



Overview of Precast ABC Projects in the Pacific Northwest

Chuck Prussack, P.E., Oldcastle Precast, Inc - Spokane

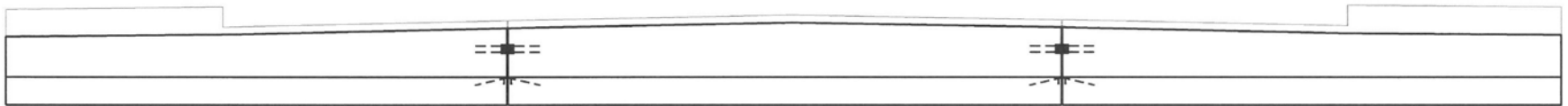
Techniques

- Additional prefabrication of units to reduce field timeline
- Simplify deck installation to reduce field forming
- Precast substructure elements
- Match elements to site constraints – spans, traffic needs, soil parameters
- Use proven details

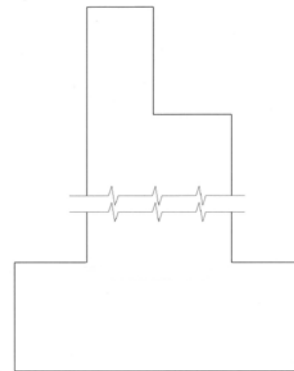
Goal of all techniques is Accelerated Bridge Construction

Dayton Street Bridge Replacement, Kennewick, WA

- 12" Solideck, 46' x 4' (16 pieces); abutments with footings (6 pieces), 36° skew
- Contractor: Accelerated Construction and Excavating, Plummer, ID
- Owner: City of Kennewick, WA



Longitudinal elevation of abutment 2



Abutment cross-section

Dayton Street Bridge Replacement, Kennewick, WA

- Three-piece sloped abutments
- Edge to edge deck simplified deck pour
- Tight timeline due to school session



Dayton Street in process

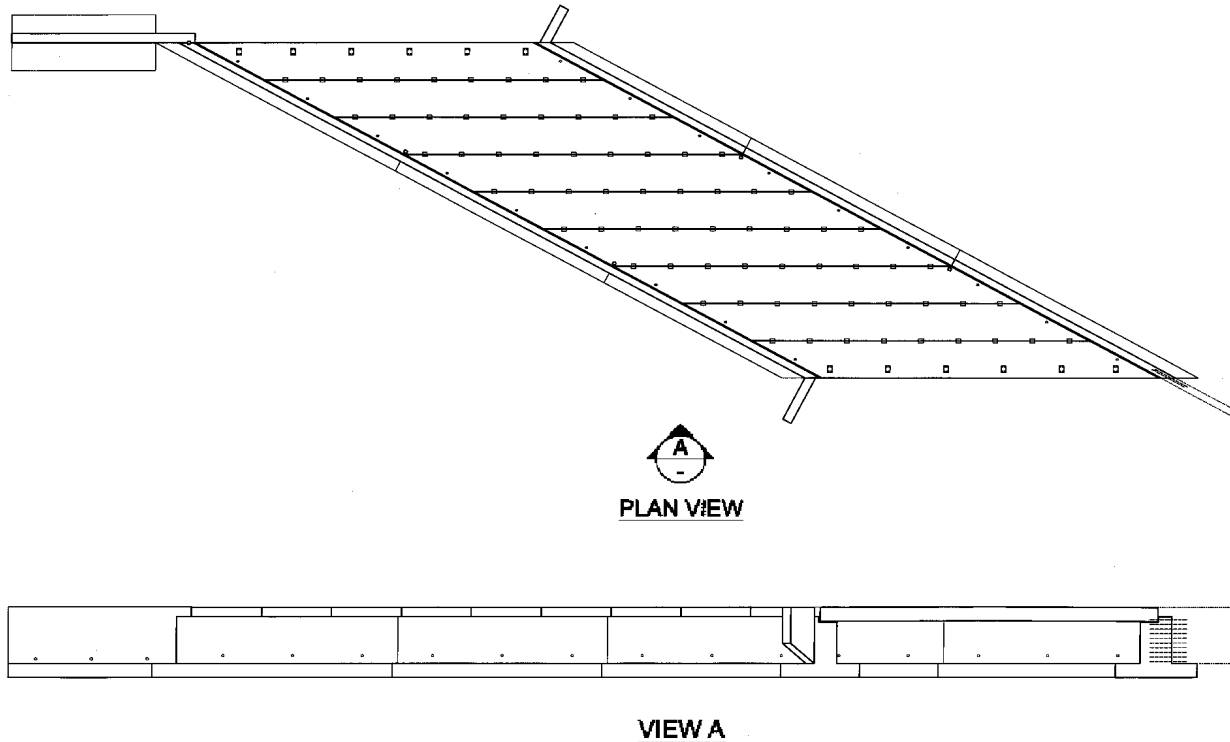
Dayton Street Bridge Replacement, Kennewick, WA



Finished job – just in time to re-open for school

Kittitas Highway, WA

- 18" Solideck, 36'-6" x 4' (9 pieces); abutments with footings (7 pieces), 62° skew
- Contractor: Belsaas & Smith Construction, Ellensburg, WA
- Owner: Kittitas County Department of Public Works, WA



Kittitas Highway, WA



Abutment walls with footing being set

Kittitas Highway, WA



Deck being set

Swan & Willow Creek Bridges, Kootenai County, ID

- Contractor: Apollo, Inc, Kennewick, WA
- Owner: Idaho DOT
- Swan Creek –
 - Three-sided Box Culvert (9 pieces)
 - Precast headwalls (2 pieces)



