

INDEX

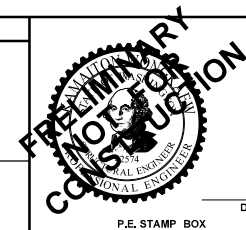
SHEET NUMBER	SHEET TITLE	PRELIM	FINAL
FP5-00	SHEET INDEX	X	
FP5-01	LAYOUT - PLAN AND ELEVATION	X	X
FP5-02	GENERAL NOTES	X	X
FP5-03	TYPICAL SECTION	X	X
FP5-07	TUNNEL DETAILS		X
FP5-13	SOLDIER PILE/TIEBACK WALL DETAILS 1		X
FP5-14	SOLDIER PILE/TIEBACK WALL DETAILS 2		X
FP5-15	SOLDIER PILE/TIEBACK WALL DETAILS 3		X
FP5-16	PERMANENT GROUND ANCHOR DETAILS		X
FP5-17	EAST PORTAL WALL LAYOUT	X	
FP5-18	EAST PORTAL WALL ELEVATION VIEW	X	
FP5-19	EAST PORTAL WALL PILE SCHEDULE	X	
FP5-21	EAST PORTAL WALL TYPICAL SECTIONS	X	
FP5-22	EAST PORTAL WALL TYPICAL SECTIONS	X	
FP5-25	WEST PORTAL WALL LAYOUT	X	
FP5-26	WEST PORTAL WALL ELEVATION VIEW	X	
FP5-28	WEST PORTAL WALL PILE SCHEDULE	X	
FP5-29	WEST PORTAL WALL GEO SECTION	X	
FP5-33	WEST PORTAL WALL TYPICAL SECTIONS	X	
FP5-34	WEST PORTAL WALL TYPICAL SECTIONS	X	
FP5-35	WEST PORTAL WALL TYPICAL SECTIONS	X	

SUBMITTED SEPARATELY

**RESERVED FOR
RFC
CERTIFICATION STAMP**

SR FILE NO. SHEET

FILE NAME		c:\pwworking\uswaldms06730\C9727_DE_FP5_00.dgn	
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DESIGNED BY	I RIVERO	CONTRACT NO.	9727
ENTERED BY	S SANCHEZ	LOCATION NO.	XL5446
CHECKED BY	M WONGKAEW	REVISION	DATE BY
PROJ. ENGR.	J SLAVICEK	REV C - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25 MW
REGIONAL ADM.	L HODGSON	REV B - DESIGN PACKAGE #8	11/6/24 MW
		REV A - DESIGN PACKAGE #8	7/3/24 MW



AECOM



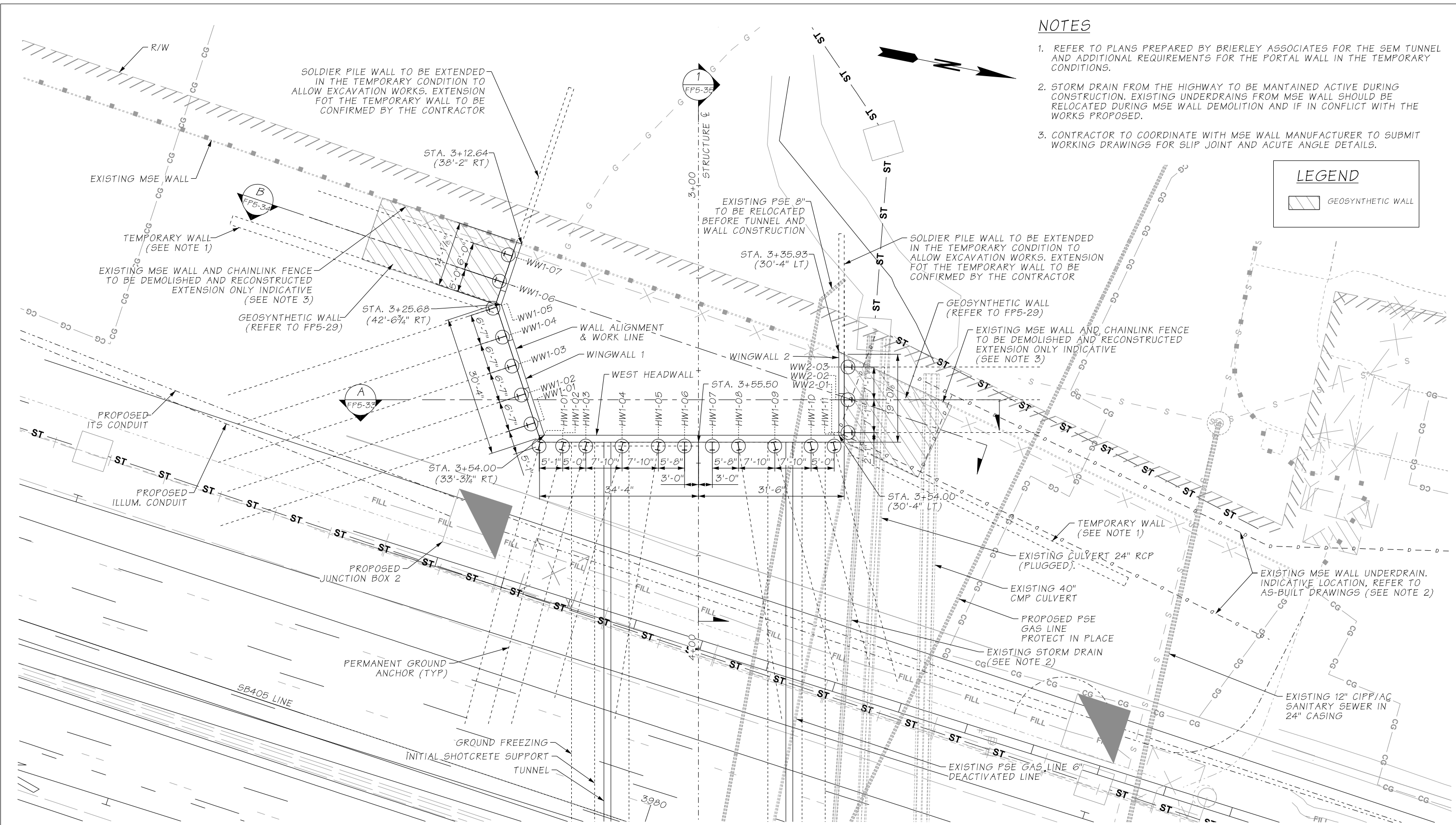
**I-405
BRICKYARD TO SR527
IMPROVEMENT PROJECT**

