Solution for Saltzman

- **BNC Perspective**

BNC
BETHANY NEIGHBORHOOD COALITION

Agenda

- Executive Summary
- Community recommendation
- Cost and Funding Estimates
- Engineering Appendix

Goals

COST and TIME

- Within available budgetary projections
- Can be executed quickly to meet community needs

SAFETY and LIVABILITY

- Meets urban collector standards
- Meets traffic needs (BSD, TRIMET)
- Meets connectivity needs (Bike & Ped for Park Trails)

FUTURE GROWTH

- Scalable to meet future urban growth in Bethany

Challenges

COST and TIME

- Desired option 2 – re-aligning Saltzman $12-14M
- Existing alignment (option 1) > $9M due to highly underestimated costs of ROW and Bridge/culvert construction
- Option 1 > 3 years for execution

SAFETY and LIVABILITY

- Existing alignment (option 1) does not meet criteria of safety and livability since BSD and Trimet & Fire dept. will still not be able to use those roads

FUTURE GROWTH

- Option 1 (existing alignment) cannot handle increased traffic from future urban growth in Bethany

BNC Recommendation

Implement Option 2 within available budgetary projections

COST and TIME

- Reduce construction cost by using Pre-fab elements and bridge systems (PEBS)
- Preliminary estimates for westerly re-alignment of Saltzman Rd – well within budget
- Can be executed faster than Option 1, subject to dependencies
- Estimates provided by 2 independent and highly respected engineering/bridge construction firms.

SAFETY and LIVABILITY

- Urban collector standard road would provide the right level of safety for pedestrians, bicyclists, cars and trucks.

FUTURE GROWTH

- Can accommodate Bethany's projected future growth
- Provides connectivity to the parks for pedestrians and bicyclists

BNC's recommendation

Bridge Construction using Prefabricated Elements & Bridge Systems

- Geosynthetic Reinforced Soil Integrated Bridge System.
- Warm-Mix Asphalt with Safety Edge.
- Minimizes approach slab or construction joint at the bridge-to-road interface
- Reduced construction time !
- 25 - 60 % less cost on base support depending on standard of construction.
- 3 section PEBS makes section assembly easier and overall project construction more cost effective and better manageability.
- Established and proven Quality
  - Established materials suppliers for consistent quality of materials
  - Standardized plant operations for consistent quality of production
  - Optimum concrete curing

U.S. Department of Transportation
Federal Highway Administration

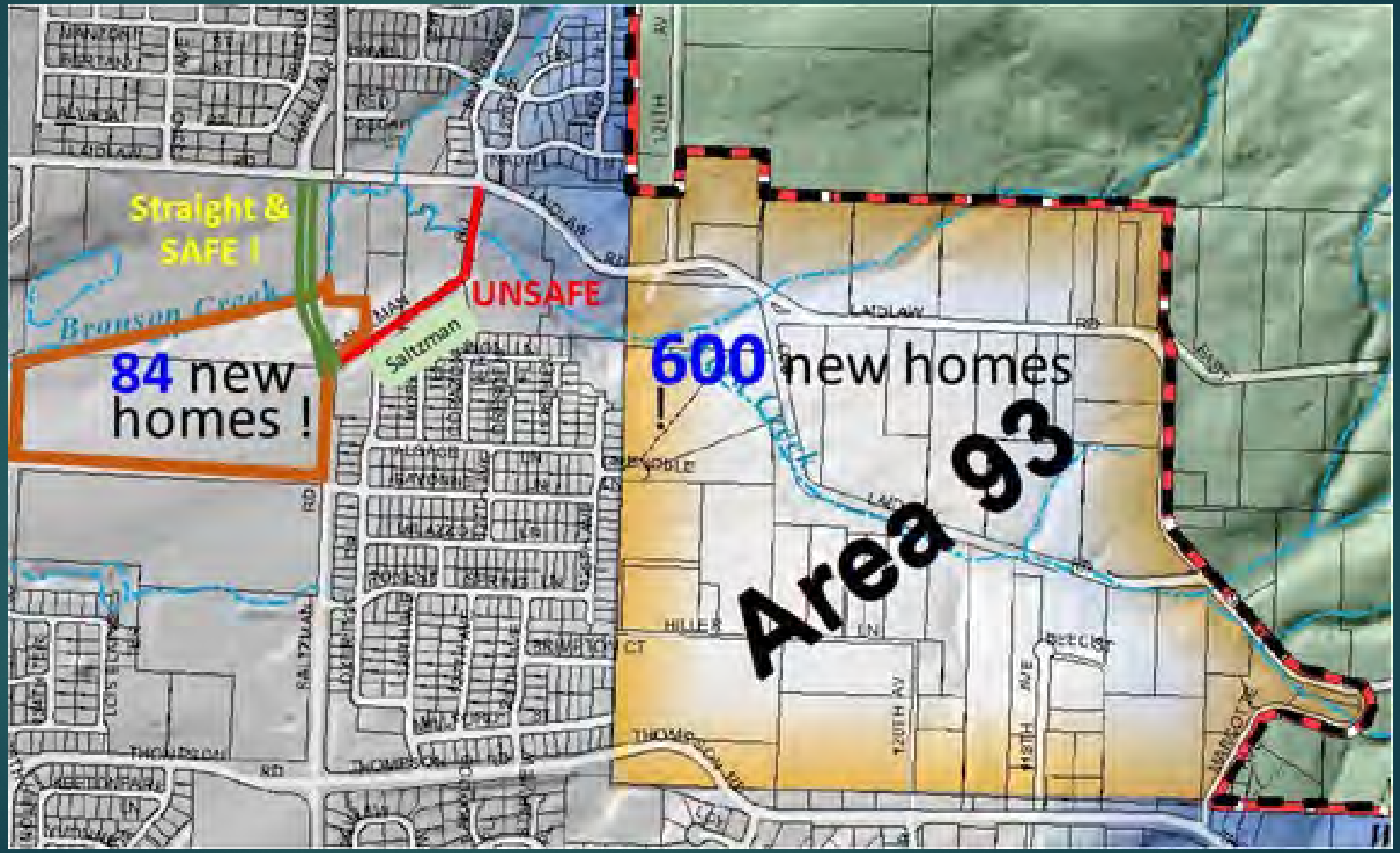
+ **Faster** (offsite & off critical path)
+ **Safer** (public, construction & inspection)

