

WEST COMPLEX EMERGENCY REPAIRS

SUBGRADE VOIDS AT BULKHEAD WALL

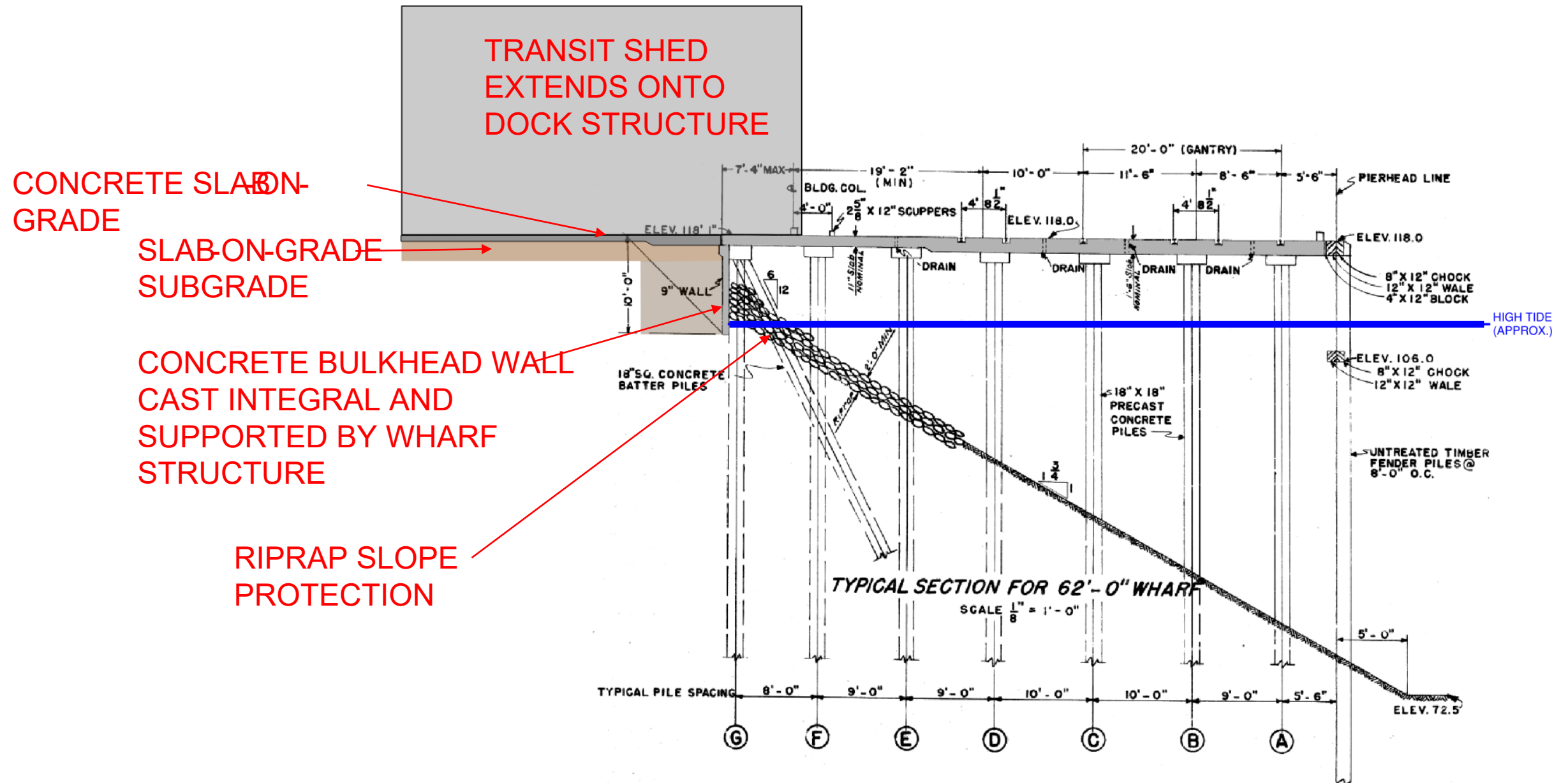
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Director of Engineering and Facilities

OUTLINE

- Background
- Bulkhead Wall Backfill Erosion
- Slab Subgrade Voids
- Repair Concepts
- Estimated Costs