**JUANITA CREEK
FISH PASSAGE STRUCTURE
SHEET INDEX**

PLAN REF NO
FP5-00

SHEET
01
OF
SHEETS

C.S. 1757 ~ PROJ. NO. 9727 ~ NORTHWEST REGION ~ I-405 MP 21.94 ~ JUANITA CREEK AT I-405 FISH PASSAGE



NOTES

1. REFER TO PLANS PREPARED BY BRIERLEY ASSOCIATES FOR THE SEM TUNNEL AND ADDITIONAL REQUIREMENTS FOR THE PORTAL WALL IN THE TEMPORARY CONDITIONS.
2. STORM DRAIN FROM THE HIGHWAY TO BE MAINTAINED ACTIVE DURING CONSTRUCTION. EXISTING UNDERDRAINS FROM MSE WALL SHOULD BE RELOCATED DURING MSE WALL DEMOLITION AND IF IN CONFLICT WITH THE WORKS PROPOSED.
3. CONTRACTOR TO COORDINATE WITH MSE WALL MANUFACTURER TO SUBMIT WORKING DRAWINGS FOR SLIP JOINT AND ACUTE ANGLE DETAILS.

LEGEND

GEOSYNTHETIC WALL

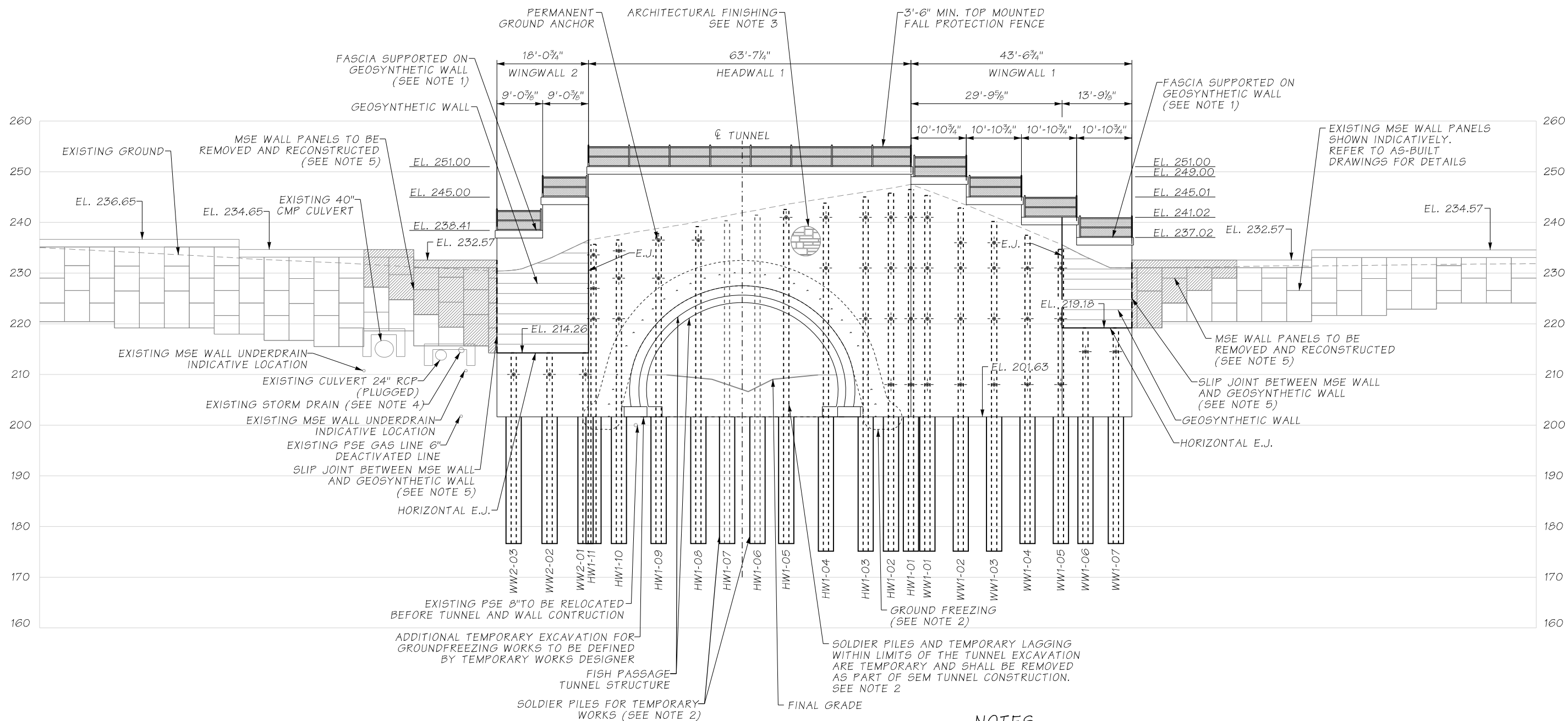
WEST PORTAL LAYOUT
SCALE 1"=20'

SR FILE NO. SHEET

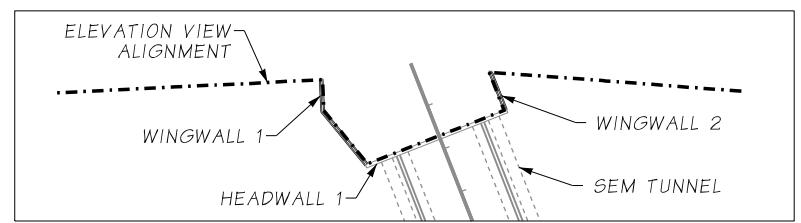
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DESIGNED BY	I RIVERO			LOCATION NO.							OF
ENTERED BY	S SANCHEZ										SHEETS
CHECKED BY	M WONGKAEW										
PROJ. ENGR.	J SLAVICEK	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25	MW	9727	XL5446					
REGIONAL ADM.	L HODGSON	REVISION	DATE	BY							

SKANSKA

JUANITA CREEK
FISH PASSAGE STRUCTURE
WEST PORTAL WALL LAYOUT



ELEVATION -WEST PORTAL
SCALE 1"=20'



KEY PLAN
N.T.S.

