Columbia River CROSSING

700 WASHINGTON STREET
SUITE 300
VANCOUVER, WA 98660
360-737-2726 | 503-256-2726

TRANSMITTAL

DATE: February 23, 2006
TO: Mr. Don Larson, FAA
FROM: Lynn Rust, Design Engineering Manager
SUBJECT: 3 Preliminary River Crossing Alignments
COPY: File & Rob Norton, DEA

☐ **AS YOU REQUESTED**
☒ **REPLY REQUESTED**
☐ **FOR YOUR APPROVAL**
☐ **RECORDS MANAGEMENT**
☐ **RETURN REQUESTED**
☐ **FOR YOUR USE**

ITEM	COPIES	DESCRIPTION
RC-3	1	Downstream Mid-Level Replacement Bridge
RC-4	1	Upstream Mid-Level Replacement Bridge
RC-8	1	Upstream Low-Level Supplemental Moveable Bridge

Dear Don,

Enclosed are three alternative conceptual alignments for the proposed Columbia River Crossing Project. Plan views, profiles and typical cross-sections are included for each alternative.

The RC 3 alignment is located downstream of the existing I-5 bridge and is an “extradosed” type structure with towers and cables. Existing Part 77 surface penetrations are highlighted in green and anticipated future penetrations are highlighted in red. The existing bridge would be removed with this alternative.

The RC 4 alignment is located upstream from the existing bridge and is a box girder type structure that would replace the existing span. Penetrations of the Part 77 Surfaces are not anticipated with this alternative.

Alternative RC 8 is a low-level span positioned upstream from the existing I-5 bridge that would employ a moveable section to accommodate marine traffic. Part 77 Surface penetrations associated with the existing I-5 bridge would remain if this alternative were chosen.

As discussed with Rob Norton, we would appreciate your preliminary comments related to the format and content of these drawings prior to our formal submittal requesting an FAA feasibility review of selected alternative alignments.

Please contact Lynn Rust or Rob Norton with any questions or comments.

I-5 South
I-5 North
315
316
312
313
314
311
310
308
309
306
307
304
305
302
303
300
301
Pearson Airfield
Pearson RPZ
7:1 TRANSITIONAL SLOPE
PRIMARY SURFACE (3675' X 250')
RUNWAY 8-26 (3275' X 60')
EL. 22'
EL. 30'
EL. 180'
20:1 SLOPE
EL. 180'
EL. 280'
EL. 380'
7:1 TRANSITIONAL SLOPE
PDX 10R-28L RUNWAY ℄
PEARSON HORIZONTAL SURFACE
N
PDX 10R-28L RUNWAY ℄
EL. 180'
EL. 180'
20
0 200 400 600 800 1000
SCALE IN FEET

POINT OF ANNOTATION LIST

POINT	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION OF OBSTACLE
300	110794.4331	1083051.6869	45° 36' 58" N	122° 40' 42" W	197.49
301	110749.4723	1083269.0863	45° 36' 57" N	122° 40' 39" W	191.49
302	111388.4938	1083200.4905	45° 37' 04" N	122° 40' 40" W	206.46
303	111318.8688	1083411.2899	45° 37' 03" N	122° 40' 37" W	200.46
304	111955.9220	1083453.2145	45° 37' 09" N	122° 40' 36" W	206.46
305	111845.8055	1083645.9796	45° 37' 08" N	122° 40' 34" W	200.46
306	112461.8308	1083813.6314	45° 37' 14" N	122° 40' 32" W	197.49
307	112315.6128	1083980.6772	45° 37' 13" N	122° 40' 29" W	191.49
308	112629.9982	1084020.4532	45° 37' 16" N	122° 40' 29" W	150.29
309	112614.3418	1084241.0690	45° 37' 16" N	122° 40' 26" W	147.21
310	112963.9340	1084465.9997	45° 37' 20" N	122° 40' 23" W	127.42
311	112831.3502	1085236.1849	45° 37' 18" N	122° 40' 12" W	86.69
312	113294.1133	1084639.7560	45° 37' 23" N	122° 40' 20" W	109.85
313	113159.2842	1085126.6745	45° 37' 22" N	122° 40' 13" W	41.47
314	113076.7914	1085424.5873	45° 37' 21" N	122° 40' 09" W	53.07
315	113535.8118	1084759.3092	45° 37' 25" N	122° 40' 19" W	86.37
316	113373.5263	1085473.2777	45° 37' 24" N	122° 40' 09" W	83.86

