



Memorandum

To: Ian LaVielle
City of Portland Bureau Development Services
Site Development Section

From: Mike Peebles, PE - Otak
Wade Johns - Alamo Manhattan
Jeancarlo Saenz- HLR Architects

Copies: Shaney Mullen - WDG Architects
Linda Tycher - LTA Landscape Design
Josh Owens, Keith Buisman - Otak

Date: January 6, 2020
Case File: LU 19-225732

Subject: SW BOND Avenue / SOWA Alamo Manhattan Blocks
Otak Responses to Land Use Review Comments dated November 20, 2019

Otak Project No.: 19050.100

The following responses are provided to address Land Use Review Comments from the Portland Bureau of Development Services comments dated November 20, 2019. The responses provide specific information to address comments and/or outlines the strategy to address review comments with additional submittal materials to be provided under separate cover or through a Design Review resubmittal.

In addition, while not required by the BDS Land Use Review comments, we have attached a technical memorandum on a "no-rise" analysis completed for the project showing the development will result in no increase in the base flood (100-year) elevation. This analysis/documentation is required prior to Building Permit submittal or Bank Stabilization work, but is being provided during Land Use Review as recommended by BDS.

BUREAU DEVELOPMENT SERVICES SITE DEVELOPMENT SECTION

[...]

Flood Hazards

[...]

Please address the following items related to the base flood and flood protection elevation:

- 1. The submitted floor plans and sections for the proposed buildings include finish floor elevations; however, the elevation datum used (i.e. NAVD 1988 or City of Portland Datum) is not clear. Please provide the elevation datum used in the drawings.*

RESPONSE:

All the Design Review and Greenway Review application materials are based on City of Portland Datum.

A datum note will be added to the Design Review/Greenway Review resubmittal sheets: Existing Conditions and Demolition Plan (Exhibit C.111) and Block Grading Plans (Exhibits C.123 – C.126); and Greenway Review sheets: Greenway Existing Conditions plans (Exhibits GR1.1, GR1.2) and Greenway Site Plans (Exhibits GR2.1, GR2.2).

A datum note will also be added to the Architectural Floor Plan and Section sheets for the proposed buildings (Exhibits (Block 41) C.2-10, C.16-17, (Block 44) C.28-36, C.42-43, (Block 42) C.55-59, C.65-66, (Block 45) C74-78, C.86-89)

- 2. Exhibit C.27 indicates that the finish floor elevation of at the south end of Level 01, Block 44 is at elevation 32 feet this appears to be below the flood protection elevation. Please revise finish floor elevation to be above the flood protection elevation 34.8 feet NAVD 1988 (32.7 feet City of Portland Datum.) A full review of finish floor elevations will be completed once the elevation datum used is provided.*

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RESPONSE:

The architectural plans will be revised to provide a minimum finished floor elevation of 32.7 feet (CoP Datum) which is the flood protection elevation for the site. The flood protection elevation is two-feet (2') above the base floodplain elevation of 30.7 feet (CoP Datum).

[...]

Geotechnical Engineering

[...]

Please address the following items related to the base flood and flood protection elevation:

3. *All temporary and permanent ground disturbance must be shown on land use drawings. Please revise the greenway construction management plan to show the extent of the proposed ground improvement. Or provide a separate ground improvement plan.*

RESPONSE:

GeoDesign, Inc has provided a memorandum dated December 17, 2019, entitled "Ground Improvement Buttress Preliminary Recommendations". I have attached a copy of the memorandum to this response letter. The design team will add linework depicting the ground improvements limits/extents on the applicable site civil and landscape plans, including the Greenway Review Construction Management Plan.

[...]

Erosion and Sediment Control [...]

Please address the following items related to the base flood and flood protection elevation:

4. *The construction management plan shows the silt fence terminating perpendicular to property lines on the north and south ends of the greenway. As shown sediment will flow around the ends of the silt fence. Please revise erosion control plan to show the silt fence turning west at the north and south property lines, the silt fence must extent 100 or 200 feet up the bank.*

RESPONSE:

The Greenway Construction Management Plans (Exhibits GR3.0, GR3.1, GR3.2) will be updated to show revised site fence configurations at the north and south ends of the project. The silt fence extends a minimum of 100-feet up the bank.

5. *The plan shows the turbidity curtain continuing off the edge of the area shown on at the north end of the site. Please revise the erosion control plan to show the turbidity curtain fully encircling the area of ground disturbance.*

RESPONSE:

The Greenway Construction Management Plans (Exhibits GR3.0, GR3.1, GR3.2) have been updated to show a revised turbidity curtain configuration that fully encircles the area of ground disturbance.

Attachments:

- 1) Memorandum: GeoDesign, Inc, "Ground Improvement Buttress Preliminary Recommendations" dated December 17, 2019.
- 2) Technical Memorandum: Otak, Inc, "Blocks 41, 42, 44, and 45; No Rise Analysis" dated January 6, 2020.

Future Submittal Materials:

- 1) Design Review Resubmittal: Existing Conditions and Grading Exhibits, Architectural Exhibits
- 2) Greenway Review Resubmittal: Greenway Construction Management Exhibits



Technical Memorandum

To: City of Portland Bureau of Development Services
From: Joshua Owens, PE
Copies: Wade Johns, Alamo Manhattan Properties, LLC
Date: January 6, 2020
Subject: LU 19-225732 DZM GW Bank Stabilization and Enhancement at the South Waterfront Blocks 41, 42, 44, and 45; No Rise Analysis
Project No.: 19050.200



EXPIRES: 12/31/2020

This Technical Memorandum documents an analysis of potential floodway impacts resulting from proposed bank stabilization associated with development of Blocks 41, 42, 44, and 45 in Portland's South Waterfront (NE corner of SW Bond Avenue and SW Lowell Street, Figure 1). The proposed