NOTES

- UNLESS OTHERWISE NOTED, THE SOLDIER PILES, TIEBACKS, AND REINFORCED CONCRETE FASCIA WALL SHOWN ON THIS SHEET REPRESENT THE PERMANENT (FINAL) CONDITION. FOR GEOSYNTHETIC WALL DETAILS, REFER TO DRAWING FP5-29.
- REFER TO PLANS PREPARED BY BRIERLEY ASSOCIATES FOR THE SEM TUNNEL AND ADDITIONAL REQUIREMENTS FOR THE PORTAL WALL IN THE TEMPORARY CONDITIONS. FREEZE PIPE LOCATIONS SHOWN ARE CONCEPTUAL AND WILL BE ADJUSTED TO AVOID SOLDIER PILES OR PERMANENT WALL ELEMENTS.
- FASCIA SHALL HAVE ARCHITECTURAL FINISH TYPE 3 AESTHETICS WITH WALL STEPPING, WALL CAP, AND ASHLAR FINISH. THE TUNNEL FINAL LINER SHALL EXTEND OUT TO THE EXTERIOR FACE OF THE HEADWALL AND DOES NOT REQUIRE FORMLINER FINISH.
- STORM DRAIN FROM THE HIGHWAY TO BE MAINTAINED ACTIVE DURING CONSTRUCTION. EXISTING UNDERDRAINS FROM MSE WALL SHOULD BE RELOCATED DURING MSE WALL DEMOLITION AND IF IN CONFLICT WITH THE WORKS PROPOSED.
- CONTRACTOR TO COORDINATE WITH MSE WALL MANUFACTURER TO SUBMIT WORKING DRAWINGS FOR SLIP JOINT AND ACUTE ANGLE DETAILS.

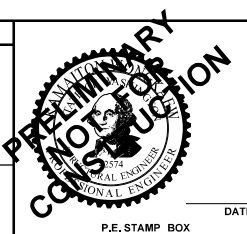
LEGEND

MSE WALL PANELS TO BE REMOVED AND RECONSTRUCTED (SEE NOTE 5)

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DESIGNED BY	I RIVERO	CONTRACT NO.	9727
ENTERED BY	S SANCHEZ	LOCATION NO.	XL5446
CHECKED BY	M WONGKAEW	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25
PROJ. ENGR.	J SLAVICEK	REVISION	DATE
REGIONAL ADM.	IL HODGSON	BY	MW



AECOM

**Washington State
Department of Transportation**

SKANSKA

**I-405
BRICKYARD TO SR527
IMPROVEMENT PROJECT**

**JUANITA CREEK
FISH PASSAGE STRUCTURE
WEST PORTAL WALL ELEVATION VIEW**

PLAN REF NO
FP5-26

SHEET
XX
OF
SHEETS

C.S. 1757 ~ PROJ. NO. 9727 ~ NORTHWEST REGION ~ I-405 MP 21.94 ~ JUANITA CREEK AT I-405 FISH PASSAGE

WEST PORTAL SOLDIER PILE SCHEDULE

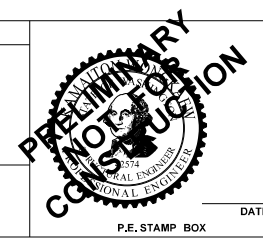
PILE NO.	STA.	OFFSET (FT)	DRILL HOLE SIZE	P.G.A ARANGEMENT TYPE (1)	SOLDIER PILE SECTION	TOP ELEVATION (FT) (2)	H (FT)(3)	D (FT)(3)
HW1-01	3+56.32	34'-5" Rt.	3'-3"	HW-A	W21X101	246.50	44'-10"	26'-6"
HW1-02	3+56.32	29'-4" Rt.	3'-3"	HW-A	W21X101	245.76	44'-2"	26'-6"
HW1-03	3+56.32	24'-4" Rt.	3'-3"	HW-B	W21X101	245.01	43'-5"	26'-6"
HW1-04	3+56.32	16'-6" Rt.	3'-3"	HW-C	W21X101	243.79	42'-2"	26'-6"
HW1-05	3+56.32	8'-8" Rt.	3'-3"	HW-D	W21X101	242.55	40'-11"	25'-0"
HW1-06	3+56.32	3'-0" Rt.	3'-3"	-	W21X101	241.44	39'-10"	25'-0"
HW1-07	3+56.32	3'-0" Lt.	3'-3"	-	W21X101	240.33	38'-8"	25'-0"
HW1-08	3+56.32	8'-8" Lt.	3'-3"	HW-E	W21X101	239.18	37'-7"	25'-0"
HW1-09	3+56.32	16'-6" Lt.	3'-3"	HW-F	W21X101	237.82	36'-2"	25'-0"
HW1-10	3+56.32	24'-4" Lt.	3'-3"	HW-G	W21X101	236.54	34'-11"	25'-0"
HW1-11	3+56.32	29'-4" Lt.	3'-3"	HW-H	W21X101	235.68	34'-1"	25'-0"
WW1-01	3+51.55	36'-2" Rt.	3'-3"	A	W21X101	245.32	43'-8"	26'-6"
WW1-02	3+45.29	38'-2 ⁵ / ₈ " Rt.	3'-3"	B	W21X101	242.84	41'-3"	26'-6"
WW1-03	3+39.04	40'-3 ¹ / ₄ " Rt.	3'-3"	B	W21X101	240.18	38'-7"	26'-6"
WW1-04	3+32.78	42'-3 ⁷ / ₈ " Rt.	3'-3"	C	W21X101	237.46	35'-10"	25'-0"
WW1-05	3+26.53	44'-4 ¹ / ₂ " Rt.	3'-3"	C	W21X101	234.69	33'-1"	25'-0"
WW1-06	3+20.67	42'-11 ³ / ₄ " Rt.	3'-3"	D	W21X101	219.18	17'-7"	25'-0"
WW1-07	3+14.99	41'-0 ³ / ₄ " Rt.	3'-3"	D	W21X101	219.18	17'-7"	25'-0"
WW2-01	3+53.42	32'-3 ⁷ / ₈ " Lt.	3'-3"	E	W21X101	214.26	12'-8"	25'-0"
WW2-02	3+46.33	32'-3 ⁷ / ₈ " Lt.	3'-3"	E	W21X101	214.26	12'-8"	25'-0"
WW2-03	3+39.25	32'-3 ⁷ / ₈ " Lt.	3'-3"	E	W21X101	214.26	12'-8"	25'-0"