Issues with existing alignment

Description of item	Impact to cost estimate	Impact to livability	Future connectivity
Cost of bridge/culvert highly underestimated at $0.20 M	↑ Increases dramatically		
Right of way acquisition cost – highly underestimated since most of the land is prime residential property	↑ Increases exponentially		
Time to implement – will probably take > 3 years and impact current traffic		↓ High adverse impact	
Connectivity for pedestrians and bicyclists to Park trail and to future urban growth			↓ Not future proof

Fixing Saltzman with existing alignment will not be a robust, sustainable solution – it will be more expensive and not future proof

Saltzman "primary" for access to freeway.

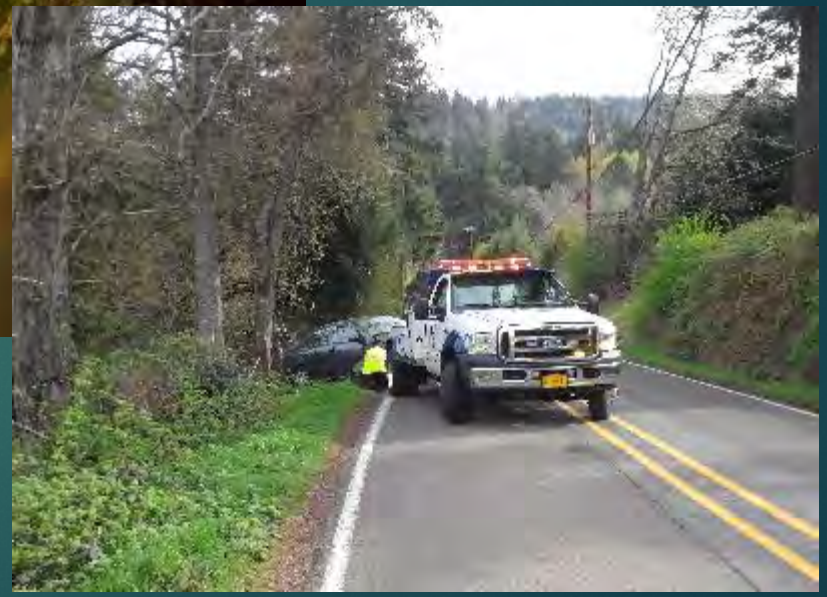


Deliveries

Common delivery trucks struggle with the turn due to steepness and sharp curve.

Road banking is so messed up that one automatically slide to potential collision

Right of way ?



Now imagine the proposed sidewalk ! Yes there is no space .

Yes .. Car do fall ...!

King of the road !

King of the road!

Sheer intimidation !

Narrow, Curves & ALSO steep !

Treacherous section has 9.5 % grading

The Intersection .....

Issues with existing alignment

Description of item	Impact to cost estimate	Impact to safety & livability	Future growth
Cost of bridge/culvert highly underestimated at $0.20 M	☹ Increases dramatically		
Time to implement – will probably take > 3 years and impact current traffic	☹	☹ High adverse impact	
Connectivity for pedestrians and bicyclists to Park trail and to future urban growth			☹ Not scalable
Fulfill **Trimet**, **BSD** and **Community** concerns		☹ Conditions are status quo	

Fixing Saltzman with existing alignment will not be a robust, sustainable solution – it will be more expensive and not future proof

Turn the table to take a deeper look !

