-	-	-
February	2,820	401	304	-	32	189	940	954	-	-
March	-	-	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-
Totals	11,702	2,176	1,400	143	117	687	6,226	954	-	-

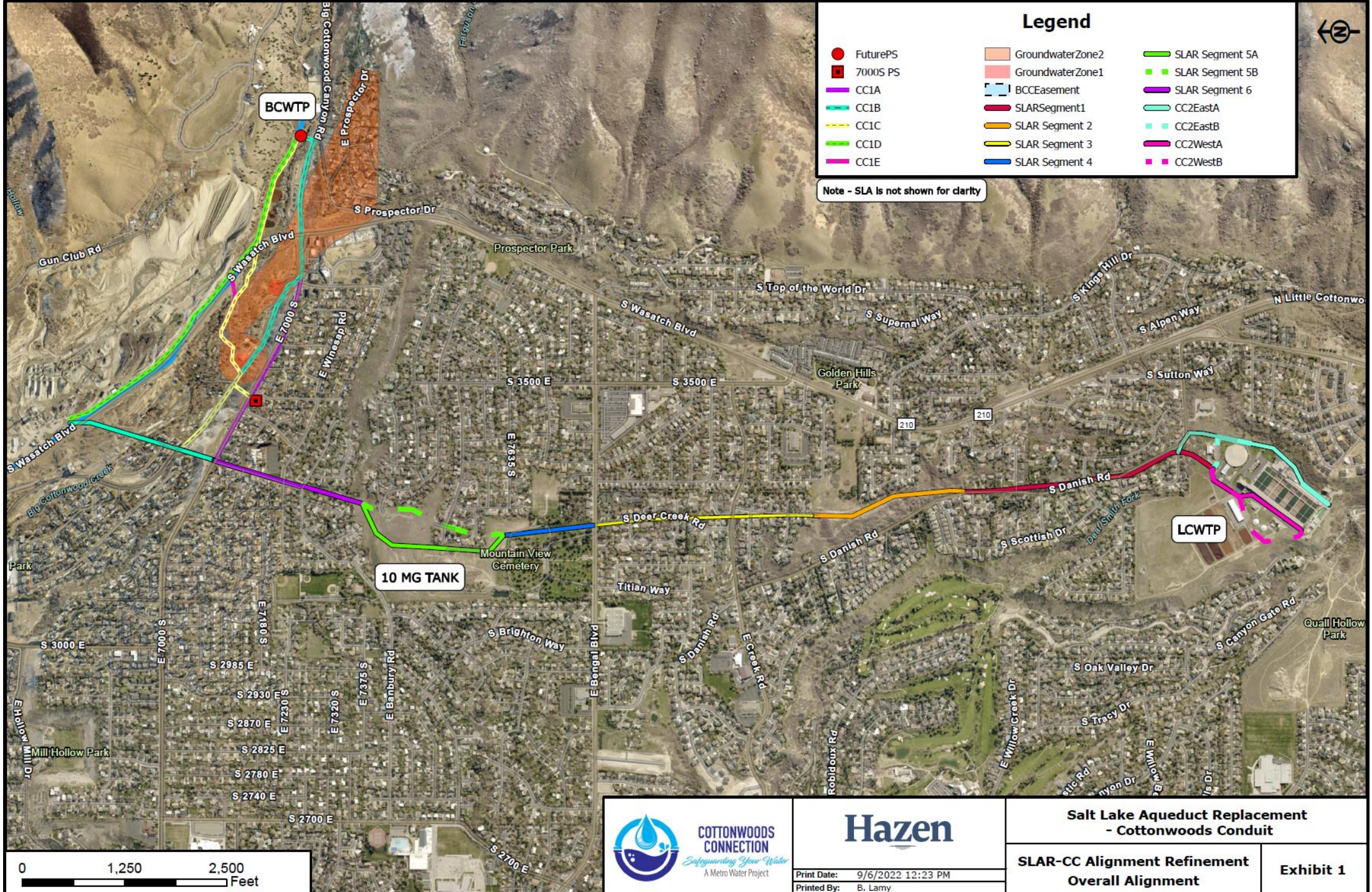
COMMONALITIES:

- Preserving DC supplies necessitates constructing a pipeline to transport BCC waters to LCWTP for treatment and use by member cities. (Needed by 2025)
- Re-establishing capacities in the SLA north of LCWTP as well as providing resiliency necessitates a parallel pipeline to the SLA. (Recommended before 2030, planned in CIP for 2035 if prioritized before LCWTP PIP)
- Difference? Timing of work & required pipeline diameter

What is the Project?

Regional Improvements





Legend

● FuturePS	GroundwaterZone2	SLAR Segment 5A
■ 7000S PS	GroundwaterZone1	SLAR Segment 5B
— CC1A	BCCEasement	SLAR Segment 6
— CC1B	SLARSegment1	CC2EastA
— CC1C	SLAR Segment 2	CC2EastB
— CC1D	SLAR Segment 3	CC2WestA
— CC1E	SLAR Segment 4	CC2WestB


Note - SLA is not shown for clarity



COTTONWOODS CONNECTION

Safeguarding Your Water

A Metro Water Project



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Salt Lake Aqueduct Replacement

- Cottonwoods Conduit

SLAR-CC Alignment Refinement

Overall Alignment

Exhibit 1

Alignment Notes:

-The alignment routing inside the LCWTP is being refined in conjunction with the hydraulic analysis. The recommended alignment will be presented once the hydraulics are complete.

East Side Alignment (CC2 East A and B)

Benefits:

-Avoid existing pipe conflicts that are on the west side of the plant

Disadvantages/Conflicts:

-Chemical delivery impacts

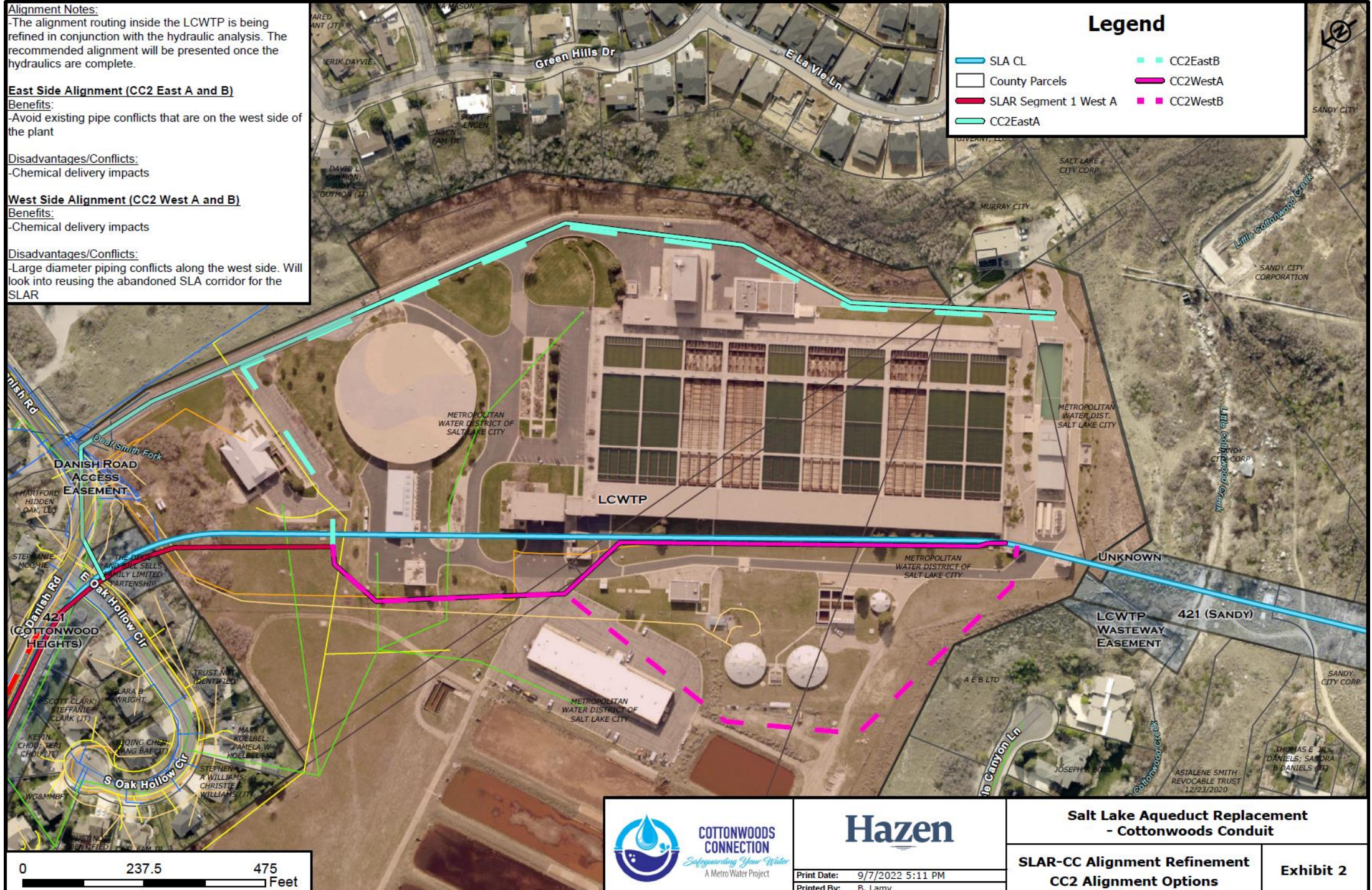
West Side Alignment (CC2 West A and B)

