APPENDIX A
1. CHANNEL SURVEY

August 1, 2001

Julie,

I've attached a map with approximate spot elevation locations. We are interested in two things. Whether the residential development along Iverson Road is above the road elevation and how the marsh outside of the levee is functioning.

The residential development elevation should just be checked by eye.

The spot elevations should be taken at the center of the channels and should be measured from the top of the banks. Channel top width could also be measured if there is time or we can measure it off of the topo map. We would like to get depth readings on the main channel about every 15 to 20 feet. The most important measurement would be the depth closest to the bay. It would also be nice to get the depths several of the channels branching off of the main channel about 5-feet from the point where the two channels meet.

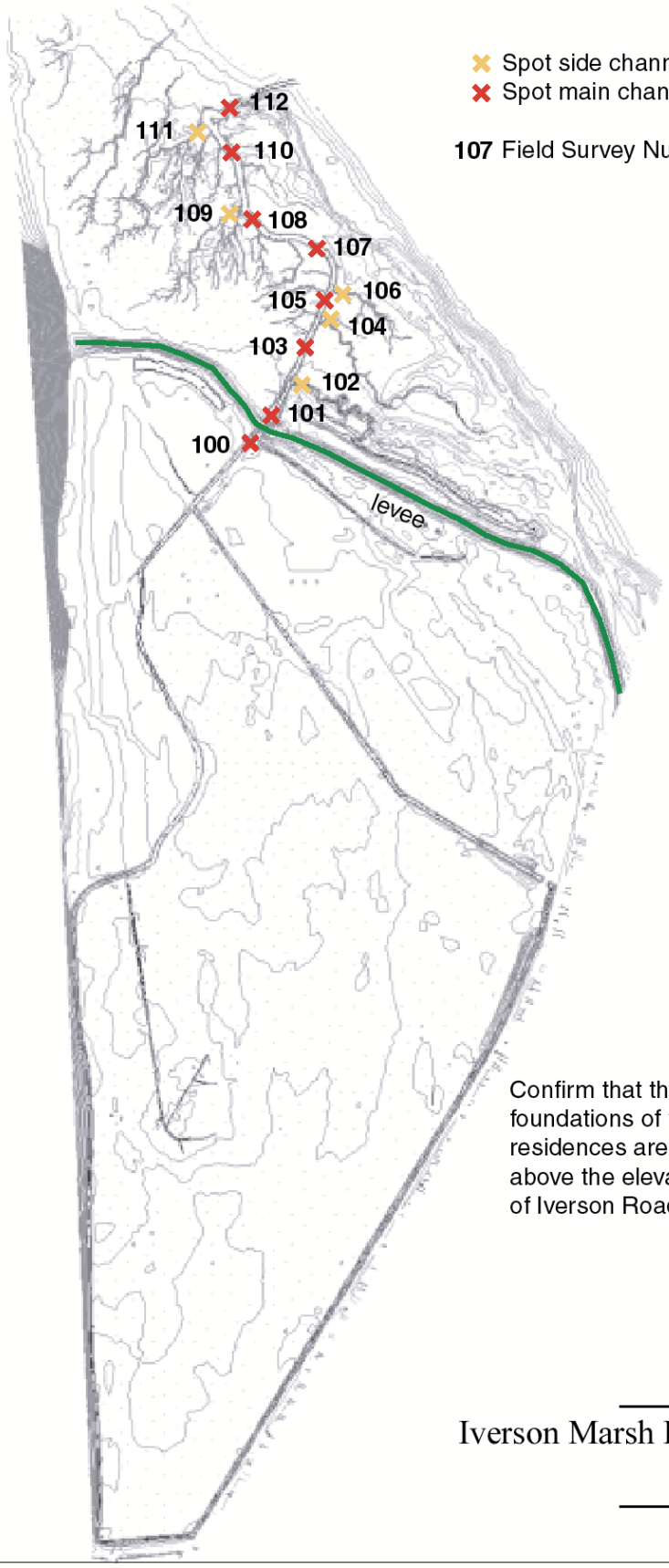
The depth of the main channel inside the dike could be surveyed as well but from PWA's perspective this is less important.

The attached PDF file is intended to communicate the locations that PWA is most interested in. If you will need to eliminate locations to fit this into one field day please call and we will provide guidance on what is least important.

