Archaeological Monitoring for Sewer and Water Improvements Seldovia, Alaska

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Archaeological Survey Cultural Resource Inventory Historic Building Evaluation Archival and Oral History Research

Cover: In this photograph, looking south across Seldovia Bay in late April of 1906, the log cabins of Seldovia's Native community are clustered at lower right while the rooftops of the commercial sector along the beach can be seen at center left. English Street would be running approximately east-west along the lower border of the photograph. Another Case and Draper photograph taken one month later from the same camera station (Alaska State Library PCA 226-520) shows a trail leading uphill (towards lower left) from between the two cabins set perpendicular to one another near image's lower center and curving south towards the business district.

Alaska State Library PCA 39-676, Case and Draper collection

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by

Charles M. Mobley

with two appendices by
Kristin Scheidt

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Report prepared by Charles M. Mobley & Associates, Anchorage, Alaska, under contract to CRW Engineering Group, LLC, Anchorage, Alaska, for the Alaska Department of Environmental Conservation Village Safe Water, Anchorage, Alaska

Charles M. Mobley is a Registered Professional Archaeologist (R.P.A.) and has spent 29 years as an Alaska archaeologist. He holds a Ph.D. in Anthropology with specialization in Archaeology from Southern Methodist University (1981), an M.A. in cultural resource management from Southern Methodist University (1978), and a B.A. in Anthropology from Case Western Reserve University (1974). Charles M. Mobley & Associates provides quality cultural resource services ranging from archaeological survey to historic architecture evaluation to Native heritage consultation, helping clients comply with historic preservation laws and celebrating cultural heritage.

Abstract

The City of Seldovia, with funding and oversight from Alaska Department of Environmental Conservation's Village Safe Water program, is installing new sewer and water lines in downtown Seldovia, a community on the south side of Kachemak Bay on the Kenai Peninsula. The project has federal money involved and is subject to Section 106 provisions of the 1966 National Historic Preservation Act, so the Alaska State Historic Preservation Officer (SHPO) requested preparation and implementation of an archaeological monitoring plan (AMP). CRW Engineering Group, LLC -- the contractor hired to oversee the construction project -- engaged Charles M. Mobley & Associates to write the AMP, which recommended archaeological monitoring be limited to certain areas near the old Native village area that once surrounded the still-standing Russian Orthodox church. Then Charles M. Mobley & Associates was engaged again to conduct the archaeological monitoring. Between August and October of 2008 archaeologists Charles M. Mobley or Charles E. Holmes monitored construction on English Road, the north end of Alder Street, and four service locations on Main Street.

Only post-1964 earthquake fill was encountered in the Main Street excavations. Alder Street work revealed surface and subsurface artifacts that would appear to date primarily to within the last 50 years. At the intersection of Alder Street and English Road the work uncovered remains of a buried corduroy road, a wood plank water conduit under the road, and a cast metal hand pump. The west end of English Road was found to have three buried historic midden exposures showing in the sidewalls of the water main trench roughly in the middle of the street right-of-way. Under English Road about midway between Main Street and Alder Street, particularly between Station 3+00 and Station 3+76 (or 76' worth of water main trench, between five and eight feet wide), an 18" thick historic midden was discovered intact, buried 42" beneath the shotrock road fill. A short work slow-down was initiated in which the construction crew removed the midden using flat shovels, allowing scrutiny for features and better retrieval of artifacts.

A broad array of artifacts was collected, most probably dating to roughly the late 1800s to the 1930s. Described in this report are over 100 bottles, over 200 pottery shards, a collection of animal bone, kitchen and dining room artifacts, firearm cartridges, tools and toys, and other items reflecting a way of life now largely gone from Seldovia. The results of the excavations provide some insight into Seldovia's historic past and suggest that such intact deposits are rare; a recommendation is made to include more consideration of archaeological resources in Seldovia's future development. Appendices describe particular artifact subsets, and one appendix presents a photographic inventory of some of Seldovia's older buildings.

Acknowledgements

Just as many people have been involved in implementing the engineering and mechanical aspects of Seldovia's sewer and water improvement project, so, too, have there been many contributors to the archaeological monitoring and reporting aspect of the project. Every one of the project crew assisted in one way or another, in particular by paying attention to artifacts and features revealed during the work and assisting in their retrieval. I won't list you all by name because I didn't catch everyone's last names, but thank you. I had a good time in the field.

Thanks go to those involved in project management: Pete Bellezza, Lee Olsen, and Jeff Lindquist of CRW Engineering Group, LLC., and Lynn Marino of Alaska Department of Environmental Conservation's Village Safe Water program.

My friend and colleague Dr. Charles E. Holmes spent more than two weeks under contract as the archaeological monitor during a couple times when I had other commitments, for which I'm grateful. Daniel Thompson of the Alaska Office of History and Archaeology graciously identified some of the ceramics we recovered. Kristin Scheidt analyzed the faunal material under contract and contributed two appendices to this report. Erika Henson contributed the hand-lettered parts of the bottle appendices. Dr. Robert E. King examined photographs of the artifact array that turned out to be parts of a binoculars (rather than a stereo-optican).

Many people contributed oral history comments to the endeavor, including Walter McInnes, Fred Elvsaas, Mike Patrick, Doug Pierren, Crystal Collier, Steve Bond, Michael Opheim, Jacquelyn Brown, and Jerry Willard.

The Seldovia Native Association provided copies of archival photographs for this report, as did Patricia Roppel, and local librarian Savannah Lewis helped me find some local references.

The list goes on. To all of you identified here and those unmentioned, I express my gratitude. Thanks to you, the community of Seldovia will benefit from improved utilities while minimizing any loss of their heritage resources.

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Background

The Alaska Department of Environmental Conservation (ADEC), through the Village Safe Water program (VSW), is improving water and sewer lines at Seldovia, Alaska. Seldovia is a waterfront town of about 300 full-time residents across Kachemak Bay from Homer, on the Kenai Peninsula in southcentral Alaska, unconnected to the Alaska road system. The compact commercial and residential community sank about four feet during the Alaska earthquake of 1964, causing seasonal tidal flooding and prompting a federally funded "urban renewal" program. Most of the old buildings and interconnecting boardwalk on pilings in the intertidal zone were demolished, and an adjacent rocky knoll named Cap's Hill was leveled for material to fill the former commercial district. Sewer and water lines were installed in the fill and upslope above the tide line to serve the entire community, and now some of those lines are to be replaced.

