

Agenda

BULLOUGH'S POND DAM REHABILITATION

- GEI Alternative Design Options
- Discussion
- Feedback
- Next Steps



DCR Requirement

DCR Requirement (302 CMR 10.14 (6)) for Significant Hazard Potential, Intermediate Size, Existing Dams:

- *The spillway system shall have a capacity to pass a flow resulting from a design storm..., unless the applicant provides calculations, designs and plans to show that the design flow can be stored, passed through, or passed over the dam without failure occurring.*
- Spillway Design Flood (Bullough's Pond Dam) = 100-year storm event (based on Significant Hazard Potential and Intermediate size)





Options for safely passing the SDF under consideration:

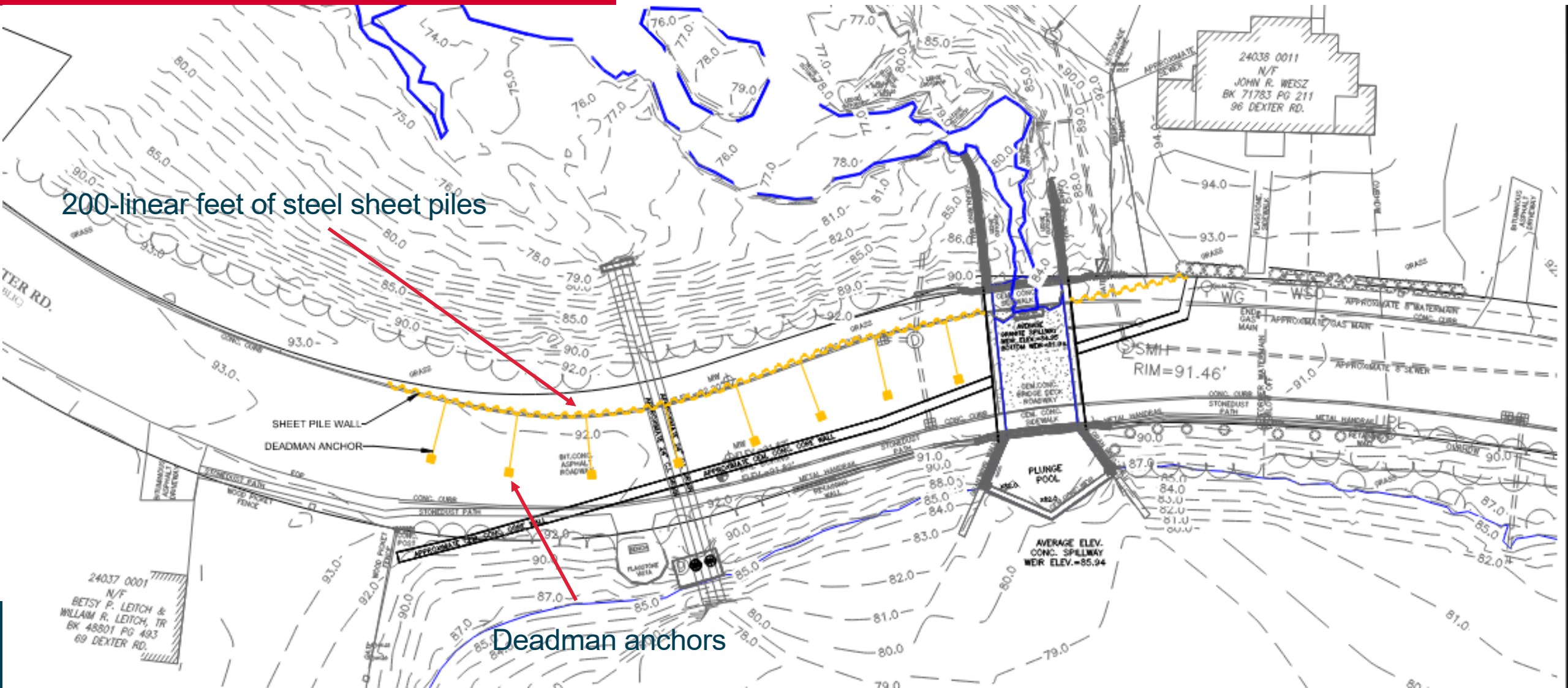
1. Embedded sheet-pile wall
2. Raised core wall
3. Downstream slope erosion protection
4. Increased spillway capacity