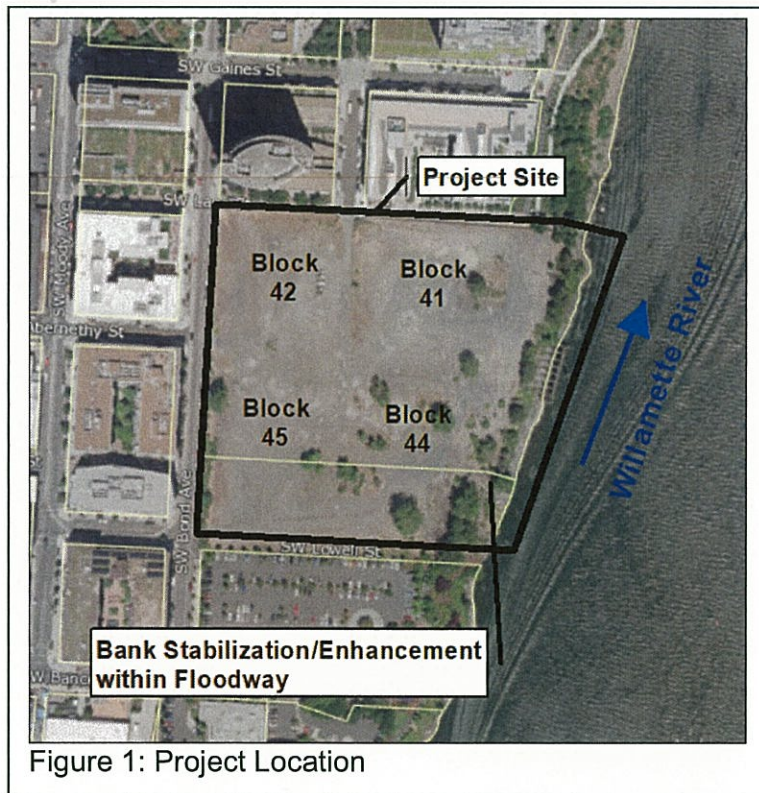
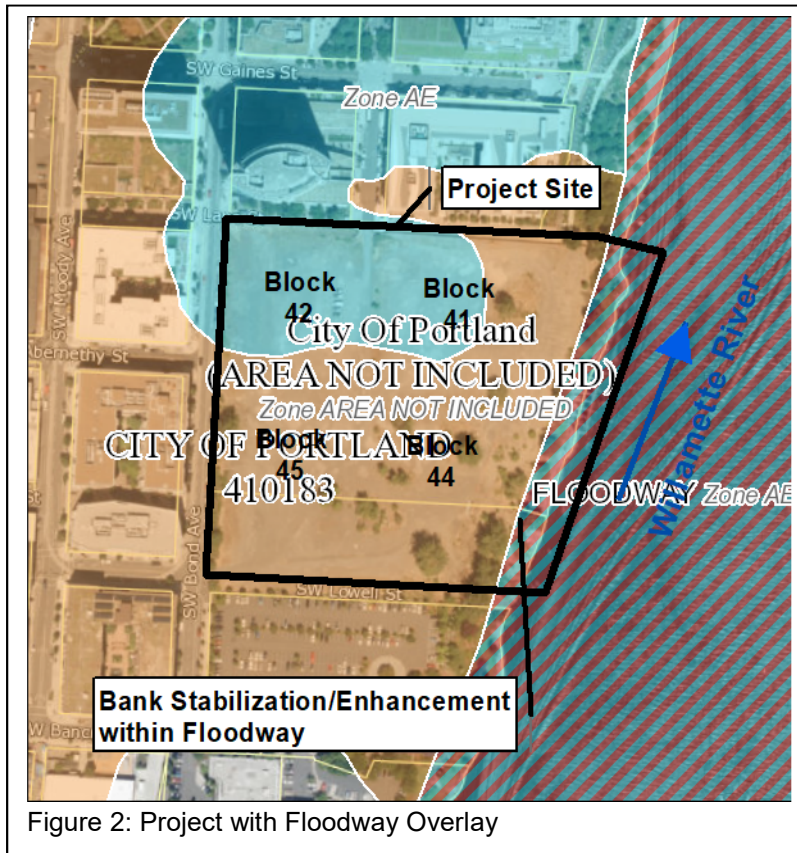


Figure 1: Project Location

development includes four multi-story mixed-use buildings. Willamette Greenway improvements are required to be constructed adjacent to the river bank as part of the currently entitled project's conditions of approval and will be dependent on bank stabilization and enhancement. Bank work will involve the removal of old pilings and miscellaneous fill and re-grading the bank with riprap and natural materials to provide stabilization and protection.

As shown on Figure 2, the proposed bank stabilization project is in the Special Flood Hazard Areas (SFHA, 100-year floodplain) along the Willamette River and therefore must meet floodplain development

requirements as documented in Chapter 24.50 of the City of Portland Code. In addition, because the project will occur in the mapped regulatory floodway along the river, it must also meet the requirements of Section 24.50.060D of the code that prohibits encroachments into the floodway unless it is demonstrated by technical analysis from a registered engineer that the development will result in no increase in the base flood (100-year) elevation. This is known as the “no-rise” requirement and must be satisfied to avoid a more involved process to revise the SFHA through the Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) process. The technical analyses presented here documents that the “no-rise” requirement will be met by the proposed project.



The potential impacts to 100-year water-surface elevations were evaluated by performing a hydraulic analysis of the Willamette River in the vicinity of the project. The analysis was carried out by modifying the hydraulic model developed for the LOMR for TriMet’s Tilikum Crossing bridge that is located about 0.75 miles downstream of the proposed bank stabilization project. As the upstream extent of this model ends at the upstream face of the Ross Island bridge, the model was extended upstream through the project reach with five (5) additional cross sections that are spaced close enough to reflect proposed changes associated with the project and one (1) additional cross section

approximately 250 ft upstream of the project, for a total of six (6) additional cross sections. The new cross sections were developed by cutting from a terrain model developed using the following sources of information:

- Site Survey
- 2014 LiDAR obtained from the Oregon Department of Geology and Mineral Industries (DOGAMI)
- 2005 Willamette Bathymetry as 5 ft contours available from the City of Portland

Manning’s n values for the new cross sections were set to be consistent with the downstream cross sections. This included a Manning’s n value for the main channel equal to 0.03 and an overbank n value of 0.05. Where cross sections traverse Ross Island the n value was set to 0.08 to reflect the dense

vegetation on the island. The updated model extended upstream through the project reach with six new cross sections forming the Corrected Effective (Existing Conditions) model for the no-rise analysis.

A Project Conditions model was created by updating the cross sections in the vicinity of the project to reflect the preliminary proposed grading as of December 17, 2019. The proposed final grading will be used and modified as needed to confirm the no-rise condition when final design occurs, and permits are issued. Any grading revisions will result in additional bank removal and this preliminary design is presented as a worst-case scenario for flow obstruction as it represents the local fill of the potential overlook. The project will lay back the bank from approximately ordinary low water to the existing top of bank resulting in a net removal of material from the river. There will be one location at the proposed Abernathy Overlook that will result in local fill within the floodway. Cross section 14.48 is located to represent the overlook at the location where it most protrudes into the flow (Southeast corner of overlook), see Figure 3. The bank will be laid back and armored with riprap below ordinary high water (approximately elevation 20.3, NAVD88) that will have a similar roughness to the existing channel and bank material with a Manning's n of 0.03. Above Ordinary High Water, the bank will be laid back and planted with dense riparian vegetation in accordance with the City of Portland development standards. The dense vegetation above Ordinary High Water will result in a similar roughness to the existing overbank with a Manning's n of 0.05. To capture this break in roughness, the bank stations for the proposed cross sections were adjusted to ordinary high water, which is the top of riprap armoring. Appendix A shows the cross sections comparing the Project and Effective Corrected conditions.