- (1) REFER TO TIE-BACK SCHEDULE IN FP5-33 FOR THE SOLDIER PILE'S HORIZONTAL ANGLE FROM THE PERPENDICULAR TO THE HEADWALL.
- (2) TOP ELEVATION FOR SOLDIER PILES IN THE PERMANENT WORKS. IN THE TEMPORARY WORKS CONDITION THE PILE TOP MAY BE AT A HIGHER ELEVATION (REFER TO DRAWING FP5-18).
- (3) DIMENSIONS "H" AND "D" REFER TO DESIGN HEIGHT AND EMBEDMENT DEPTH, RESPECTIVELY. REFER TO SHEET FP5-13

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DESIGNED BY	I RIVERO	CONTRACT NO.	9727
ENTERED BY	S SANCHEZ	LOCATION NO.	XL5446
CHECKED BY	M WONGKAEW		
PROJ. ENGR.	J SLAVICEK	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25 MW
REGIONAL ADM.	L HODGSON	REVISION	DATE BY



I-405
BRICKYARD TO SR527
IMPROVEMENT PROJECT

JUANITA CREEK
FISH PASSAGE STRUCTURE
WEST PORTAL WALL PILE SCHEDULE

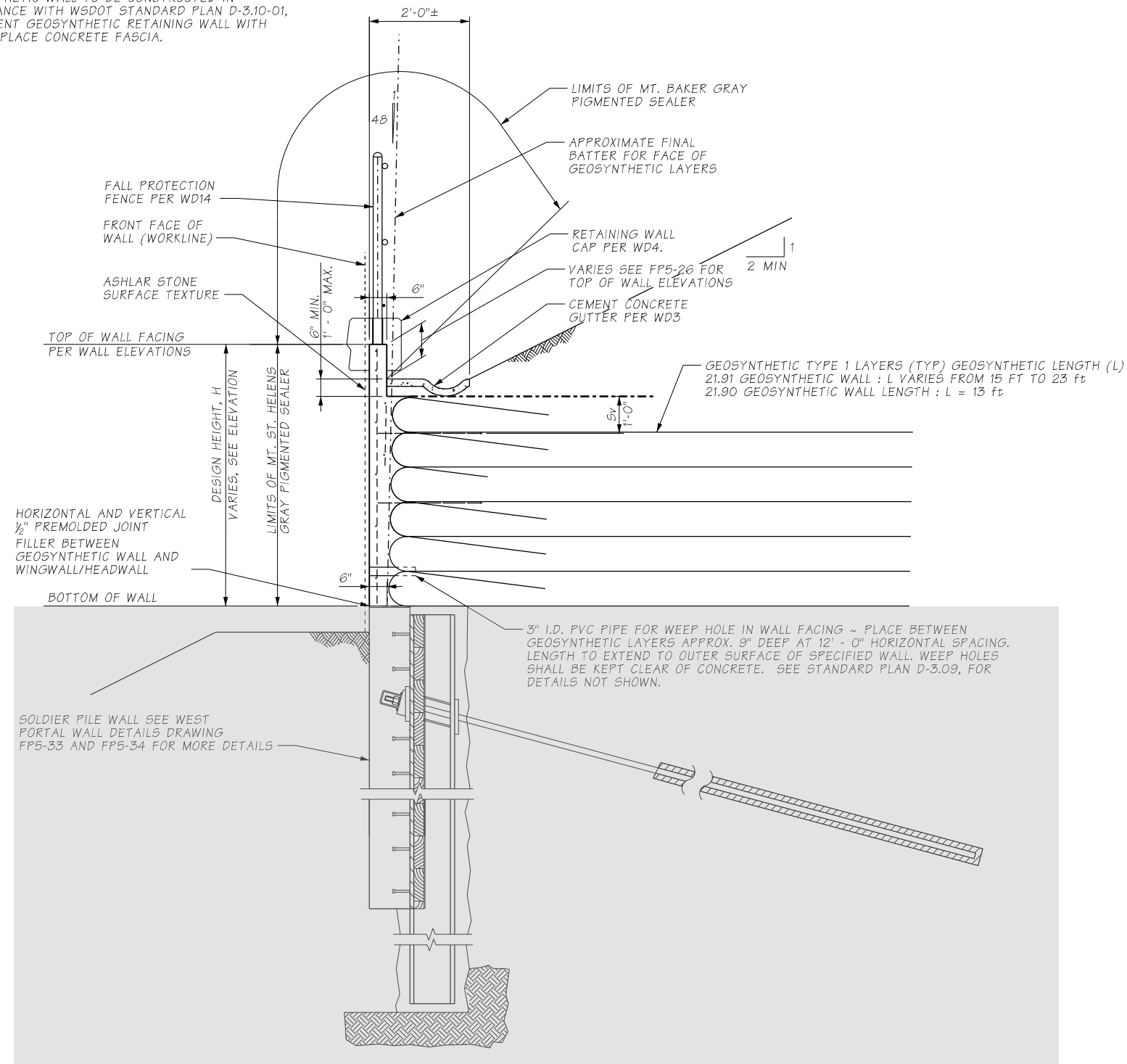
PLAN REF NO
FP5-28

SHEET
XX
OF
SHEETS

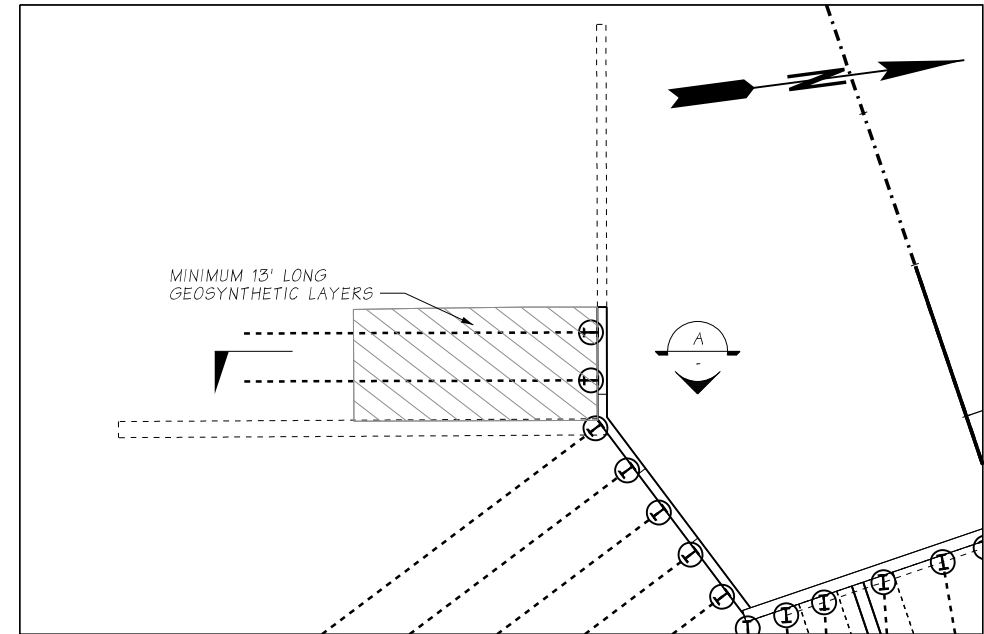
C.S. 1757 ~ PROJ. NO. 9727 ~ NORTHWEST REGION ~ I-405 MP 21.94 ~ JUANITA CREEK AT I-405 FISH PASSAGE

NOTES:

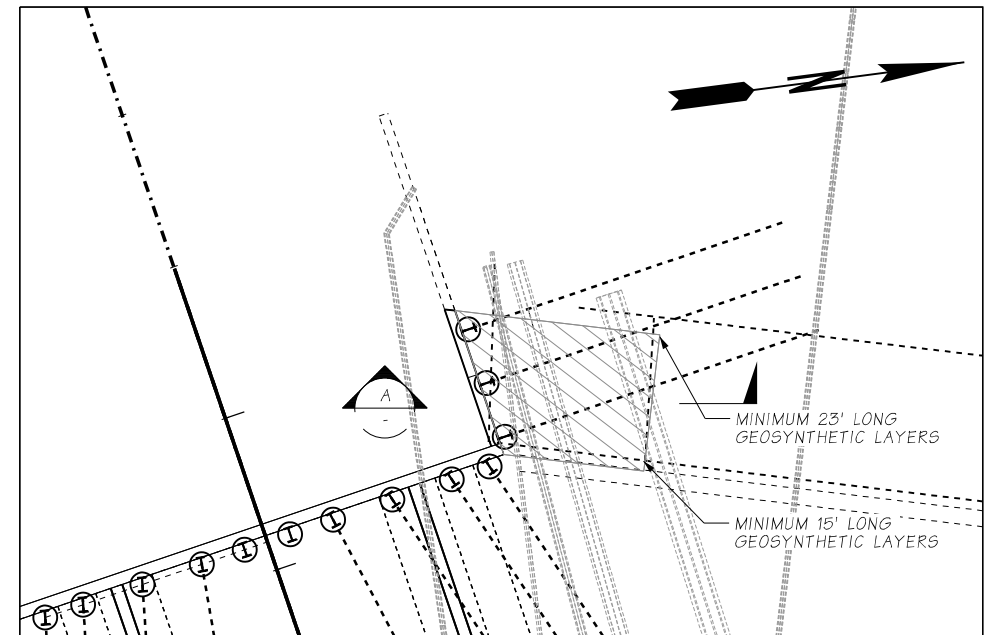
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2. GEOSYNTHETIC WALL TO BE CONSTRUCTED IN ACCORDANCE WITH WSDOT STANDARD PLAN D-3.10-01, PERMANENT GEOSYNTHETIC RETAINING WALL WITH CAST-IN-PLACE CONCRETE FASCIA.



