Permanente Creek Restoration Project

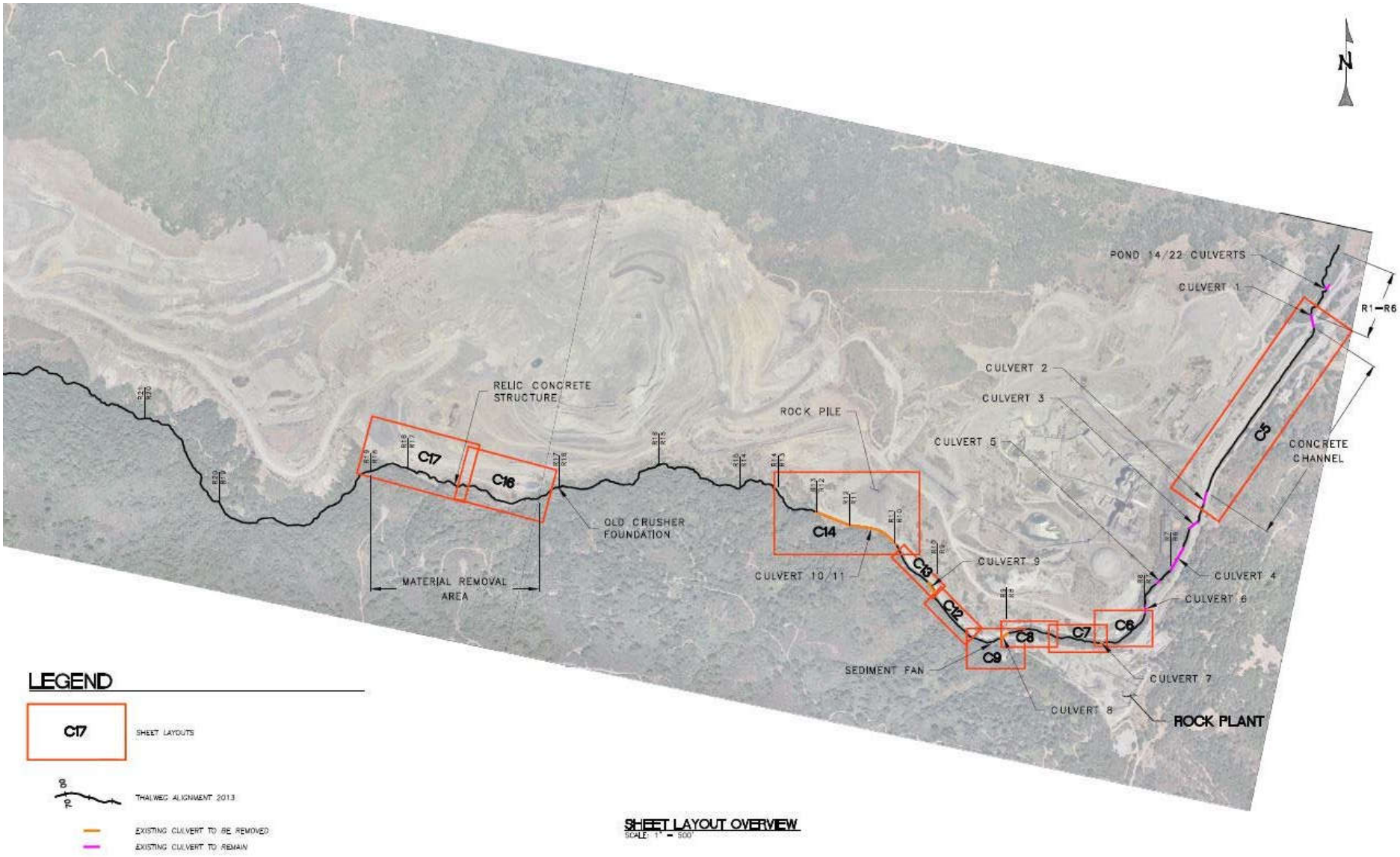
Army Corps of Engineers
Inter Agency Review Meeting

July 8, 2015

LEHIGH
HEIDELBERGCEMENT Group
PERMANENTE PLANT

Presentation Contents

- Introduction to Project Areas and Proposed Restoration Activities, based on 70% Design Drawings.