Option 1 –
Embedded sheet-pile wall

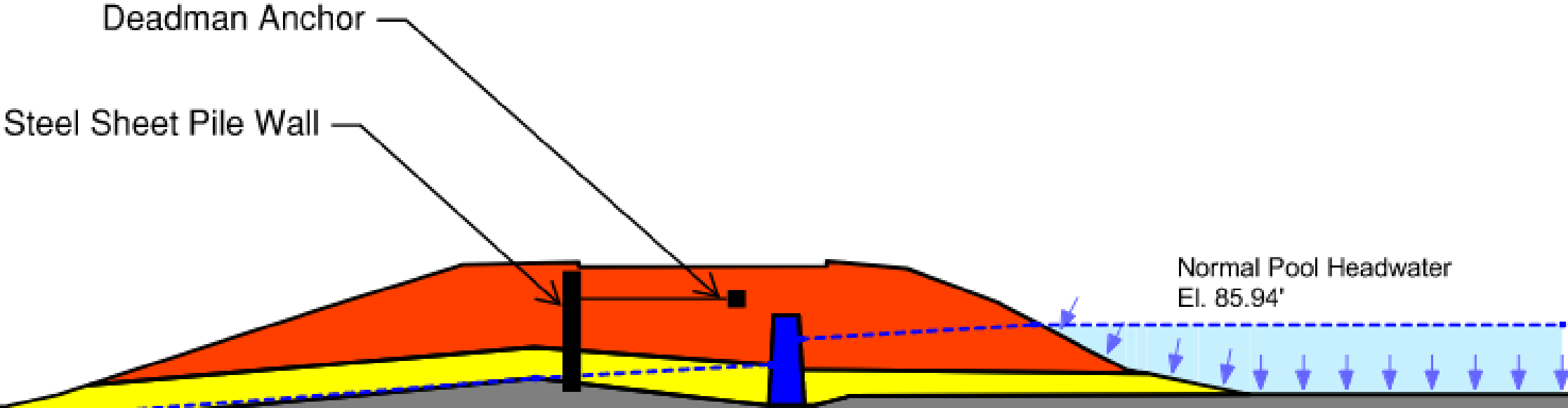
200-linear feet of steel sheet piles

Deadman anchors



Option 1 –

Embedded sheet-pile wall



Option 1 –

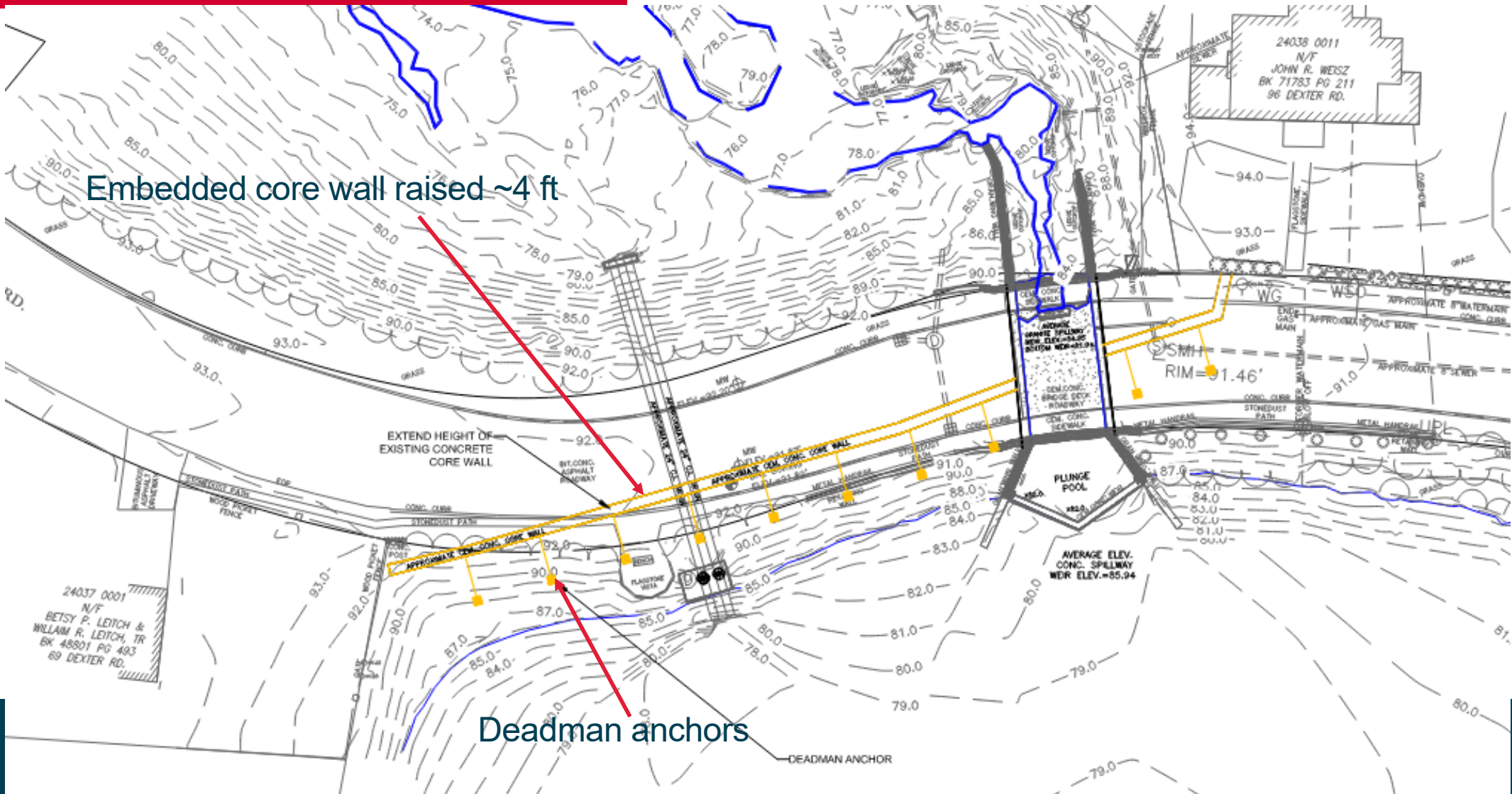
Embedded sheet-pile wall

Embedded sheet-pile wall option elements:

- ~200 LF of Sheet Piles driven to 12+ feet depth to bedrock
- Deadman anchor system
- Excavate <5 feet below surface to install deadman anchors above concrete core wall
- Relocating impacted utilities
- Re-landscape and repave road



