

Project:	C9727 - I-405, Brickyard to SR 527 Improvement Project		
Document Name:	BY-CRE-03543_009727_SUB_17.02_Package 8 Final Structures - Juanita Creek Fish Passage (FP5) East Por		
Submittal Date:	9/16/2025		
Due Date:	9/30/2025	COB	
Reviewer:	Jeff S. Bruce (JSB), Delia Lacson (DL), Terry Bondy (TB), Jason Pang (JP)		
Document Lead:			

Formal Design Review

Form RCSR (Review Comment Summary and Resolution)

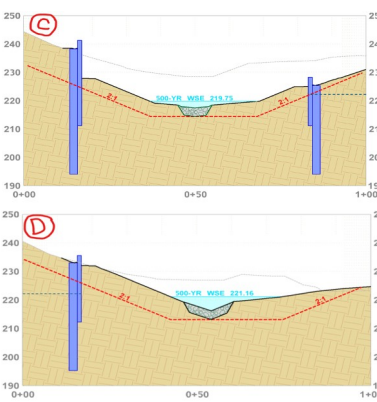
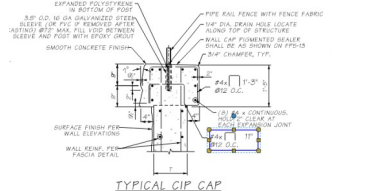
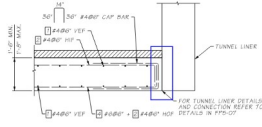
CODES

A = Accept Comment - Correct, Add to, or Clarify document
D = Dismiss Comment - no change needed on document
C = Clarify / Discuss and resolve before next design phase
R = Resolve comment in the next submittal phase
T = Transfer to a different submittal

COMMENT
(WSDOT, City, Checker)

No.	Report or Sheet No.	Comment By	TR/Spec Section	Comment
13	FP5-17	TB/JP	Question	Note 2: will the contractor confirm the underground size and pipe connection prior to anchor installation? Is there any mitigation plan for when clashes with manhole/ducts occur?
14	FP5-19	TB/JP	Question	Is there special provision for the anchor verification testing?
15	FP5-18 & FP5-15	TB/JP	BDM 8.1.11.C	The details sheet shows no wall underdrains but weepholes above the finish grade. However, seen from the wall elevation sheet, the wall height between wall bottom and finish grade are significant (larger than 10ft).1. Per the BDM, "In cases where the vertical distance between the top of the footing and the finish groundline is greater than 10', additional weep holes shall be provided 6" above the top of the footing." Verify and update if needed. 2. Verify the any unbalanced water pressure behind the wall and in front of the wall is included in the design.
16	FP5-18	TB/JP	2.28	At the end of wingwall 3 and 4, is the scour depth 10~20ft as shown? Does that mean the anchors near the ends of the wingwalls will get exposed when scour occurs following angle of repose beyond the hydraulic width?
17	FP5-36	TB/JP	2.28	Typical CIP Cap: please specify leg length for each #4 U-bars in the cap.
18	FP5-36	TB/JP	2.28	Concrete fascia opening detail note 3: verify "least" vs. "largest".
19	FP5-36	TB/JP	2.28	Concrete fascia opening detail note 1: please make it clear that the additional vertical and horizontal bars, equivalent to one half of the bars interrupted by the opening, apply to each side of the opening.
20	FP5-40	TB/JP	2.28	Section B: is it an open joint between the tunnel and wall fascia? Please specify the size.