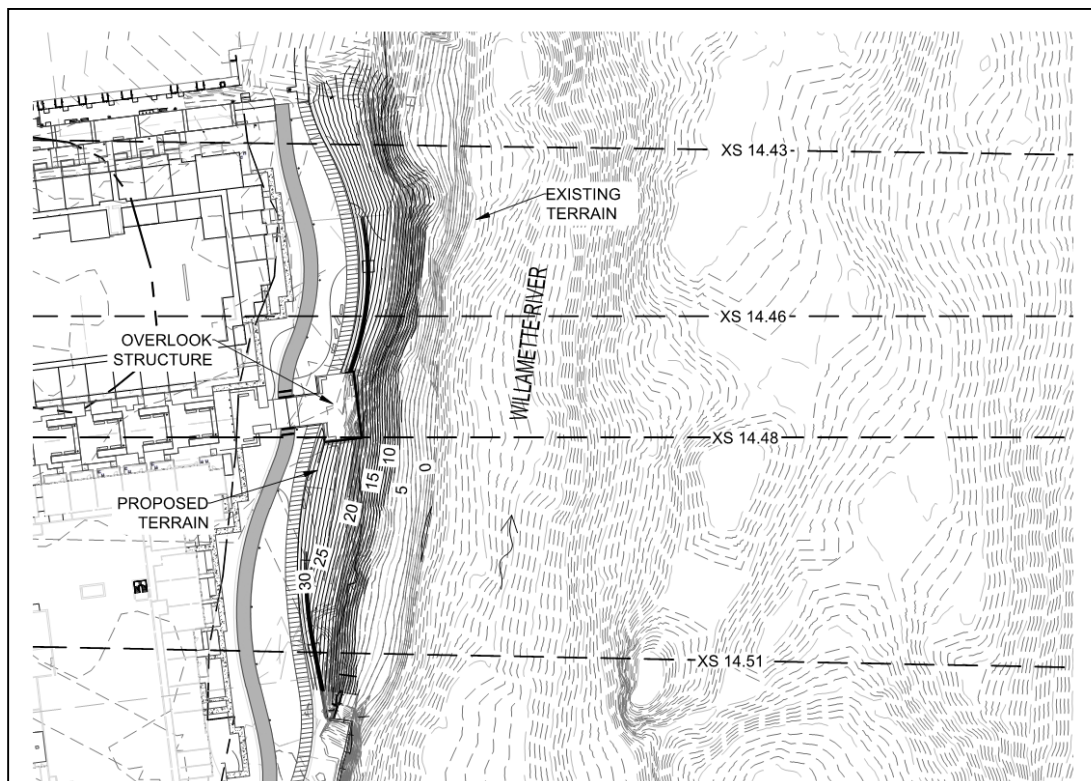


Figure 3: Cross-Section locations through the project reach of the Willamette River

Table 1 compares computed 100-year water-surface elevations between Existing Conditions and Project Conditions for the five cross sections that exhibited a difference (to the thousandth of a foot). The results show that computed water-surface elevations are the same for both conditions (to the nearest hundredth of a foot), demonstrating that the proposed project will not result in any increases in base flood (100-year) water-surface elevations, and thus meets the “no-rise” requirement. Output of the hydraulic model for all cross sections is included in Appendix B.

Table 1: Water Surface Elevation Difference at Project Cross Sections, all other model cross sections had no change			
River Station	Project Conditions	Effective Corrected Conditions	Rise
	W.S. Elev	W.S. Elev	
	(ft)	(ft)	(ft)
14.57	33.193	33.192	0.001
14.53	33.207	33.206	0.001
14.51	33.165	33.164	0.001
14.48	33.113	33.116	-0.003
14.46	33.109	33.109	0.000
14.43	33.075	33.077	-0.002