LEGEND:

🟥	MAINLINE CENTERLINE
🟦	RAMP CENTERLINE
🟥	PENETRATION OF IMAGINARY SURFACE BY PROPOSED BRIDGE STRUCTURE
🟩	PENETRATION OF IMAGINARY SURFACE BY EXISTING BRIDGE STRUCTURE

FAA EXHIBIT
RC–3 REPLACEMENT BRIDGE
DOWNSTREAM / MID–LEVEL

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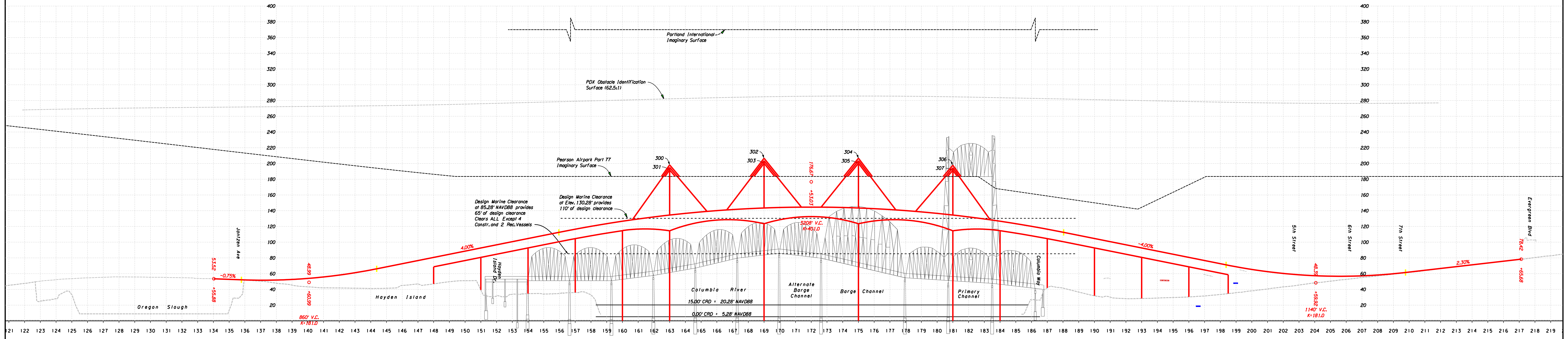
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
Portland International Imaginary Surface
PDX Obstacle Identification Surface (62.5:1)
Pearson Airpark Part 77 Imaginary Surface
Design Marine Clearance at 85.28' NAVD88 provides 65' of design clearance Clears ALL Except 4 Constr. and 2 Rec. Vessels
Design Marine Clearance at Elev. 130.28' provides 110' of design clearance
300
301
302
303
304
305
306
307
176.67
+53.03
3208' V.C.
K=401.0
53.52
+55.88
-0.75%
48.99
+60.99
860' V.C.
K=181.0
4.00%
-4.00%
48.39
+59.92
1140' V.C.
K=181.0
2.30%
78.42
+65.68
Jantzen Ave
Oregon Slough
Hayden Island
Hayden Island Dr.
Columbia River
Alternate Barge Channel
Barge Channel
Primary Channel
Columbia Way
15.00' CRD = 20.28' NAVD88
0.00' CRD = 5.28' NAVD88
5th Street
6th Street
7th Street
Evergreen Blvd
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219