Thanks

Mo

Surveyed channel depths in Figure A1 are the results of the County Survey



Data From County
feet NGVD

Location	Depth
100	-1,34
101	-0.04
102	-0.42
103	-0.32
104	-0.33
105	-1.03
106	-0.48
107	-1.77
108	-1.15
109	-2.62
110	-1.01
111	-1.44
112	-2.77

Confirm that the foundations of the residences are above the elevation of Iverson Road

figure A1

Iverson Marsh Restoration Feasibility Study

Spot Elevations

PWA

APPENDIX B
2. TIDAL MARSH RELATIONSHIPS

Tide marshes in Puget Sound have been studied for many years in order to understand their functions and importance to aquatic species like salmon. The data collected in these studies can't readily be used to establish tidal channel geometry relationships because of the diversity of these inquiries and their distribution across the Sound.

Tidal channel geometry relationships help predict the rate of evolution and mature tidal marsh characteristics with the restoration of tidal action. To make these predictions for the Iverson site relationships developed for California marshes were used. California marshes have tidal ranges and sediment characteristics that are different from those in the Sound. For this reason local relationships should be established before final design.

2.1 INITIAL CHANGES IN TIDAL CHANNEL DIMENSIONS

The potential tidal prism for the marsh after bay dike breaching or removal was calculated using the tidal elevations and site topography. The potential tidal prism was then used with figures B1 and B2 (Coats *et al*, 1995) to estimate the cross sectional area and channel depth of the inlet to the new marsh system. Assuming that the channel had a parabolic shape the channel top width was also calculated. These figures allow us to, 1. Calculate the channel size needed to accommodate the increased prism volume and 2. Gage the short-term impact to the existing marsh outside the bay dike by estimating the short-term increases in channel width and depth.

2.2 INLET SIZE IN A MATURE MARSH SYSTEM

Correlations between mature marsh area and tidal prism (Figure B3) were used to estimate the eventual prism of the mature system, years after bay dike breaching or removal. This smaller volume was used, repeating the steps described above, to estimate the depth and top width of the inlet in the mature system.

2.3 TIDAL CHANNEL ORDER

Channel order predictions are made using statistics from map and field analysis of pristine marshes. Figure B4 plots marsh area against channel network order. This assessment provides a coarse estimate of network complexity that is correlated to salmon habitat.

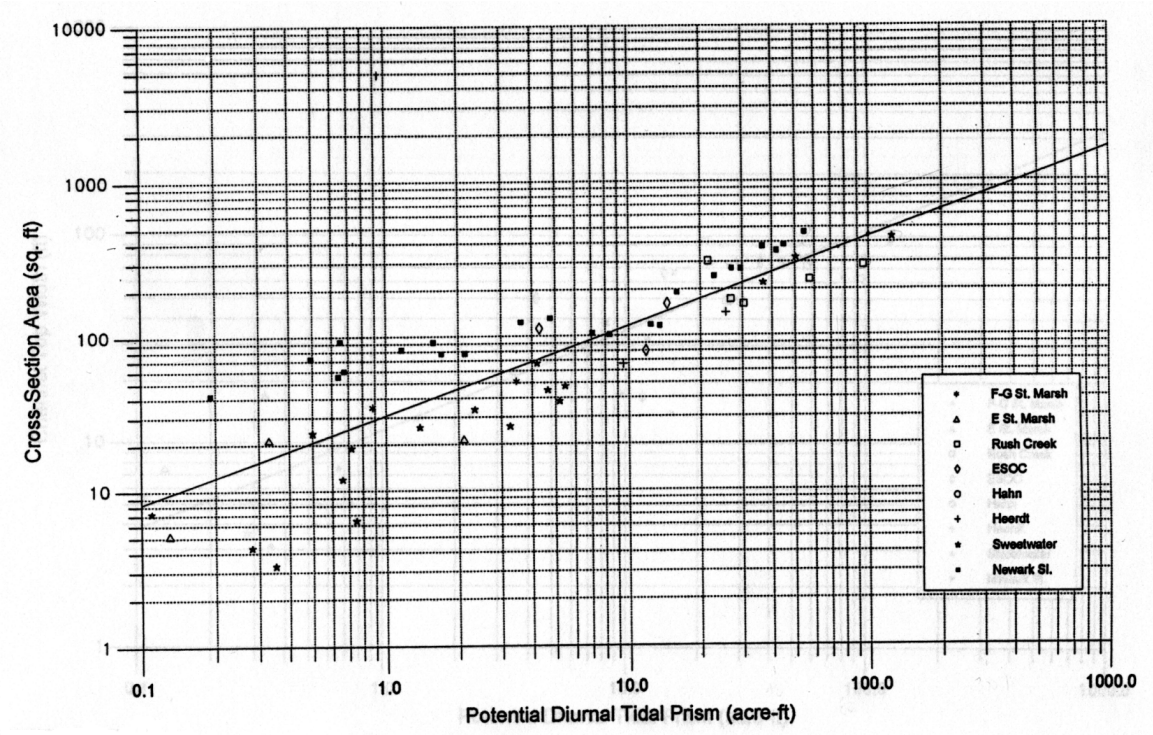


Figure B1: Tidal Prism and Inlet Channel Cross-Section Area (Coats *et al*, 1995)