Comparison of Cost estimates In $ Millions

COST ELEMENT	Existing alignment	Re-alignment with PEBS bridge
	Option 1	Option 4
Roadway	2.0	1.4 ← 1.6
Bridge/culvert	0.2	6.0
Right of way	3.0	0.5 ← 1.5
Engineering misc	1.3	0.5 ← 2.0
Laidlaw improvements	1.2	
Total	6.65	11.1
Feature and benefit comparison		
Cost uncertainty	✗	✓
Scalable for future growth	✗	✓
Environment floodplain mitigation	✗	✓
Time to complete	Med	Low

3 section of bridge

Lower cost ROW

Less Engineering uncertainty

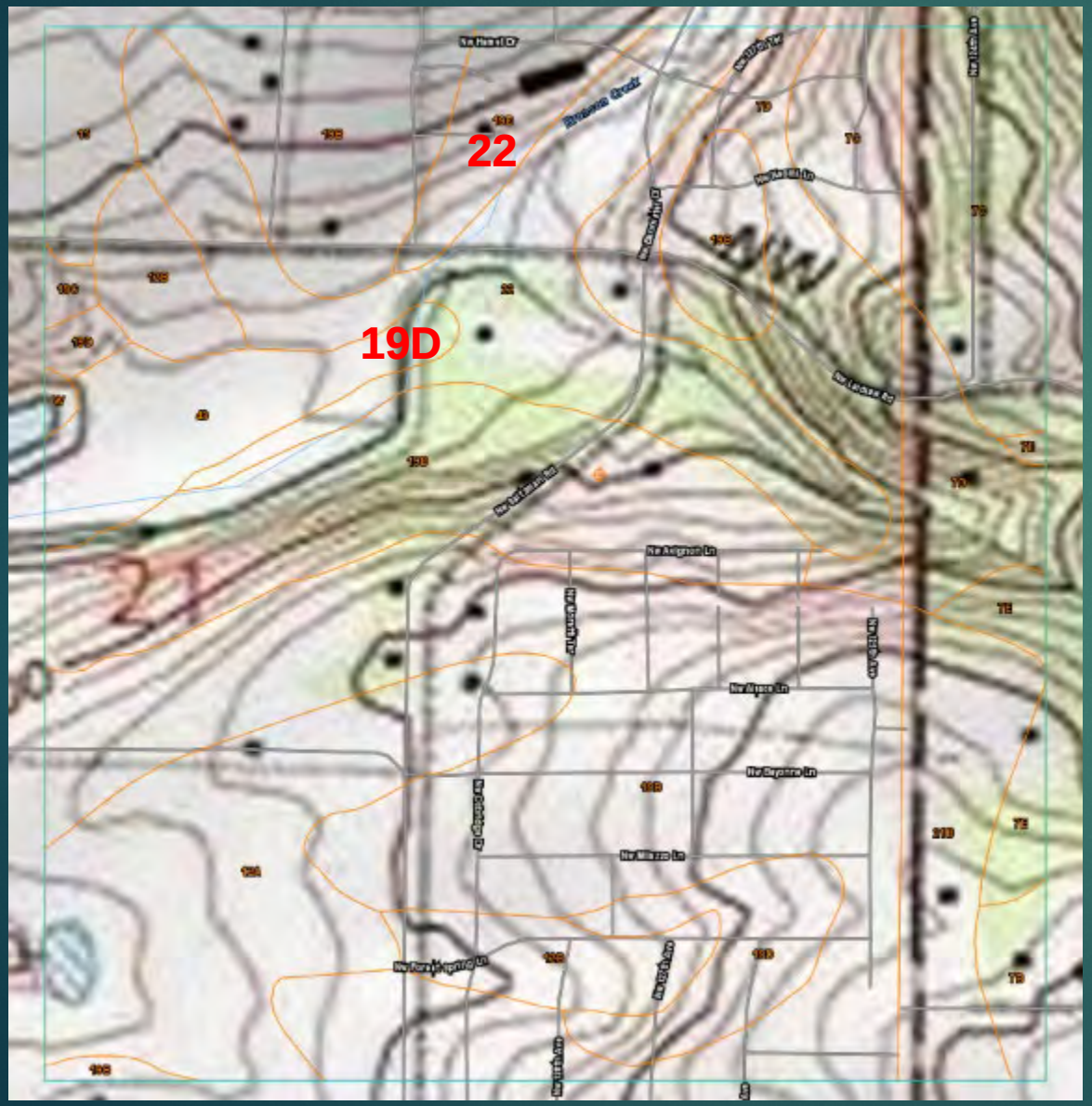
Realistic possibility

This fund has to be appropriated

Saltzman's mate has been waiting ....