RESPONSE TO COMMENT
(Skanska, Originator of Document)

Disposition Code	Response By	ACTION TAKEN / Remarks
C	IR	The contractor is to evaluate on site the actual size of the manhole and where the pipes connect to is made. These elements are from a former storm detention system and they will not be used nor required to be working during the works, so there is no mitigation required in case of clashes.
D	IR	No special provisions required, WSDOT GDM requirements apply. The test are undertaken in sacrificial anchors.
A	IR	Comment noted. Requirement reviewed and additional weep holes provided in both wingwalls and headwall. Unbalanced water pressure is considered as at the back of the wall it is set at the weep holes level, while the front side is associated to the stream level.
C	IR	The scour line has been reviewed by the hydraulic team and it extends above the ground anchors level for Wingwall 4, so no ground removal occurs under the ground anchor location. For Wingwall 3 the upper level tieback would be exposed. Further analyses noted that the tieback can be removed in the permanent condition, so it will only be working during the temporary stage. Refer to section below C for the end of WW4 and section D for the end of WW3. Tiebacks are at EL 222ft and 221.28 ft (lower level) respectively. 
A	IR	Amended: Length added. 
A	IR	Amended 3. DETAILS APPLY TO OPENINGS WITH A LARGEST DIMENSION GREATER THAN EITHER HORIZONTAL OR VERTICAL BAR SPACING AND LESS THAN 36". DETAIL ALSO APPLICABLE AROUND TIEBACKS POCKETS (ONLY REQUIRED IN INNER FACE) DEFLECT BARS TO MAINTAIN COVER OTHERWISE.
A	IR	Amended, text added. 1. PROVIDE ADDITIONAL VERTICAL AND HORIZONTAL REINFORCEMENT AREA TO EACH SIDE OF THE OPENING EQUIVALENT TO ONE HALF REINFORCEMENT INTERRUPTED BY THE OPENING.
A	IR	No, there is not an open joint; the drawing is not showing the correct configuration. Reviewed. 

RESPONSE TO RESPONSE
(WSDOT, City, Checker)

WSDOT Disposition Code	Comments / Action Items	Final Disposition Code
A		A
A		A
A		A
A		A
A		A
A		A
A		A
A		A
A		A

Skanska
CLOSE

Initial void ratio of 0.5 for all these soils is unrealistic. Attached is a reference marked up to indicate a more reasonable range of values for each ESU from which to select

Similar to above.

calculated from other properties per App H

Assuming 0 increase in stiffness with depth is a conservative assumption.

calculated from other parameters per App H

calculated from other parameters per App H

You are assuming no volume change during shearing. Typically, triaxial testing is needed to establish this parameter. Assuming 0 is a conservative, reasonable assumption.

Table 15. Soil properties

Identification number	1
Identification	ESU 1B
Soil model	Mohr-Coulomb
Drainage type	Drained
Colour	
Comments	
γ_{unsat}	lb/ft ³ 110,0
γ_{sat}	lb/ft ³ 110,0
e_{init}	0,5000
n_{init}	0,3333
E'_{ref}	lb/ft ² 725,0E3
ν (nu)	0,2900
G_{ref}	lb/ft ² 281,0E3
E'_{sed}	lb/ft ² 950,1E3
E'_{inc}	lb/ft ² /ft 0,000
γ_{ref}	ft 0,000
V_s	ft/s 286,7
V_p	ft/s 527,2

Table 16 Soil properties (continued)

Identification number	1
c'_{ref}	lb/ft ² 1,000
ϕ' (phi)	° 34,00
ψ (psi)	° 0,000
c'_{inc}	lb/ft ² /ft 0,000
γ_{ref}	ft 0,000
Tension cut-off	True
Tensile strength	lb/ft ² 0,000
Determination	v-undrained defin

Groundwater/porewater pressure not used per App H

v_u definition method	Direct	Direct
$v_{u,\text{equivalent}}$ (nu)	0,4950	0,4950
Skempton B	0,9795	0,9840
$K_{w,\text{ref}}/n$	lb/ft ² 27,43E6	5,932E6
Classification type	Standard	Standard
Soil class (Standard)	Coarse	Coarse
< 2 μm	% 10,00	10,00
2 μm - 50 μm	% 13,00	13,00
50 μm - 2 mm	% 77,00	77,00
Use defaults	False	False
k_x	ft/day 0,000	0,000
k_y	ft/day 0,000	0,000
Void ratio dependency	False	False

Table 17. Soil properties (continued from Table 16)