Federally funded or permitted construction projects in Seldovia since passage of the 1966 National Historic Preservation Act (NHPA) have not been accompanied by cultural resource investigations. The only archaeological characterizations of the town since Frederica de Laguna's (1934:17) visits in 1930, 1931, and 1932 are those of Susan Springer (1997:25-

***Seldovia**: village, pop. 460, on W coast of Kenai Penin. on E shore of Seldovia Bay, 16 mi. SW of Homer....This village, named for the nearby bay, is recorded in the 1880 Census as consisting of "68 Kodiak natives and 3 Creoles. They are sea-otter hunters and live here in log-houses, and have a small chapel." The 1890 Census gives the population as 99; 19 families in 17 houses with a small chapel.* Orth (1967:852)

The Indian name for Seldovia is Axitaxnu. Native opinion about the age of Seldovia differs. The present town is certainly recent, but an Indian boy reports finding a grave under a house, which is apparently much older. On the beach near the Blue Fox Cafe was found the carved ivory figure now in the possession of Mrs. Meehan, Seldovia. However, the holes dug for piling along the beach did not seem to strike any sub-beach midden. A very beautiful chipped knife blade was found on the bank behind the Seldovia House. Apparently the old village site was on top of the bank, where native houses and the church now stand. de Laguna (1934:17)

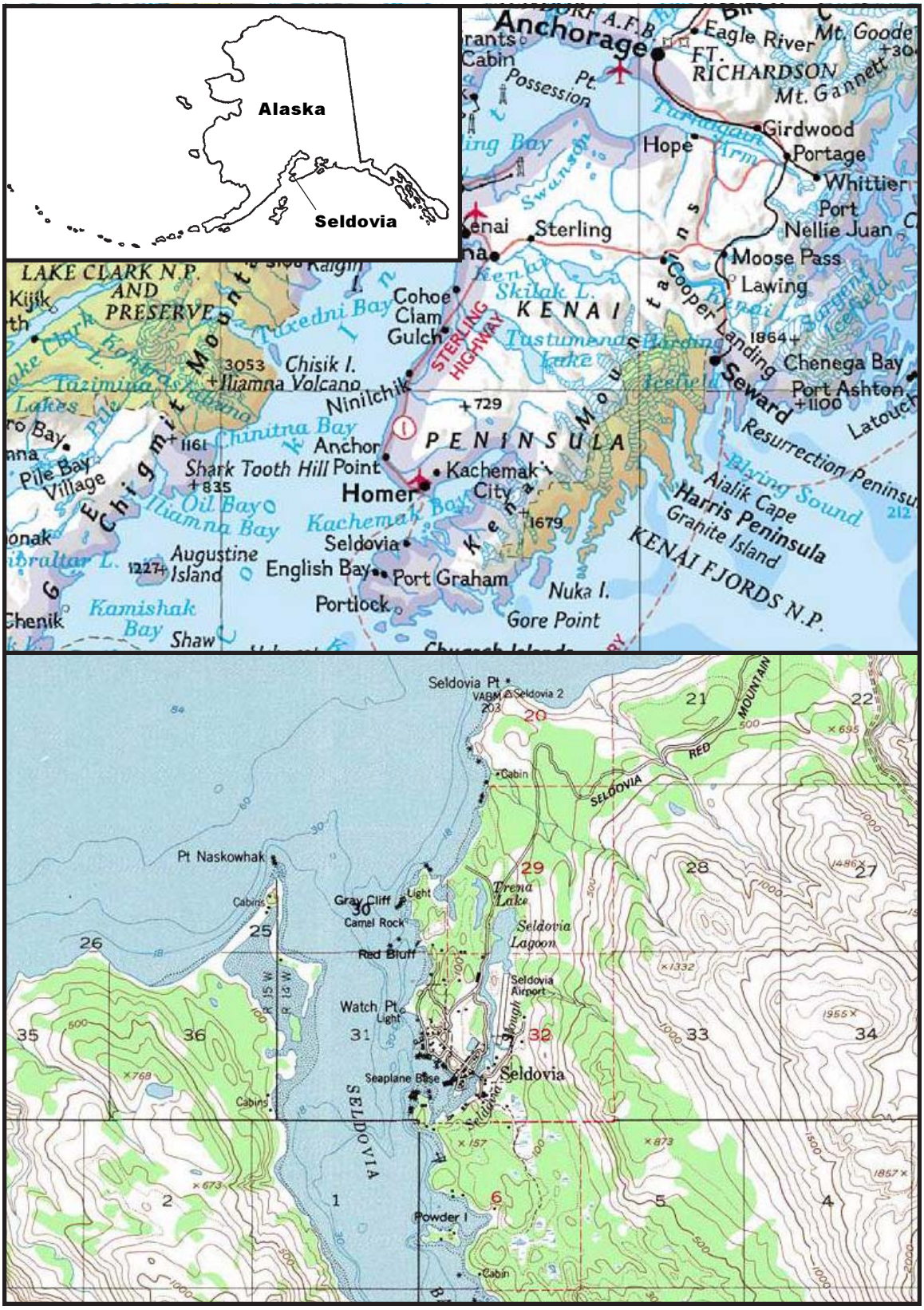


Figure 1. Maps of the Seldovia vicinity -- the lower one is from USGS 1:25,000 topographic map Seldovia (B-5), in which each square is one square mile; north is at the top of the maps.

Figure 2. Most of Main Street and the Seldovia shoreline was extensively filled and rip-rapped by the U.S. Army Corps of Engineers after the 1964 earthquake. Note depth of fill and old cannery boiler.

36), based on isolated finds and small prehistoric midden deposits on the shoreline northeast of town. Recognizing the region's rich prehistory and history, and the lack of specific property information (only the Russian Orthodox church and the town itself had Alaska Heritage Resource Survey (AHRS) numbers), the Alaska State Historic Preservation Officer (SHPO) requested an archaeological monitor during construction of new sewer and water lines in compliance with Section 106 of NHPA. CRW Engineering Group, LLC., the contractor for the construction project, engaged my firm -- Charles M. Mobley & Associates -- to prepare an archaeological monitoring plan (AMP).

I prepared the AMP based on archival information available in Anchorage. Though lacking on-site observations and oral history information, I was able to characterize about 45% of the proposed improvements as occurring in areas of low potential for buried historic archaeological remains due to such factors as limited historical development or known areas of fill (Figure 2). The remainder of the project was recommended for archaeological monitoring until additional information suggested otherwise. Construction and archaeological monitoring began in August of 2008. The 45% monitoring quota was subsequently reduced, as will be described. Part of the monitoring effort resulted in the discovery and recovery of a significant historic midden deposit under English Street, near the old Russian Orthodox church.

The bulk of this document is devoted to reporting on the historic midden and other finds. This Background chapter characterizes the natural and cultural environment (particularly in terms of building history), discusses the scope of work, and describes the methods and schedule for the work. The Results chapter describes the features and artifacts encountered during the archaeological monitoring. Artifact details are discussed in the Artifacts chapter. The meaning of those finds is considered in the

chapter entitled Interpretation and Recommendations, which is followed by a Bibliography. Appendices include two by Kristin Scheidt analyzing the faunal remains, several describing artifact classes, and another illustrating Seldovia's historic buildings. This report is prepared in the style used by Charles M. Mobley & Associates since 1992, though readers familiar with Susan Springer's (1997) book on Seldovia may note coincidental formatting similarities (two-column, shaded sidebars, etc.).

Natural Environment

Seldovia is located at the mouth of Seldovia Bay, a five-mile long fjord on the south side of Kachemak Bay, at its mouth where it joins Cook Inlet (Figure 1). To the southwest are mountains ranging over 2000' high; to the southeast and northeast the mountains are 3000' high and range even higher moving northeast towards the many glaciers emanating from the Harding Icefield. The fjords and steep mountains allow only short local roads radiating out from Seldovia and enforce the importance of air and water transportation to the town (Chamberlain et al. 2003:xi).