Appendix A

Figures

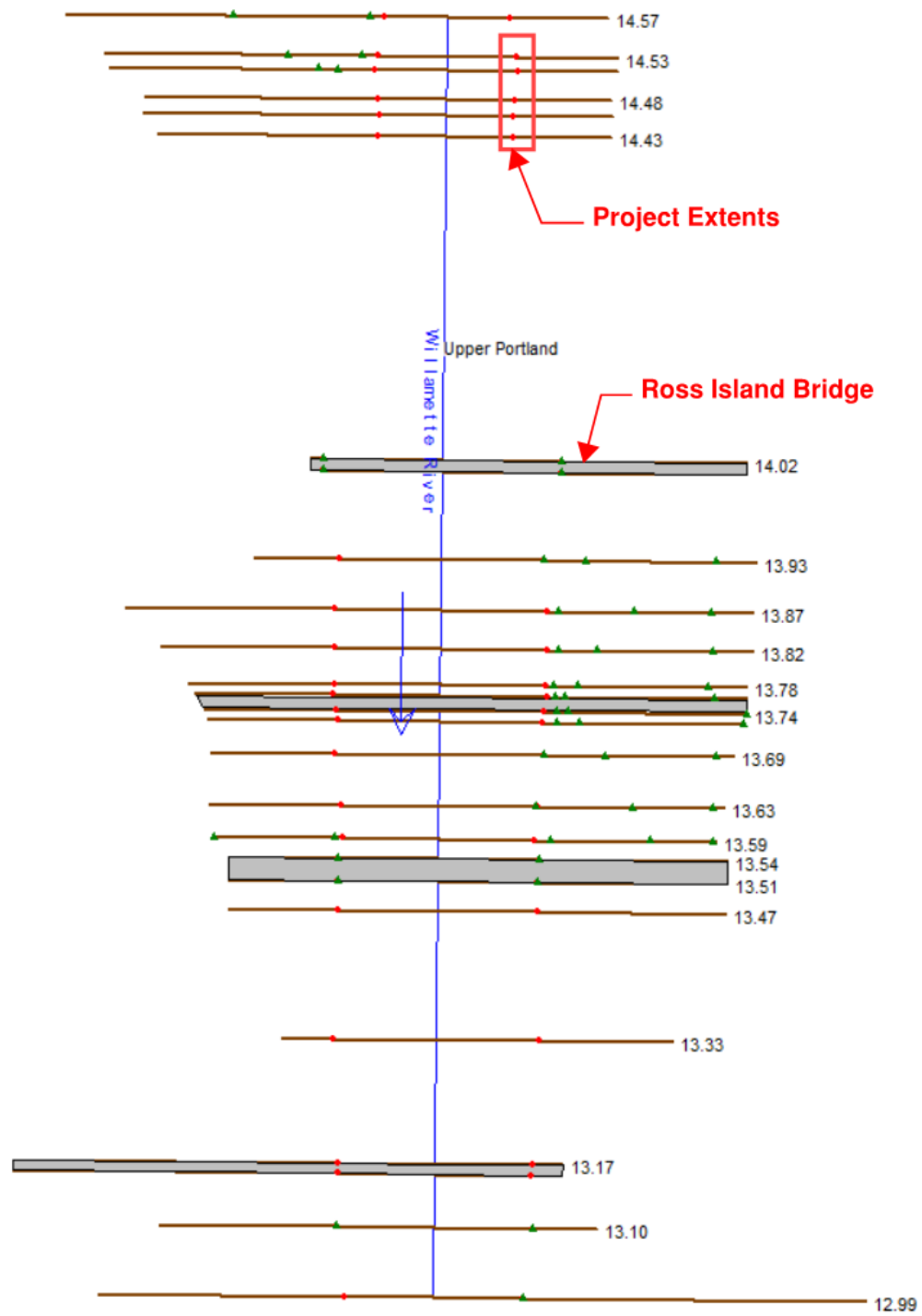


Figure A-1, HEC-RAS Geometry

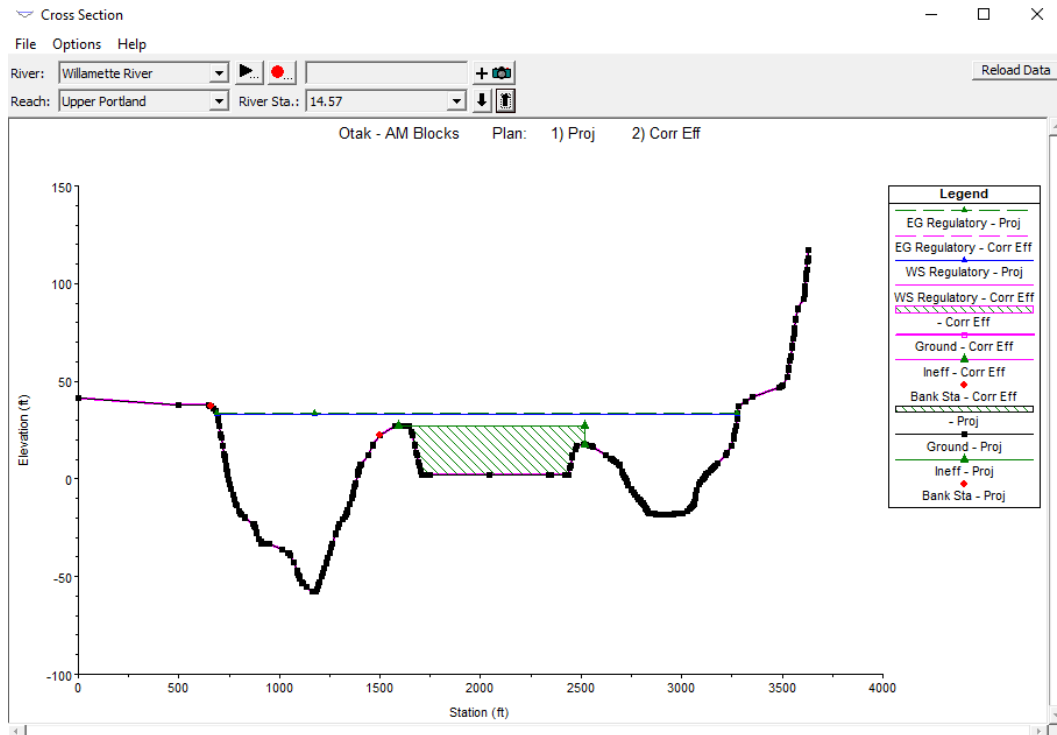


Figure A-2, Cross Section 14.57 (No geometry changes between Effective Corrective and Proposed Conditions)

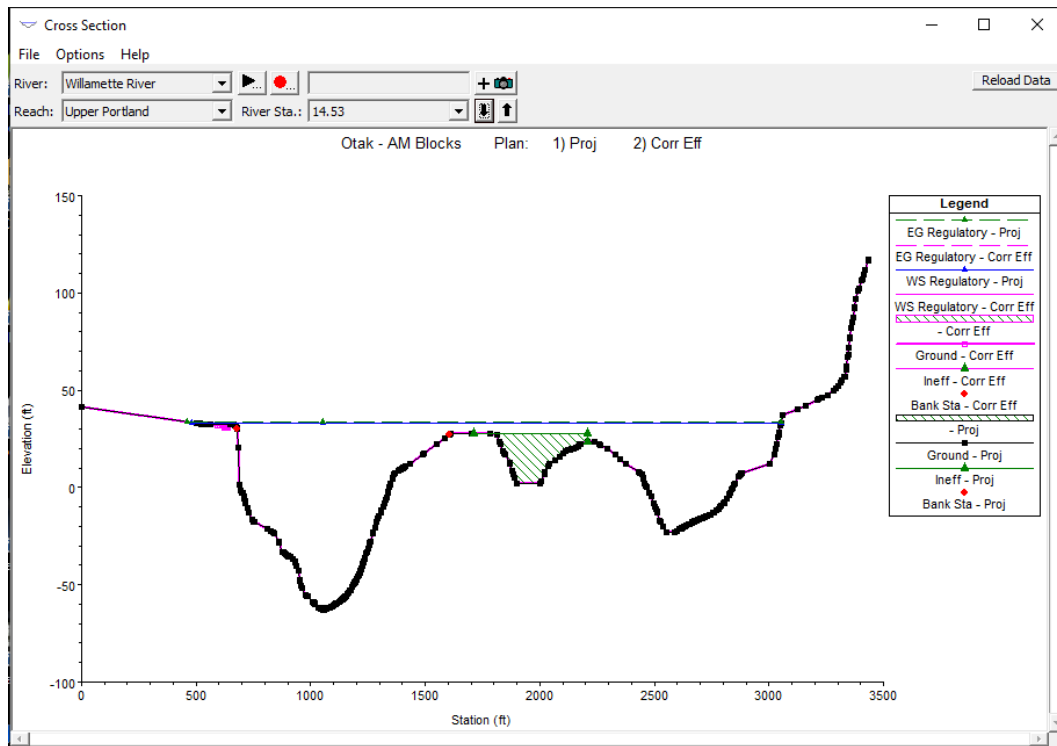


Figure A-3a, Cross Section 14.53 (Effective Corrective geometry shown in purple, Proposed geometry shown in black)