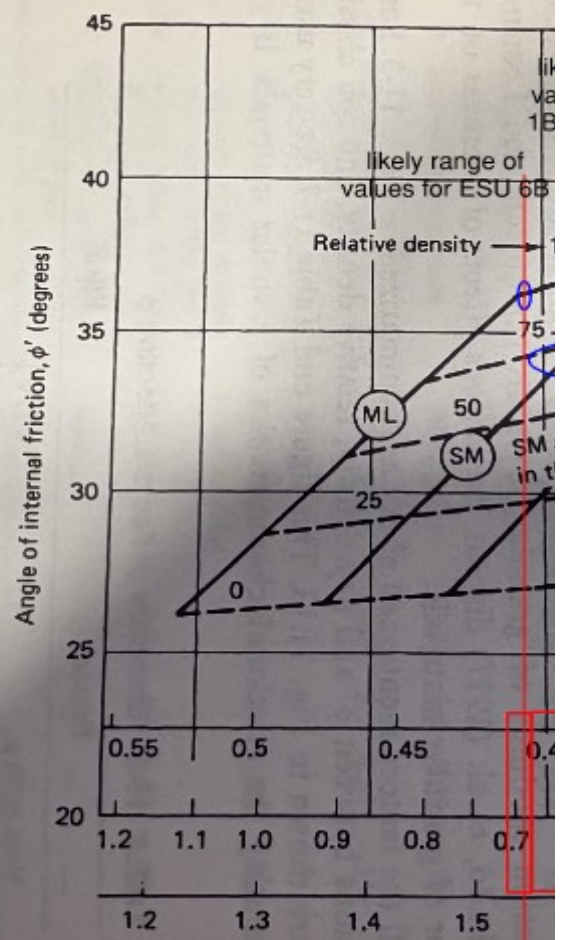
Identification number	1
c_k	1000E12
n_init	0,3333
-q _{unsat}	ft 32,81E3
c_s	kJ/lb/K 0,000
λ_s	kW/ft/K 0,000
p_s	lb/ft³ 162,3
Thermal expansion type	Isotropic
α _{sv}	1/K 0,000
Phase change	False
D_v	ft²/day 0,000
f_Tv	0,000
Stiffness determination	Derived
Strength determination	Manual
R_inter	0,6700
Consider gap closure	True
Cross permeability	Impermeable
Drainage conductivity, c _k	ft³/day/ft 0,000
R_thermal	ft² K/kW 0,000
K_0 determination	Automatic
K_0,x	0,4408
K_0,z	0,4408

Thermal properties
not used per App H

Agree that auto-generated K0 is
conservative

Table 18. Plate element properties

Identification number	5
Identification	file (W21x101)_SR_009x200A
Material type	Elastic
Colour	
Comments	
w	lb/ft³ 0,000
Input method	SDOF equivalent
Rayleigh α	0,000
Rayleigh β	0,000
E ₁	% 0,000
E ₂	% 0,000
f ₁	Hz 0,000
f ₂	Hz 0,000
Prevent punching	False
Isotropic	True
GA ₁	lb/ft 93,9006
GA ₂	lb/ft 93,9006
E ₁	lb/ft² 43,3106
E ₂	lb/ft² 43,3106
G	lb/ft² 25,8506
v (nu)	0,2000
d	ft 2,140
c	kJ/lb/K 0,000



Drained appropriate for long-term analysis.

2	3	4
ESU 2A	ESU 5	ESU 6B
Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Drained	Drained	Drained
110,0	135,0	130,0
110,0	135,0	130,0
0,5000	0,5000	0,5000
0,3333	0,3333	0,3333
150,0E3	12,98E6	8,540E6
0,2400	0,3900	0,4000
60,48E3	4,667E6	3,050E6
176,8E3	25,88E6	18,30E6
0,000	0,000	0,000
0,000	0,000	0,000
133,0	1055	869,0
227,4	2484	2129

slightly lower than recommended in Table 5.6 of our DP#9 RFC Geotech report

we recommend against using cohesion.

conservative compared to the 34 deg recommended in Table 5.6 of our DP#9 RFC Geotech report