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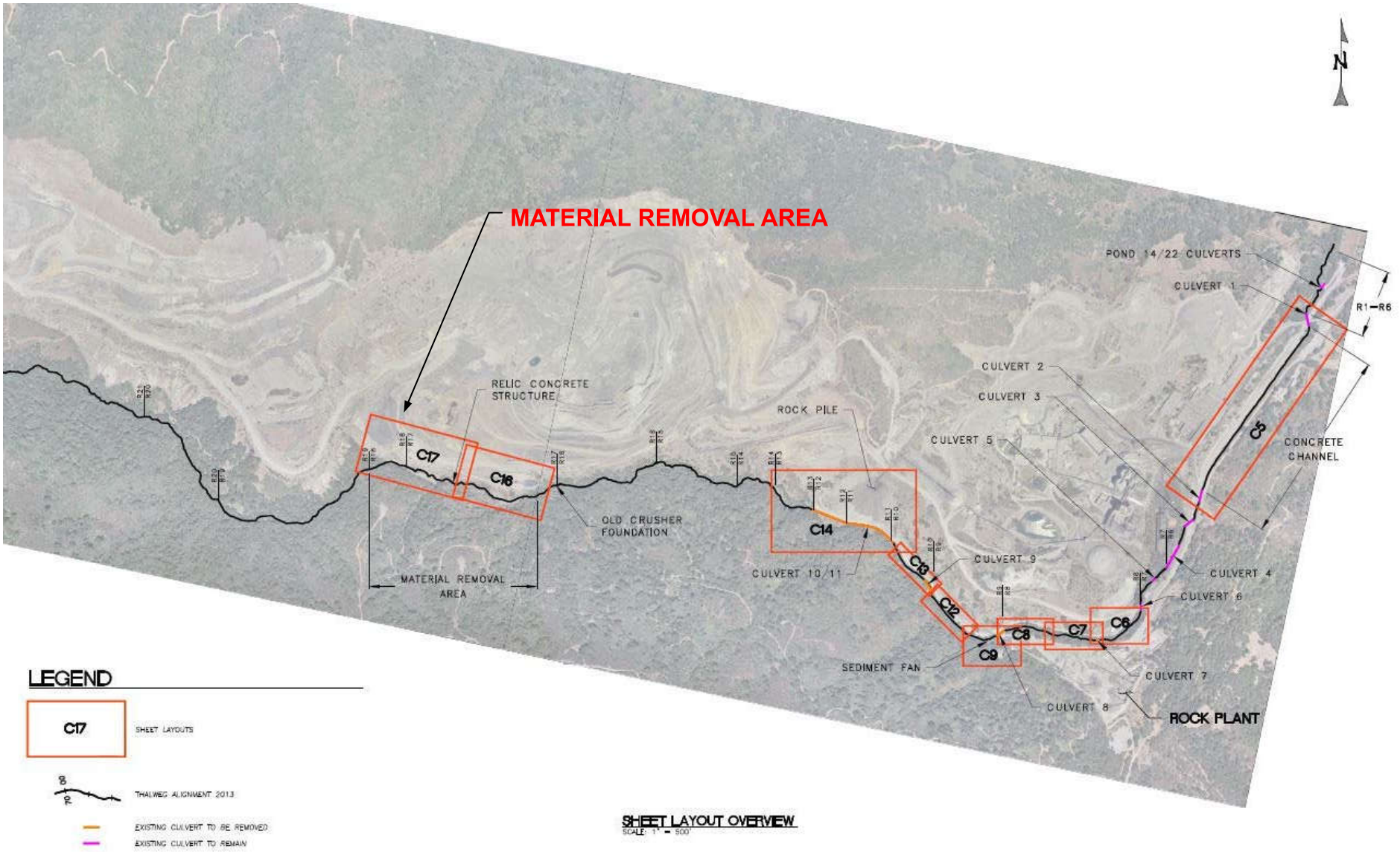
Project Area Overview

In-Stream Complexity

- Place large woody debris at 24 locations (4 locations in each of 6 reaches)
- Use only hand tools and local wood sources



