

# Operations & Engineering Workgroup

April 12, 2023



# Agenda

- 1.1 Discuss reservoir losses and active storage
- 1.2 Review Project Baseline Schedule and alternatives analyses
- 1.3 Discuss Soft Call considerations
- Engineering and Construction Manager's Report
  - Suggestions for future agenda items

# Material Change Categories for Today's Topics (per current Bylaws)

## 1.1 Discuss reservoir losses and active storage

- ✓ Water Supply
- ✓ Participant Commitments
- ✓ Operational Risks

## 1.2 Review Project Baseline Schedule and alternatives analyses

- ✓ Approved Budget
- ✓ Construction Schedule
- ✓ Direct Construction Cost

## 1.3 Discuss Soft Call considerations

- ✓ Planned Budget
- ✓ Project Funding
- ✓ Direct Construction Cost

# Agenda Item 1.1

## Reservoir Losses and Active Storage

Angela Bezzone and JP Robinette

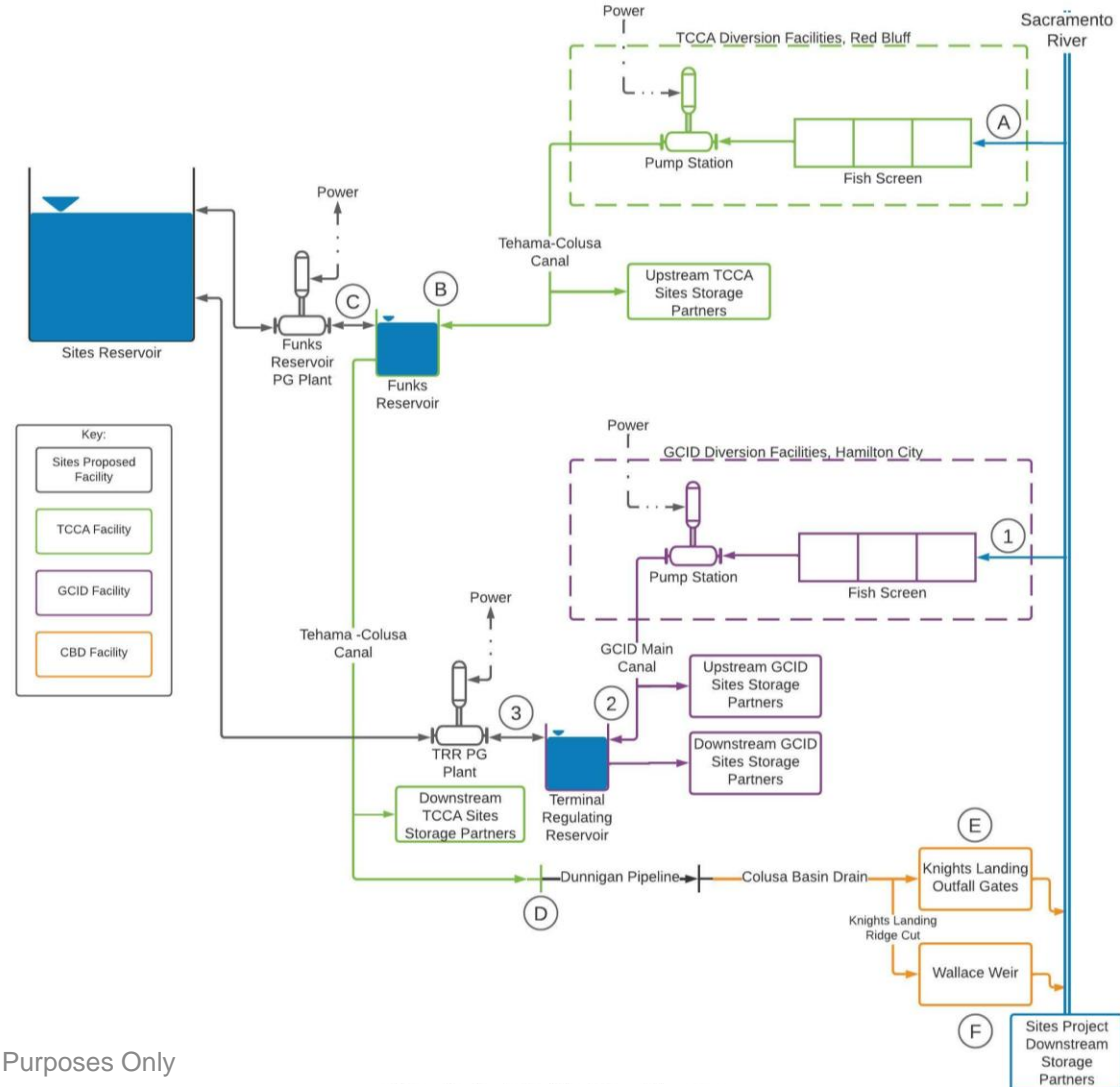
# Purpose

- Review assumptions for water losses which occur along the flow path from points of diversion to points of delivery
- Reaffirm change in dead pool storage from 120 TAF to 60 TAF and confirm active storage assumption of 1.41 MAF
- Discuss concept for managing reservoir at low volumes if there is a water quality concern

# Sites Project Facilities

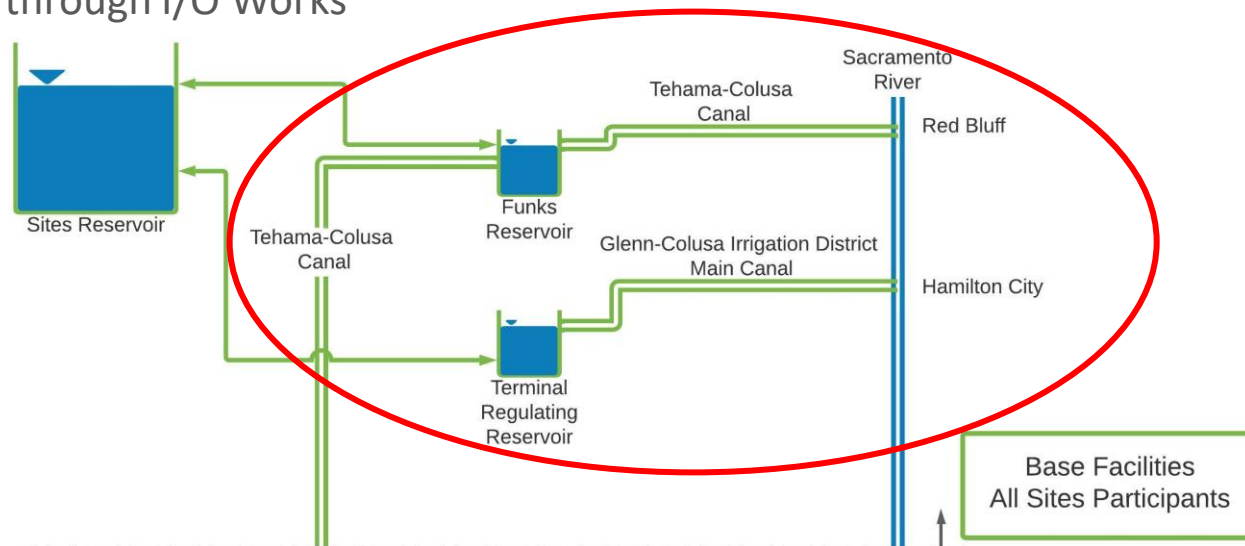
## • Sites Flow Path

- Sacramento River
  - TC diversion and canal
  - GCID diversion and canal
- Funks/TRR to Sites Reservoir
- Sites Reservoir to TC Canal and GCID Canal
- Dunnigan Pipeline, Colusa Basin Drain, and Sacramento River
- Delta export facilities and/or participant point of delivery