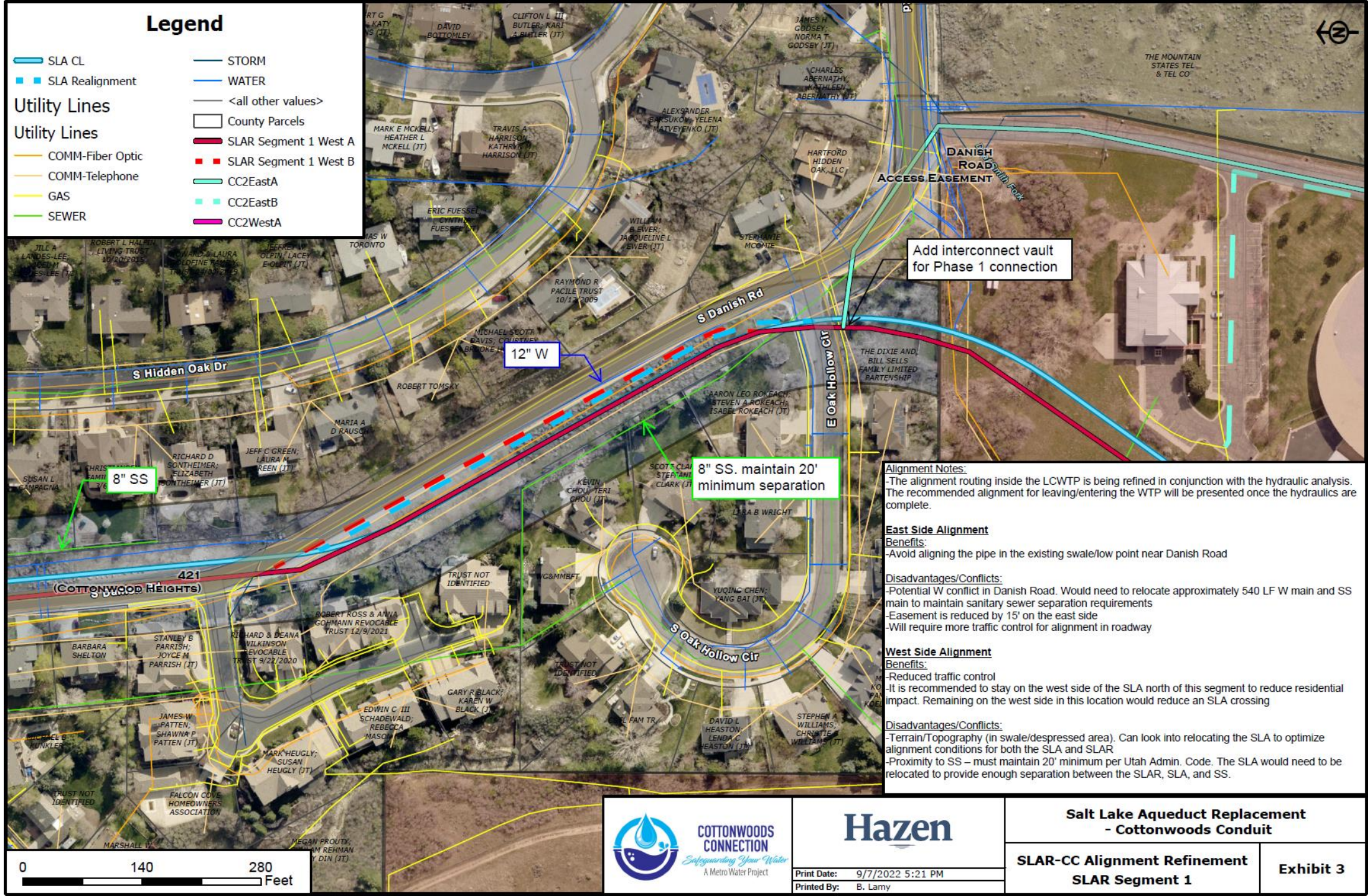
Benefits:

-Chemical delivery impacts

Disadvantages/Conflicts:

-Large diameter piping conflicts along the west side. Will look into reusing the abandoned SLA corridor for the SLAR





Alignment Notes:

The preferred alignment is shown as Segment 1A. This alignment will reduce the residential impact, maximize separation from the SLA for protection of the existing SLA, and still be within the existing easement. The east side alignment for this segment is not shown for clarity.

East Side Alignment (not Shown)

Benefits:

-Avoid the need for traffic control along Danish Road

Disadvantages/Conflicts:

-Increased residential impact. Alignment would be in closer proximity to the homes and structures
-Easement is reduced by 15' on the east side; reduces available easement
-SS conflict on the east side