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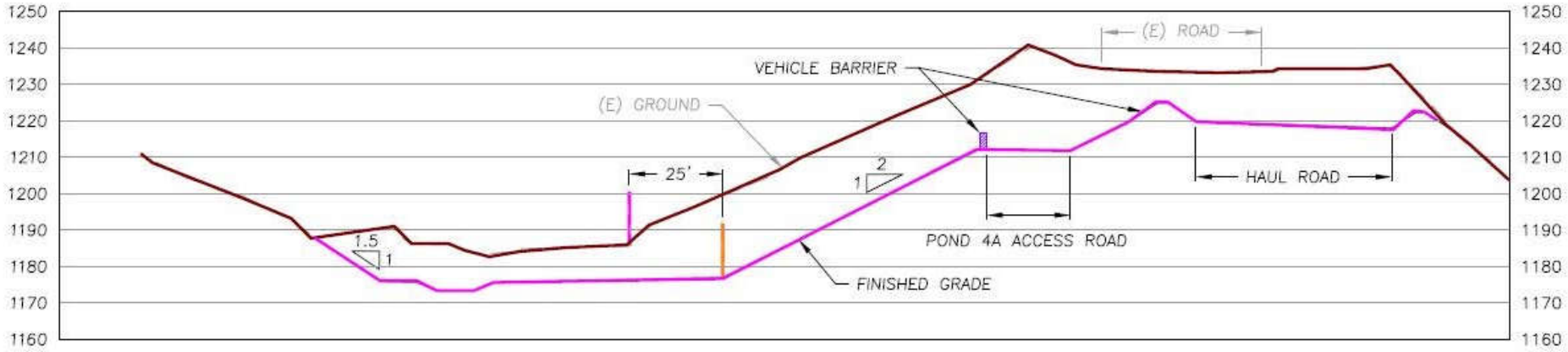
Overview

Material Removal Area

- Remove overburden. Relocate north toe of slope 25 feet to the north
- Maintain access to Pond 4
- Will use a “grading envelope” approach with field adjustments (conducted seismic study).
- Construct restored channel with inset floodplain benches and native plantings
- Use analog channels and regional hydraulic geometry relationships to inform design



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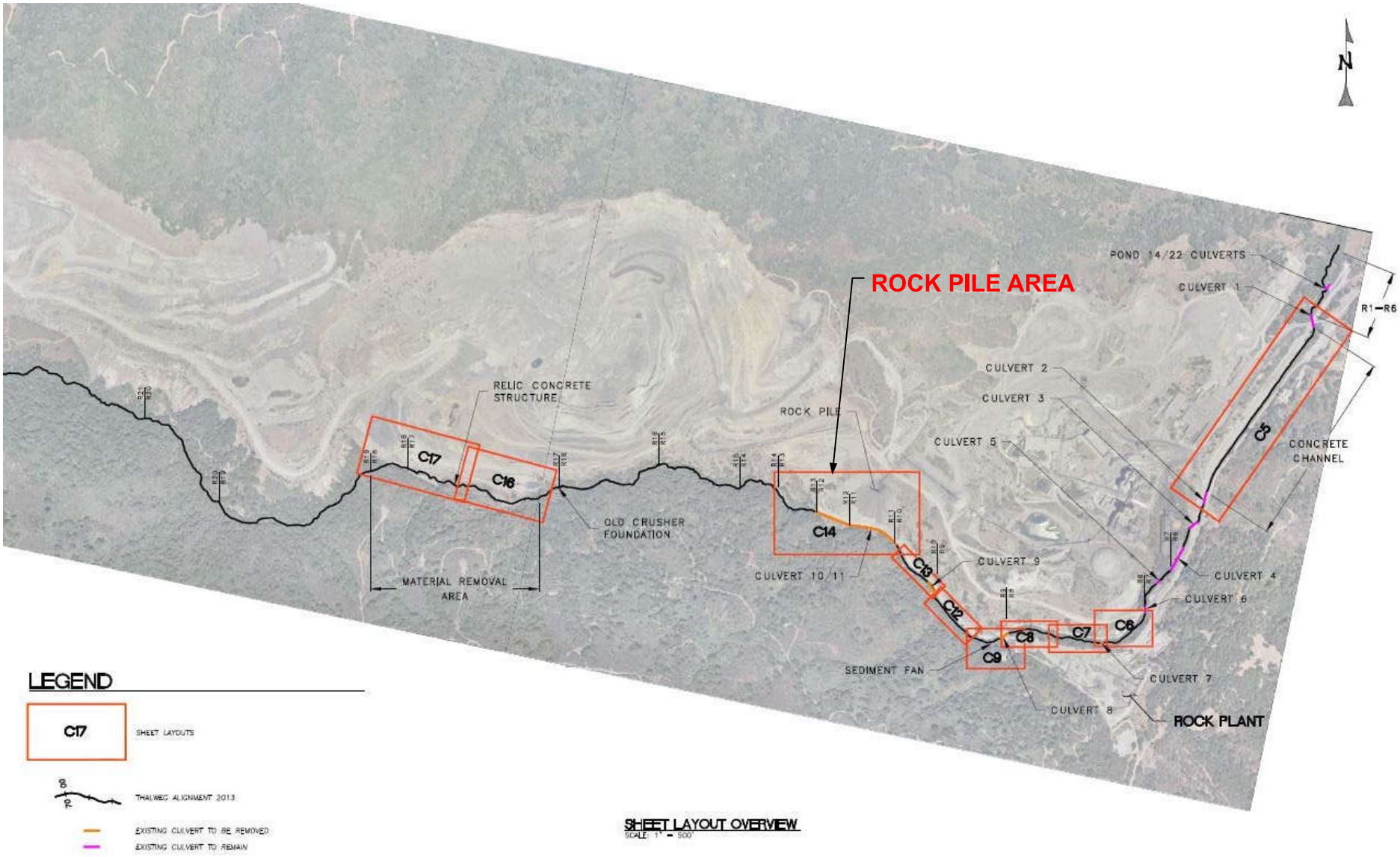
Typical Section at Material Removal Area



