CITY OF
Burlington
SKAGIT COUNTY, WASHINGTON INCORPORATED 1902

Preliminary Investigation into Historic Flood Marks in the "Smith" House

Hamilton, Washington

Conducted November 29, 2006

Graphic 1: Aerial Photograph of Hamilton and vicinity from Skagit County Government iMap

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Purpose

The purpose of this preliminary investigation was to determine whether the "Smith" House in Hamilton, constructed in 1908 according to Skagit County Assessor records, would provide evidence of having been flooded during the Skagit River flood events of 1909, 1917, and 1921. These flood events were known to have occurred but they were not accurately measured. Historical newspaper accounts and interviews with Hamilton residents indicated the first Skagit River flood since 1908 that put water in the "Smith" House was the flood of 1995, with a discharge of 160,000 cubic feet per second (cfs) in the Hamilton vicinity. This is significant because the floods of 1909, 1917 and 1921 were estimated at 260,000, 220,000, and 240,000 cfs respectively. Hypothesizing that the historic floods, if they did occur, would have left readily apparent flood marks several feet up the walls of the "Smith" House, the objective of this initial investigation was to find direct evidence of the historic floods within the structure of the "Smith" House.

Background

Researcher and historian Larry Kunzler stated in his July 7, 2006 White Paper:

> *The statement "Only a few houses in Hamilton in the main part of town escaped the muddy waters of the flood" was very significant as I had always thought every house in Hamilton always got flood waters in them especially in 1909 and 1921 given Stewart's estimates of those flood events. I interviewed several individuals and property owners in Hamilton including but not limited to the Mayor, current and former residents. One house was identified as "the Smith House" located at 307 Maple Street. According to Skagit County Assessor records the house was constructed in 1908. According to all of the individuals interviewed the house had never had floodwater inside the house until the 1995 flood event and then it only had about 2 inches of water. This is highly significant because the 1995 flood carried 160,000 cfs…. According to the 1923 Stewart Report the 1909 flood was estimated to carry 260,000 cfs and the 1921 flood 240,000 cfs. If the house had only two inches of water in it in 1995 it should have had several feet of water in it in both the 1909 and 1921 flood events. It reportedly had none.*

As part of this research, Mr. Kunzler interviewed Mr. Fred Slipper (see Appendix 1), a career newspaper man who lived in a house near the Smith House in 1921 and who recalled the effects of the 1921 flood in Hamilton. In his statement, Mr. Slipper specifically remembered that the 1921 flood had put water just above the floorboards in his house, which was located west of the Smith House.

The Town of Hamilton is located at Skagit River Mile 40, within the channel migration zone of the river.

Participants

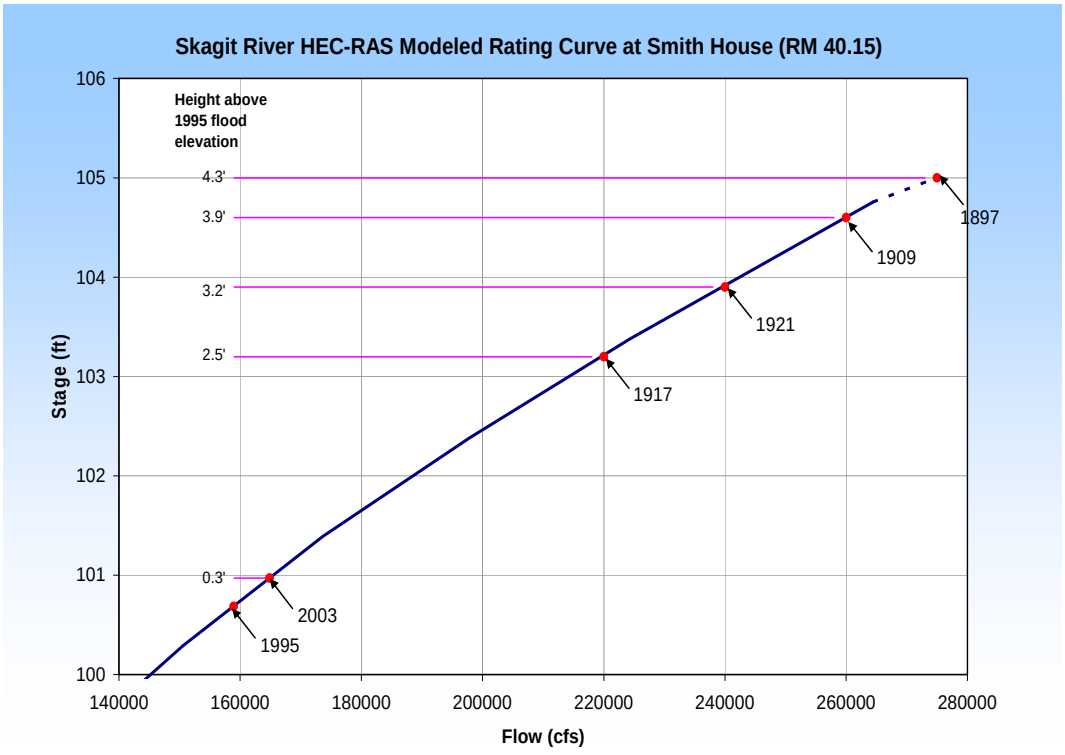
This preliminary investigation was organized by the City of Burlington's Public Works Department staff. Participants included:

Larry and Jennifer Benjamin (Owners)
Chal Martin (Burlington Public Works Director)
Becky Ziel (Burlington Administrative Assistant)
Mike Love (Mount Vernon Engineering Services)
Stephanie Kosonen (Reporter, Argus Publishing Company)
Josef Kunzler (Consultant for the City of Burlington)
Paul Tingley (Burlington Facilities Manager)
Esco Bell (Mount Vernon Public Works Director)
Haji Higa (Exxel Northwest Carpentry and Assistants)
Torey Nelson (Engineering Technician and flood specialist for Skagit County)

Graphic 2: 2003 flood aerial photo of Hamilton by Washington Military Department

From the aerial photograph above, taken by the Washington Military Department, Emergency Management Division as flood waters were receding during the 2003 flood event, it can be seen that the Smith House is located on somewhat higher ground than other houses and structures in Hamilton.

Preliminary flood modeling of this area indicates the following theoretical flood elevations for the recent floods of 1995 and 2003 compared to the historic flood estimates of 1909, 1917 and 1921:



Graphic 3: Preliminary Stage / Discharge Curve for Hamilton and Vicinity (Pacific International Engineering, 2006)

Approach

The current property owners were contacted and agreed to allow the investigation to proceed. The City of Burlington contracted with a qualified carpenter to assist in cutting into the walls, and accomplish the repair work after the documentation was completed.

Graphic 4: Photo taken before the first cut with floorboard removed.

The investigation team conducted a preliminary visit to the house the week prior to the investigation, to identify the areas of work and verify, if possible, that the house and foundation had not been altered since the house was constructed. The approach decided on was to make cuts into interior walls at two locations: one location that had been unmodified, and another in which the original lath/plaster wall had been replaced with gypsum wall board. Photo and video documentation was performed and is on file. The cut lath/plaster sections of the original wall were reassembled and stored in their cutout configuration for later additional evaluation.

Graphic 5: The lath was reassembled and taped in place to the plaster sections, which came out largely intact.

The undisturbed location was an interior wall between the master bedroom and sitting room. The base molding was removed, the area of the cut was marked and taped, and the section was cut out with a circular blade.

Graphic 6: Carpenters removing lath from wall. Wall has been duct-taped to preserve integrity of the plaster.

Graphic 7: Interior wall cavity of initial cut showing condition of lath and plaster.

Graphic 8: Close-up of base wall plate.

Graphic 9: Close-up of initial wall cutout. No bleaching or discoloration of the original lath was observed.

Graphic 10: The first cut was extended to a total of 5’3” in height to observe the interior above the original cut to preclude the possibility that a flood mark existed above the level of the initial cutout.

Graphic 11: 2nd cut between the dining room and kitchen, from the dining room side. Lath/plaster had been replaced with gypsum wall board on the dining room side.

Graphic 12: Close-up of 2nd cut from video documentation

Graphic 13: The original foundation included a basement under approximately a third of the house. Good access enabled easy visual verification that the substructure framing of the house had not been modified or elevated.

Graphic 14: The original foundation was unaltered. Crawl space observation indicated the house was not elevated.

Discussion

Close inspection of the cutout wall sections revealed no apparent flood marks or discoloration of the interior lath and plaster above the bottom piece of horizontal lath. There were indications that water might have extended above the floor boards of the house. This would be consistent with anecdotal reports that flooding did occur in 1995, extended slightly above the floor boards, and that the floor was refinished after that flood. The current property owners reported that the flood of 2003 did not rise above the floor boards as the flood of 1995 did. It is plausible this was the case even though the peak flow of the 2003 flood (166,000 cfs) was greater than the peak discharge of the 1995 flood (160,000 cfs) because the peak duration of the 1995 flood event was longer.

The current property owners also reported that additional repairs were necessary to the house in the crawl space substructure following the flood of 1995. This was verified by inspection of the interior crawl space. It was noted that, since the substructure of the house needed repair after the 1995 flood event when water rose to just above the finished floor, it seems likely that had the water level been several inches higher, the house would have been moved completely off of its foundation.

Conclusion

This investigation revealed no evidence of flooding in the "Smith" House extending more than an inch or two above the flood boards. There was evidence (discoloration of lath and interior vertical wall studs) of possible flooding to just above the level of the floor boards.

It was noted that since the flood of 1995, which rose to an elevation just above the floorboards (yet was adequate even at that level to cause the house to shift slightly), it seems likely that the pre-1922 flood events, estimated to be much larger, would have moved the house enough to cause major damage. It seems further likely that had this been the case, at least for the 1921 flood event, it would have been remembered by residents at the time, including young Fred Slipper. The "Smith" House was a very large and significant residential structure in Hamilton at that time, as it still is today.