BACKGROUND – DOCK AT TRANSIT SHEDS

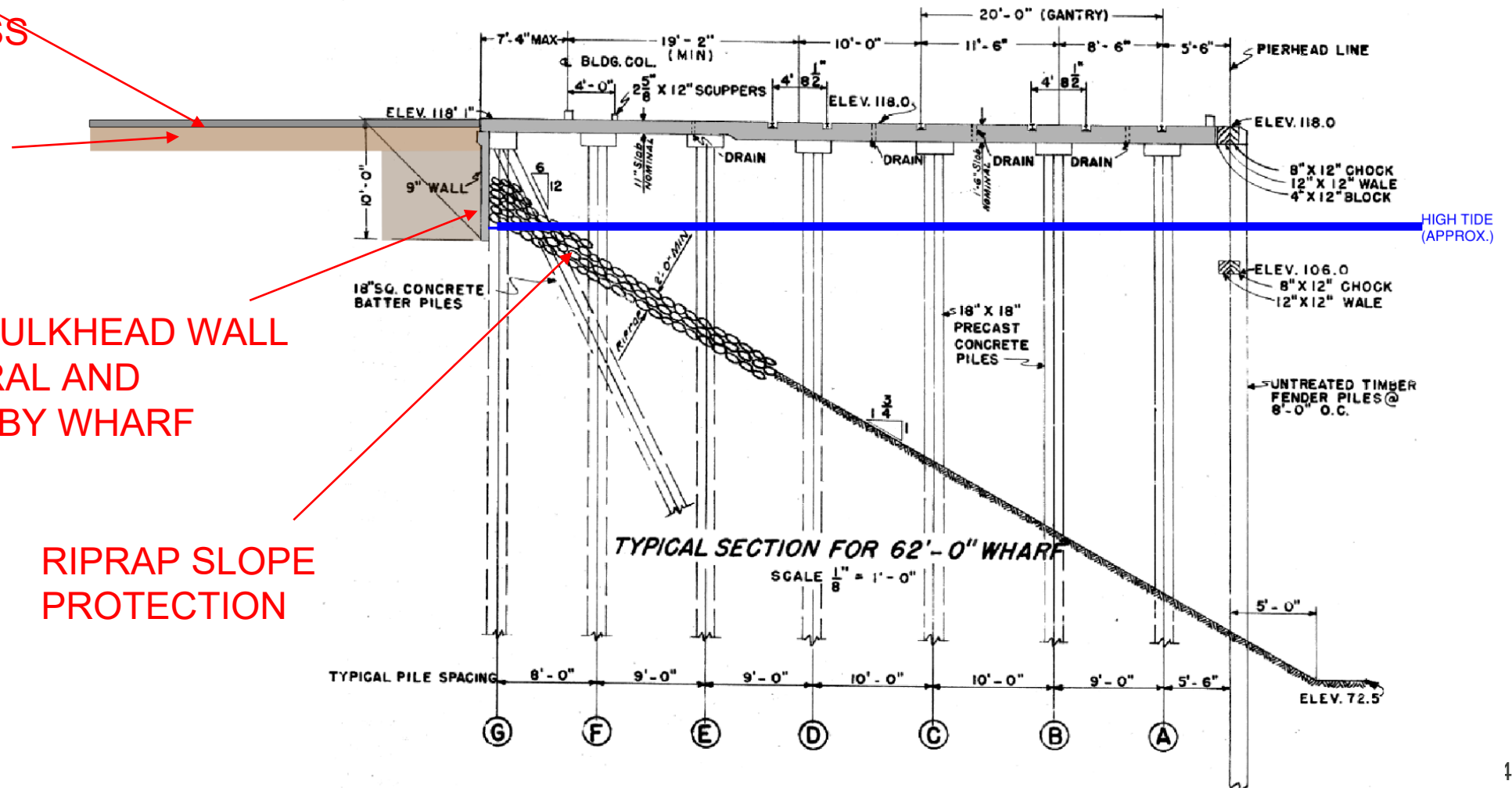


ASPHALT PAVEMENT VARIABLE THICKNESS

GRANULAR
SUBBASE
VARIABLE
THICKNESS

CONCRETE BULKHEAD WALL CAST INTEGRAL AND SUPPORTED BY WHARF STRUCTURE

RIPRAP SLOPE PROTECTION

