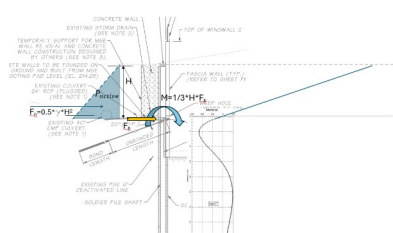


Project:	C9727 - I-405, Brickyard to SR 527 Improvement Project	
Document Name:	BY-CRE-03550_009727_SUB_17.02_Package 8 Final Structures FP5 West Portal	
Submittal Date:	9/17/2025	
Due Date:	10/1/2025	COB
Reviewer:	Jeff S. Bruce (JSB), Delia Lacson (DL) Minako McWreath (MM), Terry Bondy (TB), Jason Pang (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
1	Calcs - pdf page 77/200	JSB	TR 2.6.1	How are the earth pressures on the concrete in design section WW2-1 being modeled? It appears that may be the surcharge shown in the PY wall analysis, but wouldn't this be under predicting the deformation at the top of the wall due to the transfer of the earth pressures on the concrete block into the soldier piles (given how low the 1 tieback is compared to the top of the concrete)?
2	FP5-28	JSB	TR 2.28	GDM reference in Note 1 beneath the tieback anchor schedule is wrong. Please update for the appropriate reference.
3	FP5-26	DL	Appendix L02	Note 3 - Please specify 'Smooth Finish' for exterior face of the headwall in place of or in addition to 'does not require form liner'.
4	FP5 - 26	DL	2.28, Appdx L02	Provide detail of slip joint to ensure UDC and CPTED compliance
5	FP5 - 26	MM	Appdx L02	Use the MSE formliner to match either the existing MSE wall or the new CIP wall. Do not place two different formliners side by side, as discussed in the May 30, 2025 email and discussion with Wyatt Hauso.
6	FP5-36	DL	Appendix L02	Specify 'Smooth Finish' for CIP Wall Cap Detail
7	FP5-26, 43	JP/TB	Cited in Comment	Provide details, layout, and evaluation of existing MSE wall and wall tie-ins. Slip joints are called out with no details. Removal is called out with no details. Grading removes soil below and in front of structure. Evaluation shall include checking the existing wall for changes made, including grading fronting the wall, structural, and geotechnical, per 2.6.6.3.1, 2.13.4
8	FP5-26	JP/TB	Cited in Comment	Coordinate and show aesthetic requirements for slip joint, as required per App L2. In some situations, formliners on the slip joint are required. Straps for slip joint panel appears to conflict with the tie backs and soldier piles.
9	FP5-26	JP/TB	Cited in Comment	Extend wall fascia down for the 11'-5.75" (left) and 2'-8.375" (right) sections. Minimum wall embedment requirements are not met per BDM 8.1.5D.
10	FP5-26	JP/TB	Cited in Comment	Understood that the design builder has not completed design of the grading at the end of the wing walls and MSE wall tie-ins. Please complete the design and submit for review, as required per 2.28.3.4.3. Expand shaded NFC boxes at both MSE tie in and MSE wall panel removal. On the right gap in grading and undermining of MSE wall is shown for at least 3 more columns of panels to the right. On the left gap in grading and undermining of MSE wall shown for at least 4 more columns of panels to the left. Current standards for MSE wall, including wall embedment and scour, shall be met for the existing per 2.6.6.3.1, 2.13.4.
11	FP5-26, 33	JP/TB	Cited in Comment	Call out formliner finish (sine wave) on back side of wall facing the highway due to the high extension per App L2. Show wall cap per App L2.
12	FP5-26, 33	JP/TB	Cited in Comment	Call out limits of pigmented sealer, which shall extend min 1ft below grade, as required per 2.13.7.1, App L2, and 6-02.3(14)
13	FP5-28	JP/TB	11.11.1	Please provide notes on how to read the schedule. It's a bit unconventional for WSDOT. I believe we discussed modifying the table. Please clarify or revise.
14	FP5-28	JP/TB	Cited in Comment	Verification tests are to be done on sacrificial anchors per 6-17.3(8)A.OPT1.GB6. Please modify Note 3 to clarify the requirement.