Additional Investigation

Based upon the results of this initial investigation, additional forensic work could be conducted in the future to verify these preliminary findings:

1) Perform microscopic examination of the cutout wall sections that have been retained by the City to determine the presence or absence of flood silt.
2) Verify the construction method used to connect or tie the framework of the house to the foundation (to further address the issue of whether the house would have been moved off of its foundation if flood water had been 1-3 feet higher)
3) Remove exterior siding to observe the exterior shear wall structure, likely composed of diagonal 1x4 or 1x6 partial tongue/groove planks. Because the planks in the exterior shear walls are well-protected by the exterior siding, these planks should still retain either water marks or flood silt today, even if they had been flooded nearly 100 years ago.

Appendix: Fred W. Slipper Declaration

IN RE THE MATTER OF THE HISTORY OF THE SKAGIT RIVER	DECLARATION OF FRED W. SLIPPER

I, Fred W. Slipper, under penalty of perjury under the laws of the State of Washington, declare as follows:

1. I was born on May 14, 1917 in my mother and fathers house in Hamilton, Washington. A picture of the house is shown below as it appears today.

2. The house was originally built in 1887 and moved to this location, 584 Maple Street, in 1902. At this location it only had floodwater in it during the December 1921 flood. At no time previous nor subsequent to that date did it have floodwaters in it until the November, 1990 floods.

3. The reason I remember this is because my mother and father had just installed hardwood floors the year before and they were very worried that the 2 inches of floodwater were going to hurt the floors. Because the floodwater was only in the house for a little over an hour or two, the hardwood floors were not damaged. They talked about this from time to time during my childhood.

4. Before 1990 the first floor of the living quarters sat approximately 2 to 3 feet off the ground. The house was raised after the second November 1990 flood when it again had floodwater inside, this time I am told it had 16 inches of water in it.

5. For over 9 years I worked as a weekly columnist for the local Courier Times. On January 7, 1981 I reminisced about my boyhood days in Hamilton and wrote about the infamous December 1921 flood. A copy of that article is attached hereto as Exhibit A.

6. There were a handful of other homes in Hamilton that never had water in them during any flood event until the decade of the 1990's. One of them was called "The Smith House" which is situated at the east end of town at 307 Maple Street. The Smith House was built in 1908 as determined by Skagit County Tax Assessor Records.

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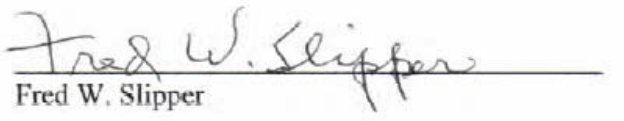

Fred W. Slipper

April 29, 2006 Sedro-Woolley, Washington
Date and Place of Execution

Slipper's Soliloquies

Floods, the head-ache of Hamilton

By Fred Slipper

Sitting at home last night (Dec. 26th) listening to the radio flood reports brought back a lot of memories. I may have reminisced on this subject in the past but that would have been in 1960, and this is a new year, so repetition doesn't count....

I thought when all the dams were built up river our floods were supposed to be controlled. At least that is what they told us in the old days. It seems the floods are worse than ever. The radio said Hamilton had been completely evacuated. Back in my childhood I don't remember anyone leaving town. Our house was built quite a bit above the ground, about four feet, and altho water did come in and cover the floor, my folks didn't leave. They did put all the furniture up on blocks dad had stored in a shed just for flood emergencies, and they rolled up the rugs and put me upstairs so I would be out of the way. Many of the other houses were built the same way-two that come to mind are the Jim Smith house and the house that was owned by Great Northern station agent, Mr. Belfry. Nick and Ella Brando are the present owners. Since I have lived there, many of the new houses are the type built on a slab so they are very susceptible to flood conditions.

Our flood gauge was a stick put in the ground down by Sam Morrell's and when the water got to a certain level everyone knew the water was coming. It used to cover the road first down past the school buildings, near the cheese plant owned and operated by Louie Castrilli. (I wonder how many of the present day residents of Hamilton know the cheeses produced by Louie *won many blue ribbon awards at various World Fairs*?)

When the flood waters finally receded the clean up began. We would find everything in our yard-fence posts, firewood, dog houses, anything that would float was moved to a new location. I could tell just how high the water on each preceding flood had risen by the mud rings around all of the out buildings. There was no way out of town, as the only road out was the old highway, and down near Val Adams (about half way to Lyman) the water got about two feet above the road level.

Then when the water finally receded the work began. In my younger days the houses didn't have wall to wall carpet and the rugs weren't fastened down so they could be rolled up and put on tables, etc. But the mud was still there. The first flood I can remember that covered the floor of our home was 1921. The summer before my folks had put hardwood floors in, and mom was afraid they would be ruined, but apparently they survived.

Acknowledgments

Thanks to Larry and Jennifer Benjamin for allowing this intrusive investigation to be conducted in their private residence. They were gracious and helpful.

Thanks to Haji Higa, Owner, Exxel Northwest Carpentry and his team of carpenters.

Thanks to Josef Kunzler of Skagit Information Management Services for formatting this report and compiling the graphics.