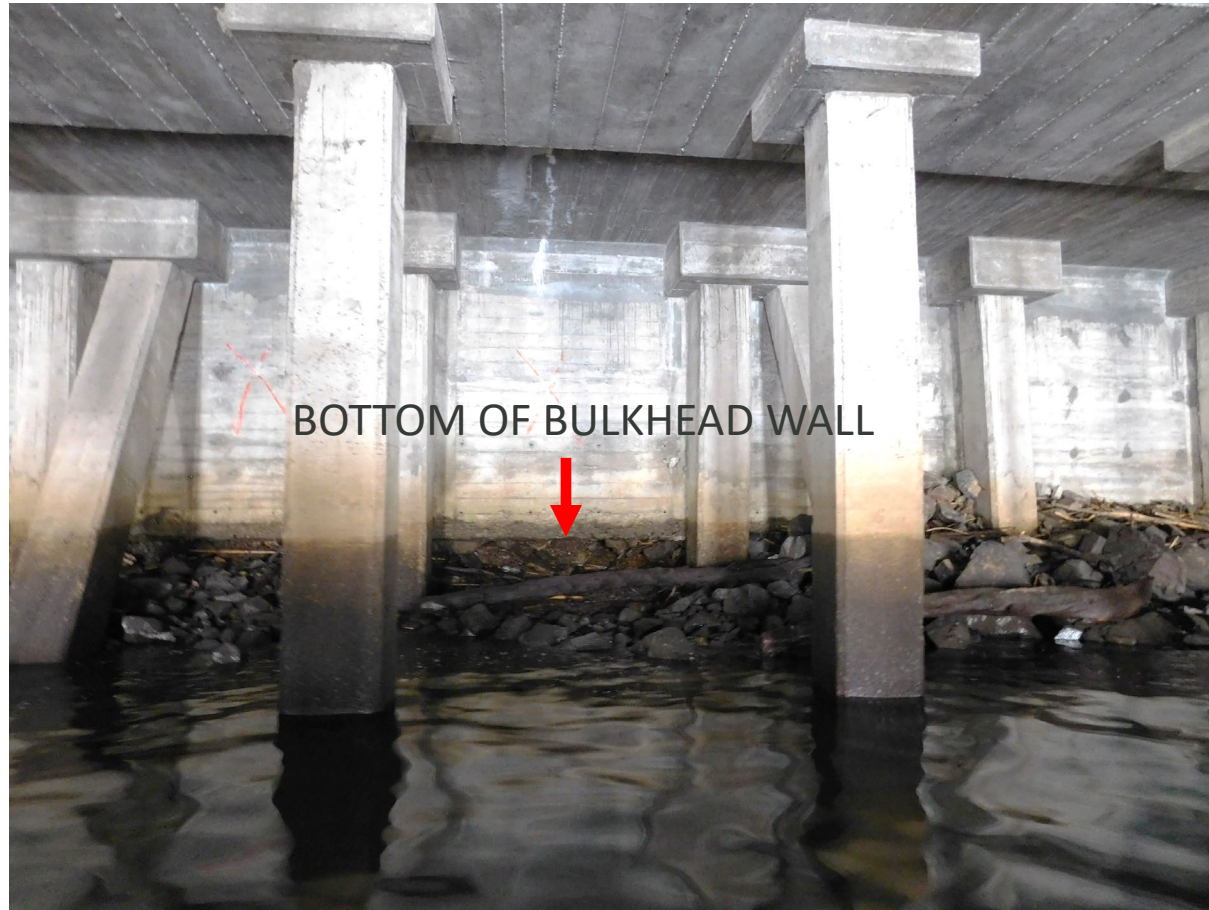


APPROXIMATE RIPRAP LEVEL ✓
BELOW BOTTOM OF BULKHEAD
WALL



BACKGROUND – LOSS OF RIPRAP SLOPE PROTECTION

RIPRAP BELOW BOTTOM OF BULKHEAD WALL



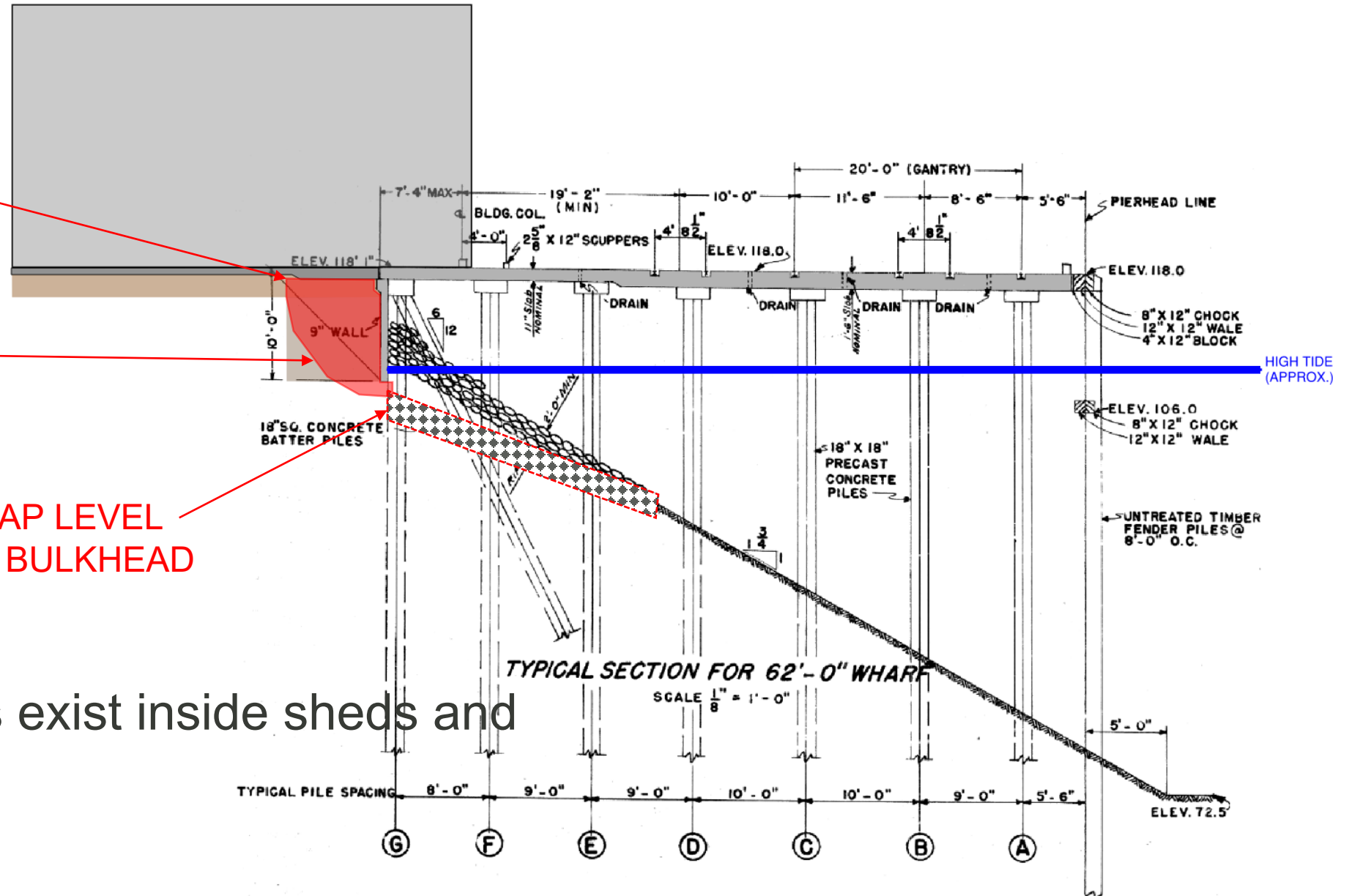
BULKHEAD WALL BACKFILL EROSION (DEEP VOID)