The geology of the Seldovia area consists of "crystalline schists..., graywacke, slates, cherts, limestones, and interbedded volcanic rocks" (Gould 1942:142). Deposits of glacial till overlay bedrock in places, and soils include thick deposits of peat containing strata of volcanic ash from volcanos to the west.

Seldovia's weather is generally like that elsewhere in Cook Inlet -- a maritime/continental climate with average summer temperatures in the high 50s (F); annual precipitation is about 35", of which about half falls as snow (City of Seldovia and State of Alaska 1977). The vegetation in the Seldovia area consists of grasses, shrubs, and other ground-covering flora found in meadows and muskegs, and a forest canopy of primarily white spruce and black cottonwood. Birch trees are uncommon. Interspersed among the stands of trees are large patches of thick alder and salmonberries.

Land animal species in the Seldovia vicinity are somewhat more restricted than the larger Cook Inlet region due to the barriers formed by fjords and glaciers, and include wolves, coyotes, black and brown bears, mink, marten, lynx, land otter, weasels, wolverine, squirrels, snowshoe hares, porcupines, and rodents. Waterfowl of various species are common on the Seldovia River and nearby estuaries during certain seasons, and great blue herons are spotted all year round. All five species of Pacific salmon can be found in the marine waters off Seldovia, and Seldovia Slough (currently stocked with king and silver salmon) contains a natural run of chum salmon (Alaska Department of Fish and Game 1978). Marine mammals such as belugas, seals, and sea otters populate Cook Inlet waters.

Cultural Environment

Radiocarbon dates and other evidence of people on the Kenai Peninsula as early as 3,500 years ago comes from site SEW-214 at the junction of the Kenai and Russian Rivers (Holmes et al. 1985:248). Other sites have been found that lack radiocarbon dates but have artifacts like microblades, microblade cores, and burins that elsewhere in Alaska are considered thousands of years old (Reger 1981, 1996; Reger and Pipkin 1996).

Extensive human settlement of Kachemak Bay didn't take place until about 3,000 years ago, when cultural ties were with the people of Kodiak Island (Workman 1998), though earlier components have been identified at Aurora Lagoon and Chugachik Island. Use of oil lamps, a chipped stone tool technology, and manufacture of notched-pebble net weights are characteristic of these "Kachemak" people, who expanded up the Kasilof and Kenai Rivers and persisted from about 900 B.C. to A.D. 1000 (Reger and Boraas 1996).

Kachemak sites on the upper Kenai Peninsula appear abandoned by A.D. 1000, and archaeological evidence indicates occupation by new people -- Athabaskan Indians from the Alaska interior, whose descendents become the historic Dena'ina (Reger 1998:169). In addition to certain tool types and technologies characterizing the prehistoric Dena'ina, many depressions -- the remains of subterranean cache pits for storing frozen fish through the winter -- are usually found at their sites.

In Kachemak Bay the wave of Dena'ina Indians descending from the north upon existing Natives with Kodiak Alutiq affiliations played out in ways yet unknown (Workman 1992), and few late prehistoric sites have been identified (Boraas and Klein 1992). One is SEL-248, a small shoreline midden just northeast of Seldovia with a radiocarbon date of 1478 +/- 90 B.P. (Springer 1997:34). There's no archaeological continuity yet demonstrated between the late prehistoric inhabitants of Kachemak Bay and the Natives found at Seldovia in the late 1800s. Though a Native presence in the mid-1800s can be inferred from brief and ambiguous archival sources (Springer 1997:52), it's not until the official 1880 census that a Native community can be firmly placed at Seldovia (Petroff 1884:29).

At that time Petroff reported 68 "Kodiak natives and 3 Creoles," meaning people of mixed Native and White ethnicity, raising the question of why they were there. Fedorova (1973:145), relying on a manuscript by Judge James Wickersham, includes Seldovia as one of the places that the Russian American Company (RAC) allowed retired employees to settle in 1844, and perhaps the Kodiak Alutiq Natives were part of that contingent just like they were at the RAC retirement community founded at Ninilchik. There's some doubt about this matter, however (Springer 1997:51). Regardless, the shifts in Native population distributions in the late 1800s caused by disease, economic incentives induced by trading posts and canneries, and influences of the Russian Orthodox Church must have affected the ethnic composition of Seldovia, because various sources report the Natives to be Alutiq, Dena'ina Athabaskan, Aleut, or Chugachmiut (de Laguna 1934:15). The webpage of the Seldovia Native Association Inc. acknowledges the Native diversity of the village with the statement that "the Chugachmiut Eskimo of Prince William Sound, Tanaina-Kenaitze Dena'ina Indians of Cook Inlet, and the Koniagmiut of Kodiak Island, as well as peoples from Kamchatka, Japan, and the Northwestern coast of America, influenced the culture of this region."

Seldovia became more economically and politically significant during the last years of the 19th century. The existing Russian Orthodox church dates to about 1890 -- according to the AHRS files, and 1891 according to Springer (1997:89); Mongin and Kreta (1979) mentions an earlier log chapel in the same location. According to Orth (1967:852), "the 1890 Census gives the population as 99; 19 families in 17 houses with a small chapel." In 1898 Seldovia got its first post office (Ricks 1965:57).

Many of the old Seldovia families are descendants of Russian Church functionaries, or men who came from the other states and Scandinavian countries to participate in the early herring, cod and salmon fisheries. Some of these men married Kenai Peninsula or Susitna Indian women and settled in the village. Their names are still carried by many Seldovia people -- Colberg, Ollestad, Elvsaas, Josefsen and Saracof, Balashof and Kashevarof, among others.

Pedersen 2001:86)

The community is primarily non-native, having a white population of 210 persons (73 percent.) A native population of 50 persons (17 percent) was counted in 2000.

Chamberlain et al. 2003:xi)

In 1904 federal surveyor Gilbert Lascy staked three plots of land at Seldovia as USS 371, to contain the improvements of the Russian Orthodox Church (ROC) – one each for the school, the church, and the cemetery (Figure 3). All were along the Seldovia waterfront. His plats and field notes indicate that there were houses and other buildings between the three lots, including a number of Native houses, "shaks," garden plots, boarding houses, and stores (Lascy 1904).

By 1908, when federal surveyor J. Frank Warner monumented the corners of the U.S. school reserve (USS 910) north of the ROC's Tract C, a store, carpenter shop, and warehouse were located along the waterfront west of the Tract (Figure 4). Rather than log cabins of the sort that Natives occupied immediately north of the church (see cover), the waterfront south of the church was by then being filled in with commercial buildings and houses of frame construction (Figure 5).