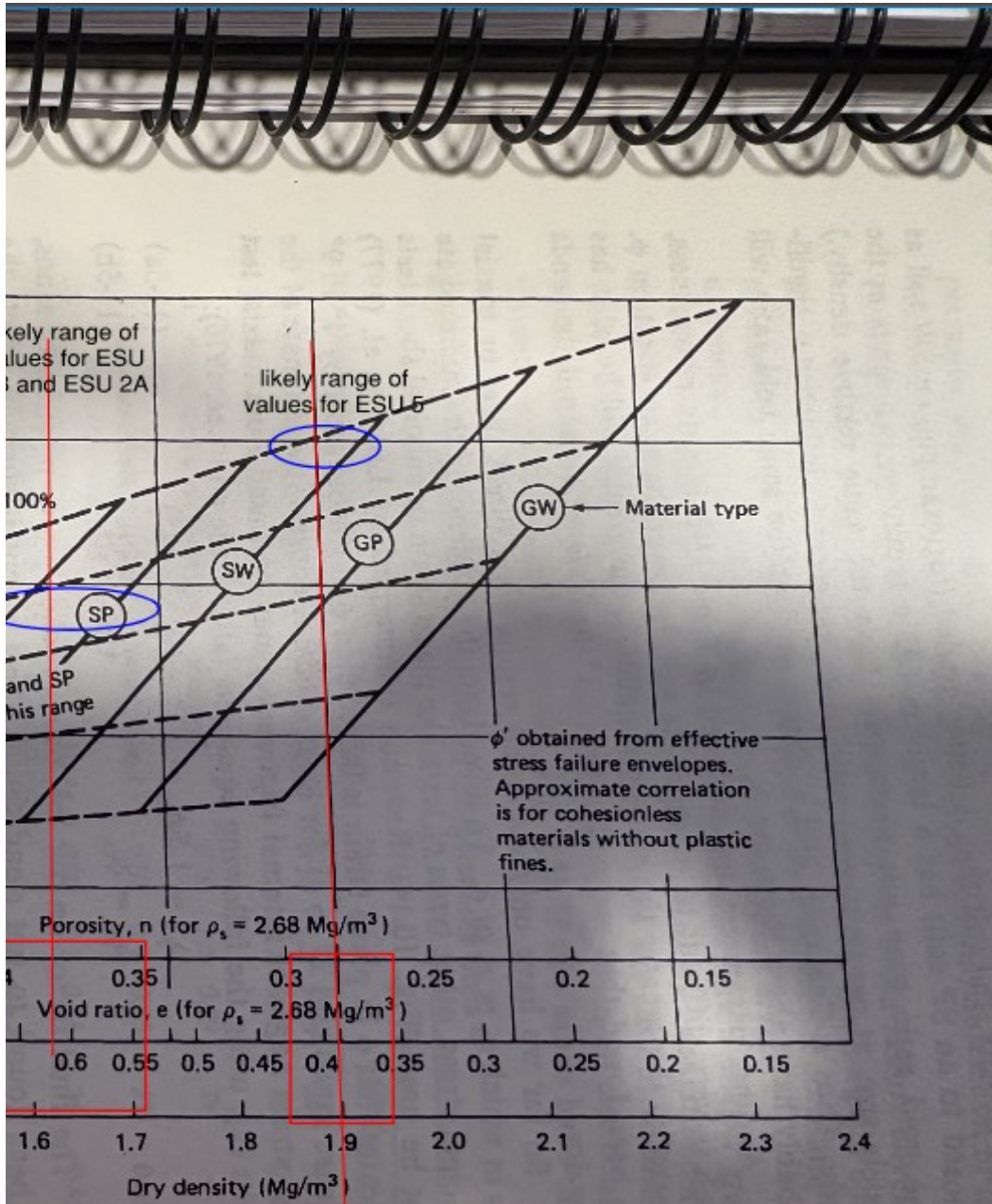
2	3	4
1,000	1,000	1,000
33,00	40,00	36,00
0,000	0,000	0,000
0,000	0,000	0,000
0,000	0,000	0,000
True	True	True
0,000	0,000	0,000
ition	v-undrained definition	v-undrained definition