Swan in process



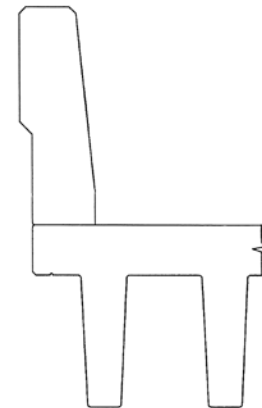
Swan complete

Swan & Willow Creek Bridges, Kootenai County, ID

- Willow Creek –
 - Trideck (8 pieces),
 - Precast pile caps (4 pieces)
 - Plant precast parapet barriers (2 pieces)
 - Edge-to-edge deck elements



Willow pile cap



Willow parapet

Swan & Willow Creek Bridges, Kootenai County, ID



Willow in process



Willow closure pour

Deep Creek Structures, Broadwater County, MT

- Three trideck bridges (15 pieces), pile caps (6 pieces)
- Curbs cast on at plant
- Different slopes and elevations
- Weekend highway closures for each bridge replacement; 24-hour work schedule
- 100 mile detour; some trucks on far side for delivery
- Trial fit in precast yard
- Contractor: Dick Anderson Construction, Great Falls, MT
- Owner: Montana DOT
- Consultant: Morrison – Maierle Engineers

Deep Creek Structures, Broadwater County, MT



Trial fits in precast yard



Deep Creek Structures, Broadwater County, MT



Pile cap being placed



Deck being placed

Deep Creek Structures, Broadwater County, MT



One bridge complete, keyways grouted

Swiftcurrent Bridge, Glacier National Park, MT

- 30" Voided slabs, 85' x 4'5" (6 pieces), abutments (2 pieces), wing walls (4 pieces), deck overhang
- Post-season, pre-winter install; crane on far side of creek
- Trial fit in precast yard
- Contractor: Northbank Civil & Marine, Vancouver, WA
- Owner: USDOT, Federal Highway Administration

Swiftcurrent Bridge, Glacier National Park, MT

- Note color of exterior girders to diminish visibility of depth
- Secondary pour of overhang to reduce field time
- Utility pipe cast in to voids at plant (5 places)



Trial fit in precast yard

Swiftcurrent Bridge, Glacier National Park, MT



Set in progress

Swiftcurrent Bridge, Glacier National Park, MT



Finished bridge

French Creek Bridge, Gallatin National Forest, MT

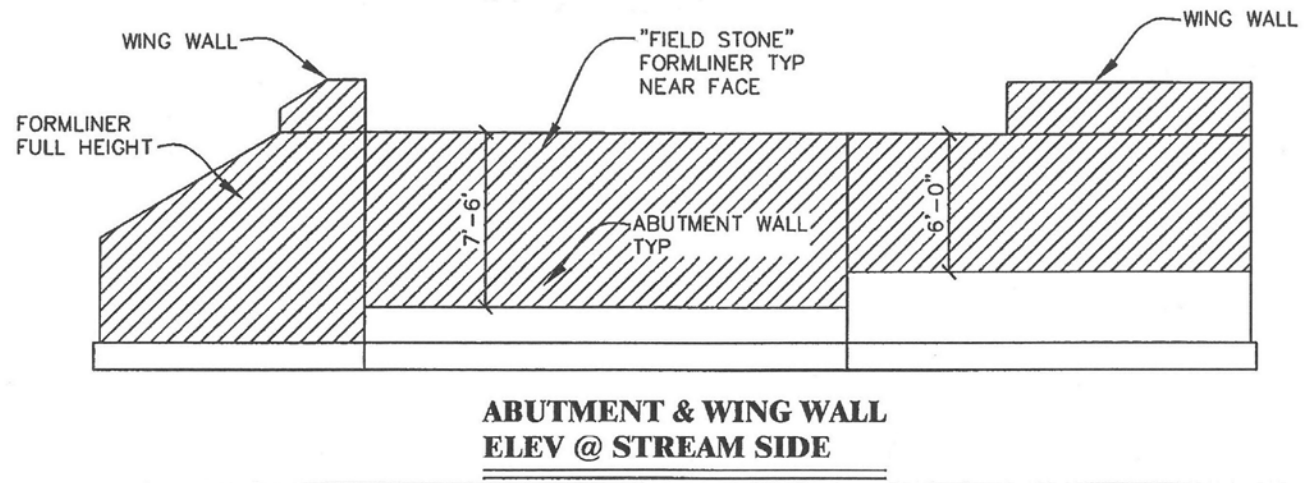
- 15" Solid slab 37' x 4' (4 pieces), grade beams (2 pieces), wing walls (4 pieces)
- Contractor: Battle Ridge Builders, Belgrade, MT
- Owner: U.S.D.A. Forest Service Region 1



Slab set on grade beams

Glover Creek Bridge, Clearwater National Forest, ID

- Trideck 37' x 4' (4 pieces), grade beams (2 pieces), abutments w/footings (3 pieces), wing walls (2 pieces)
- Colored concrete with stone pattern on abutment walls and wing walls
- Contractor: Cook & Sons, Whitebird, ID
- Owner: U.S.D.A. Forest Service Region 1



Glover Creek Bridge, Clearwater National Forest, ID

- Typical large plant-cast USFS curbs



Finished bridge in place

Stone pattern repair

Summary

- Use of full deck horizontal elements
 - To minimize field forming
 - To expedite deck timeline
- Precast substructures with just in time delivery
 - To avoid jobsite congestion
 - To expedite substructure timeline
- Wide array of precasts elements are available depending on the type of abutment
 - Spread footing or pile cap
 - Deck type differs depending on span
 - Appurtenances such as curbs, parapet, or railing
 - Aesthetics can be addressed with all of the available precast expertise