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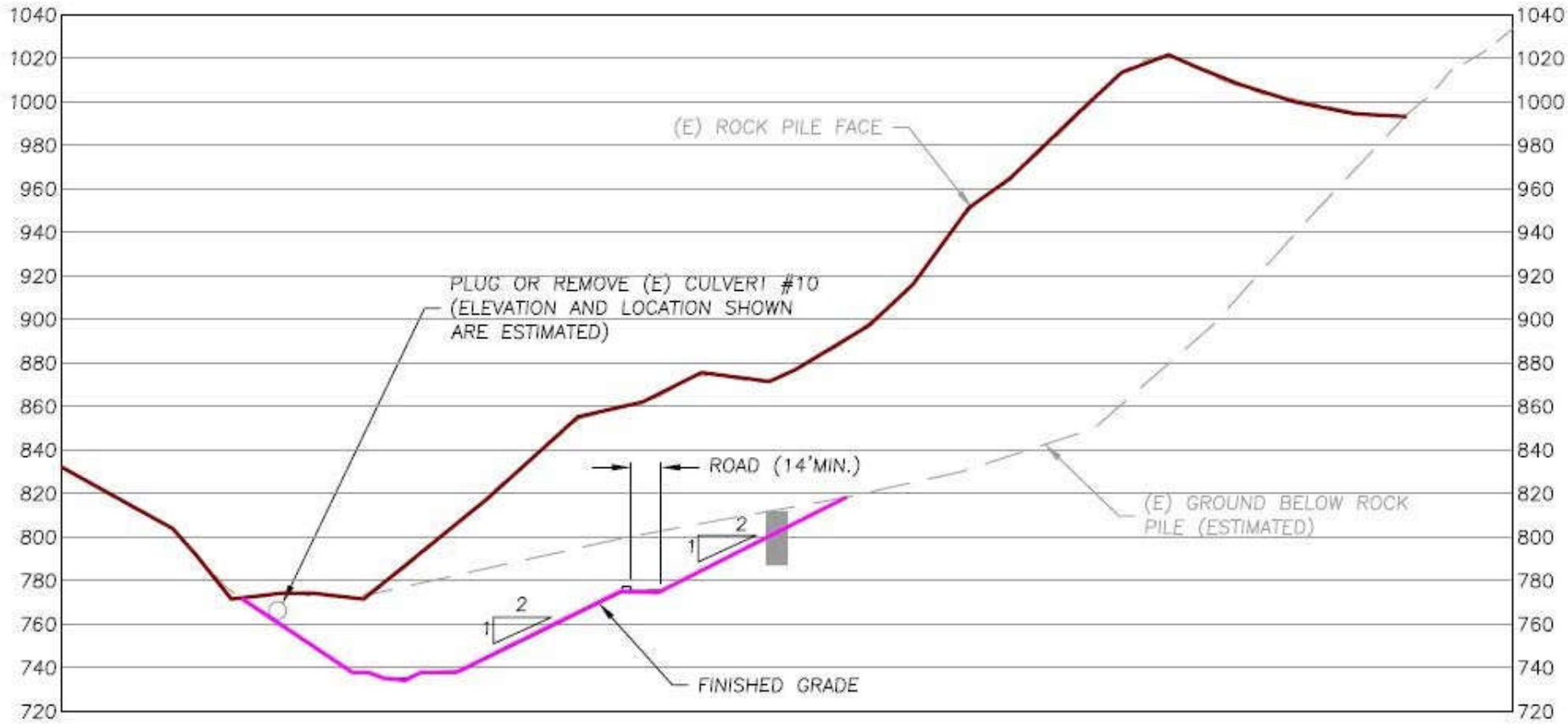
Overview