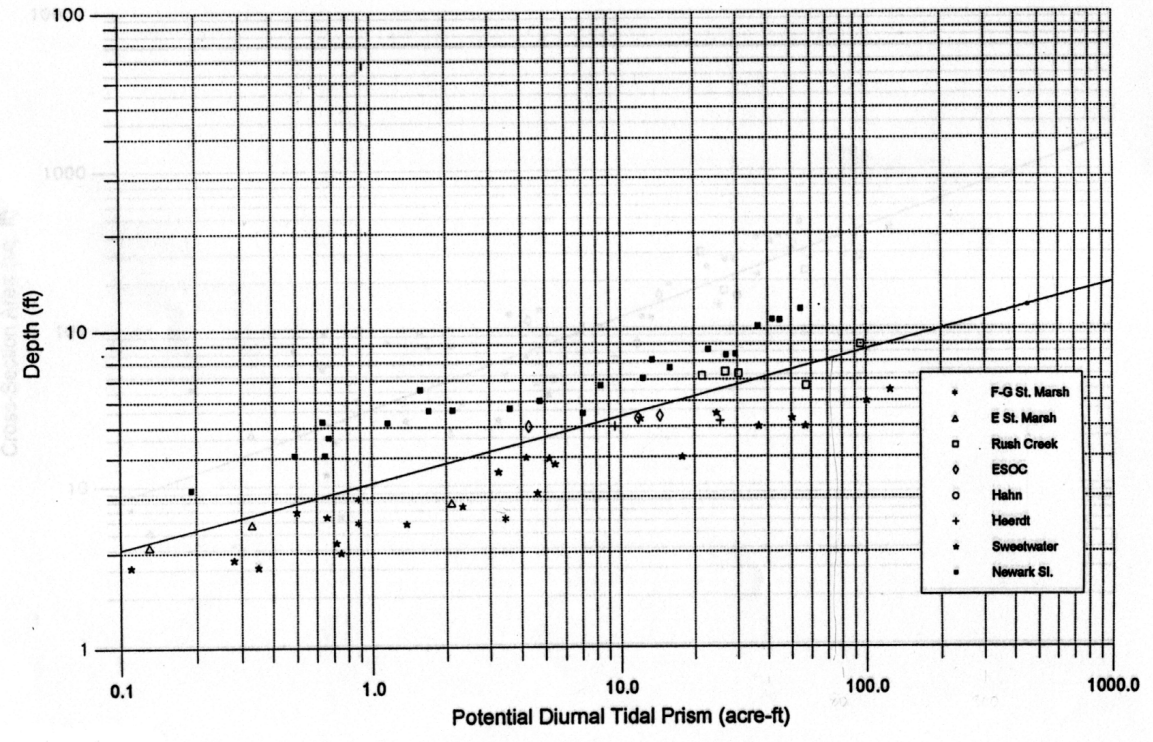


Figure B2: Tidal Prism and Inlet Channel Depth (Coats *et al*, 1995)