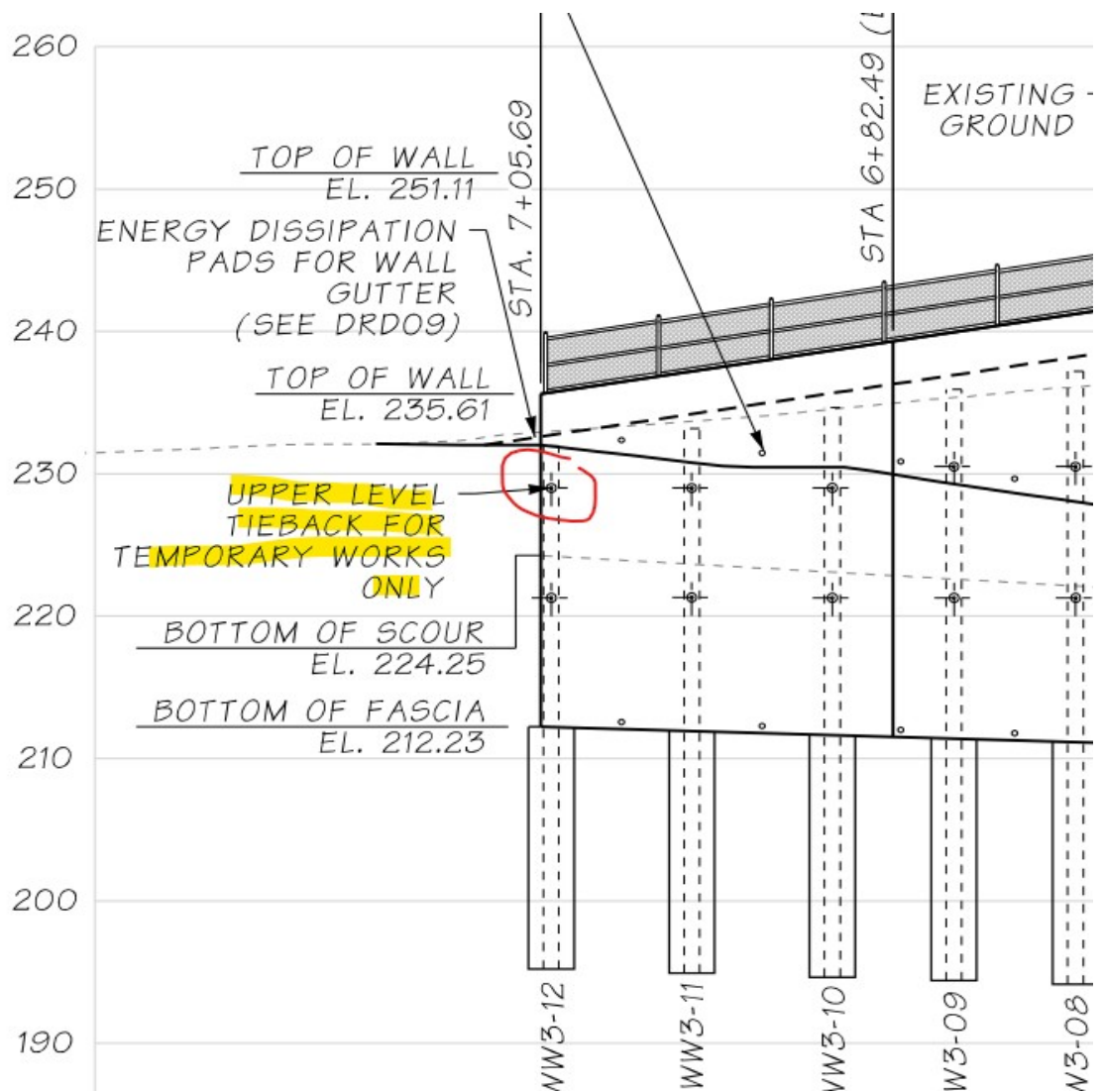
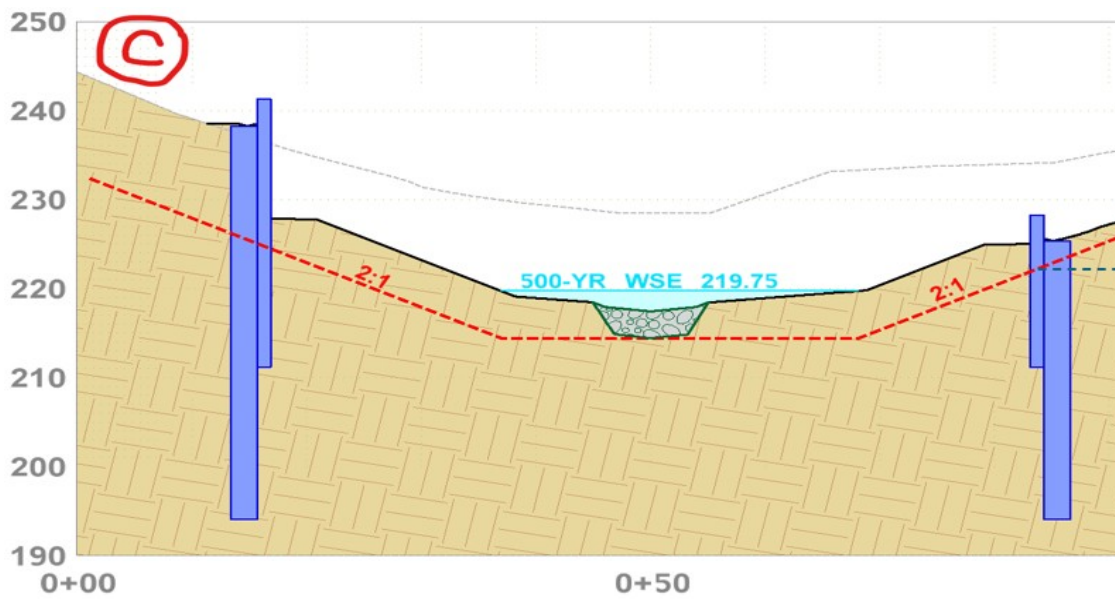
Direct	Direct	Direct	Direct
0,4950	0,4950	0,4950	0,4950
0,9795	0,9840	0,9577	0,9532
27,43E6	5,932E6	445,5E6	289,7E6
Standard	Standard	Standard	Standard
Coarse	Coarse	Coarse	Coarse
10,00	10,00	10,00	10,00
13,00	13,00	13,00	13,00
77,00	77,00	77,00	77,00
False	False	False	False
0,000	0,000	0,000	0,000
0,000	0,000	0,000	0,000
False	False	False	False