Rock Pile Area

- Remove rock pile and culverts. Realign channel to the north of its current, culverted alignment
- Grading envelope was developed to establish the upper and lower limits of the design profile (based on borings and seismic study).
- Construct open channel with inset floodplain benches and native plantings.
- Final profile (field fit) will determine whether Pond 13 should remain.
- Existing dam infrastructure to be removed whether pond remains or not
- Maintain vehicle access to Pond 13/13B.



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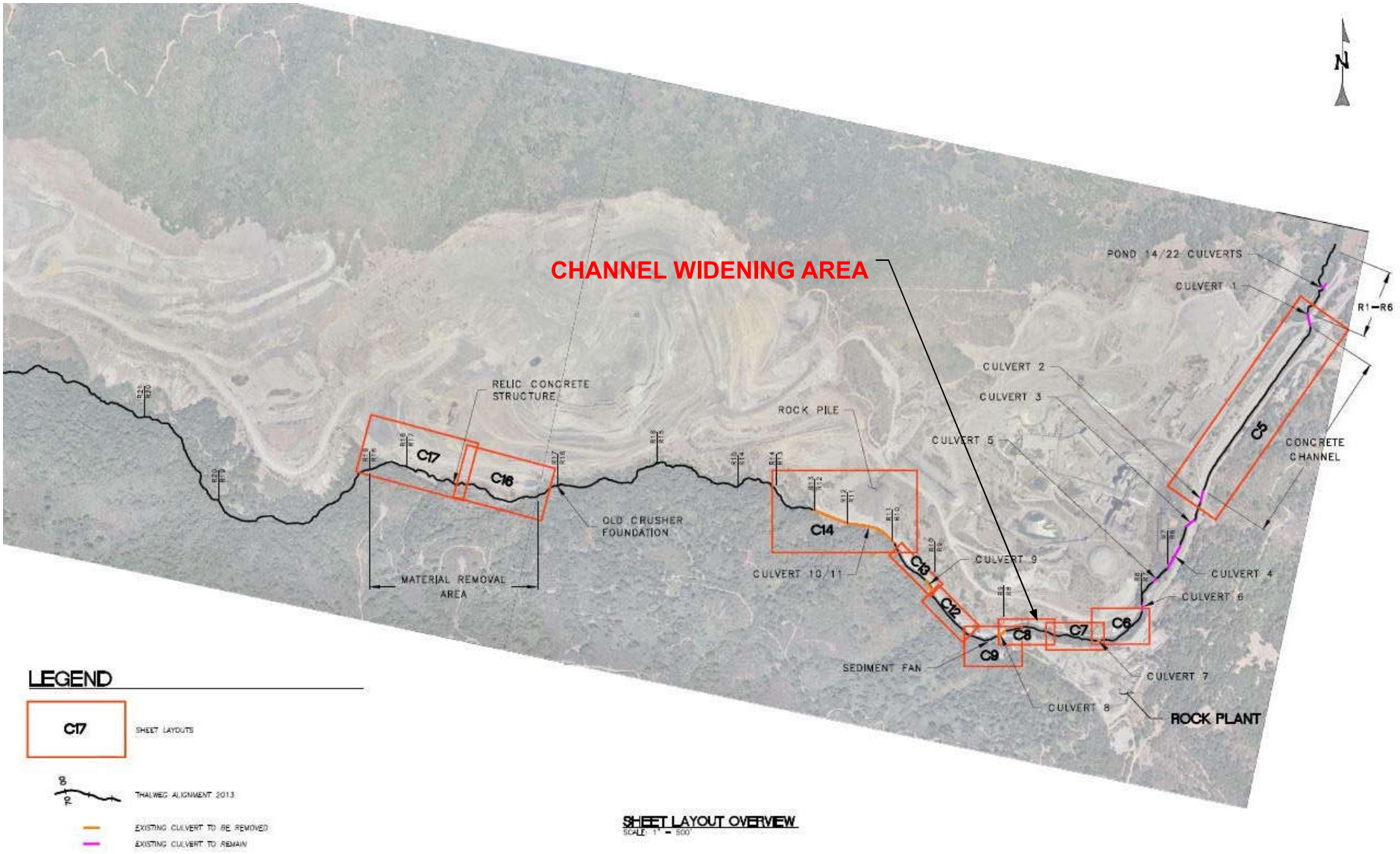
Typical Section at Rock Pile Area