DEEP VOID LATERAL
EXTENT
(UP TO ~8 FT)

DEEP VOID
(WALL BACKFILL
EROSION)

APPROXIMATE RIPRAP LEVEL
BELOW BOTTOM OF BULKHEAD
WALL

- Note deep voids exist inside sheds and between sheds



BULKHEAD WALL BACKFILL EROSION (DEEP VOID – SHED 19)



SLAB OPENING CREATED AT LOCATION OF PUNCHING FAILURE DUE TO DROPPED STEEL COIL



FILL AND SOIL LAYERS AT SLAB OPENING



FILL AND SOIL LAYERS AT SLAB OPENING



VOID EXTENDS FULL HEIGHT OF WALL
NOTE WATER AND DEBRIS VISIBLE
WATER LEVEL FLUCTUATES WITH TIDE

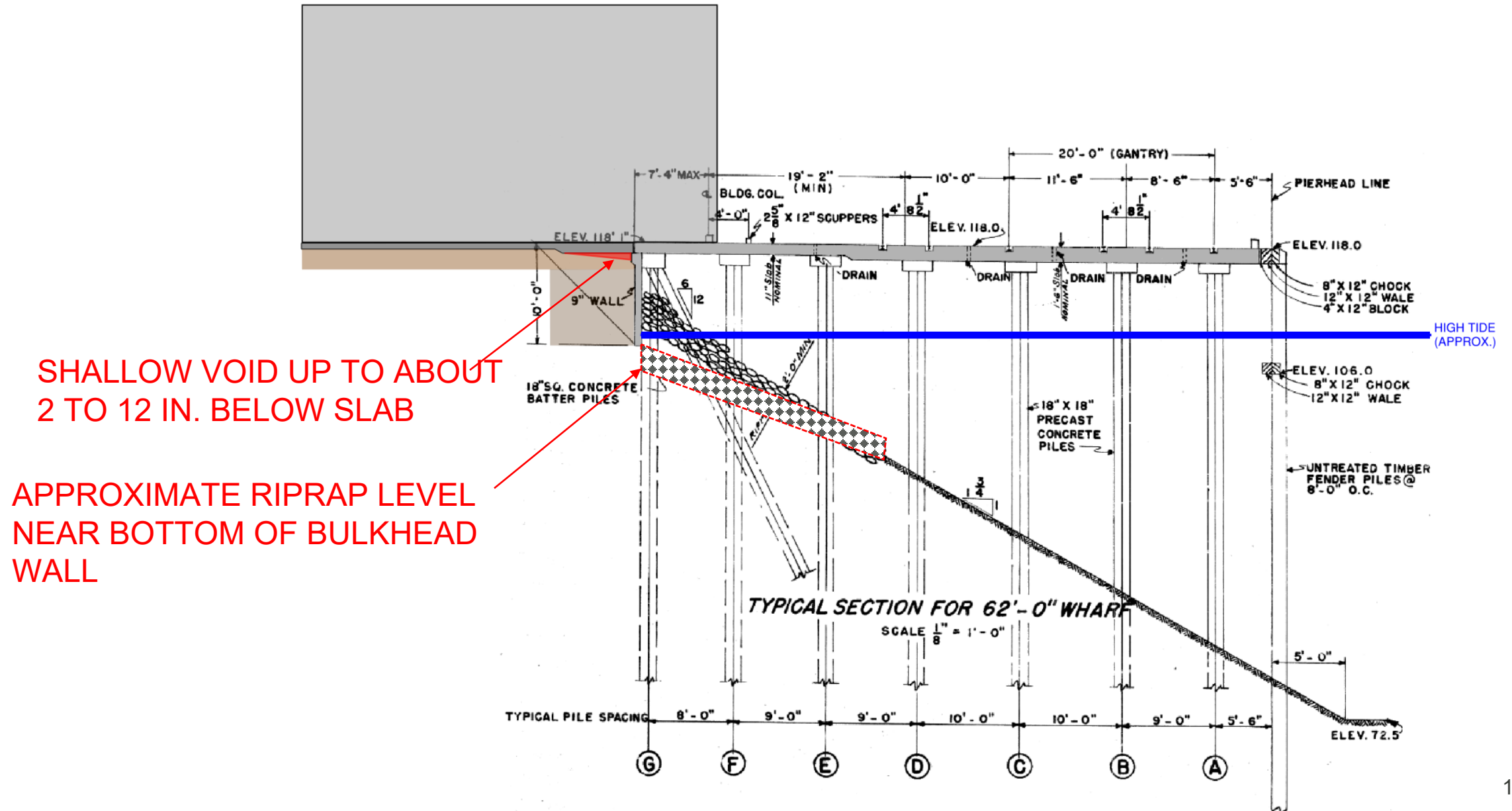