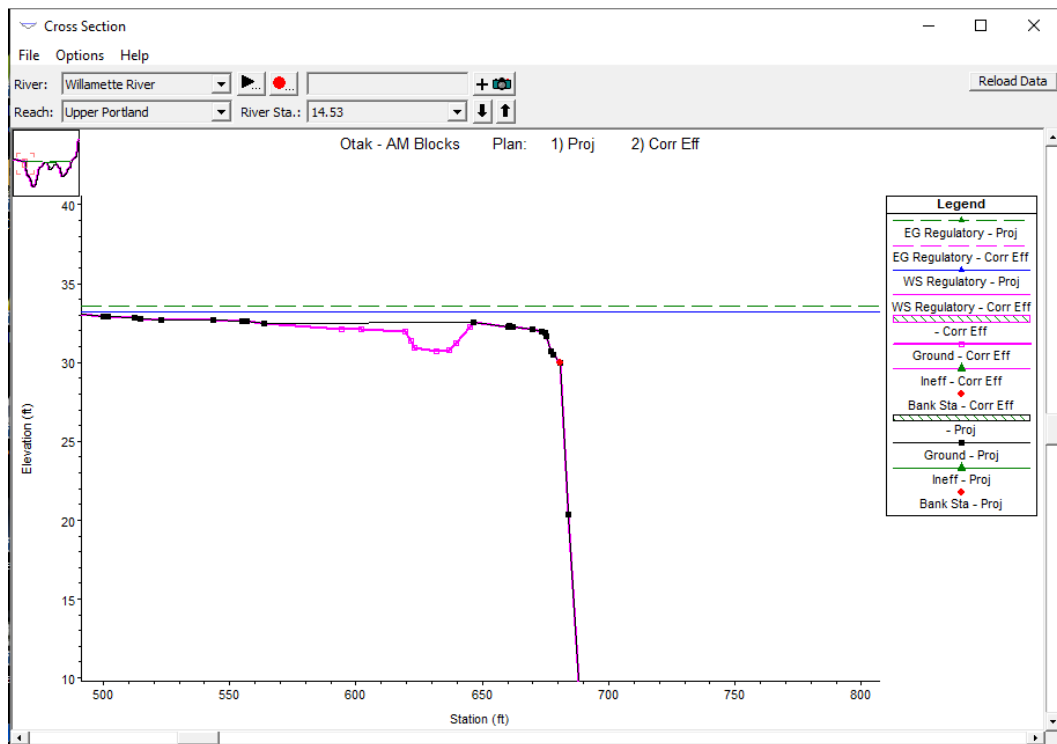


Figure A-3b, Cross Section 14.53 – left bank grading

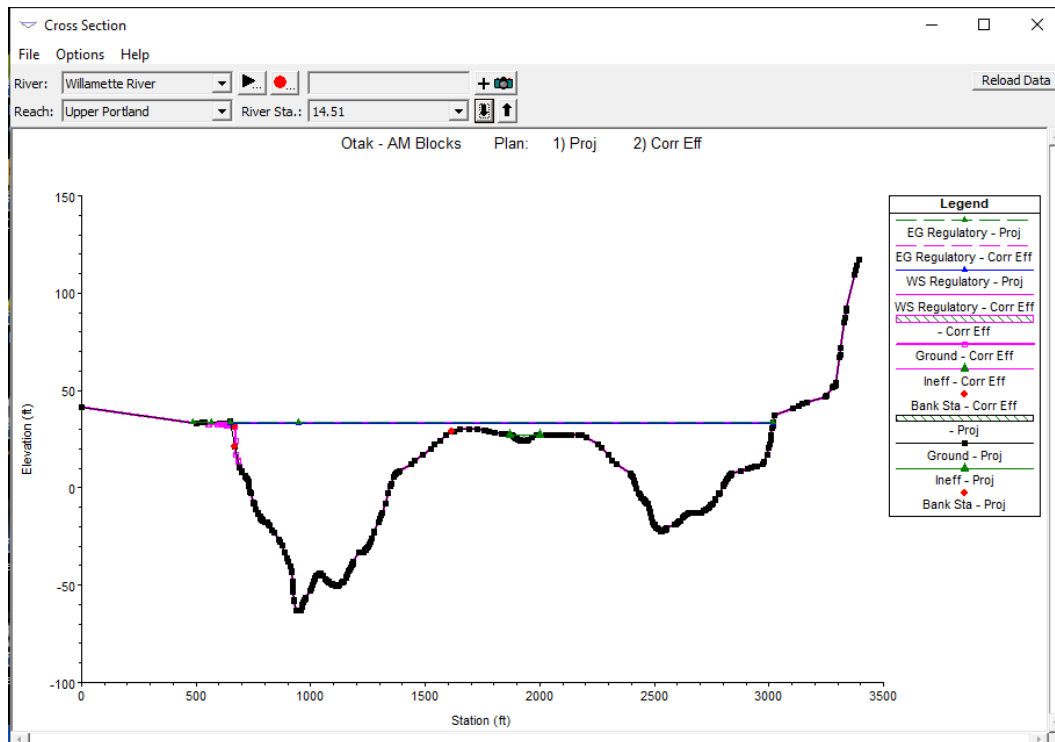


Figure A-4a, Cross Section 14.51 (Effective Corrective geometry shown in purple, Proposed geometry shown in black)