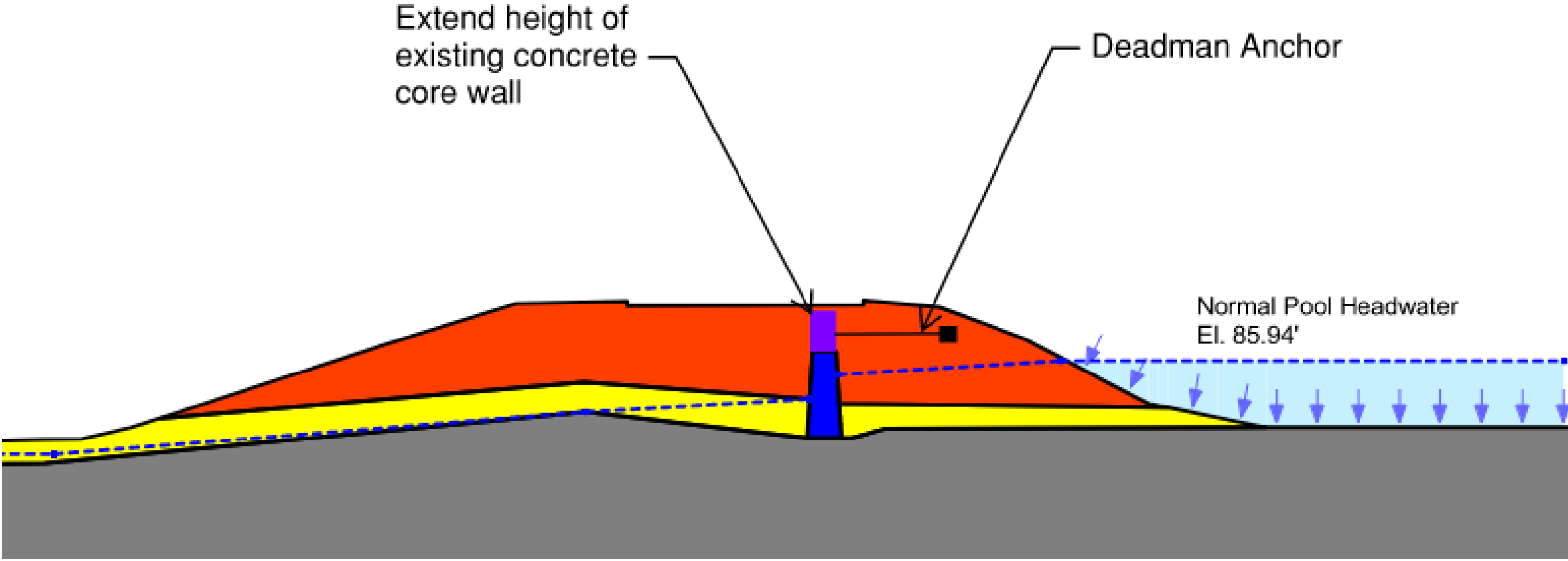
Option 2 – Raised core wall



Embedded core wall raised ~4 ft

Deadman anchors

Option 2 –
Raised core wall



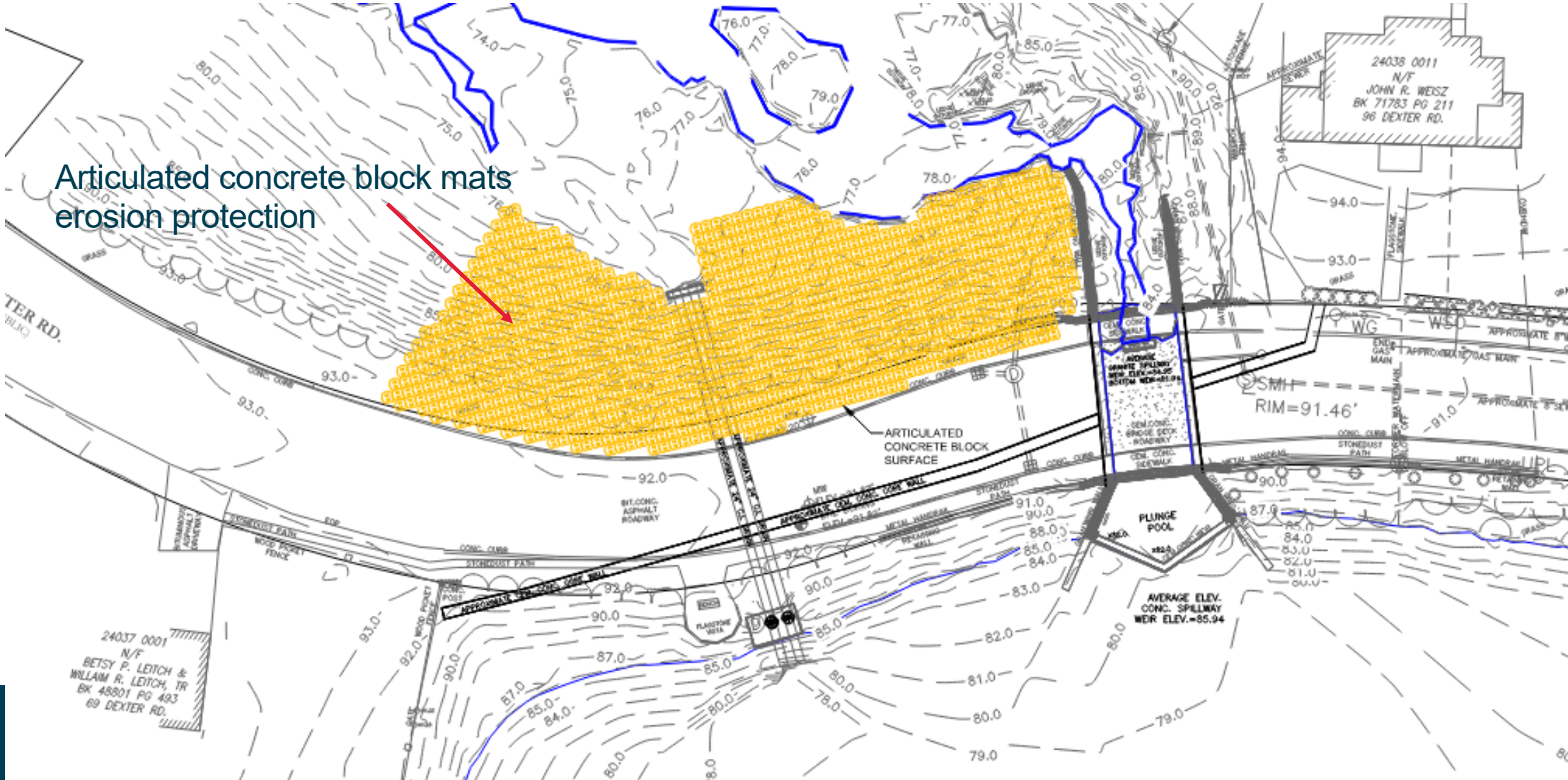
Option 2 – Raised core wall

Raised core wall option elements:

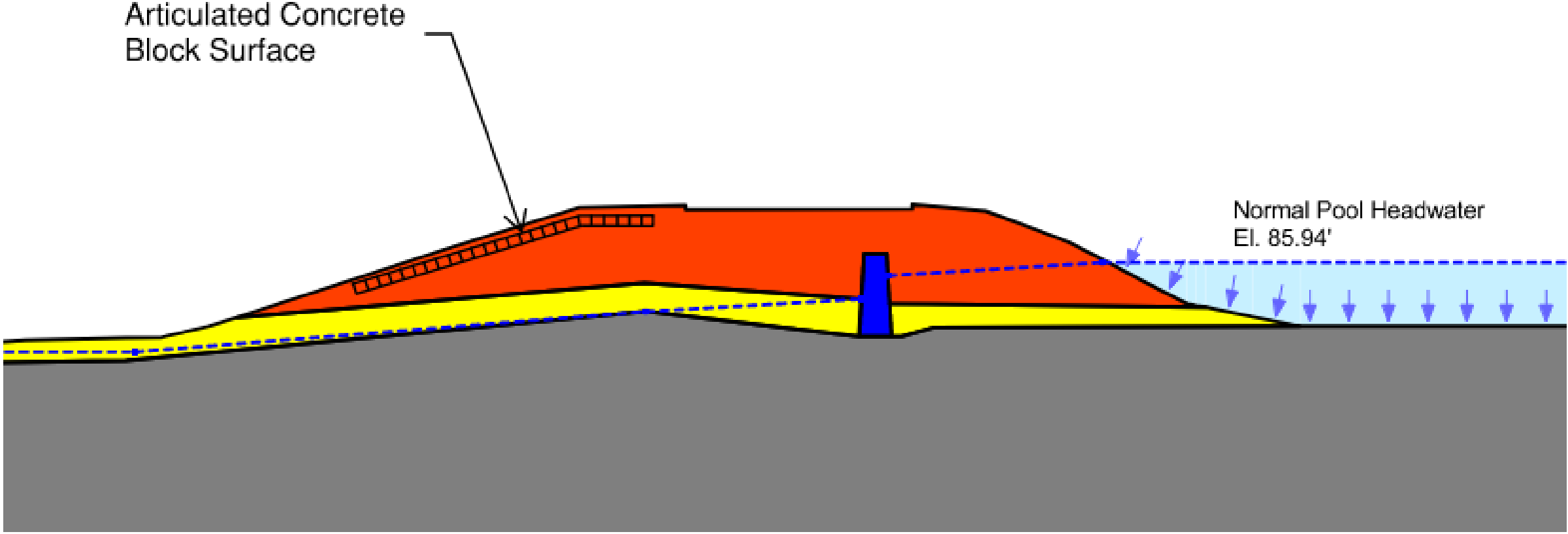
- Excavate 5+ feet to top of concrete core wall
- Anchor into, form and pour concrete extension for ~200 LF of core wall, extended up ~4 feet
- Deadman anchor system
- Excavate <5 feet below surface to install deadman anchors
- Relocating impacted utilities
- Re-landscape and repave road