VOID LOOKING WEST FROM SLAB OPENING



VOID LOOKING EAST FROM SLAB OPENING

SHALLOW VOID (INSIDE SHEDS ONLY)



SHALLOW VOID



REPAIR OBJECTIVES

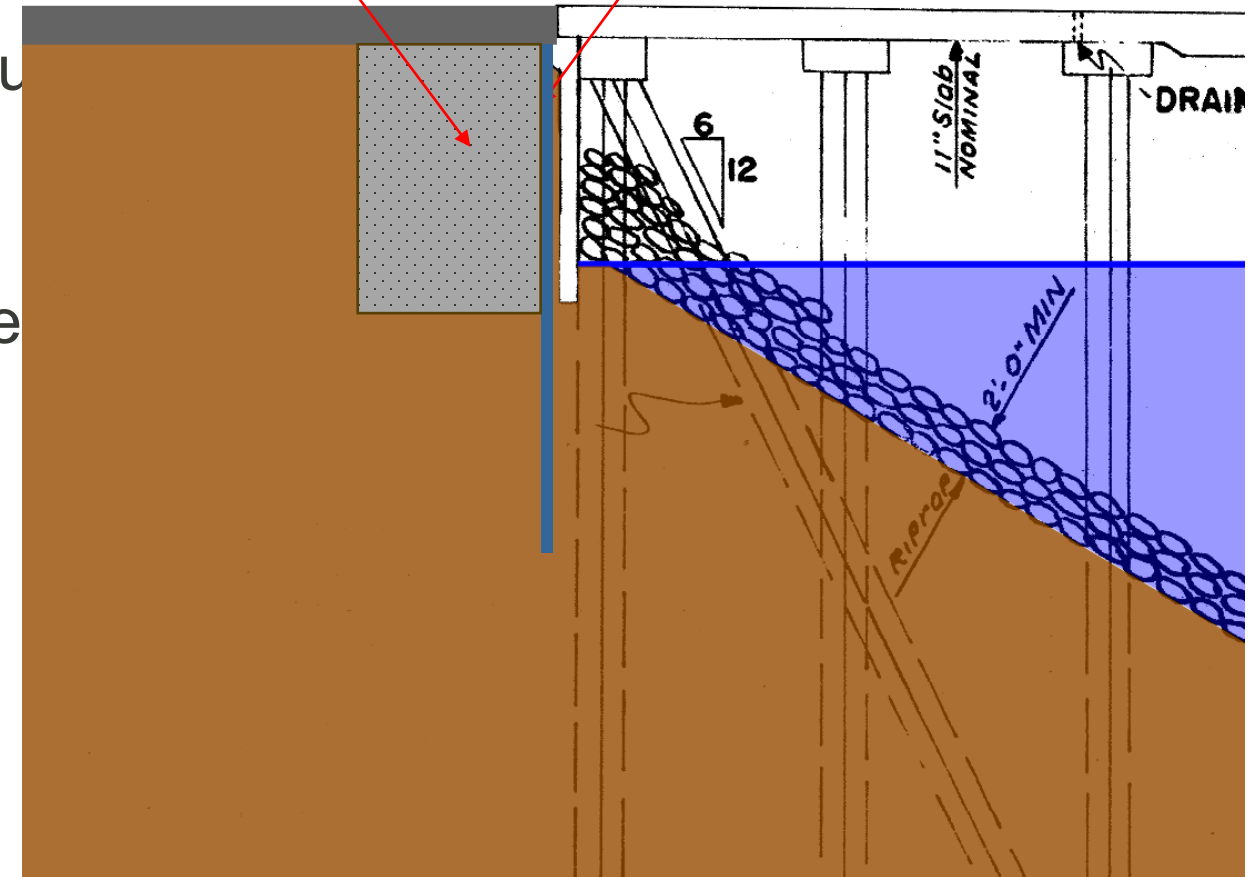
- Repair Objectives
 - Fill voids and reestablish current use
 - Monitor future void formation and address as needed
 - Address root cause of voids
 - Reduce risk of future void formation

DEEP VOID REPAIR CONCEPT 1 – SHEET PILE WALL

- Pros
 - Robust solution with low risk of future erosion
- Cons
 - Not practical in sheds (limited access)
 - Potential obstructions
 - High cost