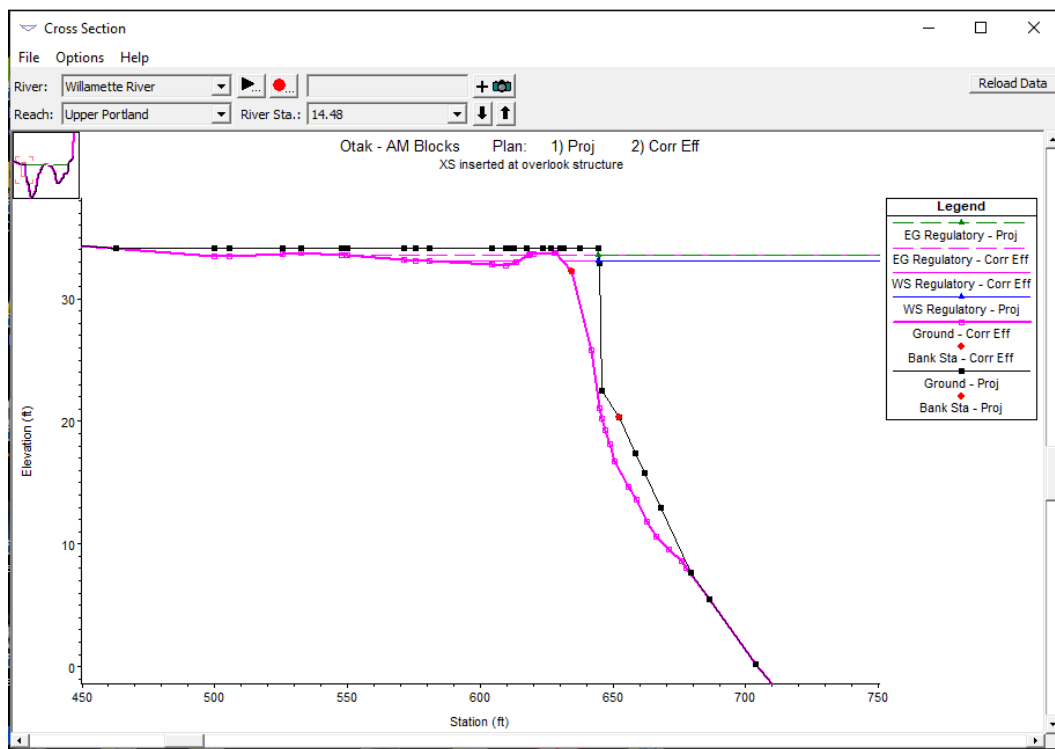


Figure A-4b, Cross Section 14.51 – left bank grading

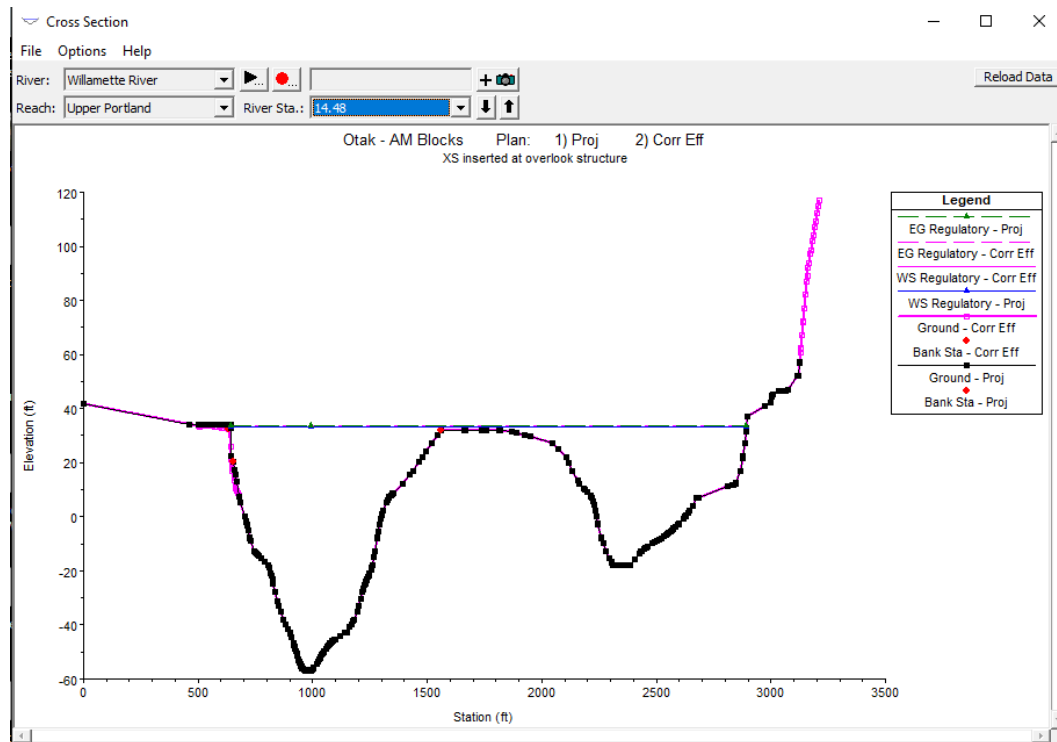


Figure A-5a, Cross Section 14.48 (Effective Corrective geometry shown in purple, Proposed geometry shown in black)