FAA EXHIBIT
PROFILE RC–3 REPLACEMENT BRIDGE
DOWNSTREAM / MID–LEVEL

Columbia River
CROSSING

0 200 400 600 800 1000
SCALE IN FEET

FAA EXHIBIT
PROFILE RC–3 REPLACEMENT BRIDGE
DOWNSTREAM / MID–LEVEL

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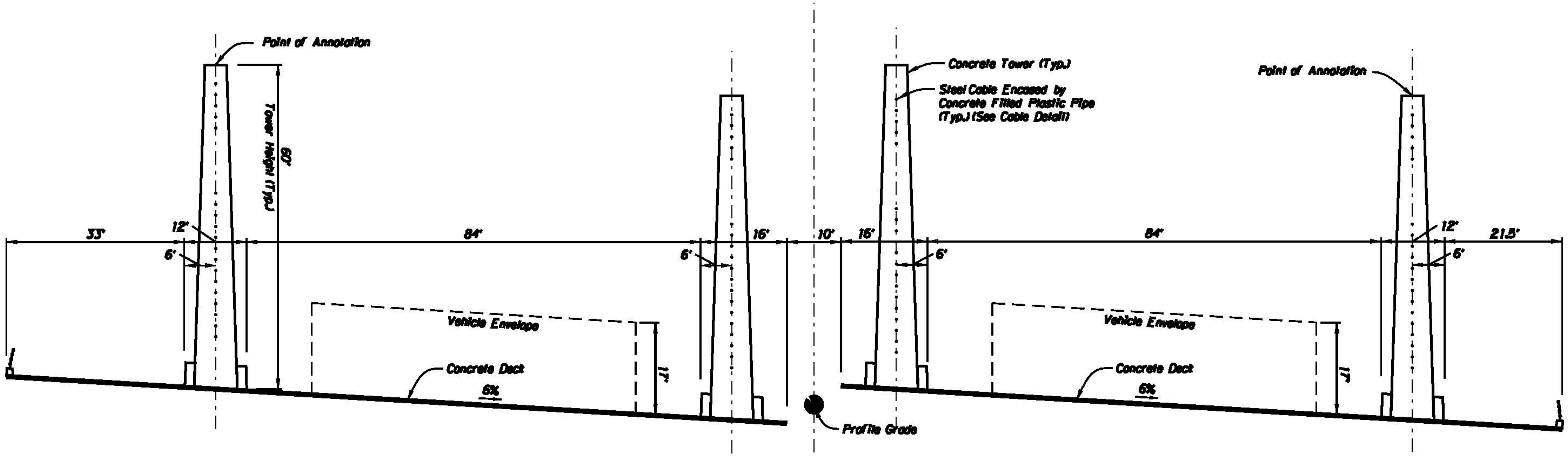
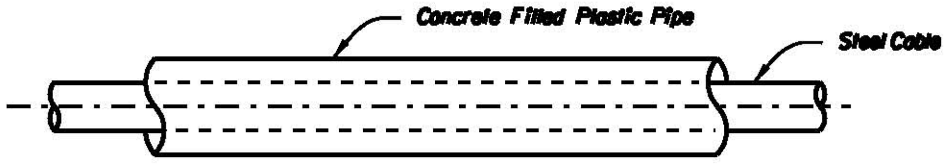
— MAINLINE CENTERLINE


Point of Annotation
Tower Height (Typ.)
60'
33'
12'
6'
84'
6'
16'
10'
16'
6'
84'
12'
21.5'
6'
Concrete Tower (Typ.)
Steel Cable Encased by
Concrete Filled Plastic Pipe
(Typ.) (See Cable Detail)
Point of Annotation
Vehicle Envelope
Concrete Deck
6%
17'
Profile Grade
Vehicle Envelope
Concrete Deck
6%
17'


Concrete Filled Plastic Pipe
Steel Cable

CABLE DETAIL

NO SCALE

PROPOSED TYPICAL SECTION – EXTRADOSED
RC–3 REPLACEMENT BRIDGE – DOWNSTREAM / MID–LEVEL

SCALE: 1" = 20'

Columbia River
CROSSING

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I-5 South
I-5 North
Pearson Airfield
7:1 TRANSITIONAL SLOPE
PRIMARY SURFACE (3675' X 250')
RUNWAY 8-26 (3275' X 60')
EL. 22'
EL. 180'
417
418
415
416
Pearson RPZ
EL. 30'
414
412
413
EL. 180'
20:1 SLOPE
EL. 180'
EL. 280'
7:1 TRANSITIONAL SLOPE
PDX 10R-28L RUNWAY ℄
410
409
411
407
406
408
404
403
405
401
400
402
EL. 380'
PEARSON HORIZONTAL SURFACE
N
PDX 10R-28L RUNWAY ℄
EL. 180'
0 200 400 600 800 1000
SCALE IN FEET