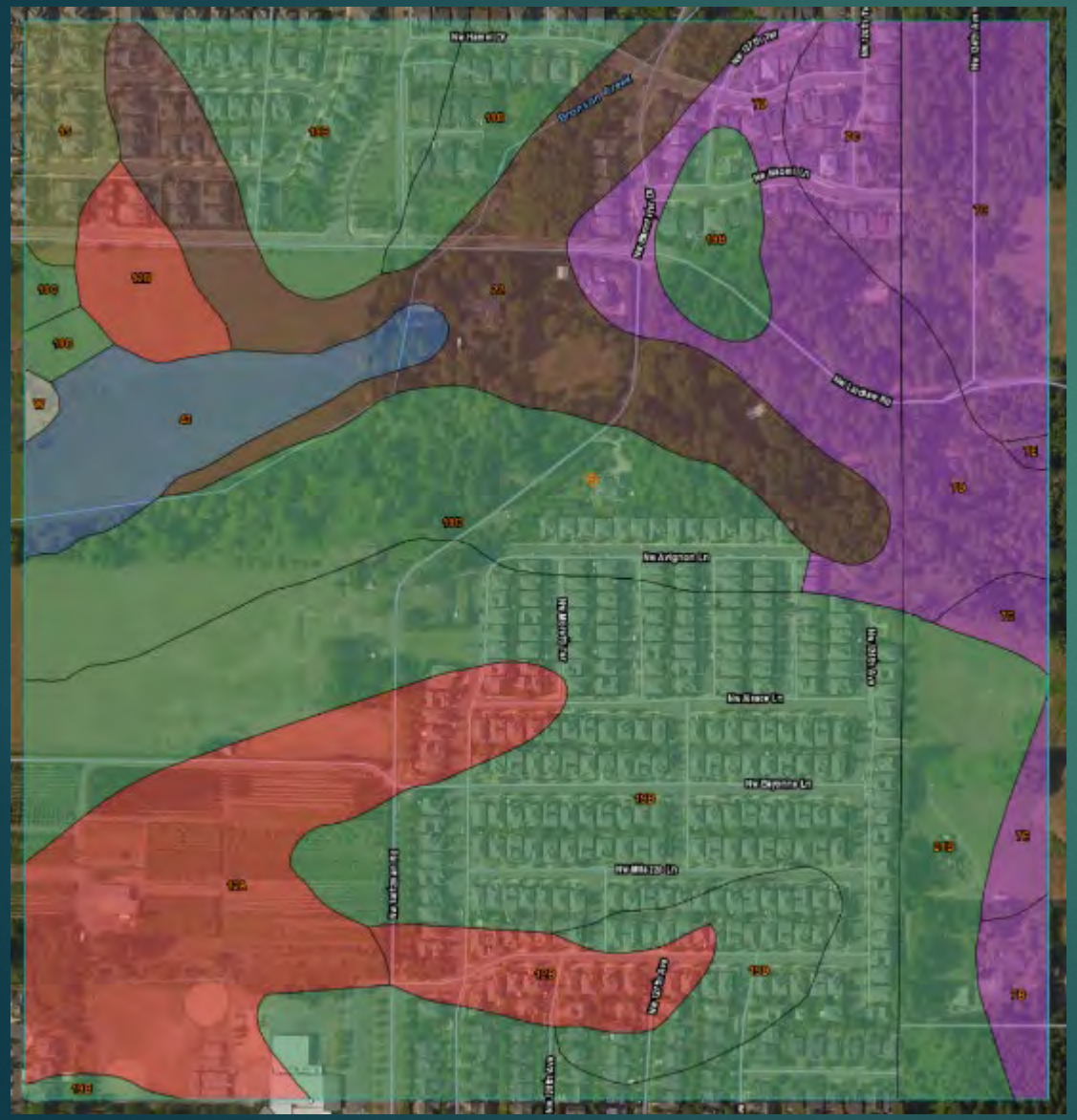
Engineering Appendix

Water table



Washington County, Oregon										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*	*Ft*				
19D— Helvetia silt loam, 12 to 20 percent slopes										
Helvetia	C	—	January	3.0-6.0	4.0-6.0	—	—	None	—	None
			February	3.0-6.0	4.0-6.0	—	—	None	—	None
			March	3.0-6.0	4.0-6.0	—	—	None	—	None
			April	—	—	—	—	None	—	None
			May thru November	—	—	—	—	None	—	None
			December	3.0-6.0	4.0-6.0	—	—	None	—	None
22— Huberly silt loam										
Huberly	C/D	—	January	0.0-1.5	1.7-2.5	—	—	None	—	None
			February	0.0-1.5	1.7-2.5	—	—	None	—	None
			March	0.0-1.5	1.7-2.5	—	—	None	—	None
			April	0.0-1.5	1.7-2.5	—	—	None	—	None
			May thru November	—	—	—	—	None	—	None
			December	0.0-1.5	1.7-2.5	—	—	None	—	None

Soil Erodibility



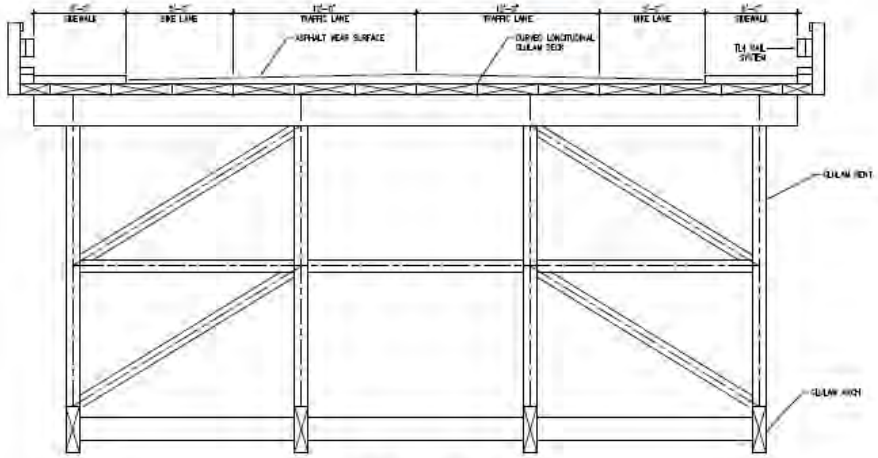
Summary by Map Unit K factor — Washington County, Oregon (OR067)