TYPICAL GEOSYNTHETIC WALL SECTION A

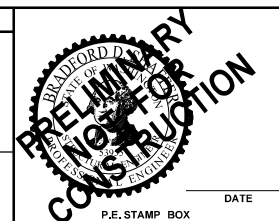


21.90 GEOSYNTHETIC WALL PLAN



21.91 GEOSYNTHETIC WALL PLAN

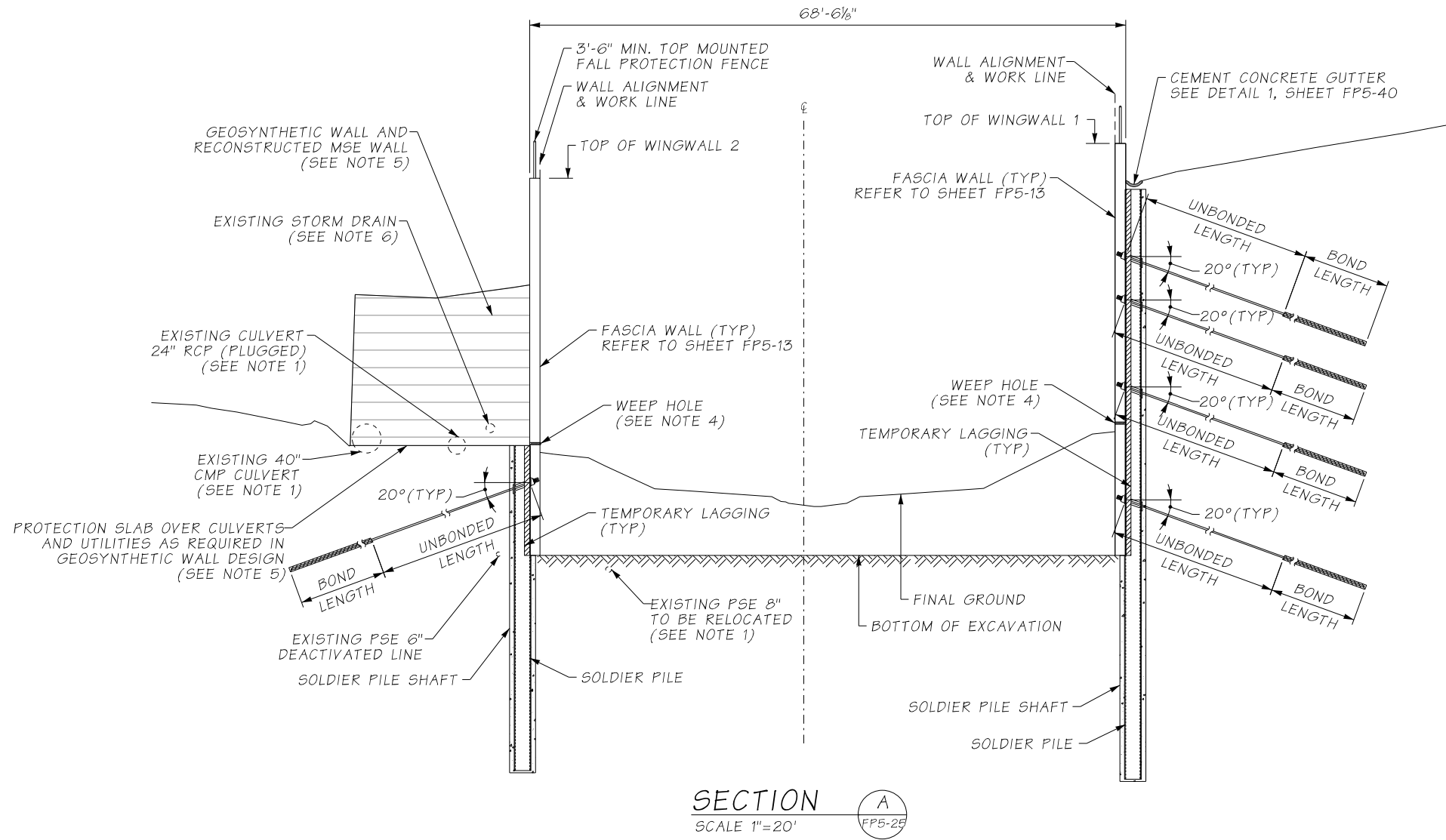
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PLOTTED BY	EscribanoRosilloN			22AB17		
DESIGNED BY	JOHN TRUONG			CONTRACT NO.		LOCATION NO.
ENTERED BY	BRENT SHELLBORN			9727		XL5446
CHECKED BY	ELIZABETH PERRICONE					
PROJ. ENGR.	J SLAVICEK	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	03/12/25	KW		
REGIONAL ADM.	LISA HODGSON	REVISION	DATE	BY		



I-405
BRICKYARD TO SR527
IMPROVEMENT PROJECT

JUANITA CREEK
FISH PASSAGE STRUCTURE
WEST PORTAL WALL GEO SECTION

PLAN REF NO	FP5-29
SHEET	
OF	
SHEETS	



SECTION A
SCALE 1"=20'

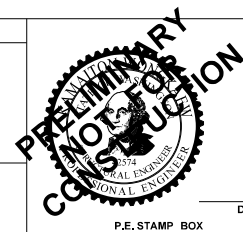
TIEBACK ANCHORS SCHEDULE						
TYPE	NUMBER OF ROWS	ROW ELEVATION	INCLINATION VER. ANGLE (°)	INCLINATION HOR. ANGLE (°)	UNBONDED LENGTH (ft)	FACTORED DESIGN LOAD (kipf)
A [Wingwall 1]	4	241/231/221/208	20/20/20/20	-	46/39/32/22	134/153/164/216
B [Wingwall 1]	4	236/231/221/208	20/20/20/20	-	42/39/32/22	134/153/164/216
C [Wingwall 1]	3	231/221/208	20/20/20	-	35/28/18	92/125/198
D [Wingwall 1]	1	214.5	20	-	20	230
E [Wingwall 2]	1	210	20	-	20	240
HW-A	4	241/231/221/208	25/25/30/30	15/15/15/15	41/35/26/16	134/153/164/216
HW-B	3	241/231/221	25/25/30	15/15/15	41/35/26	105/161/320
HW-C	2	241/231	15/15	15/15	41/28	59/68
HW-D	1	241	7	9	34	107
HW-E	1	236.5	7	9	34	107
HW-F	2	236.5/229	15/15	15/15	35/23	59/68
HW-G	3	234.4/229/221	25/25/25	15/15/15	35/23/16	105/161/320
HW-H	3	233.6/227/221	8/40/40	15/15/15	32/20/15	105/161/320

NOTES

- EXISTING UTILITIES THAT ARE ABANDONED IN PLACE SHALL BE DECOMMISSIONED. THOSE THAT INTERSECT WITH THE WALL SHALL BE REMOVED TO THE BACK OF THE LAGGING AND PLUGGED.
- LOCK-OFF LOAD SHALL BE 60% OF THE FACTORED DESIGN LOAD.
- CONTRACTOR SHALL DETERMINE THE ANCHOR DIAMETER AND BOND LENGTH, NOT LESS THAN 15 FEET, PER WSDOT SPECIFICATION 6-17.3.
- WEEP HOLES TO FOLLOW WSDOT DETAILS. TO BE LOCATED CENTERED BETWEEN PILES, AT 1FT ELEVATION ABOVE FINISHED GRADE.
- FOR GEOSYNTHETIC WALL DETAILS, REFER TO DRAWING FP5-29.
- STORM DRAIN FROM THE HIGHWAY TO BE MAINTAINED ACTIVE DURING CONSTRUCTION. FOR TEMPORARY AND PERMANENT DIVERSION OF THE PIPE THROUGH THE WALLS, REFER TO DRAINAGE DESIGNER DRAWINGS.