POINT OF ANNOTATION LIST

POINT	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION OF OBSTACLE
400	110570.7480	1083447.0058	45° 36' 56" N	122° 40' 36" W	166.35
401	110521.2081	1083547.4538	45° 36' 55" N	122° 40' 35" W	160.59
402	110480.5146	1083629.9646	45° 36' 55" N	122° 40' 33" W	159.39
403	111110.0410	1083700.0651	45° 37' 01" N	122° 40' 33" W	175.33
404	111063.8637	1083802.1027	45° 37' 01" N	122° 40' 31" W	169.57
405	111025.9324	1083885.9192	45° 37' 00" N	122° 40' 30" W	168.37
406	111656.6707	1083947.4432	45° 37' 07" N	122° 40' 29" W	175.33
407	111610.4935	1084049.4808	45° 37' 06" N	122° 40' 28" W	169.57
408	111572.5622	1084133.2973	45° 37' 06" N	122° 40' 27" W	168.37
409	112203.3005	1084194.8213	45° 37' 12" N	122° 40' 26" W	166.35
410	112157.1232	1084296.8589	45° 37' 12" N	122° 40' 25" W	160.59
411	112119.1919	1084380.6754	45° 37' 11" N	122° 40' 24" W	159.39
412	112599.8807	1084445.1475	45° 37' 16" N	122° 40' 23" W	150.53
413	112583.1543	1084681.0118	45° 37' 16" N	122° 40' 19" W	137.44
414	112922.8580	1084704.6111	45° 37' 19" N	122° 40' 19" W	132.38
415	112822.3752	1085288.3202	45° 37' 18" N	122° 40' 11" W	34.84
416	112750.9366	1085703.3102	45° 37' 18" N	122° 40' 05" W	50.71
417	113548.8194	1084852.7341	45° 37' 25" N	122° 40' 17" W	89.36
418	113296.5036	1085604.0869	45° 37' 23" N	122° 40' 07" W	78.85

Columbia River
CROSSING

FAA EXHIBIT
RC-4 REPLACEMENT BRIDGE
UPSTREAM / MID-LEVEL

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LEGEND:

🟥	MAINLINE CENTERLINE
🟦	RAMP CENTERLINE
🟥	PENETRATION OF IMAGINARY SURFACE BY PROPOSED BRIDGE STRUCTURE
🟩	PENETRATION OF IMAGINARY SURFACE BY EXISTING BRIDGE STRUCTURE

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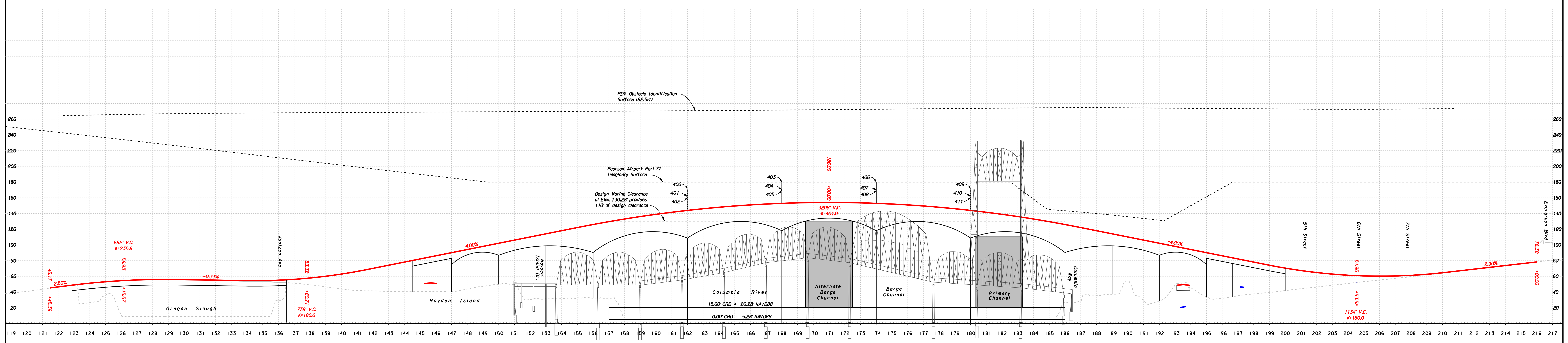
PDX Obstacle Identification Surface (62.5:1)
Pearson Airpark Part 77 Imaginary Surface
Design Marine Clearance at Elev. 130.28' provides 110' of design clearance
400
401
402
403
404
405
406
407
408
409
410
411
186.09
+00.00
3208' V.C.
K=401.0
45.17
+45.39
2.50%
662' V.C.
K=235.6
56.93
+15.57
-0.31%
Oregon Slough
Jantzen Ave
53.32
+80.71
776' V.C.
K=180.0
4.00%
Hayden Island
Hayden Island Dr.
Columbia River
15.00' CRD = 20.28' NAVD88
0.00' CRD = 5.28' NAVD88
Alternate Barge Channel
Barge Channel
Primary Channel
Columbia Way
-4.00%
5th Street
6th Street
7th Street
51.95
+53.52
1134' V.C.
K=180.0
2.30%
78.32
+00.00
Evergreen Blvd
20
40
60
80
100
120
140
160
180
200
220
240
260
119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217