Map unit symbol	Map unit name	Rati	Acres in AOI	Percent of AOI
12A	Cornelius variant silt loam, 0 to 3 percent slo		17.4	10.4%
12B	Cornelius variant silt loam, 3 to 7 perc	.37	6.6	4.0%
15	Dayton silt loam	.49	2.8	1.7%
19B	Helvetia silt loam, 2 to 7 per s	.43	51.8	31.1%
19C	Helvetia silt loam, 7 to 12 pe t slopes	.43	0.5	0.3%
19D	Helvetia silt loam, 12 to 20 percent slopes	.43	25.4	15.2%
22	Huberly silt loam	.49	18.4	11.0%

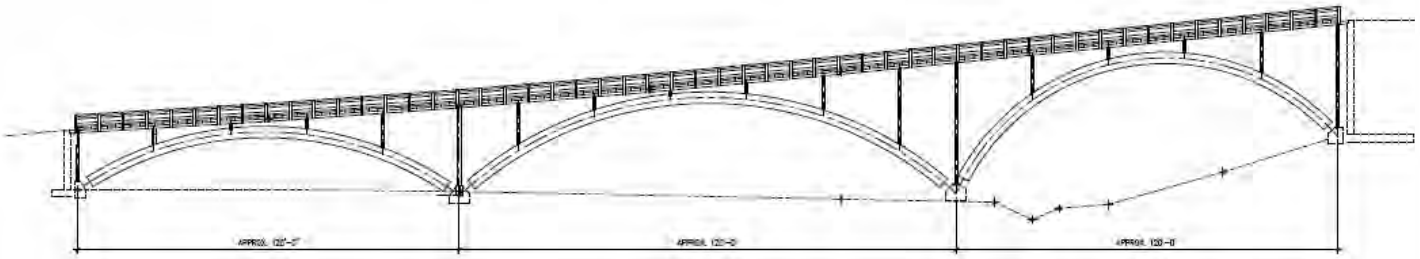
Works for PEBS design !

- Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year.

- The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from **0.02 to 0.69**. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.



SECTION AT ARCH SPANS



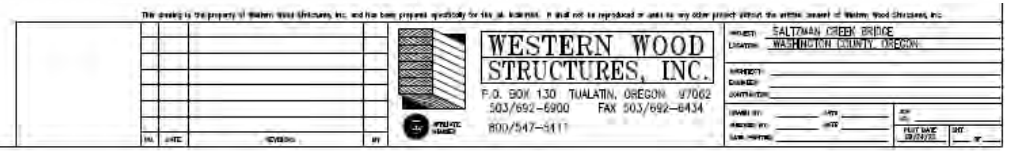
BRIDGE with INSTALLATION

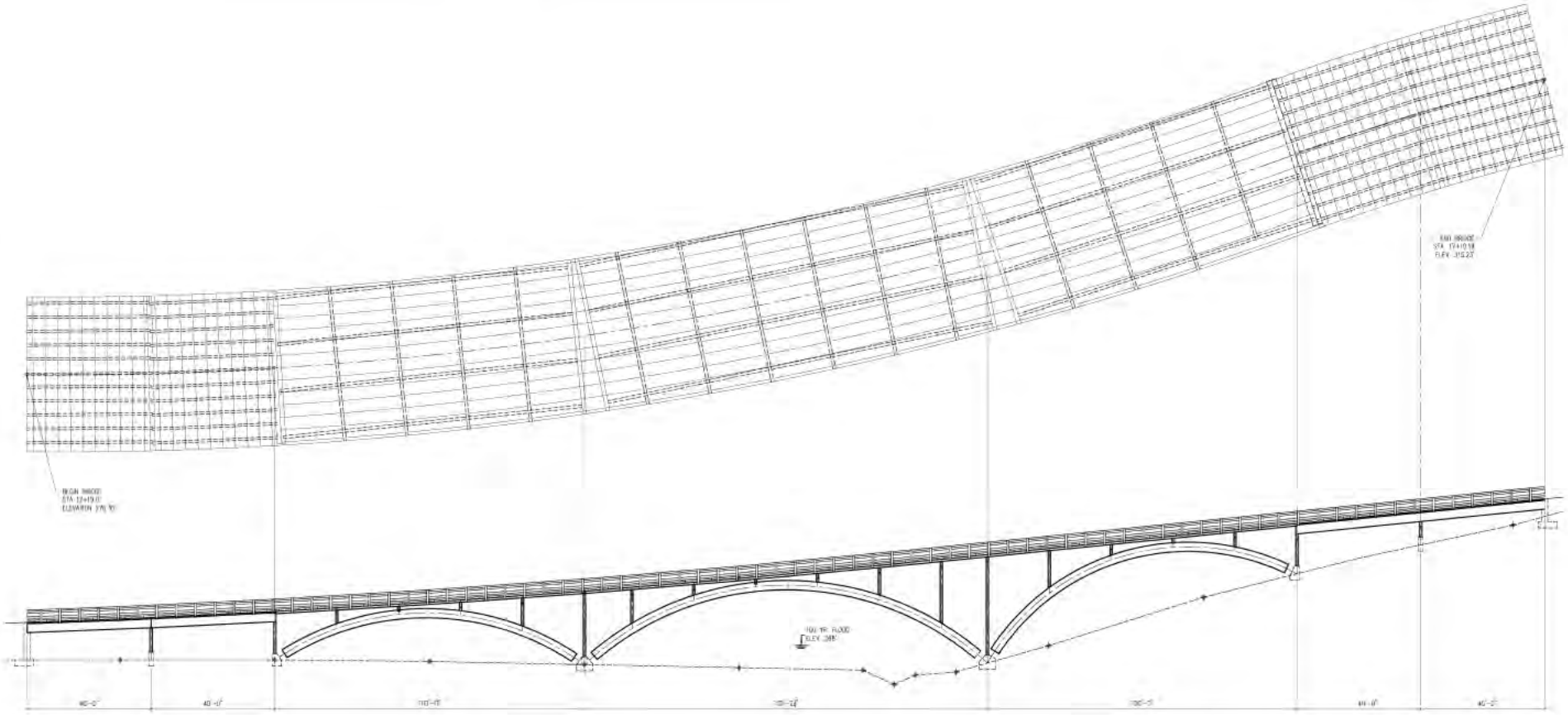
(1) 46' x 360' Under Arch Bridge in (3) spans w/ installation*	$	4,800,000 - 5,200,000
**The 46' width represents: (2) 12' wide vehicle lanes, (2) 5' wide shoulder bike paths, and (2) 6' wide pedestrian walkways.*		
WWS to design concrete abutments/piers	$	20,000 – 25,000
Concrete abutment/pier work & earthwork	$	600,000 - 700,000
Total	**$**	**5,420,000 – 5,925,000**