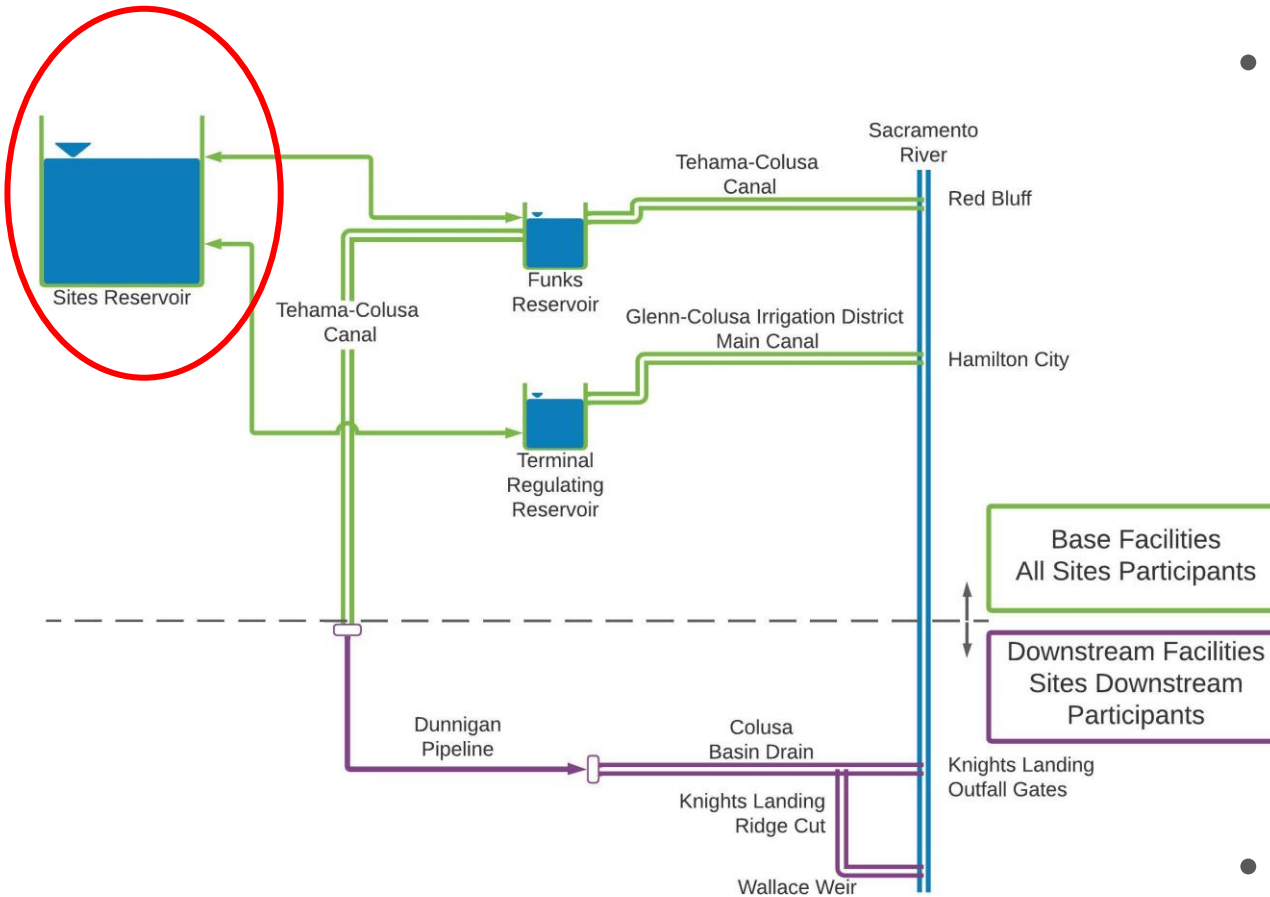


# Modeled Losses – Diversions

- Tehama-Colusa Canal is concrete lined
  - Up to 2,200 cfs diversion
  - Estimated 1% loss for modeling purposes from RBPP to Sites Reservoir
- Glenn-Colusa ID Main Canal is unlined
  - Up to 2,000 cfs diversion
  - Estimated 2% or 13%, depending on season, loss for modeling purposes from Hamilton City to Sites Reservoir
- Losses occur prior to reaching Reservoir
  - Volume added to each Storage Partners' storage space will be based on amount entering through I/O Works