SR FILE NO. SHEET

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DESIGNED BY	I RIVERO		
ENTERED BY	S SANCHEZ		
CHECKED BY	M WONGKAEW		
PROJ. ENGR.	J SLAVICEK	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25 MW
REGIONAL ADM.	IL HODGSON	REVISION	DATE BY
REGION NO.	10	STATE	WASH
FED.AID PROJ.NO.			
JOB NUMBER	22AB17		
CONTRACT NO.	9727		
LOCATION NO.	XL5446		

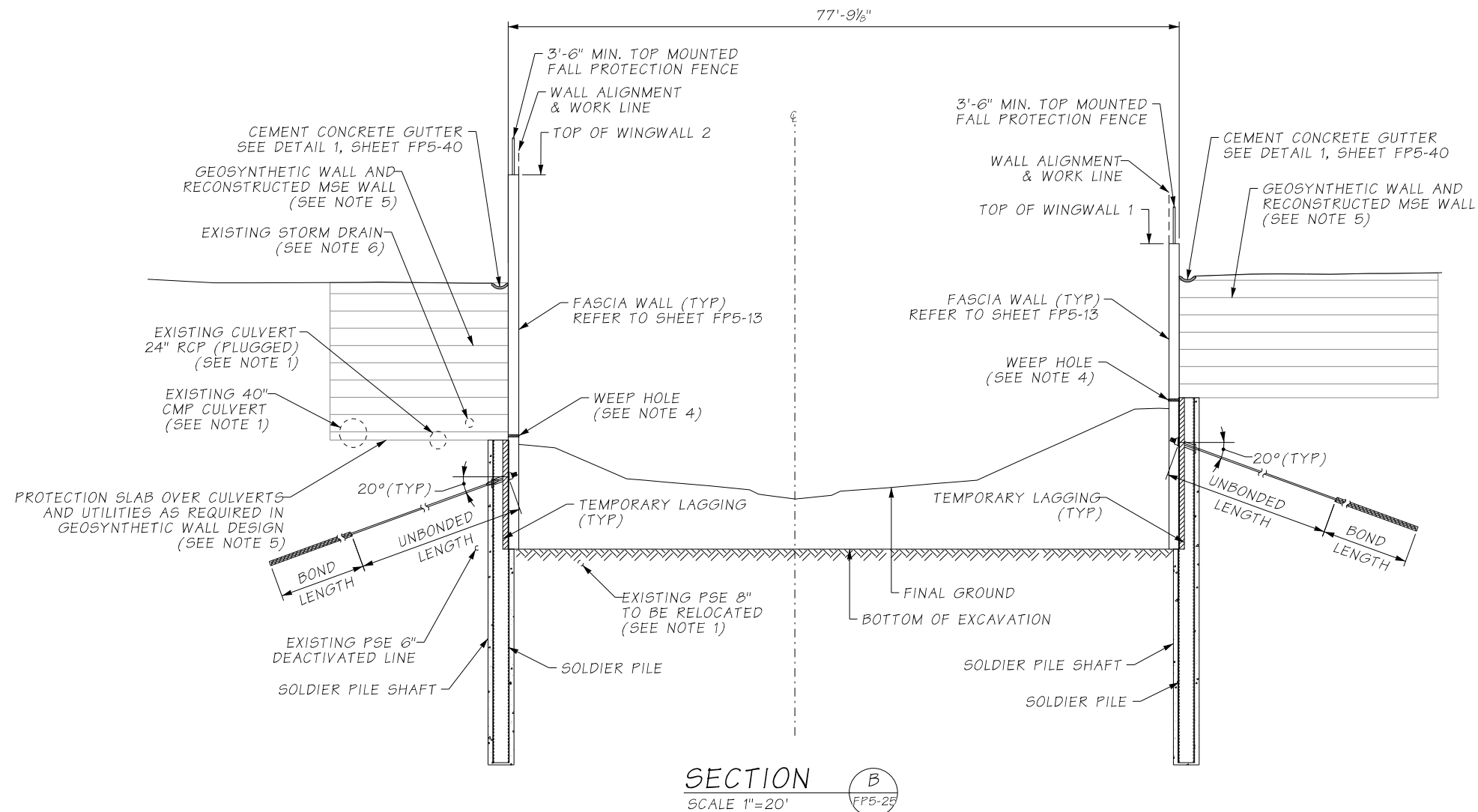


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I-405 BRICKYARD TO SR527 IMPROVEMENT PROJECT		PLAN REF NO. FP5-33
JUANITA CREEK FISH PASSAGE STRUCTURE WEST PORTAL WALL TYPICAL SECTIONS		SHEET XX OF SHEETS

C.S. 1757 ~ PROJ. NO. 9727 ~ NORTHWEST REGION ~ I-405 MP 21.94 ~ JUANITA CREEK AT I-405 FISH PASSAGE



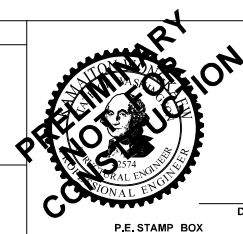
SECTION B
SCALE 1"=20'
FP5-25

NOTES

- EXISTING UTILITIES THAT ARE ABANDONED IN PLACE SHALL BE DECOMMISSIONED. THOSE THAT INTERSECT WITH THE WALL SHALL BE REMOVED TO THE BACK OF THE LAGGING AND PLUGGED.
- LOCK-OFF LOAD SHALL BE 60% OF THE FACTORED DESIGN LOAD.
- CONTRACTOR SHALL DETERMINE THE ANCHOR DIAMETER AND BOND LENGTH, NOT LESS THAN 15 FEET, PER WSDOT SPECIFICATION 6-17.3.
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SR FILE NO. SHEET

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ENTERED BY	S SANCHEZ		
CHECKED BY	M WONGKAEW		
PROJ. ENGR.	J SLAVICEK	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25 MW
REGIONAL ADM.	IL HODGSON	REVISION	DATE BY
REGION NO.	10	STATE	WASH
FED.AID PROJ.NO.			
JOB NUMBER	22AB17		
CONTRACT NO.	9727	LOCATION NO.	XL5446