om previous)

2	3	4
1000E12	1000E12	1000E12
0,3333	0,3333	0,3333
32,81E3	32,81E3	32,81E3
0,000	0,000	0,000
0,000	0,000	0,000
162,3	162,3	162,3
Isotropic	Isotropic	Isotropic
0,000	0,000	0,000
False	False	False
0,000	0,000	0,000
0,000	0,000	0,000
Derived	Derived	Derived
Manual	Manual	Manual
0,6700	0,6700	0,6700
True	True	True
Impermeable	Impermeable	Impermeable
0,000	0,000	0,000
0,000	0,000	0,000
Automatic	Automatic	Automatic
0,4554	0,3572	0,4122
0,4554	0,3572	0,4122

	8	9
le (W21x101)_SR_corrosion_ESGA	File (W24x104)_SR_3075x23GA	File (W24x104)_SR_corrosion_ESGA
888x	Elastic	Elastic
		
000	15,12	15,12
SDOF equivalent	SDOF equivalent	SDOF equivalent
000	0,000	0,000
000	0,000	0,000
000	0,000	0,000
000	0,000	0,000
1000	0,1000	0,1000
000	1,000	1,000
also	False	False
500	True	True
1,50E5	171,585	147,385
1,50E5	171,585	147,385
1,00E5	61,085	50,785
1,00E5	61,085	50,785
1,11E5	124,065	103,065
2000	0,3000	0,3000
140	2,006	2,006
000	0,000	0,000





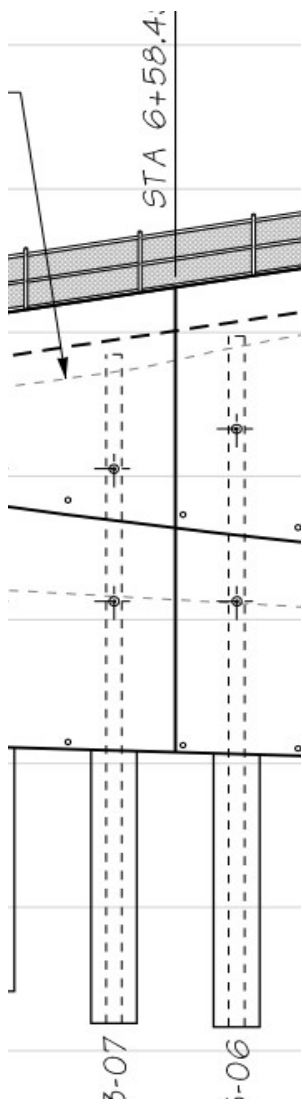
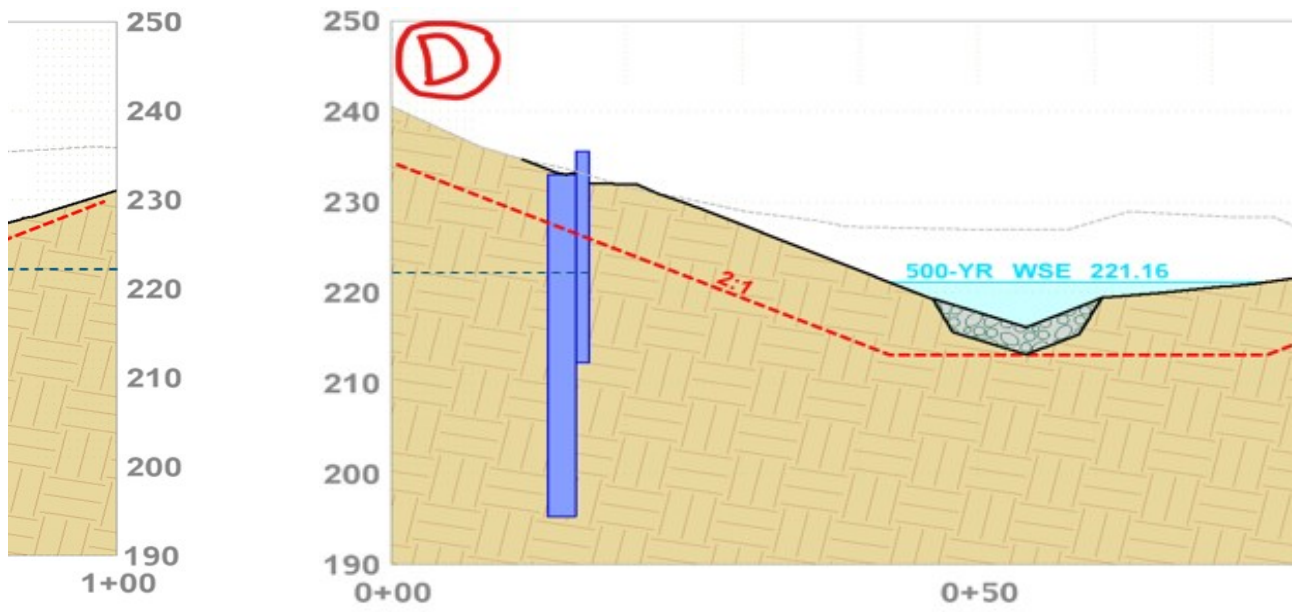
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2MM

2MM