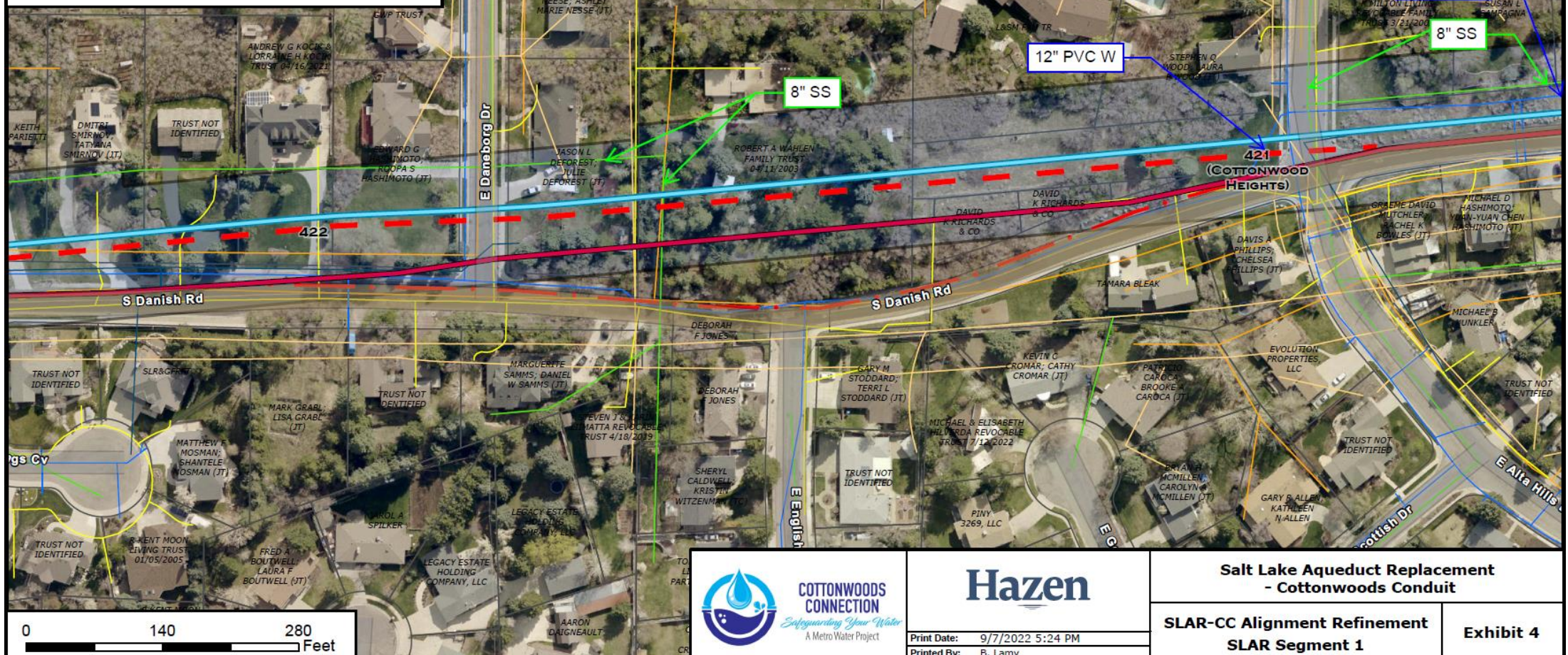
West Side Alignment

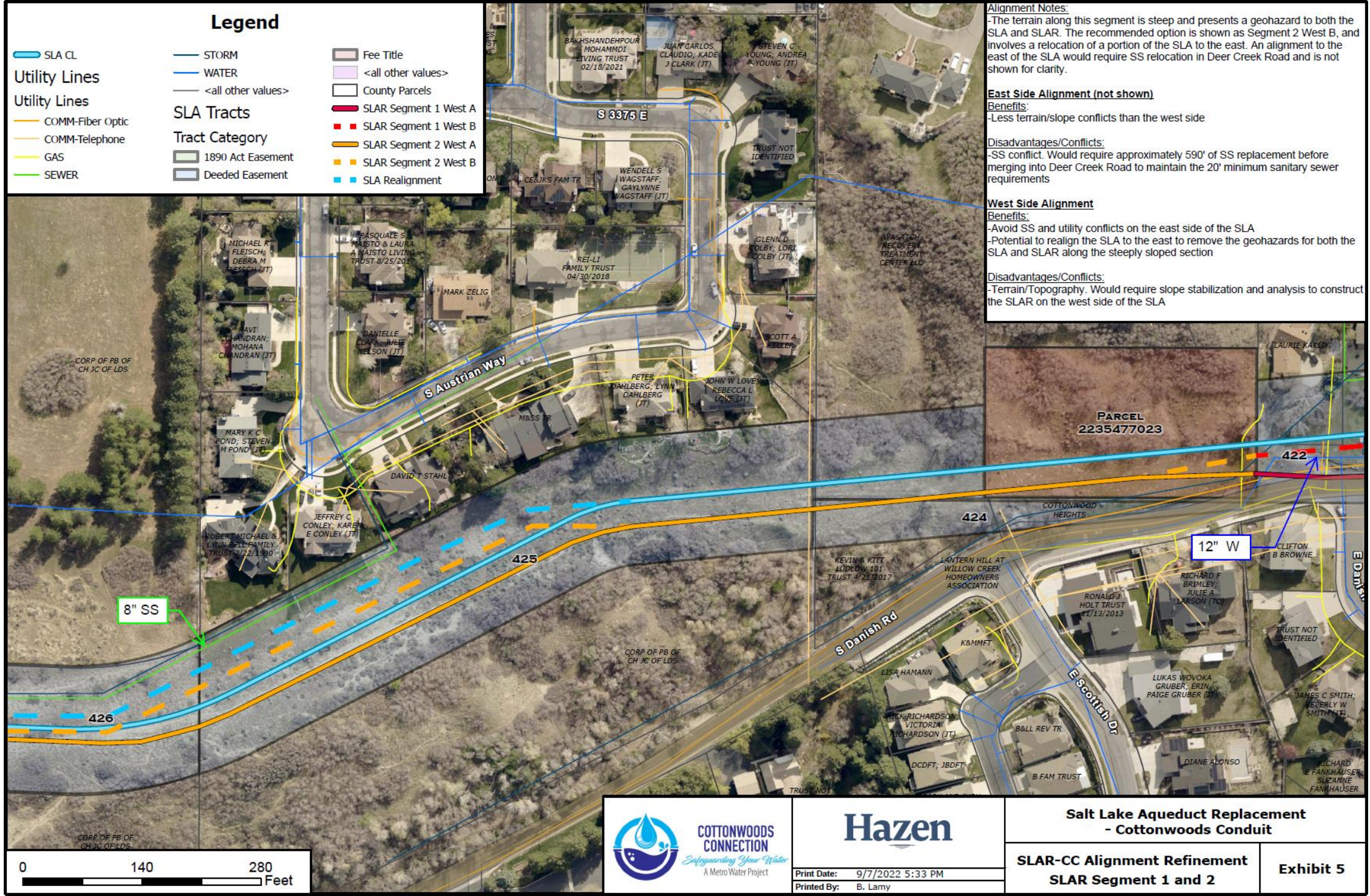
Benefits:

-Reduced residential impact, specifically for Option West C. Option West B shows an alignment that is within the edge of the SLA easement
-Avoid utility conflicts on the east side of the alignment (W and SS)

Disadvantages/Conflicts:

-Increased traffic control required along Danish Road for alignment in roadway
-Potentially 500' of W relocation in Danish Road for Option West C





Alignment Segment 3 Notes:

-It is recommended to align the SLAR on the west side for this segment to avoid utility conflicts north of Deer Creek Road.

East Side Alignment

Benefits:

-Less residential impact along Deer Creek Road, as the SLAR would be in the roadway. Would avoid the tennis court

Disadvantages/Conflicts:

-SS separation and W utility conflict in Oak Hill Circle. Would require approximately 380' of SS replacement
-Increased traffic impact at the cul-de-sac in Oak Hill Circle

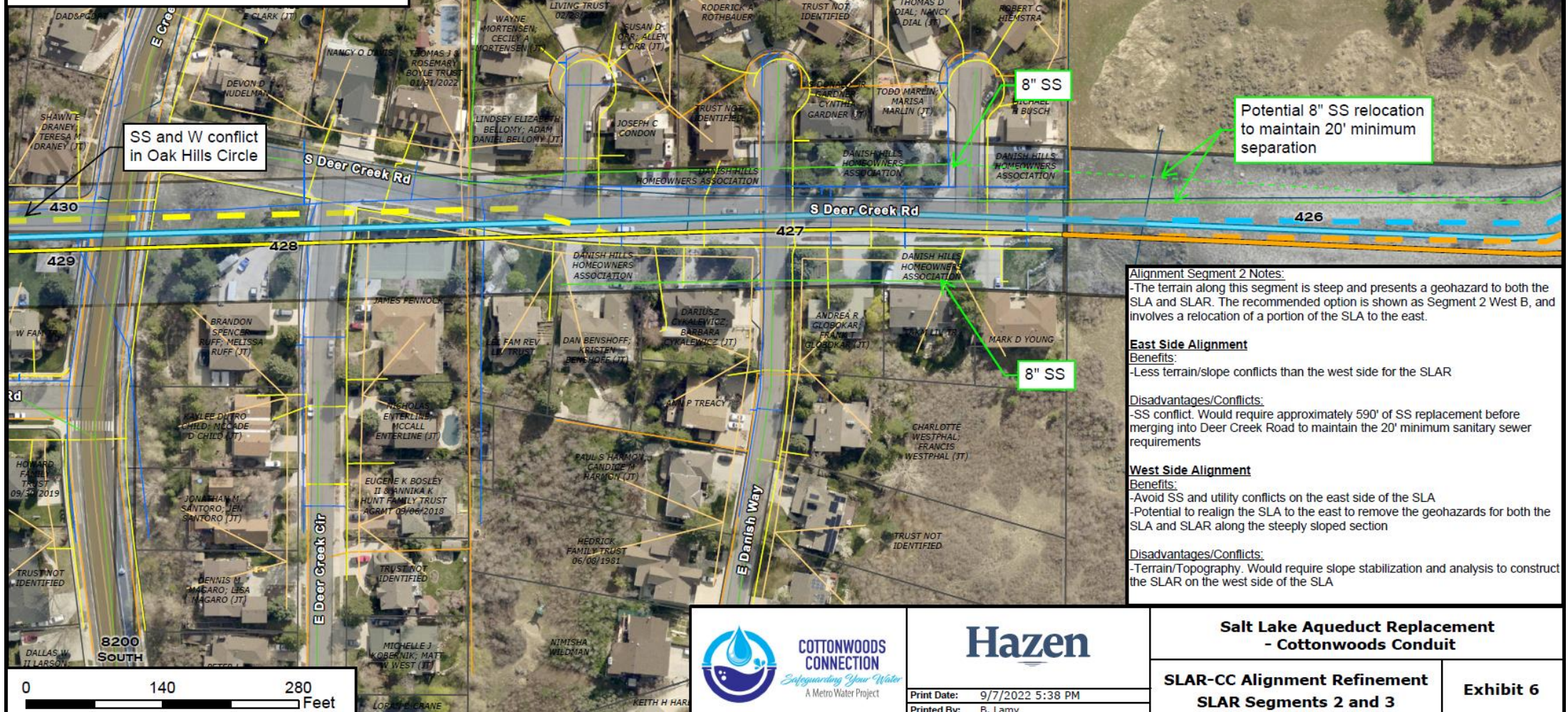
West Side Alignment

Benefits:

-Avoid SS conflicts on the east side of the alignment along Oak Hill Circle

Disadvantages/Conflicts:

-Increased residential improvements/impacts (driveways, tennis court, landscaping, etc.)