FAA EXHIBIT
RC–4 REPLACEMENT BRIDGE
UPSTREAM / MID–LEVEL

Columbia River
CROSSING

Profile $PENTBLS$ PDF_EngCFull.plt

0 200 400 600 800 1000
SCALE IN FEET

FAA EXHIBIT
RC–4 REPLACEMENT BRIDGE
UPSTREAM / MID–LEVEL

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— MAINLINE CENTERLINE

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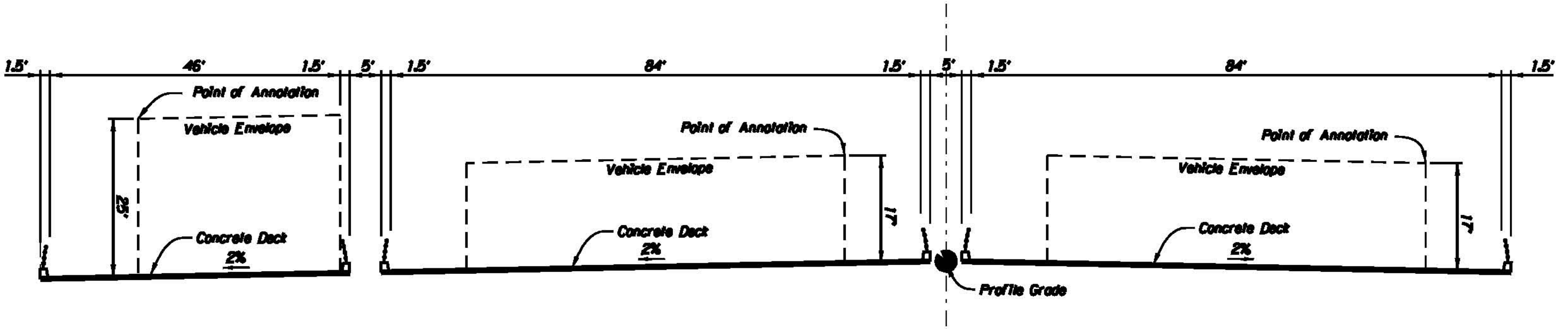
1.5'
46'
1.5'
5'
1.5'
84'
1.5'
5'
1.5'
84'
1.5'
Point of Annotation
Vehicle Envelope
25'
Concrete Deck
2%
Point of Annotation
Vehicle Envelope
17'
Concrete Deck
2%
Profile Grade
Point of Annotation
Vehicle Envelope
17'
Concrete Deck
2%

PROPOSED TYPICAL SECTION – BOX GIRDER
RC–4 REPLACEMENT BRIDGE – UPSTREAM / MID–LEVEL

SCALE: 1" = 20'

Columbia River
CROSSING

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Columbia Street
Main Street
C Street
I-5 South
I-5 North
W 6th St
W 5th St
W 4th St
BNSF
Pearson Airfield
Pearson RPZ
7:1 TRANSITIONAL SLOPE
PRIMARY SURFACE (3675' X 250')
RUNWAY 8-26 (3275' X 60')
EL. 22'
EL. 30'
EL. 180'
EL. 280'
EL. 380'
20:1 SLOPE
7:1 TRANSITIONAL SLOPE
PDX 10R-28L RUNWAY ℄
Columbia River
PEARSON HORIZONTAL SURFACE
PDX 10R-28L RUNWAY ℄
EL. 180'
N
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824