Seldovia wasn't surveyed as a townsite until 1927, when five tracts were identified that included both sides of Seldovia Slough including the little peninsula protecting the mouth of the slough, a small parcel on the shore between the slough and the ROC school (USS 371, Tract C), and a tract encompassing all three ROC tracts as well as six groups of Native houses (Figure 6). In between Seldovia Slough and the ROC school tract federal surveyor Fred Dahlquist marked the "Fillmore Homestead," a claim by Captain Albert Fillmore that was evidently never patented but led to the place names of "Cap's Hill" and Fulmor Avenue. Buildings mentioned in Dahlquist's (1927:315-342) notes include "Freddie Bowen's house," "Johnson's house," and "Anton Johanson's house (old jail)," as well as the Anderson Mercantile Company store and Shortley's Bakery; by 1927 the ROC school was described as the "old Russian school house." Frame buildings were more common (Figures 7-8). Fishing was the community's primary economic engine; Dahlquist (1927:342) mentions two

Adam Bloch....,who had been hired by the Alaska Commercial Company in 1879 and was long their agent at Attu, became the Seldovia agent in 1898....Adam Bloch opened his own general store when the A.C. Company sold out. He became the Seldovia post-master in 1905 (the post office had been established in 1898) and held that position until his death 10 years later....The first salmon cannery in Seldovia was built in 1910 or 1911, on the southern shore of the point that juts into the bay to form one arm of the boat harbor jetty. The bunkhouse, a tall square building, could be seen from town through the gap between the point and the mainland....There was no boardwalk and people walked the beach. When the school provided by the Alaska Native Service seemed inadequate, Adam Bloch organized a school board that drew Seldovia into the Territorial School System. Juanita Anderson came to Seldovia in 1914 as the first Territorial teacher. She and her husband Ralph later built the first ocean dock which existed until replaced after the 1964 earthquake, and was known as the Anderson Dock. Another improvement was the boardwalk, the trademark of Seldovia....Like most improvements in Seldovia in the early days, the boardwalk was a community effort. The men contributed their labor, while businessmen donated the materials. For the first time it was possible to walk from one end of town to the other along the shore, no matter what the stage of the tide. Like a necklace, the boardwalk strung the stores, the hotel, the cafe, and other waterfont buildings together....Docks were built on the sea side of the walk, and buildings were erected upon them. Seldovia now became a compact town along the waterfront, with dwellings on the hillsides overlooking the bay. Pedersen (1983:142-144)

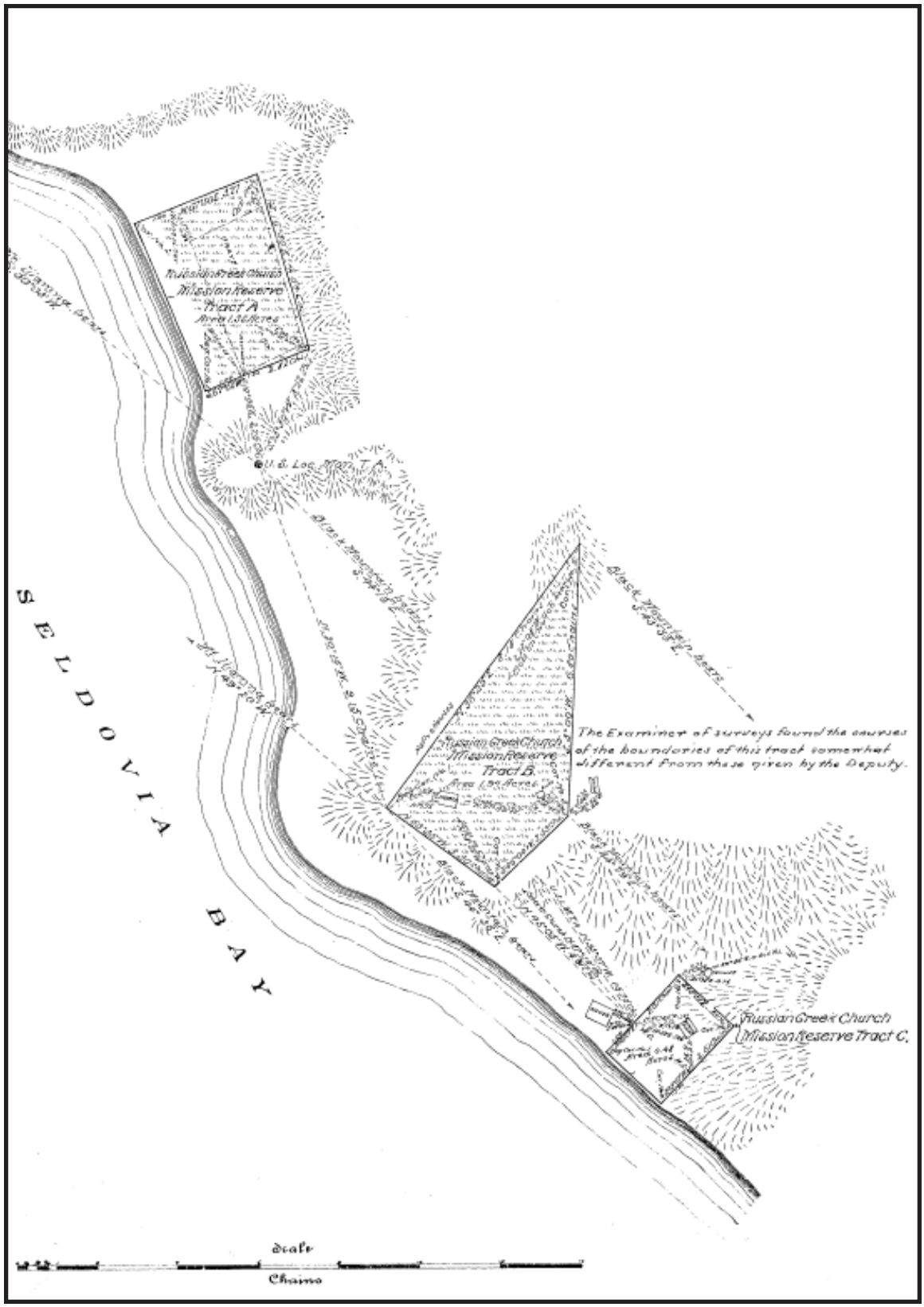


Figure 3. In 1904 federal surveyor Gilbert Lascy plotted three tracts containing the Russian Orthodox church, school, and cemetery at Seldovia as USS 371. The odd-shaped Tract B containing the church retains that parcel configuration in 2008.