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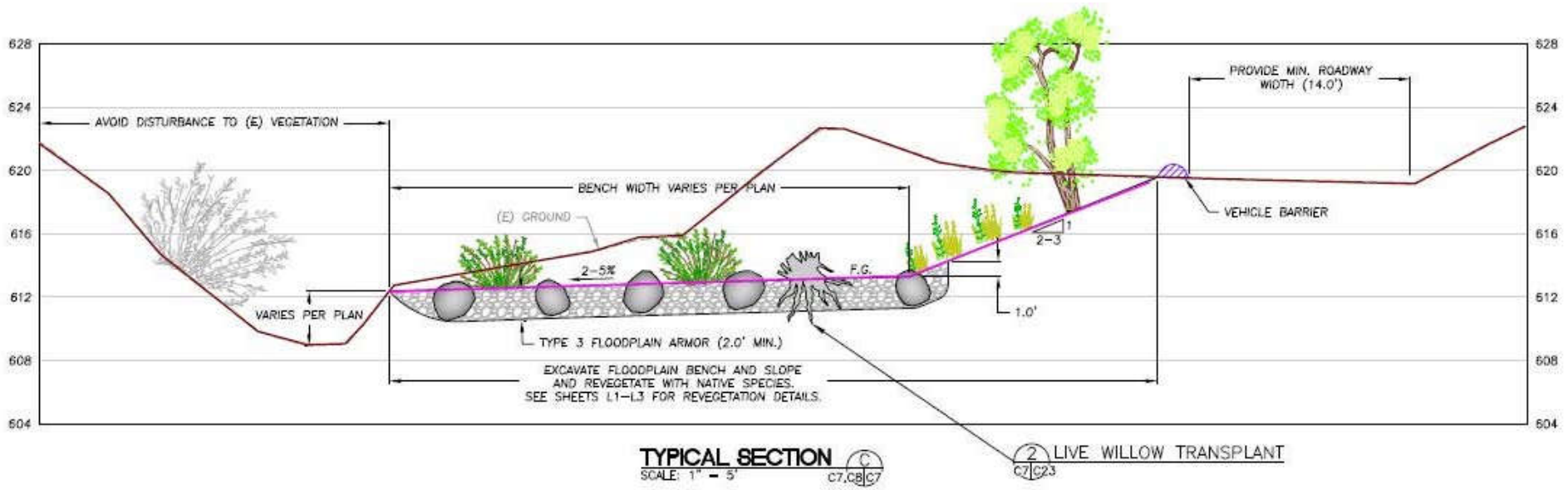
Overview

Channel Widening

- Reduce road width and create a floodplain bench from Pond 9 to the “rock pile” area.
- Excavate new inset floodplain bench.
- Remove 5 culverts to create open channel segments.
- Restore tributary (upstream of Culvert #8) by removing fill and revegetating the area.
- Remove riprap from channel and banks where this can be achieved without disturbing mature riparian vegetation