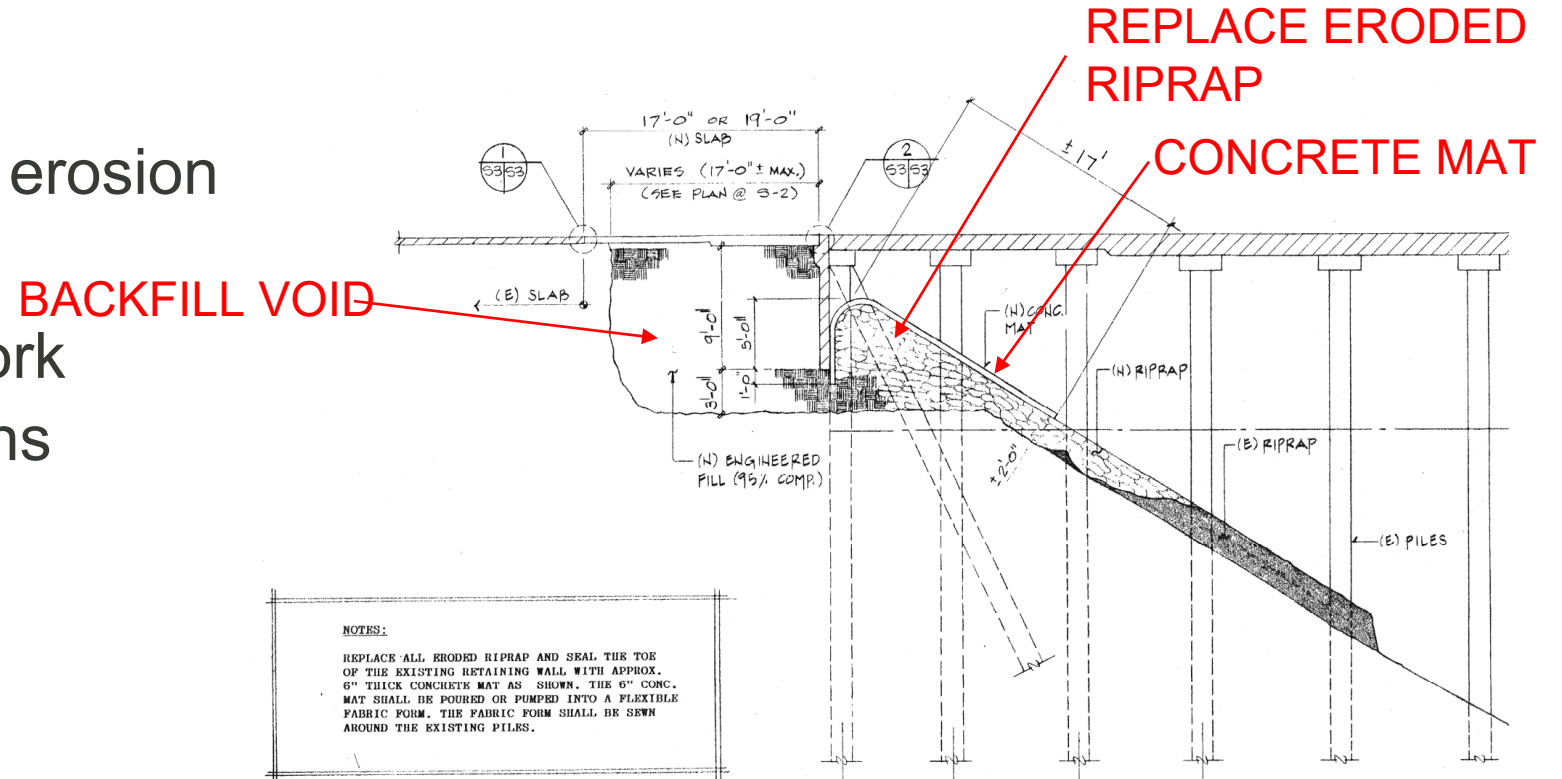
CONTROLLED DENSITY FILL
(FLOWABLE)