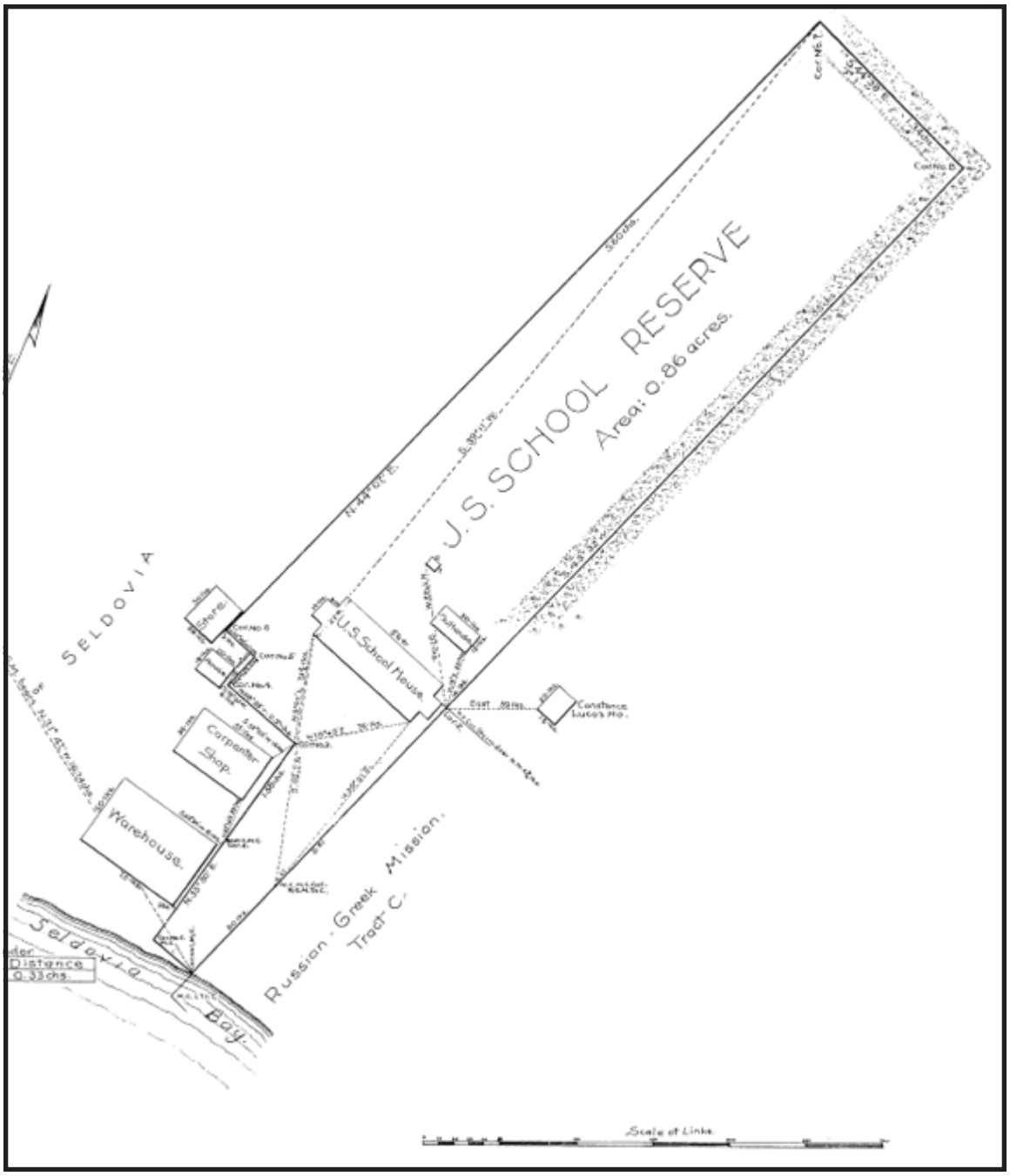
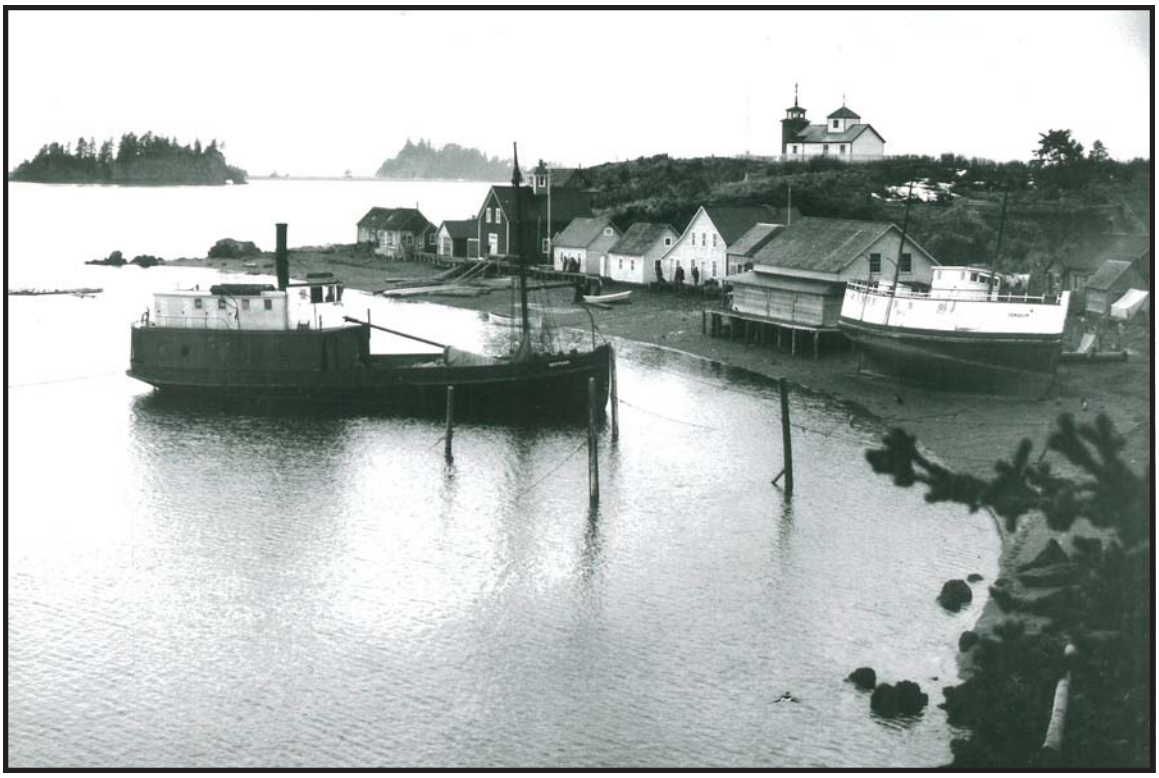


Figure 4. In 1908 federal surveyor J. Frank Warner plotted a long narrow tract encompassing the territorial school at Seldovia as USS 910. For reference, compare location of "Russian-Greek Mission Tract C" with its plot on USS 371 in Figure 2.

canneries in operation then, though MacDonald (1951:75) mentions only one at the time – built in 1911 and operated by various owners for the subsequent 40 years (MacDonald also mentions two start-up canneries in the late 1940s).

The Native housing enclaves identified by Dahlquist in 1927 were surveyed by federal surveyor Floyd G. Betts in 1934 as USS 2160. The Native lots were northwest and southeast of the ROC church lot (USS 371, Tract B). By this time Seldovia was thriving as Cook Inlet's only ice-free port; Anchorage had limited maritime traffic in favor of its rail access to Seward, and the small community of Homer was



Alaska State Library PCA 39-677, Case and Draper collection

Figure 5. In 1906 commercial buildings and a few frame houses hugged the beach south of the Russian Orthodox church, while Natives lived in log cabins north of the church (see cover).

economically subordinate to the town that had grown up on pilings at the edge of Seldovia Bay (Figure 9). A substantial boardwalk connecting the businesses and residences along the shoreline of the bay and Seldovia Slough was a defining feature of the community, and streets and vehicles to travel them were limited. All sorts of commercial services were available in Seldovia in the boom years of the 1930s, 1940s, and 1950s. Machine shops had the equipment and material to repair ships, and Navy vessels were not infrequent visitors during World War II (Sharp 1997:79). During the early 1930s Seldovia got its first newspaper, *The Seldovia Herald*. More than one grocery store operated in town, and there was more than one place to purchase clothing.