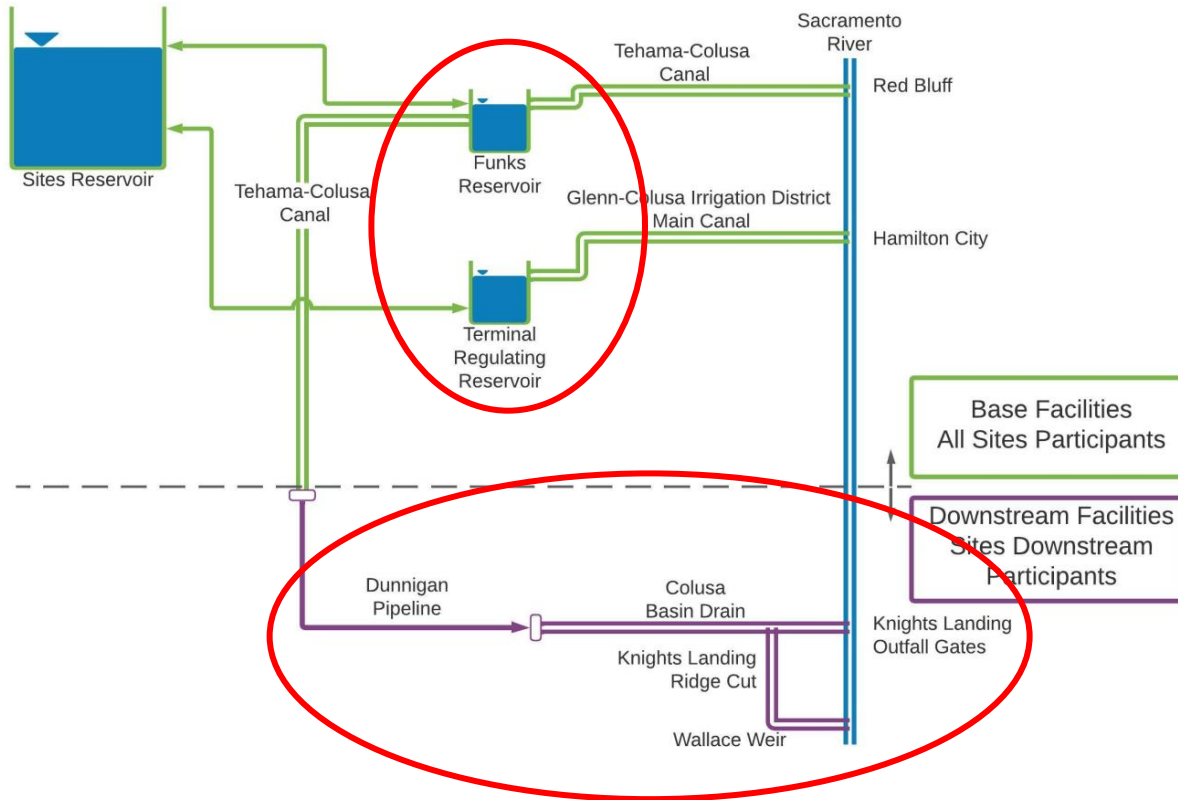
# Losses – Reservoir



- Evaporation
  - Estimated as approx. 10% per year
  - Planned to be refined with future measurements
  - Will be “charged” to Storage Partners proportionally
- Seepage and other calculated losses may also be applied proportionally



# Losses – Releases for Storage Partners



- The primary point of delivery will be Funks or TRR
- The Sites Authority may retain control to facilitate a secondary point of delivery
- Storage Partners are responsible for losses after the primary point of delivery