NEW SHEET PILES
ALONG LENGTH OF
WHARF



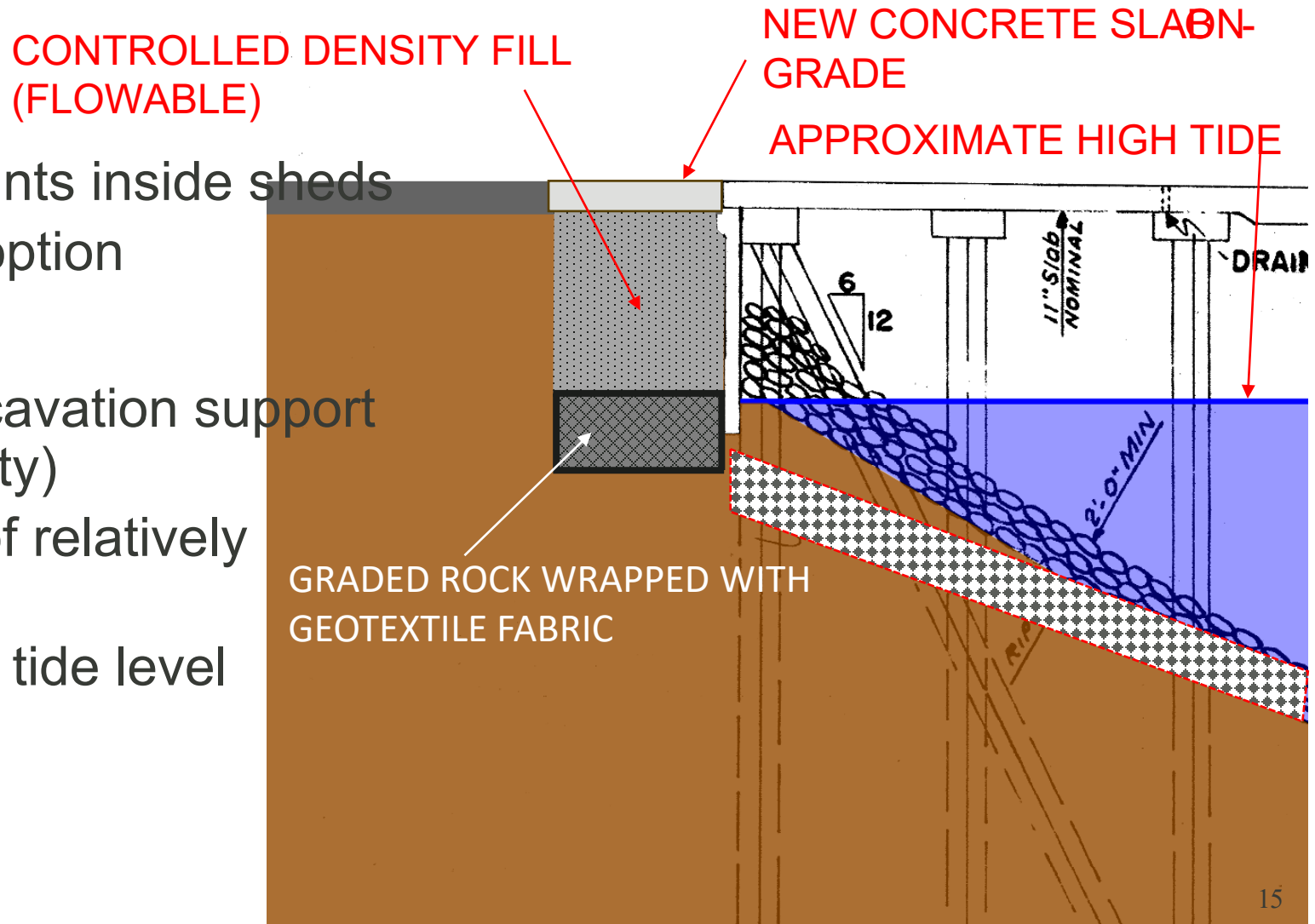
DEEP VOID REPAIR CONCEPT 2 – SLOPE REPAIR AND BACKFILL

- Pros
 - Reduced risk of future erosion
- Cons
 - Requires waterside work
 - Environmental concerns
 - Very limited access
 - High cost



DEEP VOID REPAIR CONCEPT 3 – BACKFILL VOIDS AND REPLACE SLAB

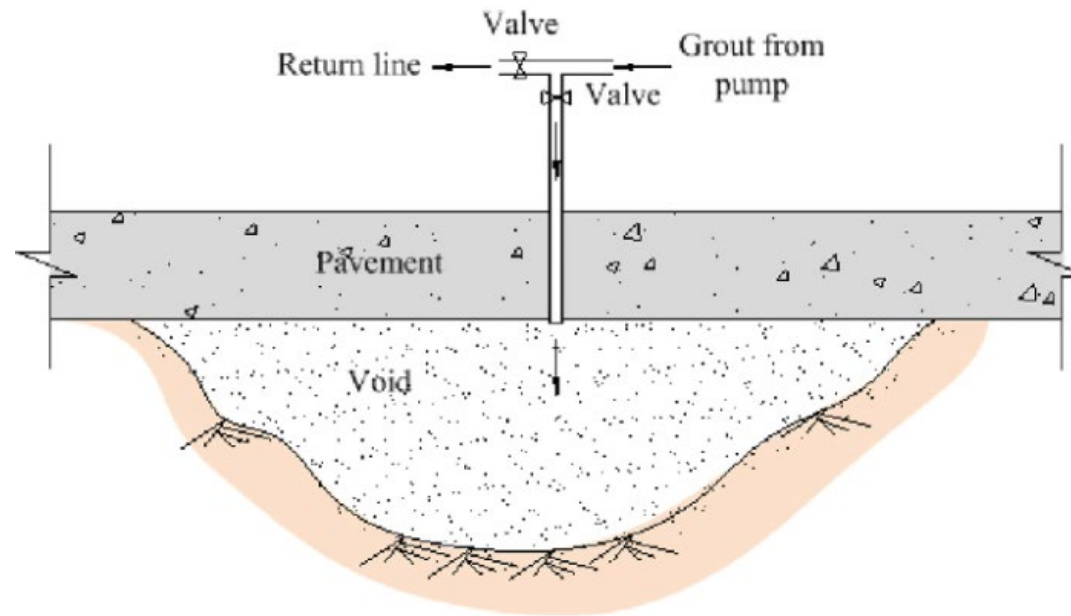
- Pros
 - Minimal access constraints inside sheds
 - Potentially lowest cost option
- Cons
 - Requires temporary excavation support (shoring for worker safety)
 - Requires over excavation of relatively shallow voids
 - Work needs to consider tide level fluctuations