Alignment Segment 2 Notes:

-The terrain along this segment is steep and presents a geohazard to both the SLA and SLAR. The recommended option is shown as Segment 2 West B, and involves a relocation of a portion of the SLA to the east.

East Side Alignment

Benefits:

-Less terrain/slope conflicts than the west side for the SLAR

Disadvantages/Conflicts:

-SS conflict. Would require approximately 590' of SS replacement before merging into Deer Creek Road to maintain the 20' minimum sanitary sewer requirements

West Side Alignment

Benefits:

-Avoid SS and utility conflicts on the east side of the SLA
-Potential to realign the SLA to the east to remove the geohazards for both the SLA and SLAR along the steeply sloped section

Disadvantages/Conflicts:

-Terrain/Topography. Would require slope stabilization and analysis to construct the SLAR on the west side of the SLA

Alignment Segment 3 Notes:

-It is recommended to align the SLAR on the west side for this segment to avoid utility conflicts and reduce residential impacts

East Side Alignment

Benefits:

-Less residential impact along Deer Creek Road, as the SLAR would be in the roadway

Disadvantages/Conflicts:

-SS separation and W utility conflict in Oak Hill Circle. Would require approximately 380' of SS replacement

-Increased traffic impact at the cul-de-sac in Oak Hill Circle

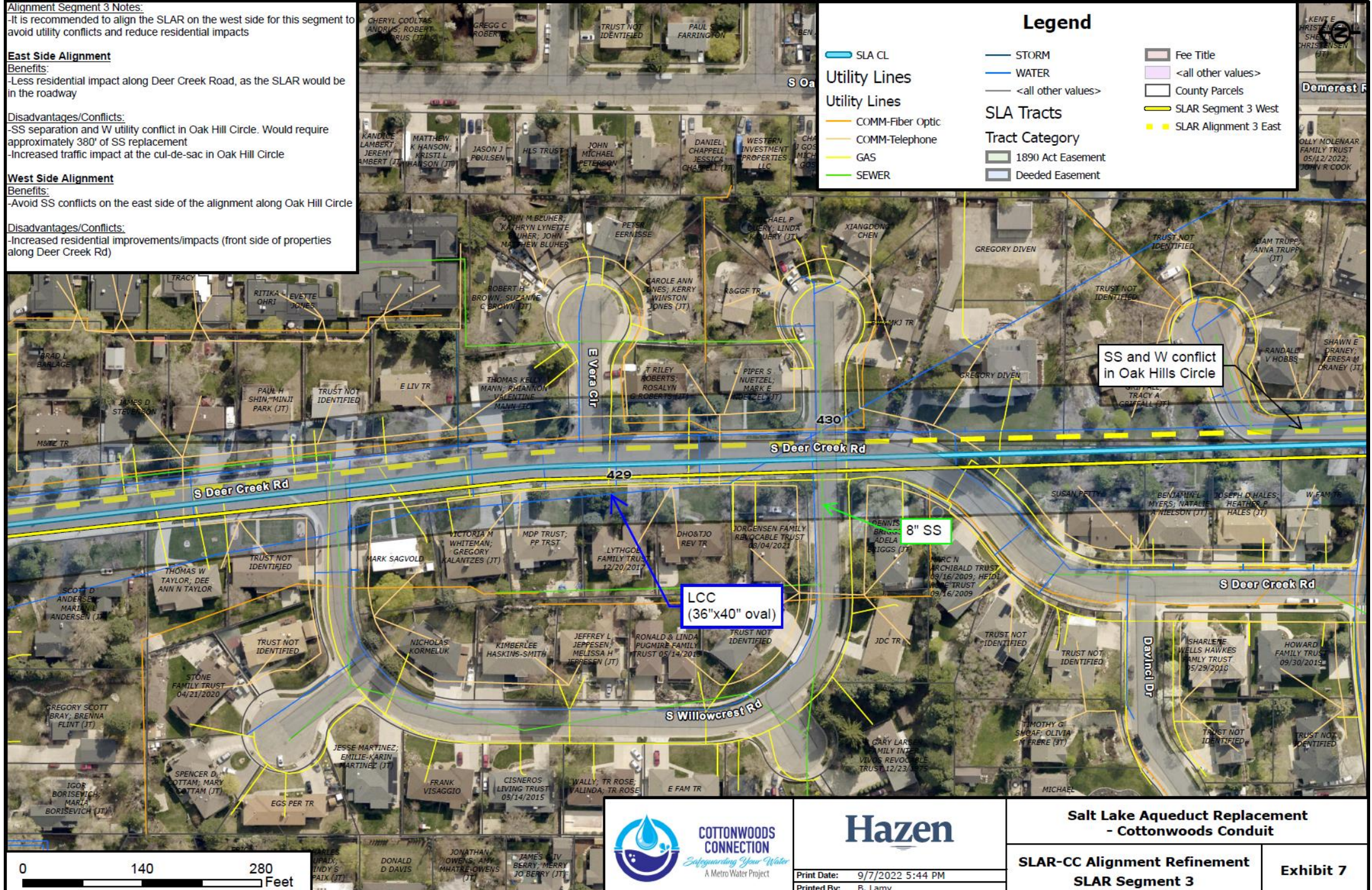
West Side Alignment

Benefits:

-Avoid SS conflicts on the east side of the alignment along Oak Hill Circle

Disadvantages/Conflicts:

-Increased residential improvements/impacts (front side of properties along Deer Creek Rd)



Alignment Notes:

-The recommendation for which side of the SLA the SLAR will go on is dependent on the connection point to the 10 MG tank, which is being completed along with the hydraulic analysis. The recommendation will be finalized when the hydraulic analysis is complete.

East Side Alignment

Benefits:

-Potentially less impact at the mortuary (infrastructure appears to be predominantly located west of the SLA)

Disadvantages/Conflicts:

-Would potentially require an additional SLA crossing at the 10 MG tank

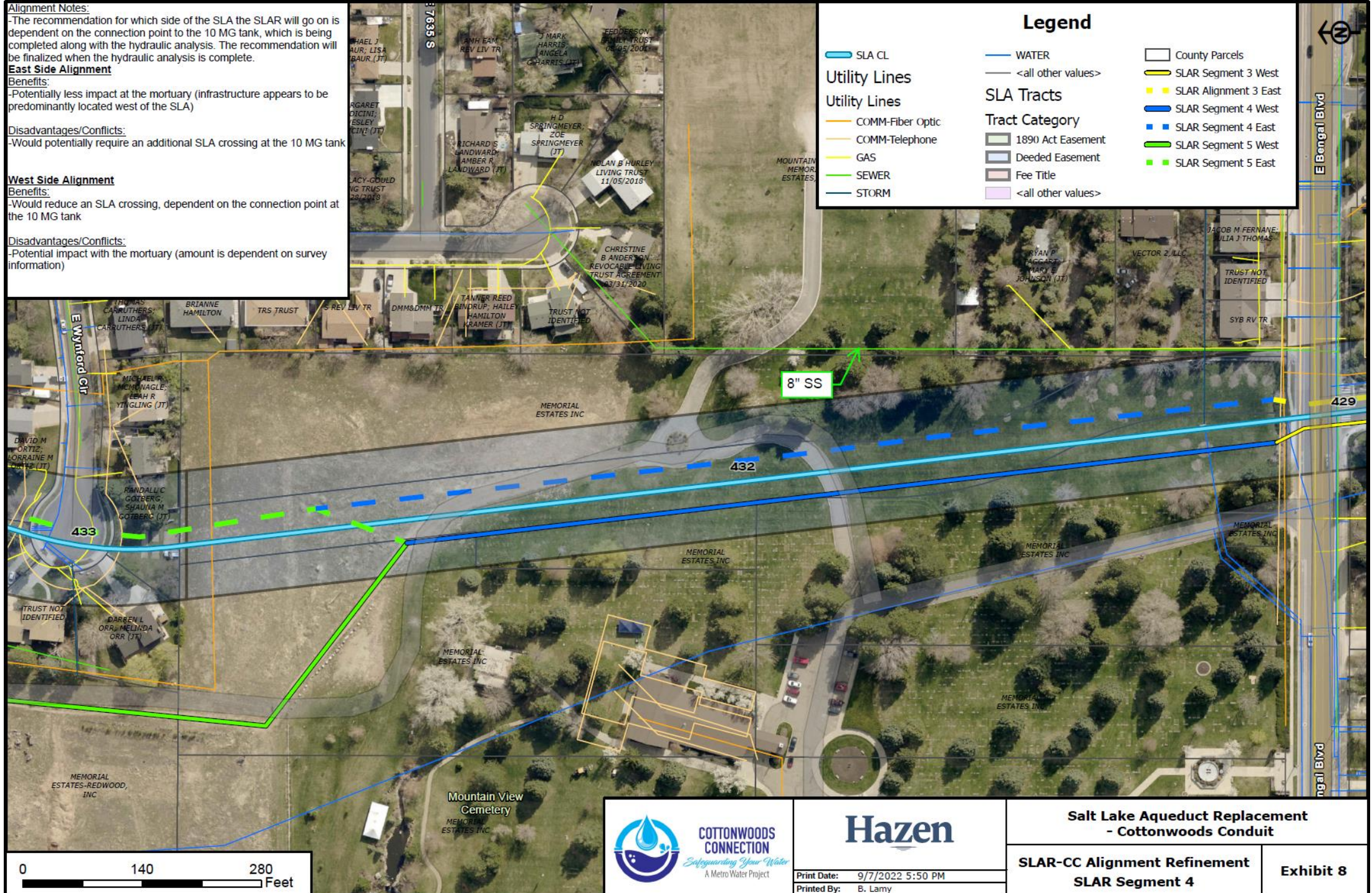
West Side Alignment

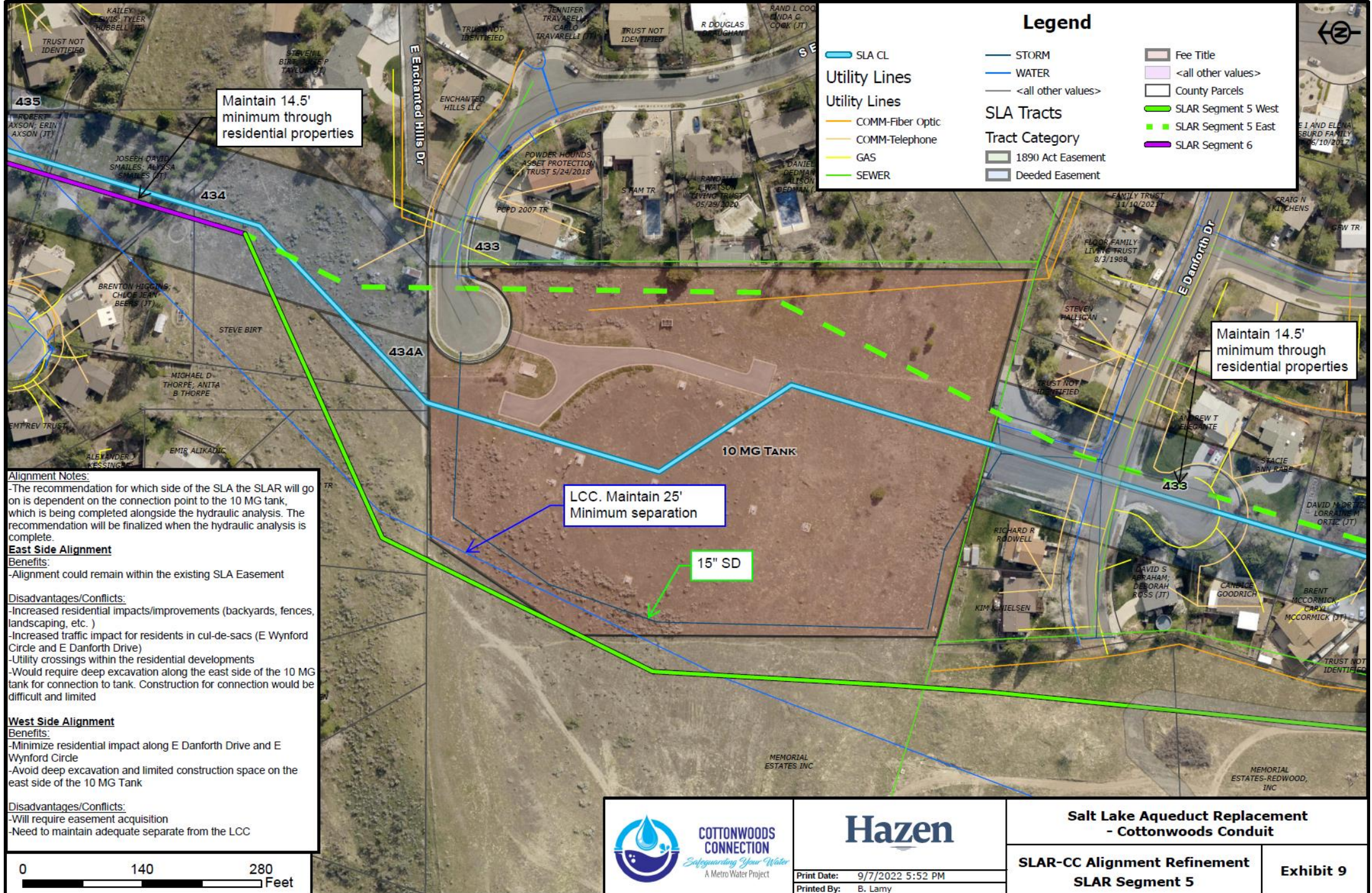
Benefits:

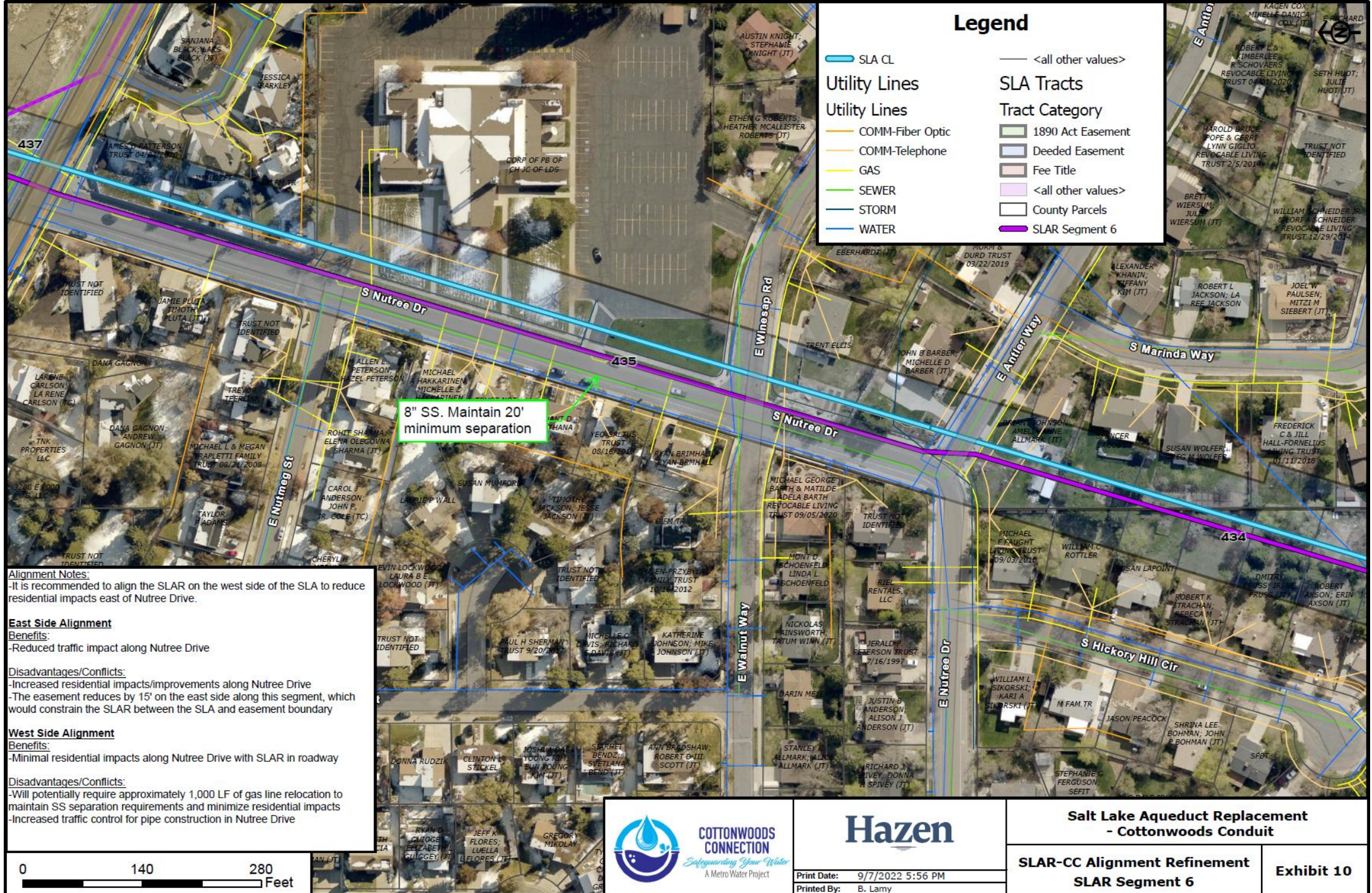
-Would reduce an SLA crossing, dependent on the connection point at the 10 MG tank

Disadvantages/Conflicts:

-Potential impact with the mortuary (amount is dependent on survey information)







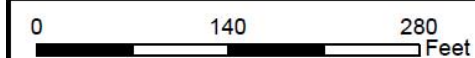
Alignment Notes:
-It is recommended to align the SLAR on the west side of the SLA to reduce residential impacts east of Nutree Drive.