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I-405
BRICKYARD TO SR527
IMPROVEMENT PROJECT

JUANITA CREEK
FISH PASSAGE STRUCTURE
WEST PORTAL WALL TYPICAL SECTIONS

PLAN REF NO
FP5-34

SHEET
XX
OF
SHEETS

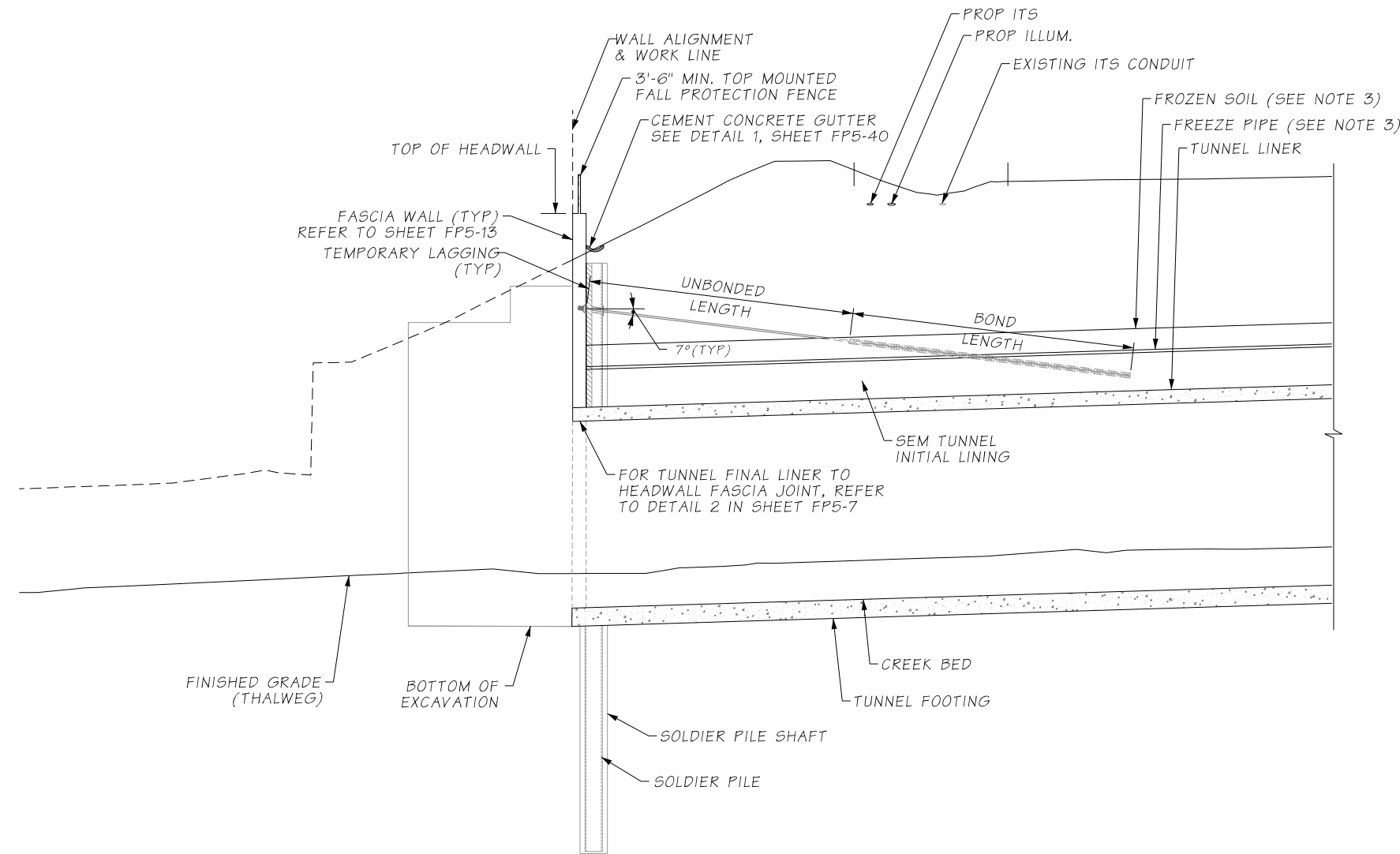
C.S. 1757 ~ PROJ. NO. 9727 ~ NORTHWEST REGION ~ I-405 MP 21.94 ~ JUANITA CREEK AT I-405 FISH PASSAGE

NOTES

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- REFER TO PLANS PREPARED BY BRIERLEY ASSOCIATES FOR THE SEM TUNNEL AND ADDITIONAL REQUIREMENTS FOR THE PORTAL WALL IN THE TEMPORARY CONDITIONS.

LEGEND

CONCRETE

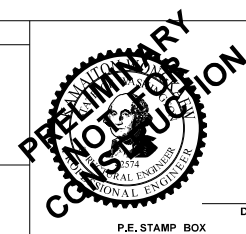


SECTION 1
SCALE 1"=20' 1
FP5-25

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CERTIFICATION STAMP**

SR FILE NO. SHEET

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DESIGNED BY	I RIVERO			CONTRACT NO.	LOCATION NO.	
ENTERED BY	S SANCHEZ			9727	XL5446	
CHECKED BY	M WONGKAEW					
PROJ. ENGR.	J SLAVICEK	REV A - DESIGN PACKAGE 8 STRUCTURES FP5	3/12/25	MW		
REGIONAL ADM.	IL HODGSON	REVISION	DATE	BY		



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**I-405
BRICKYARD TO SR527
IMPROVEMENT PROJECT**

**JUANITA CREEK
FISH PASSAGE STRUCTURE
WEST PORTAL WALL TYPICAL SECTIONS**

PLAN REF NO
FP5-35

SHEET
XX
OF
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C.S. 1757 ~ PROJ. NO. 9727 ~ NORTHWEST REGION ~ I-405 MP 21.94 ~ JUANITA CREEK AT I-405 FISH PASSAGE