Seldovia's social life was unpretentious, and subsistence practices continued to augment the commercial goods sold in stores. Some people kept livestock, including goats, and where the airstrip is now across the slough a farm made fresh milk available (Sharp 1997:72, 54-57). Coal for domestic heating was acquired from seams outcropping just above the shoreline north and west of Homer (Klein 1996:8-9; Students of Susan B. English 1980). A hospital built in 1940 (and still standing as SEL-335) served most of the Kenai Peninsula until the Sterling Highway was built in 1950-51, linking Homer to Anchorage (Pedersen 2001:36). By the early 1950s Seldovia had four operating canneries (Pedersen 2001:86). Life was good for the residents of Seldovia. Then, on March 27, 1964, Alaska experienced a great earthquake, and Seldovia was changed forever.

Neither the earthquake's tremors nor subsequent tsunami waves did much lasting damage to Seldovia, and there was no loss of life, but the tectonic subsidence of 3.5 feet resulted in seasonal tidal flooding of the boardwalk and all the buildings along the boardwalk (Plafker et al. 1969:G42). Under the nation's urban renewal program of the mid-

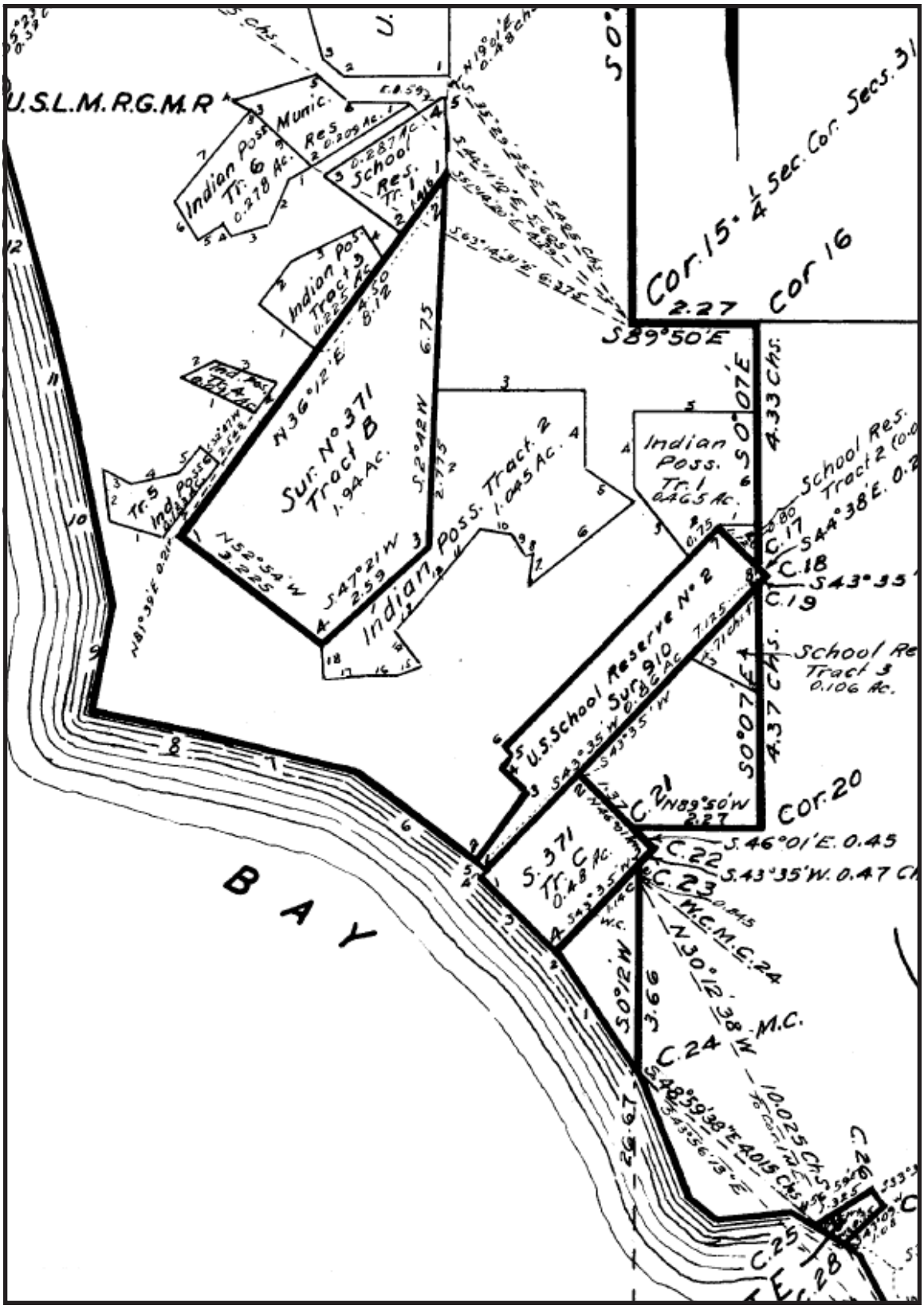
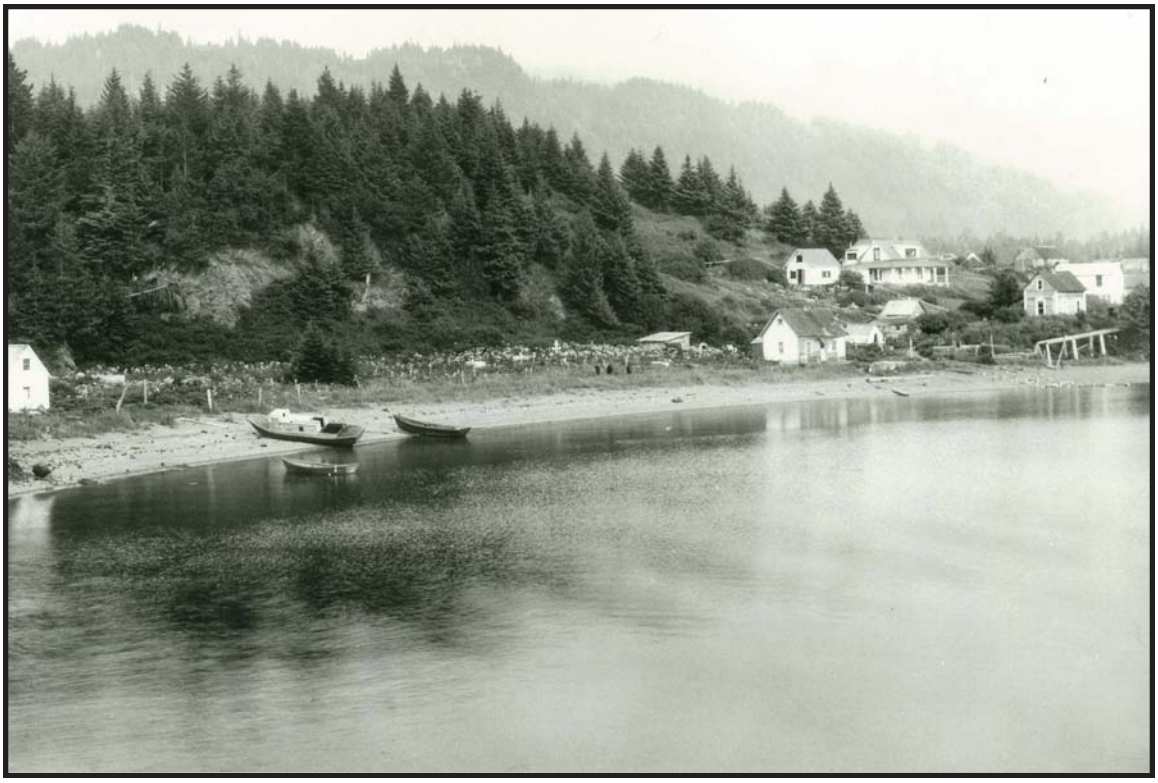


Figure 6. The first Seldovia townsite plat was made in 1927 by federal surveyor Fred Dahlquist as USS 1770, showing six clusters of Native homes around the Russian Orthodox church tract.