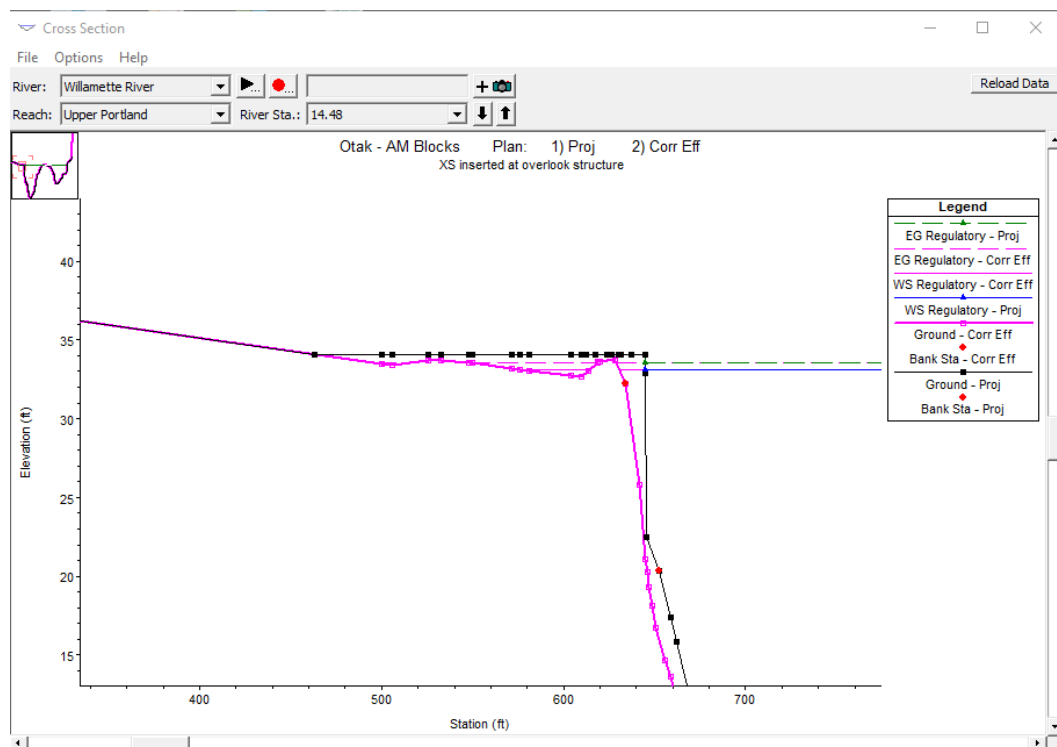


Figure A-5b, Cross Section 14.48 – left bank grading and overlook structure

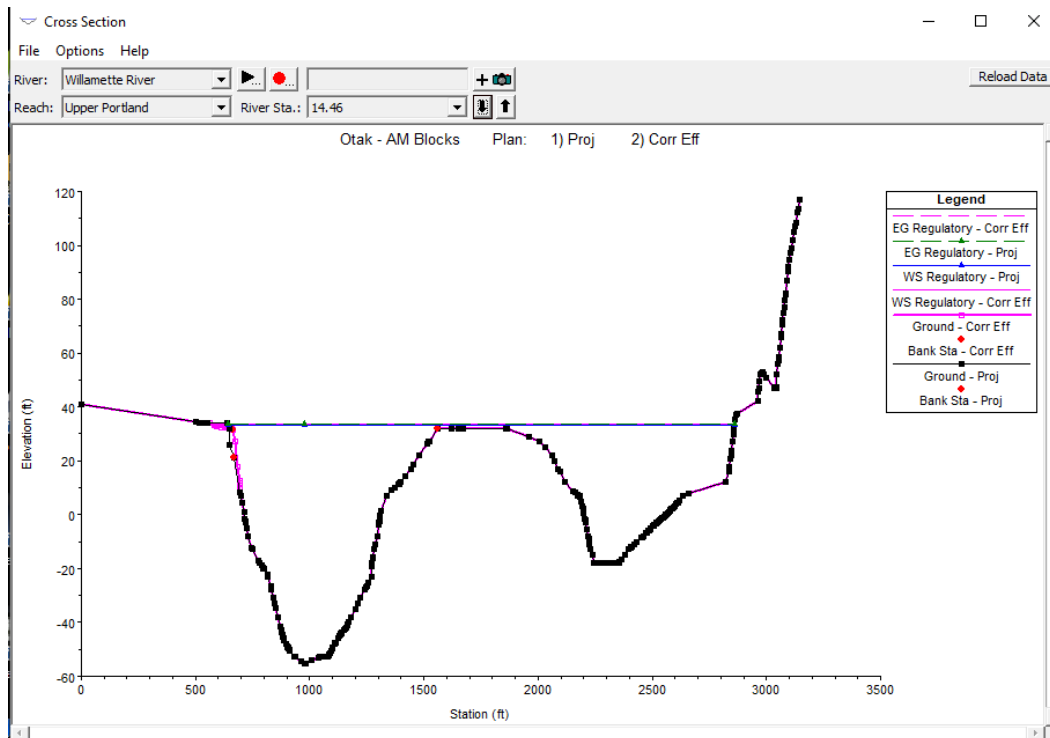


Figure A-6a, Cross Section 14.46 (Effective Corrective geometry shown in purple, Proposed geometry shown in black)

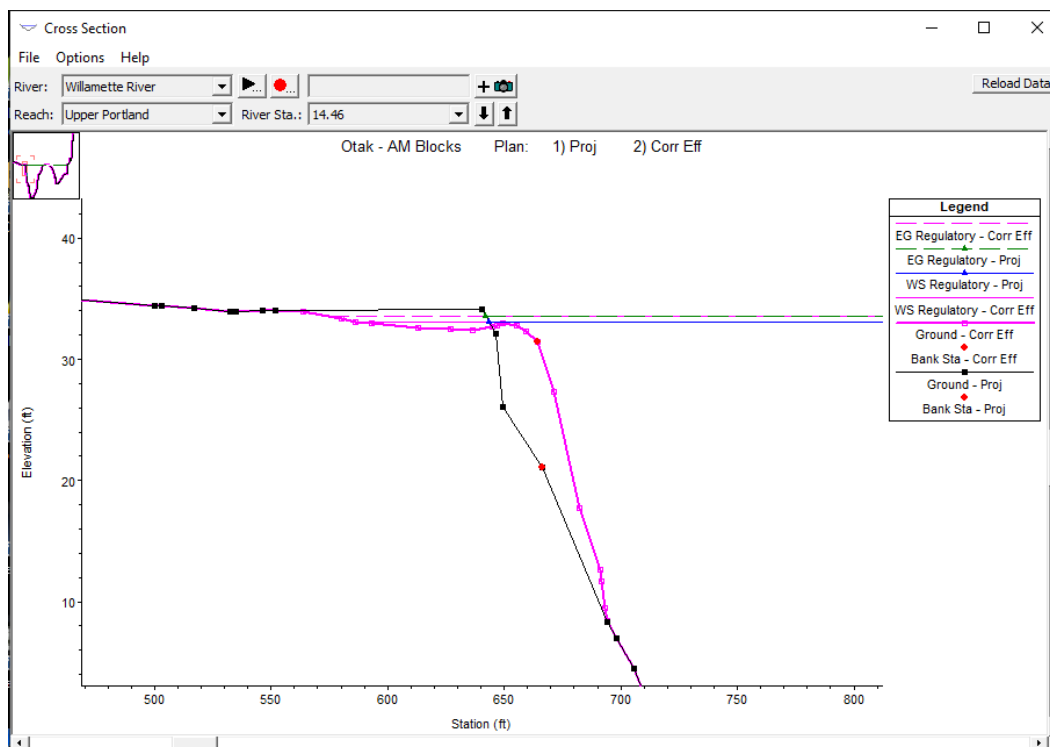


Figure A-6b, Cross Section 14.46 – left bank grading

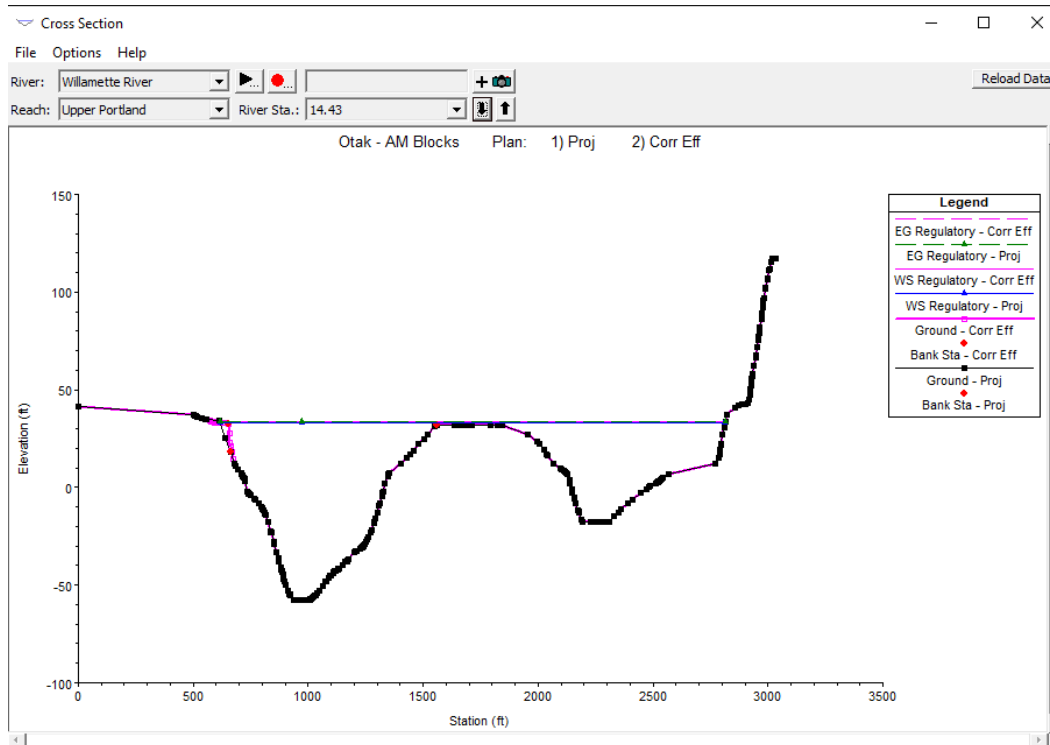


Figure A-7a, Cross Section 14.43 (Effective Corrective geometry shown in purple, Proposed geometry shown in black)