SHALLOW VOID REPAIR CONCEPTS

Note WE investigation suggests shallow voids exist only inside the sheds

- Alternative 1: low-pressure grout placement through holes cored in slab/pavement



- Alternative 2: removing the slab, identifying all shallow void depths and extents, reestablishing slab subgrade with compacted base rock, and constructing a new slab-on-grade

ESTIMATED REPAIR COST SUMMARY

Alternative 1: Deep Void Repair and Grout Shallow Voids

	Deep Void Length	Deep Void Repair Unit Cost	Deep Void Repair Cost	Shallow Void Area	Shallow Void Repair Unit Cost	Shallow Void Repair Cost	Total Cost
SGH	1,860 ft	\$1,000 per ft	\$1.86M	21,800 SF	\$15 per SF	\$0.33M	\$2.19M
WJE	1,860 ft	\$2,150 per ft	\$4.0M	21,800 SF	\$11 per SF	\$0.24M	\$4.24M

- This alternative of grouting shallow voids would only address known voids (there may be voids that have not been identified by the investigations and surveys completed to date) – final extent of grout uncertain
- Contingencies should be included to address additional voids that have not been identified by current investigations

ESTIMATED REPAIR COST SUMMARY

Alternative 2: Deep Void Repair and Backfill Shallow Voids

	Deep Void Length	Deep Void Repair Unit Cost	Deep Void Repair Cost	Shallow Void Area	Shallow Void Repair Unit Cost	Shallow Void Repair Cost	Total Cost
SGH	1,860 ft	\$1,000 per ft	\$1.86M	21,800 SF	\$43 per SF	\$0.94M	\$2.80M
WJE	1,860 ft	\$2,150 per ft	\$4.0M	21,800 SF	\$43 per SF	\$0.94M	\$4.94M

- This alternative includes removing the slab, identifying all shallow void depths and extents, reestablishing slab subgrade with compacted base rock, and constructing a new slab-on-grade
- Once the slab is removed, probing to identify if any voids exist below subgrade soil bridging that has resulted in a soil “shelf” should be completed
- Contingencies should be included to address additional voids that have not been identified by current investigations



PUBLIC AGENDA ITEM #5
2026-2030 WHOLESAL POWER PURCHASE —
SEPTEMBER 15, 2025

Consideration and possible authorization for the Port Director to complete negotiations with Shell Energy North America and execute a new 5-year (2026-2030) wholesale power purchase under the existing Shell Master Purchase Agreement totaling approximately(*) \$7,859,770 for the 5-year term.

* Energy Contract prices fluctuate daily, and Port Director is authorized by prior Board Resolution to secure and enter into power provision agreements.

West Complex Electric Utility

- Port serves two electric customer groups:
 - **Base Load:** Small commercial/industrial tenants (3,000–4,000 kW)
 - **Large Load:** Separate contracts (not part of this request)
- Port has purchased wholesale power from Shell for **15 years**
- Current energy & RA contracts expire **Dec. 31, 2025**
- Port has provided stable, cost-effective electric rates well below local alternatives

Western Area Power Association (WAPA):

- Pros: Lower RA costs, possible deposit relief
- Cons: Market risk exposure, no guaranteed compliance with state RA rules, annual reallocation = price volatility, drought risk

Shell Energy North America:

- Proven, reliable provider
- Long-term price stability under Master Agreement
- Supports operational efficiency and strengthens tenant relationships.



Proposed Shell Agreement

- 5 MW Base Load Capacity (RA) – 5 years
- 18,363 MWh Base Load Profile Energy – 5 years
- Scheduling Coordinator Services – 5 years (\$30K/year)
- Cost: approximately \$1.57M annually / \$7.86M over 5 years
- Costs align with current FY26 budget



Proposed Shell Agreement

- **No fiscal impact** to FY2025–26 budget
- Maintains **competitive utility rates** for tenants
- **Staff Recommendation:** Approve resolution to proceed with Shell 2026–2030 contract

Recommendation:

Staff recommends approval of a resolution authorizing Port Director to:

- Complete negotiations with Shell Energy North America
- Execute a new 5-year Wholesale Power Purchase (2026–2030) under existing Shell Master Purchase Agreement



THANK YOU

Discussion – Options Considered



Three Year Term is another viable option:

		RA Rate	RA	RA \$	Energy Rate	Energy	Energy \$	Total	Melded Rate
1 year	2026	\$ 7.87	5,000	\$ 472,200	\$ 53.00	18,363	\$ 973,239	\$ 1,445,439	\$ 78.71
3 year	2026-2028	\$ 8.00	5,000	\$ 480,000	\$ 56.30	18,363	\$ 1,033,837	\$ 1,513,837	\$ 82.44
5 year	2026-2030	\$ 8.28	5,000	\$ 496,800	\$ 58.55	18,363	\$ 1,075,154	\$ 1,571,954	\$ 85.60
				33%			67%		