# Losses – Releases for Storage Partners

- Deliveries to NOD Storage Partners
  - No losses assumed in Project modeling
  - However, losses will be defined in wheeling agreements, if applicable
  - No modeled deliveries to NOD partners along Sacramento River below KLOG (losses would need to be assessed in the future for these deliveries)
- Deliveries to Yolo Bypass (State)
  - Assumed 13% loss during April through October when deliveries will be made
  - May be need for downstream measurement location (e.g., Wallace Weir) to quantify volume delivered for Prop 1 benefits

# Losses – Releases for Storage Partners

- Deliveries to North Bay Aqueduct
  - Modeled assumption:
    - If delivered via Yolo Bypass, 13% loss is currently assumed
    - If delivered via Delta, model assumes losses would be consistent with below
  - Working with American Canyon on conformance with SWP contract
- Deliveries through Delta to Export Facilities
  - No modeled losses applied in Sacramento River from KLOG to Freeport (may need evaluation)
  - Average estimated at 23% in modeling, but is highly dependent of water year type and calculations
  - Carriage Water will be assessed and determined consistent with current practices for transfer water

# Summary of Losses

Facility	Modeled Loss	Applied Loss
TC Canal	1% year-round	Difference of measured diversions and total pumped into Reservoir through I/O Tower
GCID Main Canal	2% or 13% seasonally	
Reservoir – Evaporation	10% long-term average	Refined with future measurements
Reservoir – Seepage/other	~4% for 1.8 MAF reservoir	
NOD Deliveries	None modeled	Pending wheeling agreements
Yolo Bypass	13% loss April – October	n/a
North Bay Aqueduct	13% via Yolo Bypass	Consistent with State Water Contract or DWR Wheeling Agreement
	23% long-term average Carriage Water via Delta	Consistent with State Water Contract
Delta Export Facilities	23% long-term average Carriage Water	Consistent with current practices for calculating CW

# Confirmation of Active Storage

- The EIR/EIS describes a 1.5 MAF nominal reservoir with a footprint based on a water surface elevation of 498ft
- Based on 2022 LIDAR information, a WSE of 498ft has an estimated storage volume of 1.47 MAF
- The dead pool is currently assumed to be 60 TAF
  - Dead pool will not be “charged” losses (e.g., evaporation)
- With survey refinements, and 60 TAF dead pool, active storage is 1.41 MAF
- 1.41 MAF represents the **Active Storage** to be offered to Storage Partners and will be used in updated financial modeling

# Dead Pool Considerations

- Establishing a dead pool is a form of risk management
  - As dead pool shrinks, more shares/volume can be sold to reduce costs
  - But increases risk that water in storage gets “stuck” when storage is low
- Even with dead pool, there is still some risk
  - Any water in a Storage Partner’s account will not be lost, just held until water quality conditions improve (likely the following year)

# Potential Water Quality Constraints

- Potential for releases to be limited/constricted when Sites Reservoir approaches dead pool
  - Ex. If a water quality issue is identified when storage is at 100 TAF, then 40 TAF of Storage Partner water may not be able to be released from Sites

Frequency of Reservoir Nearing Dead Pool based on 2035CT Hydrology under Alt 3B (16 % Reclamation Investment)

	# of Times at or Below 200,000 AF	# of Times at or Below 120,000 AF	# of Times at or Below 60,000 AF
Frequency in All Months	164 (17%)	84 (9%)	8 (1%)
Frequency in May	7 (9%)	4 (5%)	0 (%)
Frequency in September	20 (24%)	10 (12%)	1 (1%)