POINT OF ANNOTATION LIST

POINT	NORTHING	EASTING	LATITUDE	LONGITUDE	ELEVATION OF OBSTACLE
800	110437.5918	1083518.8177	45° 36' 54" N	122° 40' 35" W	113.24
801	110392.3175	1083621.2591	45° 36' 54" N	122° 40' 34" W	107.48
802	110355.1279	1083705.4074	45° 36' 54" N	122° 40' 32" W	106.28
803	110938.8228	1083740.3384	45° 36' 59" N	122° 40' 32" W	127.88
804	110893.5485	1083842.7798	45° 36' 59" N	122° 40' 31" W	122.12
805	110856.3589	1083926.9281	45° 36' 59" N	122° 40' 29" W	120.92
806	111441.8832	1083962.6675	45° 37' 04" N	122° 40' 29" W	136.18
807	111396.6089	1084065.1089	45° 37' 04" N	122° 40' 28" W	130.42
808	111359.4193	1084149.2572	45° 37' 04" N	122° 40' 26" W	129.22
809	111944.9436	1084184.9967	45° 37' 09" N	122° 40' 26" W	136.18
810	111899.6693	1084287.4381	45° 37' 09" N	122° 40' 25" W	130.42
811	111862.4797	1084371.5863	45° 37' 09" N	122° 40' 24" W	129.22
812	112448.0040	1084407.3258	45° 37' 14" N	122° 40' 23" W	122.45
813	112402.7297	1084509.7672	45° 37' 14" N	122° 40' 22" W	122.45
814	112365.5401	1084593.9155	45° 37' 14" N	122° 40' 21" W	122.45
815	112588.2434	1084609.2485	45° 37' 16" N	122° 40' 20" W	117.11
816	112505.2237	1085779.9335	45° 37' 15" N	122° 40' 04" W	56.80
817	112913.2093	1084760.6615	45° 37' 19" N	122° 40' 18" W	107.25
818	112831.9667	1085232.6038	45° 37' 18" N	122° 40' 12" W	88.76
819	112793.6246	1085455.3347	45° 37' 18" N	122° 40' 09" W	89.20
820	113211.9541	1084936.4637	45° 37' 22" N	122° 40' 16" W	97.71
821	113098.5406	1085346.0426	45° 37' 21" N	122° 40' 10" W	100.39
822	113072.9850	1085438.2855	45° 37' 21" N	122° 40' 09" W	40.46
823	113564.1518	1085057.8396	45° 37' 26" N	122° 40' 15" W	87.86
824	113475.6476	1085299.8429	45° 37' 25" N	122° 40' 11" W	109.60

LEGEND:

🟥	MAINLINE CENTERLINE
—	RAMP CENTERLINE
🟥	PENETRATION OF IMAGINARY SURFACE BY PROPOSED BRIDGE STRUCTURE
🟩	PENETRATION OF IMAGINARY SURFACE BY EXISTING BRIDGE STRUCTURE

FAA EXHIBIT
RC–8 SUPPLEMENTAL BRIDGE
UPSTREAM / MOVEABLE / LOW–LEVEL

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0 200 400 600 800 1000
SCALE IN FEET