Alaska State Library PCA 19-39, Thomas Tabor collection

Figure 7. By 1930 the area north of the Russian Orthodox church had frame buildings interspersed with log cabins. This view north includes much of what would become English Road, to the right.



Alaska State Library PCA 19-34, Thomas Tabor collection

Figure 8. In this 1931 view to the southeast, what would become English Road is at right, with the old Russian Orthodox cemetery (since moved) at center and left.

Alaska State Library PCA 261-65, Marie Drake collection

Figure 9. By the time this undated photograph was taken, probably sometime in the 1920s - 1940s, the cannery buildings and residences had filled in most of the waterfront.

1960s, the U.S. Army Corps of Engineers and its contractors razed the structures in the intertidal zone and filled it with material blasted from "Cap's Hill," where the Fillmore homestead had been. Main Street was built more or less where the boardwalk had once been, on many feet of fill.

Today Seldovia is an incorporated city with an economy based on tourism and little commercial fishing. About one-third of the residents are seasonal with second homes elsewhere. The full-time population is less than 300, and the Native proportion has been steadily declining (Pacific Rim Planners 1980:3.1-3.7); now fewer than 20% are Native (Chamberlain et al. 2003:xi). Access is by air or by sea, with regular ferry service provided by the Alaska Marine Highway supplemented by charter boats

Everyone in Seldovia burned coal in their homes. When they needed more coal, two or more men would go over to Homer in boats at low tide....There would be reefs of coal laying on the beach. Frank and Eileen Balogh, in Students of Susan B. English (1980)

We cut all our firewood with cross-cut saws. But my dad had a furnace that burned coal, and he would get coal from Bluff Point, like everybody. September was the time for bringing coal in. Fred Elvsaas

During the war, PT boats were stationed in town....We had Army and also Navy coming to town quite often. (Sharp 1997:79)

There must have been a Navy gunship in here during World War II, because off Powder Island at low tide and in the water we find .50 caliber and 20 mm ammo. Mike Patrick

Seldovia had the reputation among fishery people, executives as well as fishermen from out of town, of being an uninhibited settlement, shielded from the observation of the outside world, where conduct not condoned elsewhere was uncensored and readily overlooked. Pedersen (2001:136)

Years ago when all the bars were on pilings on the beach, they each had a trapdoor and shot all the bottles down to the beach. Sometimes the drunks would stand down there to get the last drops out. Doug Pierren

We didn't have moose or deer right in town, but the men usually went by boat to bring home the winter meat....For deer you had to go to Cordova, so we didn't get much. Sharp (1997:77)

My parents – my mother and step-father – came in 1959 with a group called the "Fifty-niners" that came from Detroit Michigan….I came for a two-week visit to cheer them up….and I'm still here. They were up by Talkeetna….In the summer of '60 I decided I wanted to make some income for the homestead, and I decided I wanted to go fishing….I checked Homer….So for $7.50 I got on a floatplane and landed in Seldovia Bay. As I was getting off I asked the pilot where's a good place to look for a job? And he said just stick your head in the bar – that's where most of the action goes on. It didn't take long in 1960 and all the '60s – there was more work in Seldovia than anybody could handle. Everybody worked. It was a very active work-oriented [community]. *Cannery, fishing, crab, salmon, and shrimp operations, plus a couple hand-pack canneries….. There was Alaska Year-Round, which was a salmon cannery. Then in around '62 they built themselves a crab cannery. There was Wakefield cannery. And there was Ivar Wendt shrimp cannery, which later became Pacific Pearl….The canneries in the town – everything was on sticks. By that I mean it was piling. All the canneries were on piling, and all were off the face of the bluff. Everything was built out over the water. Seldovia itself had no flat spots in it. The waterfront curved along the rock cliffs, basically, and where there wasn't rock there'd be short stretches of beaches….The whole developed area had a boardwalk on it,* [with] *all the stores, the canneries, and all the activities, two hotels…a theater, a bar – there were three bars at the time: the Polar Bar, the Linwood, and the Surf Club. Basically the Linwood and the Surf were action – the guy's bar, and the Polar Bar was quieter, off by itself….it had a pool table, but it had less fights. Less rowdy!...During the first couple years I was here there was at least two ships a year, sometimes three. The one in the spring (besides bringing in cargo) it would bring in groceries and the alcohol. I helped unload that spring ship, and…the beer and whiskey pile was equal to the grocery pile….All the ladies in town would ask you "When are going to get to the groceries, particularly the fresh food?"…I can remember working 52 hours straight, loading salmon.... It was just a few years after that that the Alaska Steam quit calling*

Walter McInnes

Seldovia had dress shops, clothing stores, meat store, drug stores, soda fountains, we had all of that until after the war, then it started going down from there….We had several stores at the time. H.S. Young had a store — H.S. Young Mercantile. And Charlie Sharp had Seldovia Cash Store. Baltazars had a clothing store. Seldovia Bay Packing Company which is Squeaky Anderson's. And Morris and Morris. And Shortley's meat store. We had the movie theater initially down at the end of the boardwalk at Joe Hill's bar and dance hall….Initially at Joe Hill's it cost twelve cents…

Fred Elvsaas

out of Homer. A local road system connects Seldovia to Jackalof Bay to the northeast.

Scope of Work

The area of potential effect (APE) for the Seldovia sewer and water project consisted of all the sewer and water alignments that were to be replaced (Figures 10-11). A May 5, 2008, letter from the SHPO to Village Safe Water's Lead Engineer requested archaeological monitoring for the entire project, because no cultural resource baseline information was available with which to characterize portions of the APE according to their probability for containing buried archaeological remains. The