15	FP5-25	JP/TB	Cited in Comment	Ground anchors shown though MSE wall behind panels. Please confirm constructability was evaluated and they are placed below wall and its reinforcing. Confirm no damage occurs to wall drainage. On the left wing wall in elevation will they conflict with Jeremiah's micropiles? (QMP and 2.28.3.1)
16	FP5-26	JP/TB	8.1.11.C	Weep holes and wall drainage not shown full height with no weep holes lower in the fascia. As such, the lower portion of the wall should be design for hydrostatic pressure that will be realized in the scour case.

RESPONSE TO COMMENT (Skanska, Originator of Document)		
Disposition Code	Response By	ACTION TAKEN / Remarks
A	IR	Earth pressures with a standard triangular shape are used to calculate the total horizontal force. This force is applied at the top of the soldier pile, along with the moment due to the eccentricity of that load. The deformations at the fascia supported by the concrete block are estimated using the slope at the upper part of the pile and extended to 20 ft. It is assumed that the block is rigid and no additional deformations from bending occur. This yields to 0.16-in in Service 1 case. 
A	IR	Typo noted. Amended.
A	IR	Added
A	IR	Detail provided. The joint is not accessible nor comprises removable elements.
C A	IR	This was discussed with WSDOT in Task Force Meeting on June 27th. WSDOT preference was to treat this interface as a continuation of the cast-in-place concrete wall. In any event, the finishing obtained is the same for both MSE wall and wingwalls. 12/18/2025: Wall elevation adjusted to request.
A	IR	Added (as per same comment in East Portal RCSR)
D, T T	IR	Evaluation of existing MSE wall is provided in GER Design Package 10. Slip joint detail provided. Removal of existing structures is to be undertaken by the contractor and is not part of Aecom's scope. 12/18/2025: Extension of wingwalls updated in elevation view FP5-26. 01/19/2026: As discussed in the meeting on 01/16, shaded areas will be added in the MSE wall interface pending completing the hydraulic design. This comment is set to status "T".
A	IR	The slip joint will not be formed using an additional panel - this could not be installed. This will be a expansion joint to separate the fascia from the MSE wall panels. Detail provided.
A	IR	Waiting for final grading in that area as noted in comment #10
A T	IR	Comment noted. Updated grading to be included. 12/18/2025: Grading updated in elevation and plan view. Scour countermeasures as per hydraulic design, to be included in plan view when available as NDC. 01/19/2026: As discussed in the meeting on 01/16, shaded areas will be added in the MSE wall interface pending completing the hydraulic design. This comment is set to status "T".
A	IR	Added
D	IR	This is presented in drawing FP5-13. It was not included in the West Portal submission but it is part of the same design package. To be shared for completeness.
A	IR	Yes, this was discussed. Updated as per format shared.
A	IR	Correct. Note revised.
C	IR	Ground anchors are placed below the MSE wall and the underdrains at those areas. As per WD358, temporary works micropiles are stopped at the bottom of excavation (EL 214.25 ft), so there is no conflict between micropiles and ground anchors.
A	IR	Weep holes are only provided above finish grade. Noting as well comment #1C on East Portal, additional weep holes are provided as per BDM 8.1.11 C. Design accounts for groundwater pressures 1 ft above the weep hole level at the back of the walls.