East Side Alignment Benefits:
-Reduced traffic impact along Nutree Drive

Disadvantages/Conflicts:
-Increased residential impacts/improvements along Nutree Drive
-The easement reduces by 15' on the east side along this segment, which would constrain the SLAR between the SLA and easement boundary

West Side Alignment Benefits:
-Minimal residential impacts along Nutree Drive with SLAR in roadway

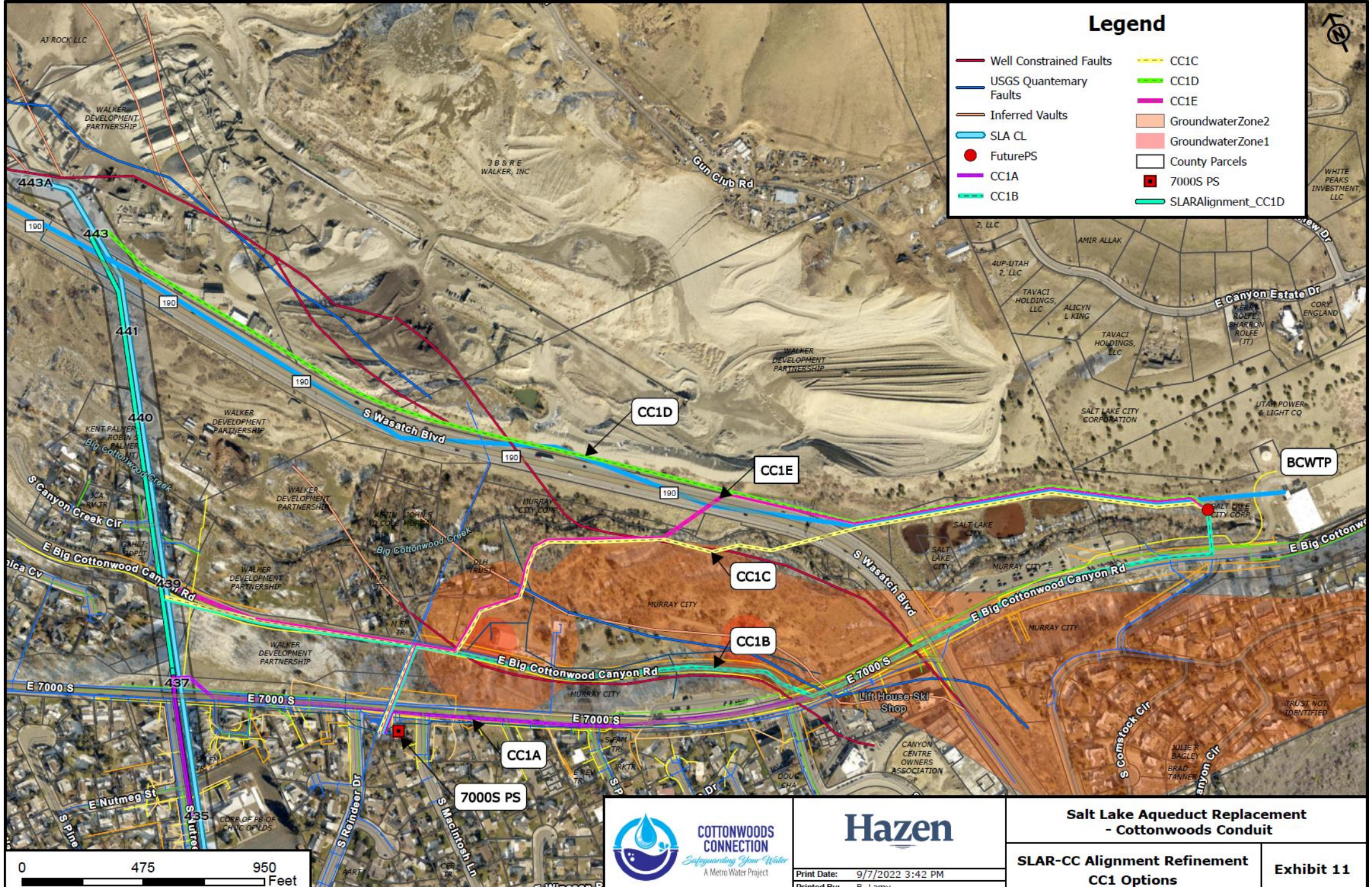
Disadvantages/Conflicts:
-Will potentially require approximately 1,000 LF of gas line relocation to maintain SS separation requirements and minimize residential impacts
-Increased traffic control for pipe construction in Nutree Drive



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Legend

- Well Constrained Faults
- USGS Quaternary Faults
- Inferred Vaults
- SLA CL
- FuturePS
- CC1A
- CC1B
- CC1C
- CC1D
- CC1E
- GroundwaterZone2
- GroundwaterZone1
- County Parcels
- 7000S PS
- SLARAlignment_CC1D



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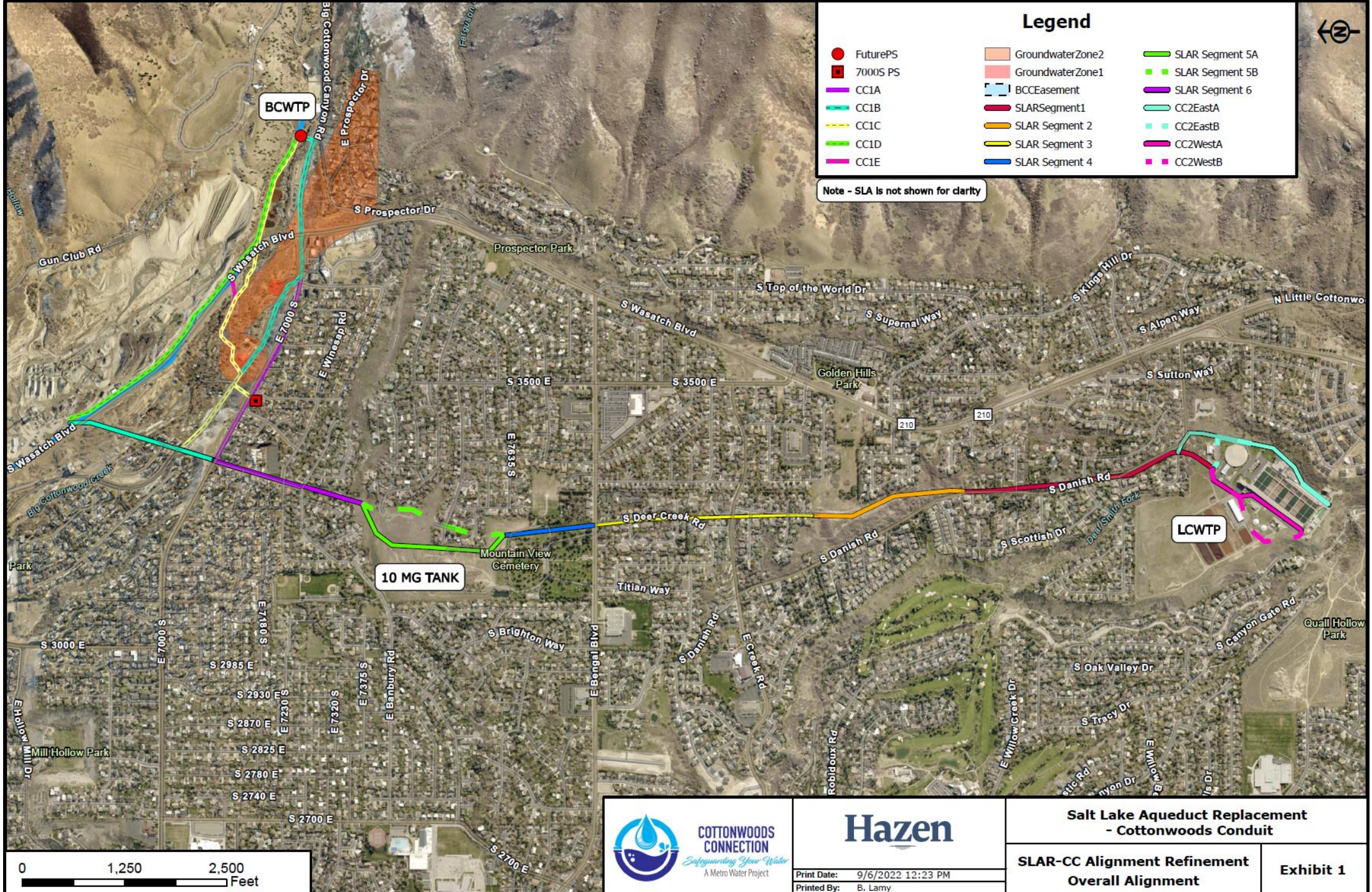
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Salt Lake Aqueduct Replacement - Cottonwoods Conduit