Columbia River CROSSING

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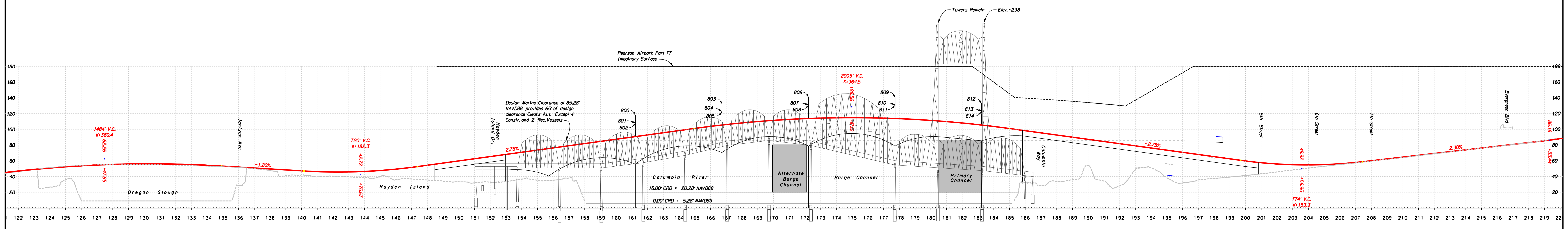
180
160
140
120
100
80
60
40
20
1484' V.C.
K=380.4
62.26
+47.85
Oregon Slough
Jantzen Ave
-1.20%
720' V.C.
K=182.3
42.72
+75.67
Hayden Island
Hayden Island Dr.
Design Marine Clearance at 85.28' NAVD88 provides 65' of design clearance Clears ALL Except 4 Constr. and 2 Rec. Vessels
2.75%
Pearson Airpark Part 77 Imaginary Surface
800
801
802
803
804
805
806
807
808
2005' V.C.
K=364.5
128.56
+72.64
809
810
811
Towers Remain
Elev.~238
812
813
814
Columbia River
Alternate Barge Channel
Barge Channel
Primary Channel
15.00' CRD = 20.28' NAVD88
0.00' CRD = 5.28' NAVD88
Columbia Way
-2.75%
5th Street
6th Street
7th Street
49.92
+56.95
774' V.C.
K=153.3
2.30%
Evergreen Blvd
86.18
+33.44
122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220

FAA EXHIBIT
RC–8 SUPPLEMENTAL BRIDGE
UPSTREAM / MOVEABLE / LOW–LEVEL

Columbia River
CROSSING

0 200 400 600 800 1000
SCALE IN FEET

FAA EXHIBIT
RC–8 SUPPLEMENTAL BRIDGE
UPSTREAM / MOVEABLE / LOW–LEVEL

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LEGEND:
▬ MAINLINE CENTERLINE

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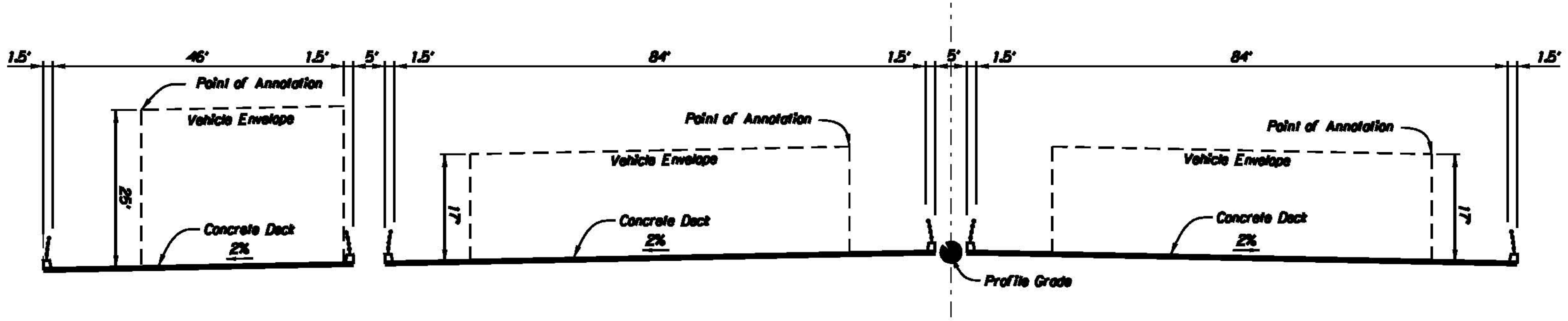
1.5'
46'
1.5'
5'
1.5'
84'
1.5'
5'
1.5'
84'
1.5'
Point of Annotation
Vehicle Envelope
25'
Concrete Deck
2%
Point of Annotation
Vehicle Envelope
17'
Concrete Deck
2%
Point of Annotation
Vehicle Envelope
17'
Concrete Deck
2%
Profile Grade

PROPOSED TYPICAL SECTION – BOX GIRDER
RC–8 SUPPLEMENTAL BRIDGE – UPSTREAM / MOVEABLE / LOW–LEVEL

SCALE: 1" = 20'

Columbia River
CROSSING

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