RESPONSE TO RESPONSE (WSDOT, City, Checker)		Skanska CLOSE
WSDOT Disposition Code	Comments / Action Items	Final Disposition Code
A		A
A		A
A	Will confirm in RFC submittal	A
A	Agreed with the approach of making the short transition walls to be CIP with the same formliner finish as the wing walls, and it aligns with our discussion at the landscape TFM. One revision I request is to make the 2'-8 3/8" long transition wall on the south side to be the same height as the existing MSE wall. It will make the step 4' high instead of 2'.	A
A		A
T	Please share the updated details for how the new and old wall interface and requirements for panel lap joints and filter fabric. 1/20/26: Code changed to T. Need FHD RFC.	T
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
T	Please share the revised stream and slope grading. Show location of scour counter measures in layout. 1/20/26: Code changed to T. Need FHD RFC.	T
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A

Project:	C9727 - I-405, Brickyard to SR 527 Improvement Project	
Document Name:	BY-CRE-03550_009727_SUB_17.02_Package 8 Final Structures FP5 West Portal	
Submittal Date:	9/17/2025	
Due Date:	10/1/2025	COB
Reviewer:	Jeff S. Bruce (JSB), Delia Lacson (DL) Minako McWreath (MM), 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
17	FP5-36	JP/TB	8.1.11.C	Provide details and dimensions for "wick drains", typically call drainage mats. Please provide detail for weep holes and connection to drain mats
18	FP5-33	JP/TB	8.1.11.C, 15-4.13	How is wall drainage provided at wingwall 2 where the back side of the soldier pile wall is cast with concrete? Please provide details.
19	FP5-36	JP/TB	2.28.3	What are the dimensions for where the stud go on the wide flange. Spacing is a variable for pullout resistance.
20	FP5-36	JP/TB	2.28.3	Provide design details for tie back pockets, including welds, stiffeners, plates, etc. I see design checks were provided starting on pp165/200 but there are no design drawings detailing the steel.
21	FP5-01	JP/TB	2.13.3.1	Thank you for showing the forward compatibility limits of the roadway. Please show the assumed forward compatibility grading and the FC retained height on the wall elevation. If retained height is increased, please account for in design. It appears the east portal will have additional fill placed to widen the slope while the west will be a cut into the existing berm.
22	FP5-01	JP/TB	2.13.7.1	Elevation: Existing guardrail has been removed. Roadway plans show barrier is placed along 405. Please show.
23	FP5-43	JP/TB	BDM 11.11.1E	Please provide a bend diagram and weld details for the #6@4" welded dwl. Are they welded to the soldier pile? The line work is not clear due to the dash line work for rebar, but we can assume it's a bent bar with length LD and 10"? Where is LD defined
24	Calcs 12/200	JP/TB	Cited in Comment	Boring locations shown do not meet requirements for exploration, per 15-3.4.1 & 2. Please indicated DBIC # in response granting variance these walls. Are all borings shown? What information is available to support tie back and pile design? If variance is considered, what additional verification tests, site observation, and GSI involvement will be required. Please clarify or revise.
25	Calcs 14/200	JP/TB	15-4.10 & 8	Provide evaluation of wall displacements that supports used of reduced seismic and active earthpressures. Wingwall 2, for example, is actively connected to the temporary micropile wall and then the interstitial space filled completely with concrete above the tie back. Such composite structure is extremely rigid and acts more likely large gravity wall. The western facing portion of wingwall 2 would also be extremely rigid as a composite structure. On FP5-42 & 43, dowels are shown at the expansion joint which will restrain the wall, especially at inside corners where the adjacent abutting wall provide rigidity. These boundary conditions ma create a non-yielding condition where high pressures are merited. GDM says, Non-yielding walls shall use at-rest earth pressure parameters. Non-yielding walls include, for example, integral abutment walls, wall corners, cut and cover tunnel walls, and braced walls (i.e., walls that are cross-braced to another wall or structure). Where bridge wing and curtain walls join the bridge abutment, at rest earth pressures should be used. GDM says, A detailed structural analysis of non-gravity walls is required to assess how much they can deform laterally during the design seismic event, so that the appropriate value of kh can be determined.
26	Calcs 25/200	JP/TB	15-4.13	Scenario O1, E1 & E2: Applying water on the stream side at the 100yr WSE would provide a resisting force and water at that level is only present during a 100yr event. Immediately after an event the stream level subsides and water behind wall remain higher to the weep hole elevation. Please clarify the basis for the design assumption, how is realistic, or revise.
27	Calcs 121/200	JP/TB		In plans on FP5-42 & 43 the details show the wingwall will be restrained. No joint filler or compressible material shown in the expansion joint and the joint is doweled. Is the restraint from the wingwall considered in the analysis and how might an unanticipated load path affect the design? Please clarify or revise.