SLAR-CC Alignment Refinement CC1 Options

Exhibit 11

How will it function?



Legend

● FuturePS	GroundwaterZone2	SLAR Segment 5A
■ 7000S PS	GroundwaterZone1	SLAR Segment 5B
— CC1A	BCCEasement	SLAR Segment 6
— CC1B	SLARSegment1	CC2EastA
— CC1C	SLAR Segment 2	CC2EastB
— CC1D	SLAR Segment 3	CC2WestA
— CC1E	SLAR Segment 4	CC2WestB

Note - SLA is not shown for clarity



COTTONWOODS CONNECTION

Safeguarding Your Water

A Metro Water Project

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Salt Lake Aqueduct Replacement - Cottonwoods Conduit

SLAR-CC Alignment Refinement Overall Alignment	Exhibit 1
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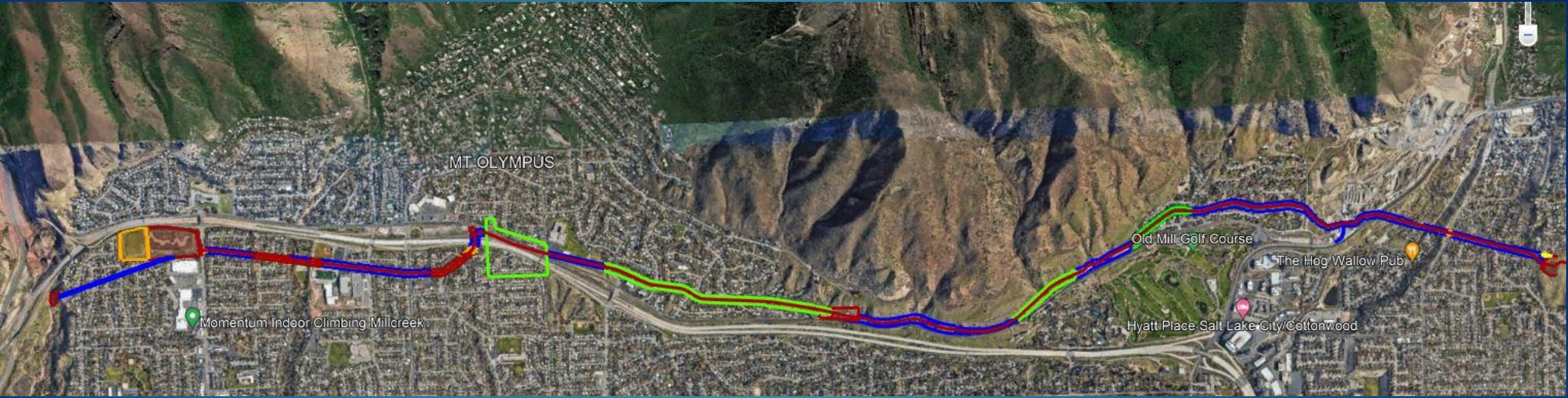
Operational Schedule/Phase:

RAW WATER

- **BCC to LCWTP (North to South) - Begin July 1, 2025, Duration: 10 – 20 yrs.**
- **LCC to BCWTP (South to North) - Begin between 2035 – 2045, Duration: 5 yrs.**

FINISHED WATER

- **Timeframe based on:**
 - **Increase demand due to growth**
 - **Resiliency – remove risk of failure to existing SLA due to seismic activity**
 - **Cost – budgeting funds to expense project**

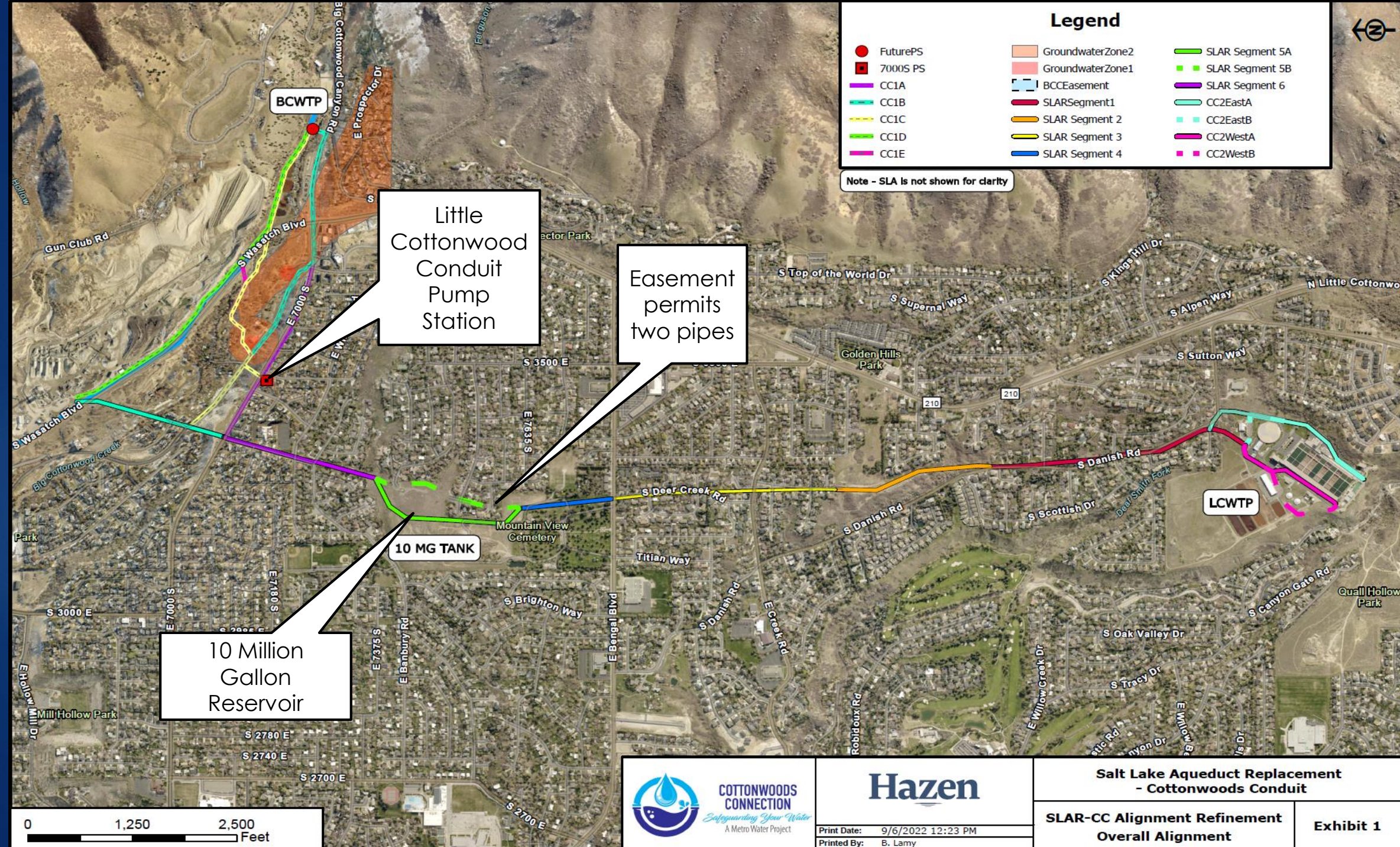


Policy Discussion:

Easement Interest

- ▶ Salt Lake Aqueduct Tracts 421 – 441
- ▶ Mostly easement acquired between 1947 – 1949

A perpetual easement to construct and reconstruct, operate and maintain an underground pipeline and appurtenant structures, which latter may be situated above ground surface, on, over or across the following described property situated in Salt Lake County, State of Utah:



Surface Use Restoration

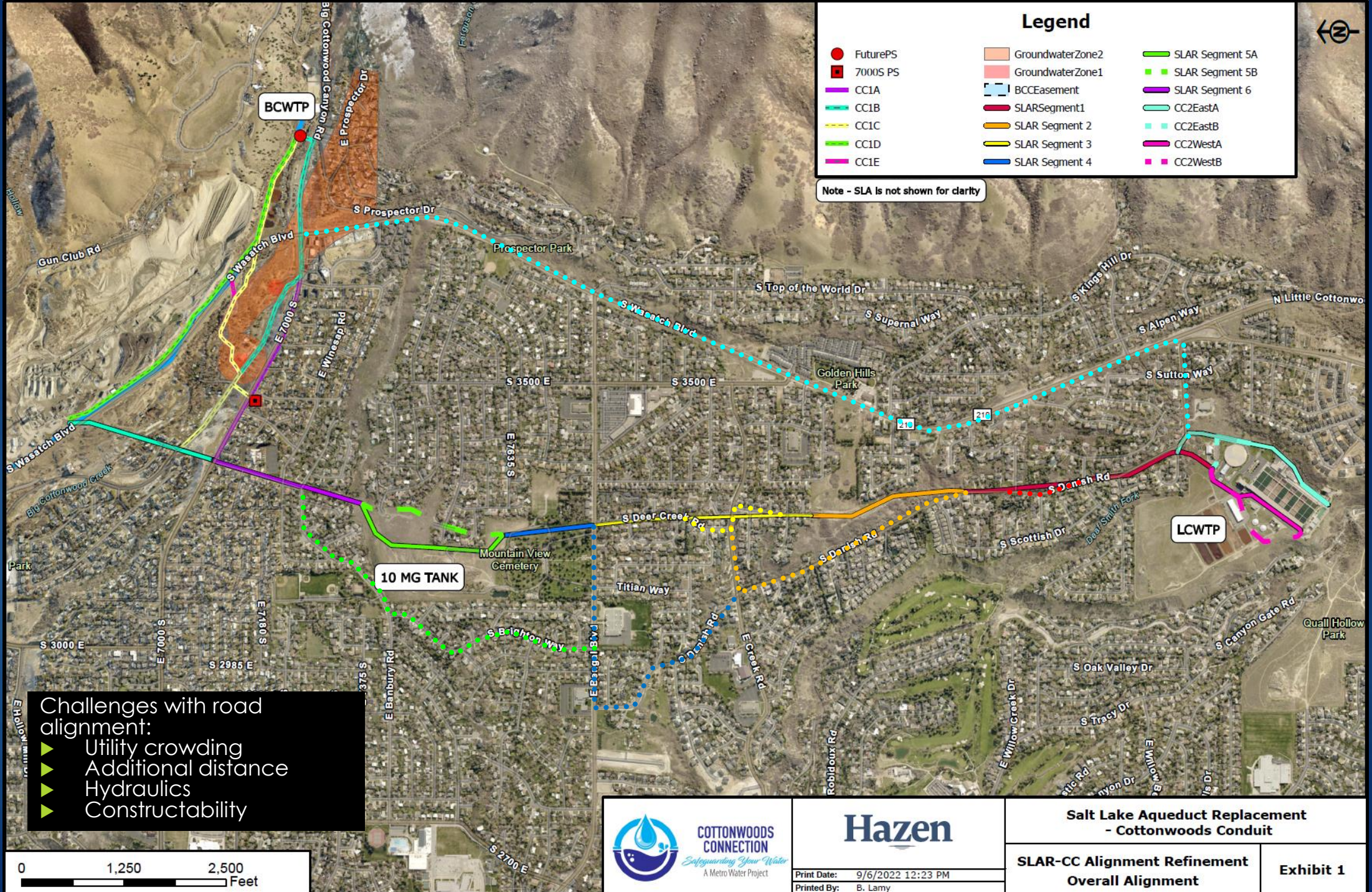
- ▶ Project Total: \$1,878,867
- ▶ Highest Residential Cost: \$141,811
- ▶ Lowest Residential Cost: \$929
- ▶ Highest Cost Category: \$653,000 (tree removal)
- ▶ Lowest Cost Category: \$1,000 (flag pole)

Surface Use Restoration, Slide 1 of 2

Tree Removal - SLA and SLAR Proximity (20' clearance each side)		Landscape Replacement						Electrical Replacement	Landscape Temporary Removal/Installation		Concrete Demolition and Replacement	
SLA Rehab Tree Removal	SLAR Tree Removal	Shrub	Garden / Garden Box	Lawn and Irrigation	Xeriscape and Irrigation	Paver / Flagstone	Concrete Curbing	Lighting	Boulder / Rock	Bench / Table / Bridge / Decoration	Driveway and/or walkways	Pad
EA	EA	EA	EA	EA	EA	SF	LF	LS	EA	EA	SF	SF
125	303	130	16	20	4	360	120	56	84	7	5865	840
\$2,152	\$2,155	\$400	\$6,625	\$12,850	\$7,250	\$69	\$25	\$929	\$143	\$286	\$25	\$29
\$269,000	\$653,000	\$52,000	\$106,000	\$257,000	\$29,000	\$25,000	\$3,000	\$52,000	\$12,000	\$2,000	\$144,000	\$24,000

Surface Use Restoration, Slide 2 of 2

Structure Temporary Removal and Reinstallation				Structure Demolition and Replacement					Fence Demolition and Replacement				Structure Demolition and Replacement - Retaining Wall	
Shed	Pergola	Mail Box	Play Equipment	Deck	Sport Court	Sport / Flag Pole	Pillar	Debris / Material / Vehicle Storage	Wood/Trex	Vinyl	Stone/Rock	Chain Link	Rock	Block
EA	EA	EA	EA	EA	SF	EA	EA	EA	LF	LF	LF	LF	EA	EA
11	2	17	10	1	1501	1	3	1	435	80	30	106	60	16
\$3,909	\$4,000	\$294	\$2,000	\$38,000	\$31	\$1,000	\$1,000	\$3,000	\$101	\$88	\$133	\$38	\$367	\$117
\$43,000	\$8,000	\$5,000	\$20,000	\$38,000	\$47,000	\$1,000	\$3,000	\$3,000	\$44,000	\$7,000	\$4,000	\$4,000	\$22,000	\$1,867



Legend

- | | | |
|------------|------------------|-----------------|
| ● FuturePS | GroundwaterZone2 | SLAR Segment 5A |
| ■ 7000S PS | GroundwaterZone1 | SLAR Segment 5B |
| CC1A | BCCEasement | SLAR Segment 6 |
| CC1B | SLARSegment1 | CC2EastA |
| CC1C | SLAR Segment 2 | CC2EastB |
| CC1D | SLAR Segment 3 | CC2WestA |
| CC1E | SLAR Segment 4 | CC2WestB |

Note - SLA is not shown for clarity

Challenges with road alignment:

- Utility crowding
- Additional distance
- Hydraulics
- Constructability



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Salt Lake Aqueduct Replacement
- Cottonwoods Conduit

SLAR-CC Alignment Refinement
Overall Alignment

Exhibit 1

Public Impact



We anticipate the community will want to know,

“How does this project impact us (me)?”

“What is the exact path the pipeline will take?”

“How is my landscaping going to be handled?” among other things.

At this point, we don’t have specific answers to those questions.


We do, however, have experience from our efforts in building the Point of the Mountain Aqueduct (60-inch diameter) through Draper and Sandy between 2005 – 2007 to guide us in managing public expectations.



We have engaged with a Public Relations consultant – Wall Consulting Group (WCG) to facilitate timely communications,


We've developed a project website at www.cottonwoodsconnection.com, and

We've developed an email subscription list.



Once the level of detail is available and we have completed key project decisions (i.e., alignment), impacted property owners will be contacted individually.

Once construction approaches, social media accounts will be advertised to keep the public current on activities as well as a forum for feedback. A project hotline will be available as well with direct (live) bodies responding; both from the design team and the contractor.



We know this project will bring some temporary disruption to the community.

Our aim is to minimize these disruptions by managing expectations.



Thank you