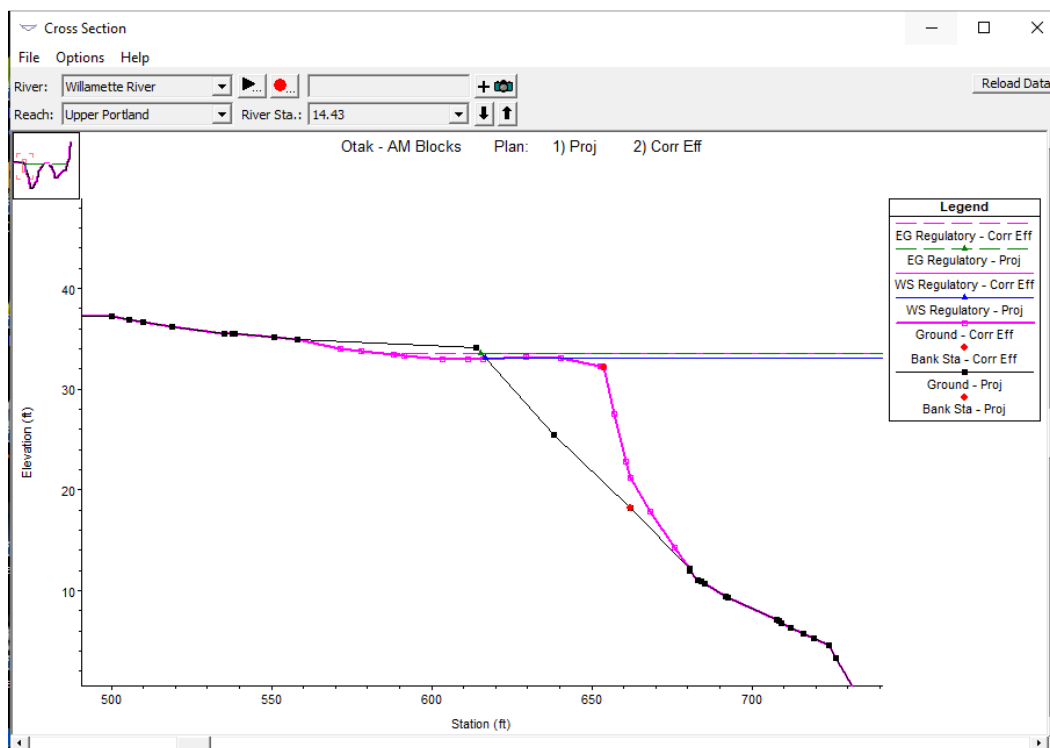


Figure A-7b, Cross Section 14.43 – left bank grading

Appendix B

Tables

Table B-1 HEC-RAS Hydraulic Results. Profile = 100-yr; Q Total = 375,000 cfs. Proj = Project Conditions, Corr Eff = Corrected Effective Conditions

River Sta	Plan	Min Ch El (ft)	W.S. Elev (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
14.57	Proj	-57.9	33.1932	33.6059	0.000066	5.72	77555.05	2590.36	0.14
14.57	Corr Eff	-57.9	33.1921	33.6048	0.000066	5.72	77552.23	2590.36	0.14
14.53	Proj	-62.86	33.2071	33.5766	0.000059	5.32	80856.69	2570.2	0.13
14.53	Corr Eff	-62.86	33.2060	33.5755	0.000059	5.32	80908.28	2570.14	0.13
14.51	Proj	-62.9	33.1653	33.5673	0.000071	5.54	77016.91	2369.59	0.14
14.51	Corr Eff	-62.9	33.1643	33.5662	0.000071	5.54	76942.02	2479.46	0.14
14.48	Proj	-57	33.1126	33.5497	0.000075	5.74	73274.55	2248.72	0.14
14.48	Corr Eff	-57	33.1160	33.5488	0.000076	5.71	73450.37	2300.63	0.14
14.46	Proj	-55.15	33.1090	33.5402	0.000071	5.71	74101.59	2216.3	0.14
14.46	Corr Eff	-55.15	33.1085	33.5409	0.000072	5.72	73827.8	2273.96	0.14
14.43	Proj	-57.9	33.0746	33.5275	0.000077	5.88	73146.8	2196.31	0.15
14.43	Corr Eff	-57.9	33.0766	33.5283	0.000078	5.87	72842.09	2196.79	0.15
14.02	Proj	-35.5	32.9549	33.36	0.000065	5.11	73445.93	1975.47	0.13
14.02	Corr Eff	-35.5	32.9549	33.36	0.000065	5.11	73445.93	1975.47	0.13
14.01									
14	Proj	-35.5	32.9292	33.3348	0.000065	5.11	73405.27	1959.25	0.13
14	Corr Eff	-35.5	32.9292	33.3348	0.000065	5.11	73405.27	1959.25	0.13
13.93	Proj	-32.9	32.8357	33.2917	0.000065	5.42	69232.72	1594.38	0.13
13.93	Corr Eff	-32.9	32.8357	33.2917	0.000065	5.42	69232.72	1594.38	0.13
13.87	Proj	-49	32.8858	33.2443	0.000044	4.8	78077.98	1619	0.11
13.87	Corr Eff	-49	32.8858	33.2443	0.000044	4.8	78077.98	1619	0.11
13.82	Proj	-51.83	32.8828	33.23	0.000042	4.73	79330.48	1499.82	0.11
13.82	Corr Eff	-51.83	32.8828	33.23	0.000042	4.73	79330.48	1499.82	0.11
13.78	Proj	-42.28	32.7647	33.2082	0.000062	5.34	70191.62	2089.67	0.13

River Sta	Plan	Min Ch El (ft)	W.S. Elev (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
13.165									
13.16	Proj	-35.5	32.4191	32.8764	0.000061	5.42	69217.21	1317.3	0.13
13.16	Corr Eff	-35.5	32.4191	32.8764	0.000061	5.42	69217.21	1317.3	0.13
13.1	Proj	-54.7	32.5003	32.8184	0.000035	4.52	82921.77	1316.02	0.1
13.1	Corr Eff	-54.7	32.5003	32.8184	0.000035	4.52	82921.77	1316.02	0.1
12.99	Proj	-45.5	32.3	32.7807	0.000062	5.56	67427.81	1196.92	0.13
12.99	Corr Eff	-45.5	32.3	32.7807	0.000062	5.56	67427.81	1196.92	0.13