# Potential Water Quality Constraints

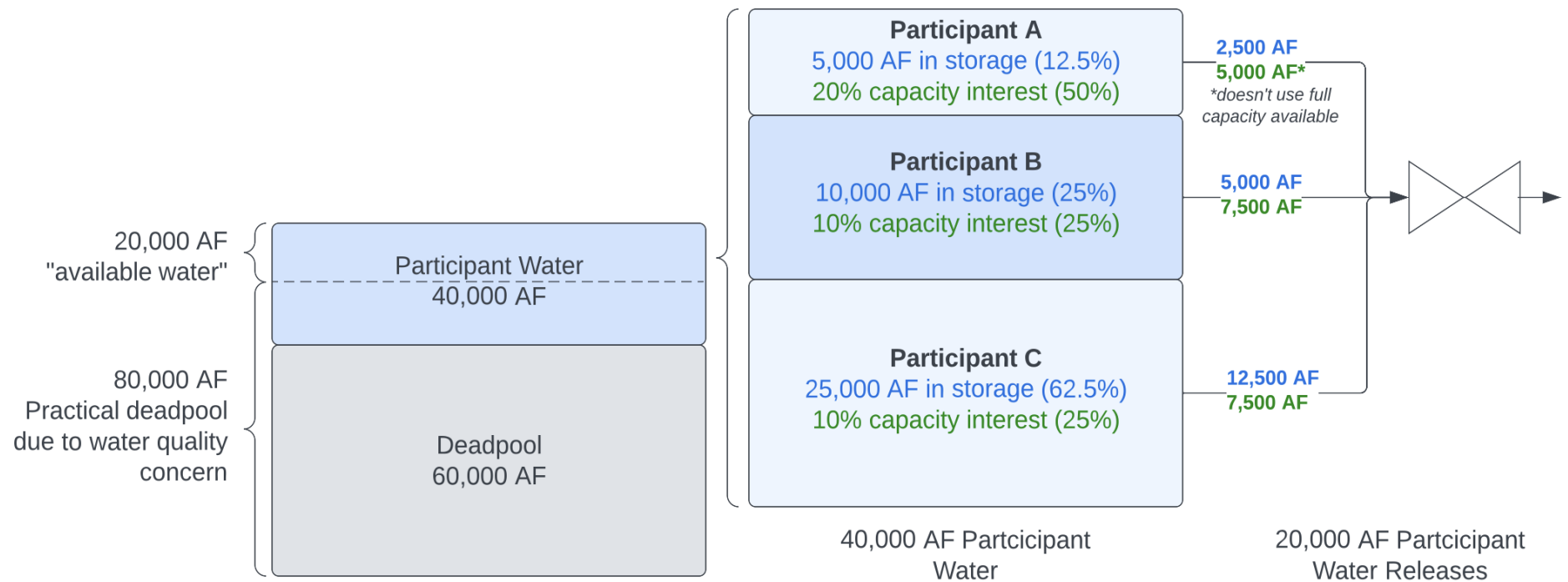
- Initial concept to be considered for Project documents

Restrictions on Releases in Low Reservoir Elevations – In the event that the Authority, in working with the Reservoir Committee, anticipates restrictions on releases as a result of water quality considerations, the Authority in working with the Reservoir Committee and State and Federal Storage Partners will develop a procedure to release water as requested by Participants based in proportion to the [amount of water remaining in storage] or [capacity interest in the project].



# Example Scenario

(Simplified, for illustration purposes only)



# Conclusion

- Losses are assessed from point of diversion to point of delivery and the process will be described in the operations plan
- The active storage in the Sites Reservoir is 1.41 MAF and assumes a 60 TAF Deadpool
  - 1.41 MAF is allocated to storage partners
- A “low storage level” occurs infrequently in the model (<10% of the time below 120,000 AF)
  - Allocating capacity in these scenarios can get complicated and would benefit from operating experience
  - Cover this process in the operations plan, define the process for defining and changing the operations plan in the B&O Contract