Option 3 – Downstream slope erosion protection



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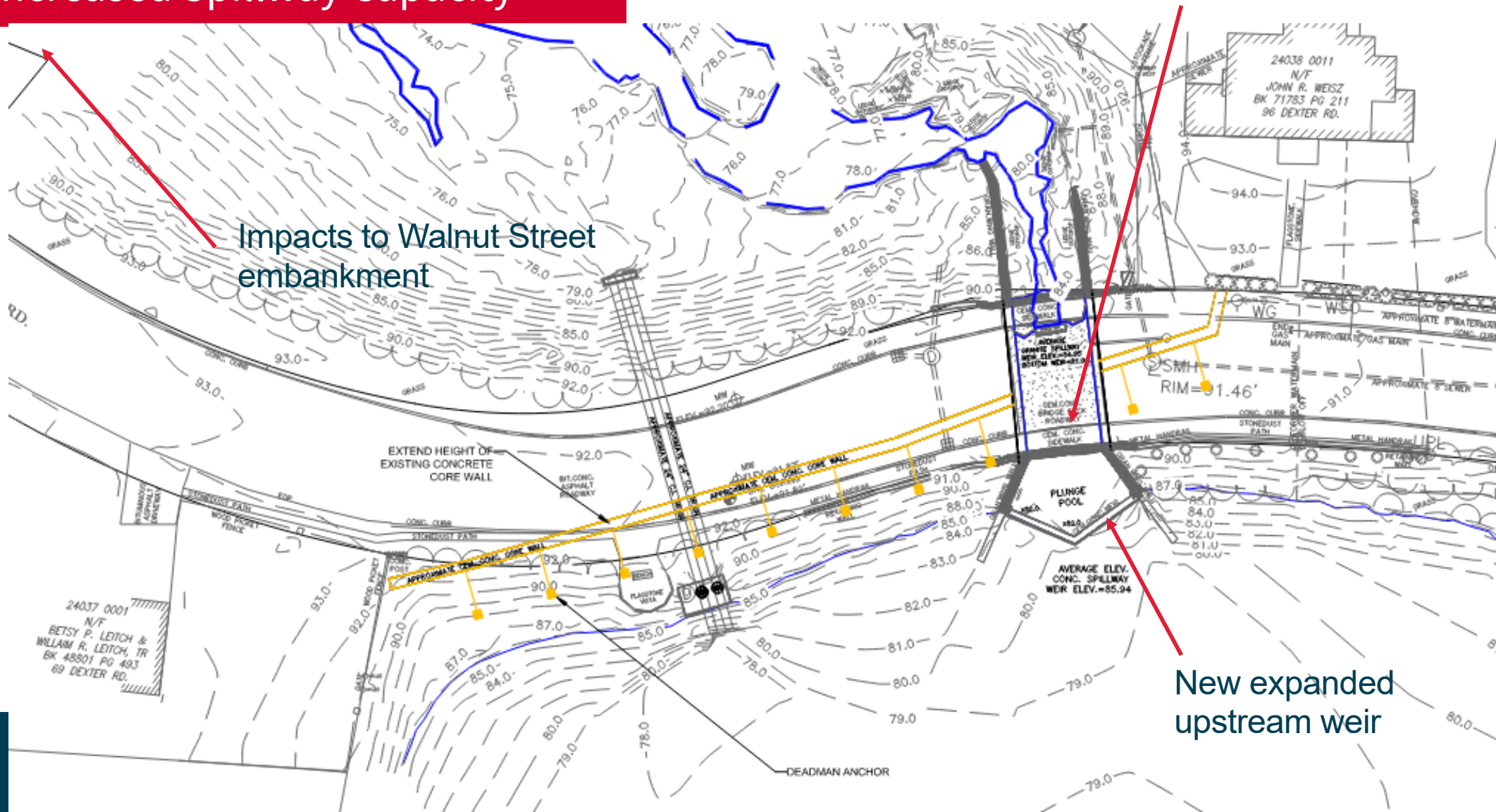
Downstream slope erosion protection option elements:

- Remove trees and vegetation
- Strip ~1 feet depth, grade smooth and compact
- Place geotextile
- Place articulated concrete block mattresses ~8,200 SF area
- Cover with seeded topsoil



Option 4 – Increased Spillway Capacity

- Deepen (excavate bedrock) and / or
- Widen (new bridge and abutments)



Option 4 – Increased Spillway Capacity

Increased spillway capacity has significant drawbacks:

- Downstream constraints/concerns – Walnut Street embankment overtops sooner and at a higher level, creating the same hazard that we are trying to avoid.
- Expensive due to possible need to:
 - Widen Dexter Street Bridge
 - Excavate bedrock
 - Construct new intake weir in pond



Next Steps

- Evaluate input and rank options.
- Discuss options with DCR Office of Dam Safety.
- Meet in late January / early February for further discussions.