-Assumes retaining walls on north and souths ends are in place, per Washington County plans dated September 2020.

-Asphalt surface, asphalt striping, road signs excluded.

Scope to Traffic < 1 yr





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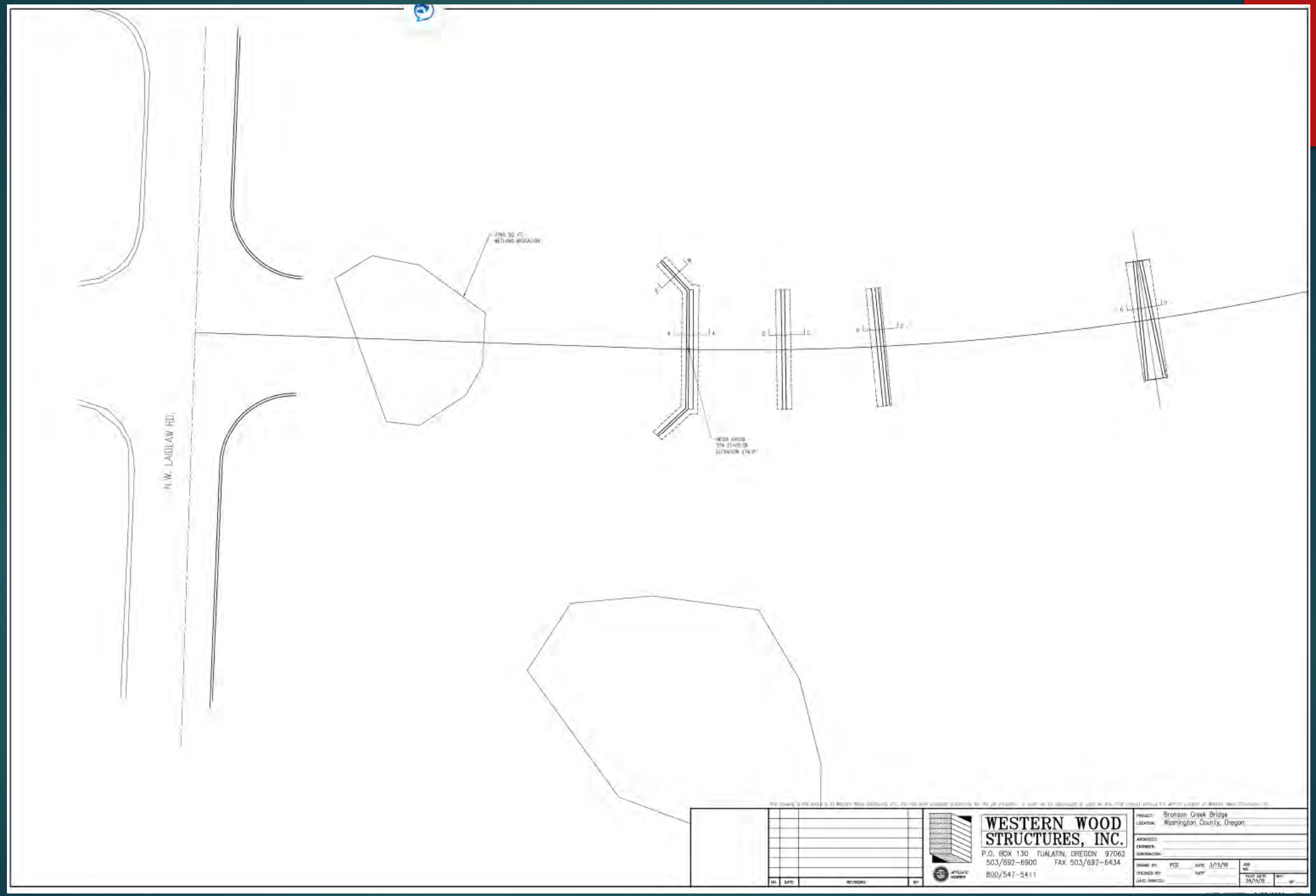
800/547-5411