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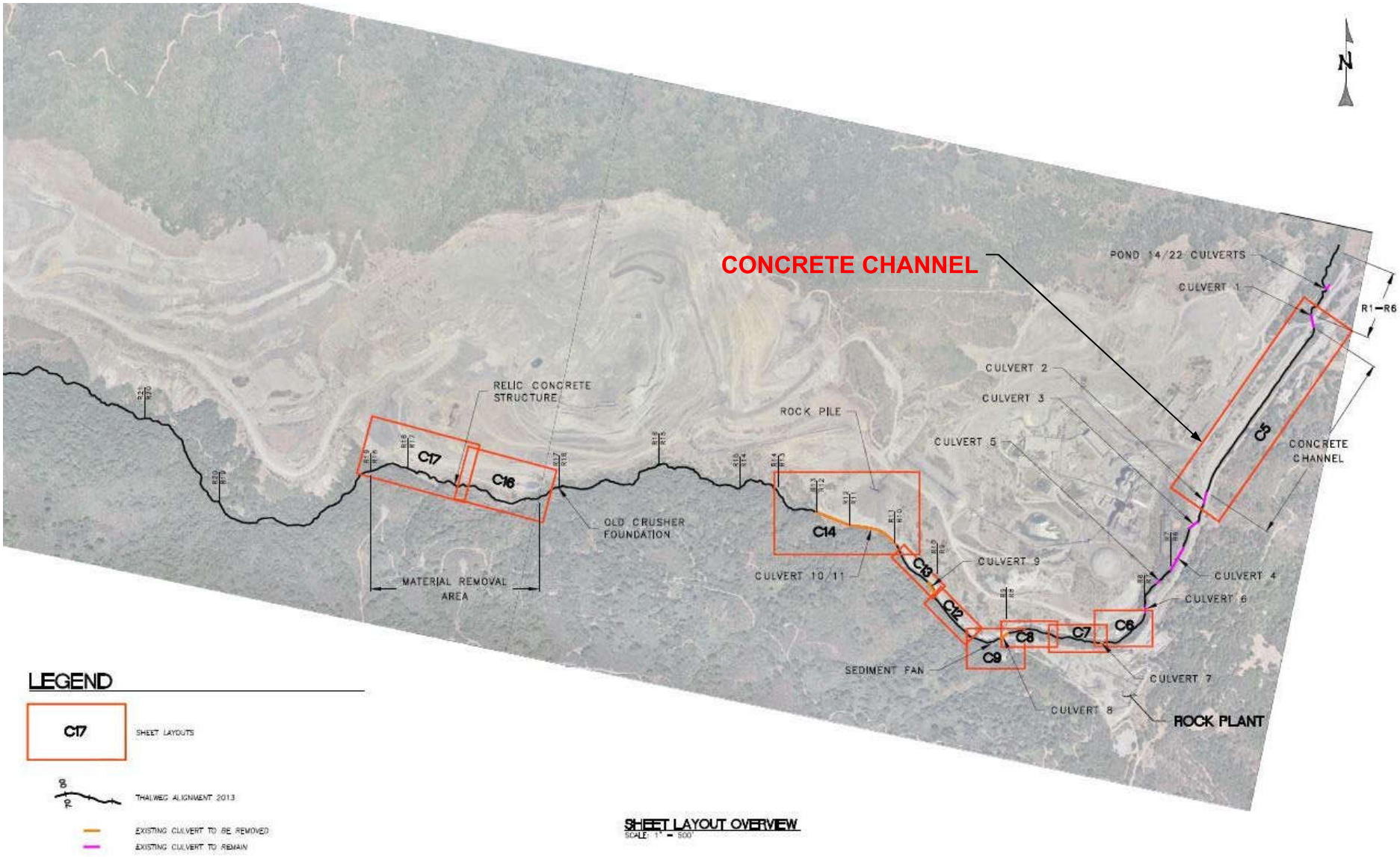
Typical Section at Channel Widening Area



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Overview

Concrete Channel

- Plant native riparian vegetation along the southern bank to provide improved shading of the channel
  - Reduce solar heat gain of stream flow
  - Reduce suitable areas for cattail and bullrush growth.