28	Calcs 48/200, App B	JP/TB		Walls extend upwards of 10 to 15 ft above grade with fall protection supported above. Please point us to where the inertial load and wind load of the wall extension is considered in design of the wall fascia and wall. Is there also a forward compatible grading height that may increase the retained height?
29	Calcs 140/200	JP/TB		Is the biaxial bending of the wide flange and reduce capacity of the anchor due to the skew accounted for

RESPONSE TO COMMENT (Skanska, Originator of Document)		
Disposition Code	Response By	ACTION TAKEN / Remarks
D	IR	This is presented in drawing FP5-15. It was not included in the West Portal submission but it is part of the same design package. To be shared for completeness.
A	IR	3" diameter PVC pipe to be embedded in the cast-in place concrete wall. Detail provided in FP5-15
D	IR	This is in the typical detail as: 2 per row @ 8", spaced in vertical @ 1'-0". 
D	IR	This is presented in drawing FP5-14. It was not included in the West Portal submission but it is part of the same design package. To be shared for completeness.
D	IR	There is no change in the grading from current for the FC scenario. The additional lane included in that side is fitted within the existing platform and the same slope will be retained.
A	IR	Background information reviewed and plan updated.
A	IR	Diagrams added. Ld length added.
D	IR	The information and figure 3 shown is from GER Desing Package 9. The boreholes in the area of Juanita Creek has been used by Terracon to produce the ground model and provide the design properties. Variance from exploration location requirements is approved with DBIC 021. Supporting subsurface information was provided to the WSDOT for their evaluation during the approval process. GSI involvement is discussed in DBIC 021 to meet RFP 2.6.2.2 requirements. Please note that RFP 2.6.2.2 does not mention ground anchor testing where exploration location is non-compliant - additional testing beyond what is required by the mandatory standards is not required by the contract on the basis of exploration non-compliance.
C A	IR	Comments noted and structure's connections reviewed as per clarifications below: Wall displacements added in Extreme 1 case with earthquake loading. The maximum displacements obtained are: 1.8-in for WW1.1, 0.9-in for WW1-2, 3.5-in (around 2-in at tieback level) for WW1-3, 1.4 -in for WW2-1. The headwall, wingwall 2 and the last section of wingwall 1 (WW1-3) are considered to have a stiffer behaviour and full kh with no reduction is used. This is not reflected correctly in Table 7 - table updated. The connection between headwall and wingwalls has been updated and it is made with a compression joint with no dowels. The headwall is not connected to the concrete block wall, that side is analysed as relying in the ground anchors. Points on wall behaviour noted. However, the referred scenarios and structures are stiffer than the case analysed of a fascia supported on soldier piel wall. The presure distribution used is based in apparent earth pressures as per FHWA Circular 4 formulation.
C	IR	For cases O1/O2 it is assumed the stream banks will remain saturated to that elevation, equivalent to 100-yr WSE, despite the stream level varying seasonally. The water level for extreme cases E1/E2 is not correctly presented in the report: the assumed water level is thalweg bottom level - 3ft; the report is updated with new wording to clarify that. Models reviewed to ensure consistent approach.
A	IR	This has been reviewed, a compression joint is used between wingwalls anf headwall. Details updated.
A	IR	Calculations revised with wind and inertial forces contribution. No, there is not a FC grading inducing an increase in retained height.
C	IR	Biaxial bending conditions added. Regarding the tiebacks in skewed piles: - In the headwall the tiebacks are modelled in their actual angle, hence the actual axial load is obtained. - For wingwall 2, the model is taken as perpendicular to the fascia, so the tieback load obtained is the component in that perpendicular direction. The tieback load results are then projected to the angle so the actual loading acting on the tieback is used for the design. Please confirm if the above is the reduction it was referred in the comment.

RESPONSE TO RESPONSE (WSDOT, City, Checker)		Skanska CLOSE
WSDOT Disposition Code	Comments / Action Items	Final Disposition Code
A		A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A		A
A		A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A		A
A	Should this be code A with the updates made to joints and calcs?	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted. DB's code should be A?	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A
A	11/5/2025: Disposition coded per the DB's response. To be verified when updated plan and calcs are submitted.	A