PROJECT: Bronson Creek Bridge
LOCATION: Washington County, Oregon
ARCHITECT:
ENGINEER:
CONTRACTOR:
DRAWN BY: RDJ DATE: 3/16/16
CHECKED BY: DATE:
DATE PRINTED: 6/27/2020



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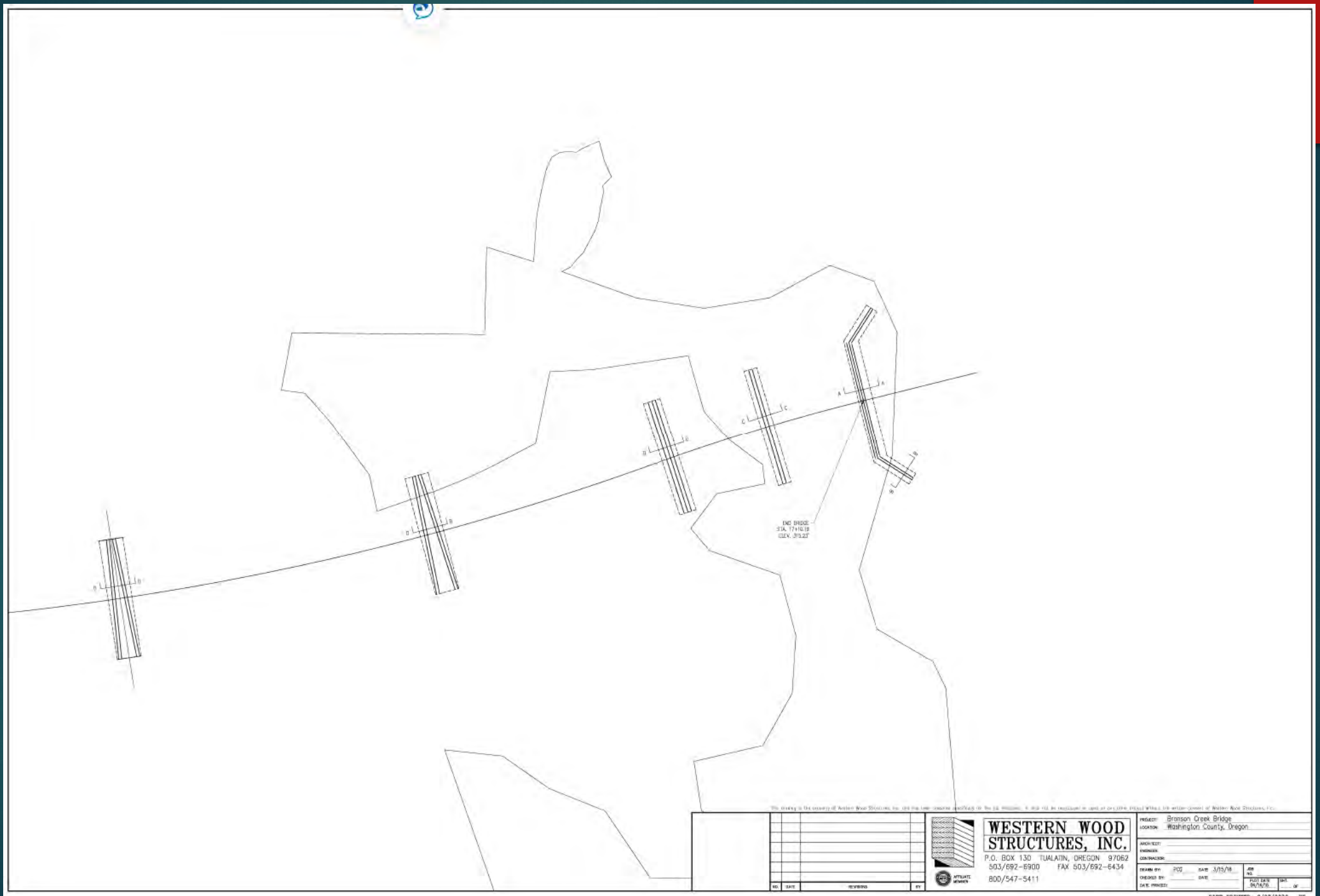
SHT. OF

NO. DATE: REVISIONS: BY:



NO.	DATE	REVISIONS	BY

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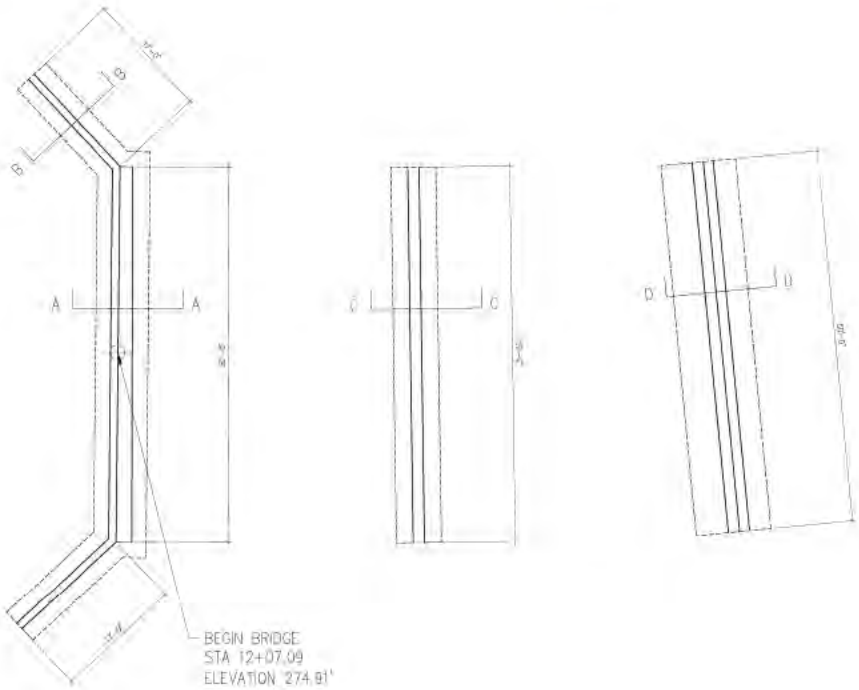
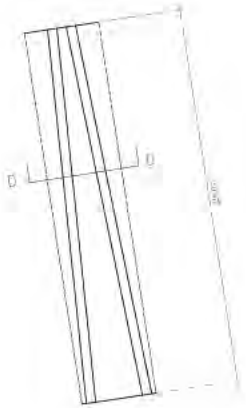
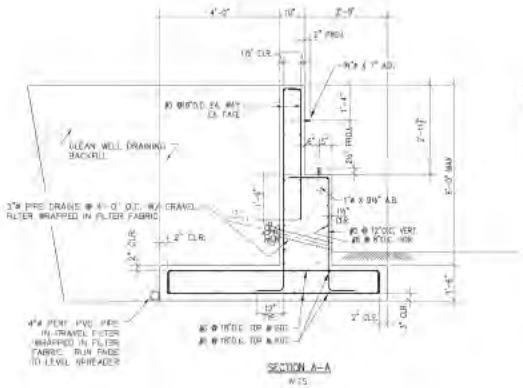
AFFILIATE MEMBER

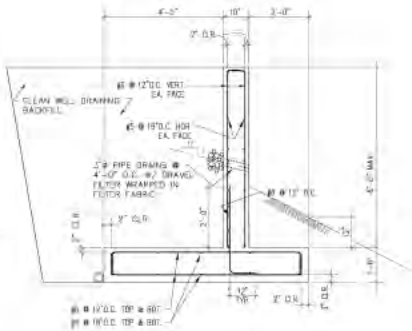
PROJECT:	Bronson Creek Bridge
LOCATION:	Washington County, Oregon
ARCHITECT:	
ENGINEER:	
CONTRACTOR:	
DRAWN BY:	PDS DATE 3/15/16
CHECKED BY:	DATE
DATE PRINTED:	
JOB NO.	
PLOT DATE	04/14/16
SHT.	OF

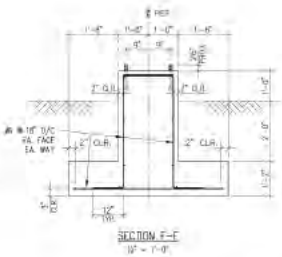
DATE PRINTED: 8/27/2020 HH

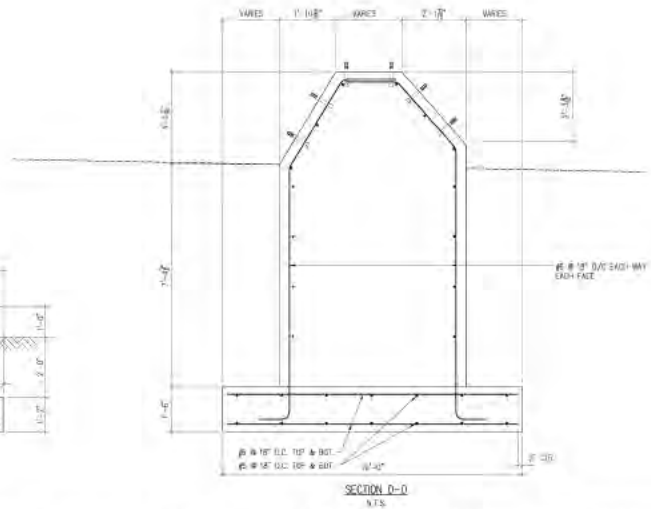












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PROJECT: SALTZMAN ROAD BRIDGE
LOCATION: PORTLAND, OREGON

DRAWN BY: PCC DATE 4/13/16
JOB NO. 15-B-184

DATE PRINTED: 9/27/2020