# Questions?



# Agenda Item 1.2

## Project Baseline Schedule and Alternative Analysis

JP Robinette, Marcus Maltby, Henry Luu

# Recap from February O&E Workgroup

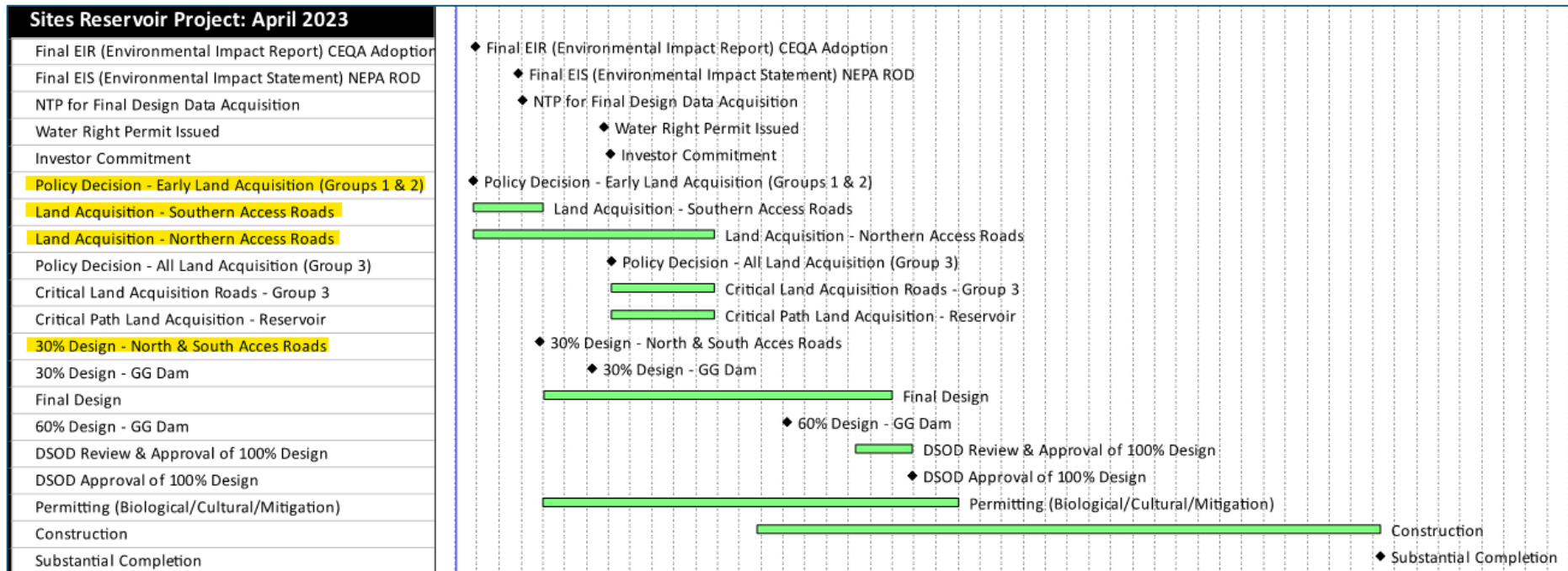
- Draft schedule places substantial completion in late 2033
- Staff is evaluating opportunities to improve schedule while managing risk
- In April, seek adoption for:
  - Program Baseline Schedule
  - Early Acquisition Program

# Project Baseline Schedule Update

- Deferring baseline schedule adoption to June
  - Better understanding of Water Right timeline
  - Opportunity to explore additional schedule reducing measures
- Focus remains on improving the baseline schedule
  - Advance early acquisition program
  - Prioritize road design
  - Set priority feature footprints
  - Accelerate key permits
  - Procure a CMAR for the Reservoir package (risk management)