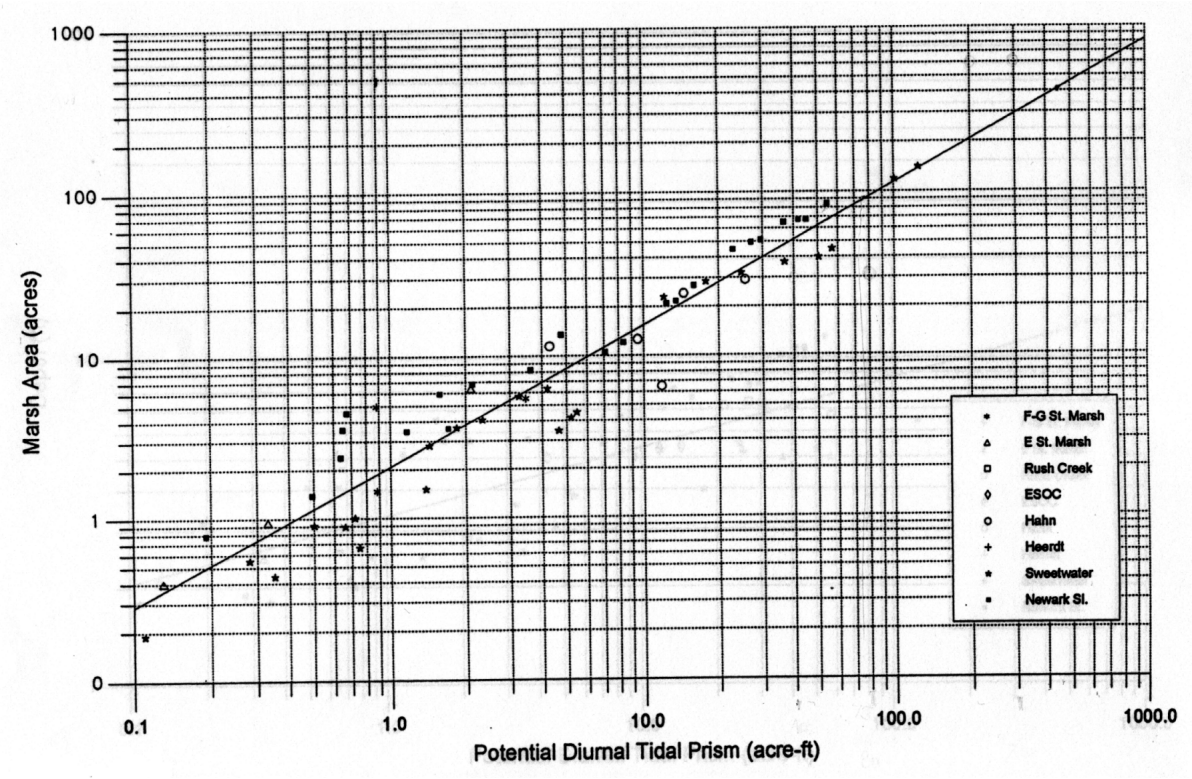


Figure B3: Tidal Prism and Marsh Area (Coats *et al*, 1995)

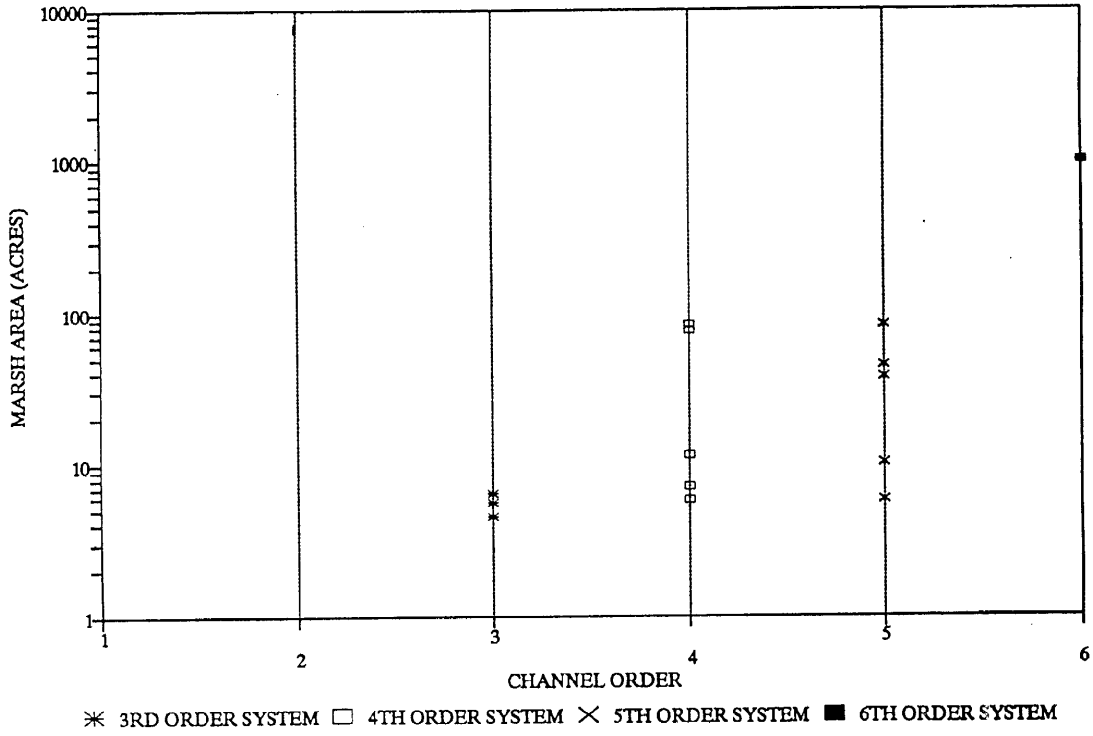


Figure B4: Channel Order and Marsh Area (Coats *et al*, 1995)