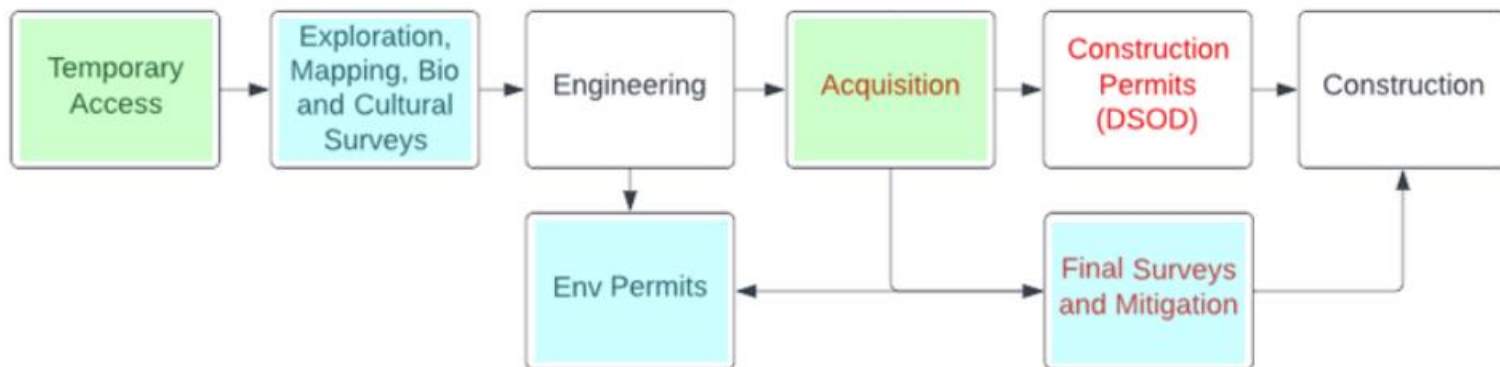
# Simplified Critical Path for the Reservoir Package

Advancement of access roads ahead of investor commitment provides relief to *near-critical path* activities



# Prioritizing Roadway Footprint

- Advancing definition of construction roads is a critical first step to initiate activities leading to construction
  - **Land access & acquisition**: long linear footprint requires coordination with multiple property owners
  - **Environmental permitting**: phased clearance approach





# Local Community Working Group Roadway Considerations





# Procurement Strategy

- Adoption in Summer 2023
- Proposes a 2-step, 2-contract approach to procuring the CMAR for the Reservoir
- Will include a check-in on water rights, key permits, CEQA, and financing before initiating procurement
- Goal to have CMAR on-board in 2025 (to assist in developing 60% design)

# Questions?



# Agenda Item 1.3

## Soft Call Considerations

JP Robinette

# The soft call represents Agency Staff's thinking and is important because it allows...



Staff to update Participants who have requested more capacity, Reclamation, and "Waitlisted" Participants



Time for different credit scenarios to be evaluated



Operational assumptions to be modeled and infrastructure sizing to be validated



Avoid last minute surprises

*Targeted for June, 2023*

# In May, we will discuss the three big questions and the soft call

## What do we get?

- The contract and operations of the Sites Project

## How much does it cost?

- Accounting for today's interest rates, market volatility, and escalation in our plan of finance

## How do we pay for it?

- Progress securing project financing and Participant revenue sources to pay for the project



# What do we get?

## The contract and operations of the Sites Project

- Project operations and benefits overview
  - Operations Plan and which topics are included
- Overview of assumptions on Participant demand
- Benefits and Obligations Contract Development
  - Ownership of capacity interest (Base and Downstream), relation to storage and conveyance
  - What is in the contract vs. in other documents
- **Others?**



# How much does it cost?

Accounting for today's interest rates, market volatility, and escalation in our plan of finance

- Review the components of cost and what is included
- Updated cost tables
- Timeline for cost estimate updates
- **Others?**

# How do we pay for it?

Progress securing project financing and Participant revenue sources to pay for the project

- WIFIA update and indicative rating process takeaways
- Updated financing strategy
- Update on Participants securing revenue through
  - DWR
  - CCFCWCD (for certain Sac Valley irrigation districts)
  - Rates and charges
  - Other
- **Others?**

# Questions?



# Engineering and Construction Manager's Report

JP Robinette

# Sites, DWR, & Reclamation Ops Agreement

- A complete first draft has been circulated amongst Parties
- Continue to meet to discuss concepts for future coordination
- Review and substantial engagement with Reclamation is pending their Basis of Negotiation (BON)
  - Reclamation staff not able to provide comments until BON is approved
  - Currently being prepared by staff and CVO management has been engaged

# Questions?



# Thank you!

Next Meeting: Wednesday, June 7, 2023 (1:30 pm – 3:30 pm)