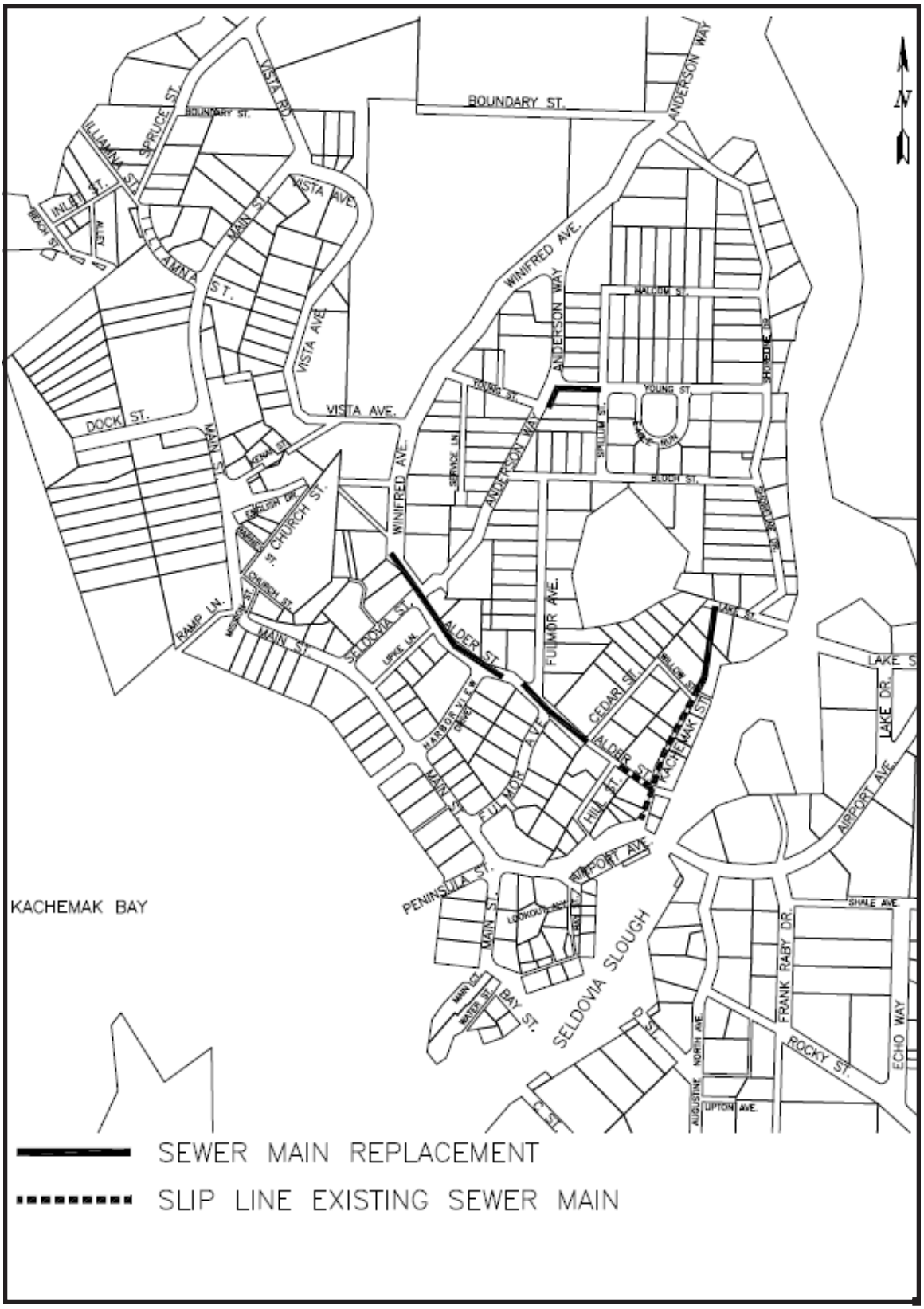


Figure 10. The plan prepared by CRW Engineering Group LLC shows sewer replacement along Alder Street and Kachemak Street, with a short segment along Young Street.

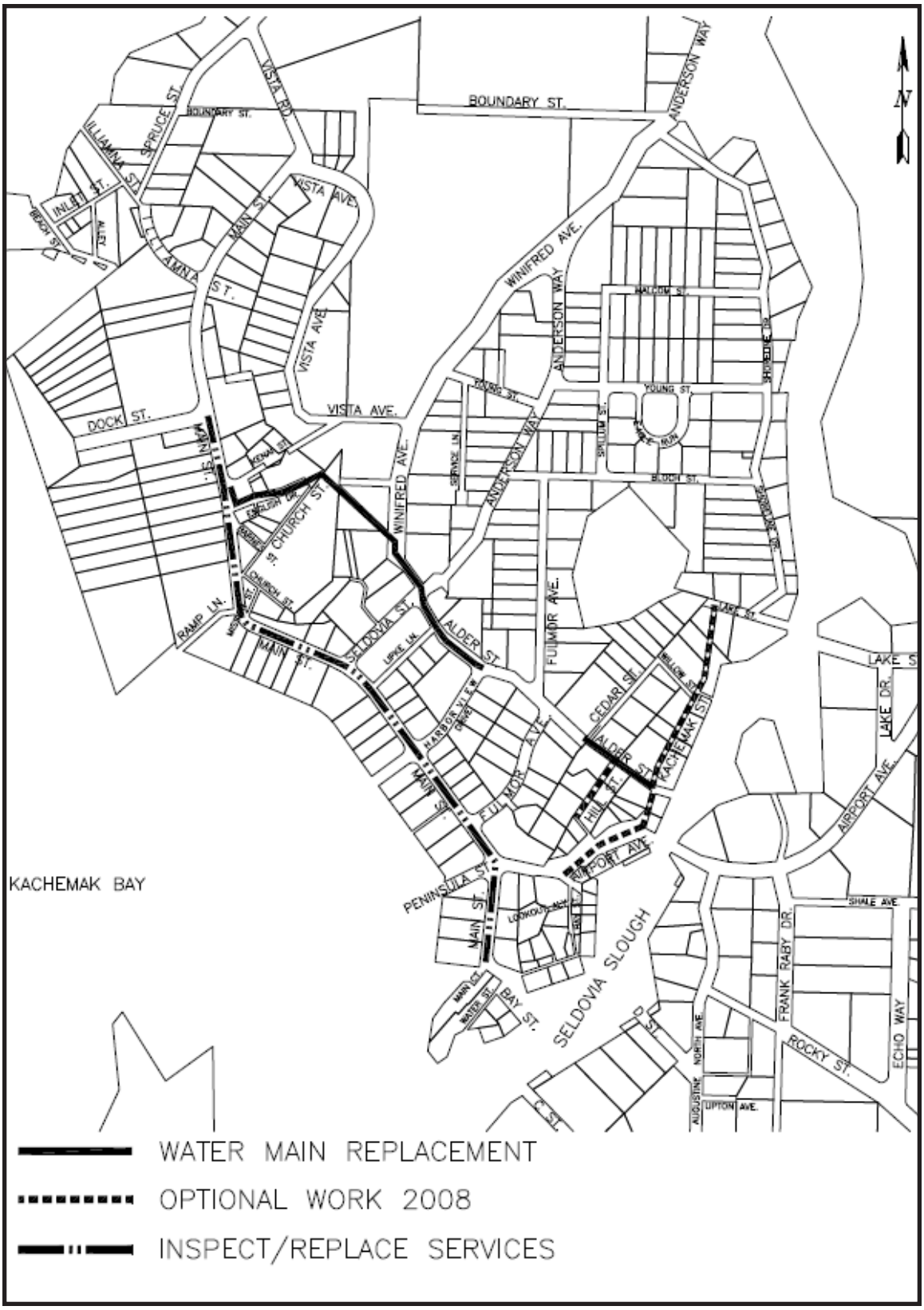


Figure 11. The plan prepared by CRW Engineering Group LLC shows water line replacement along English Road, Alder Street, part of Airport Avenue, and Kachemak Street, with a work on services along Main Street.

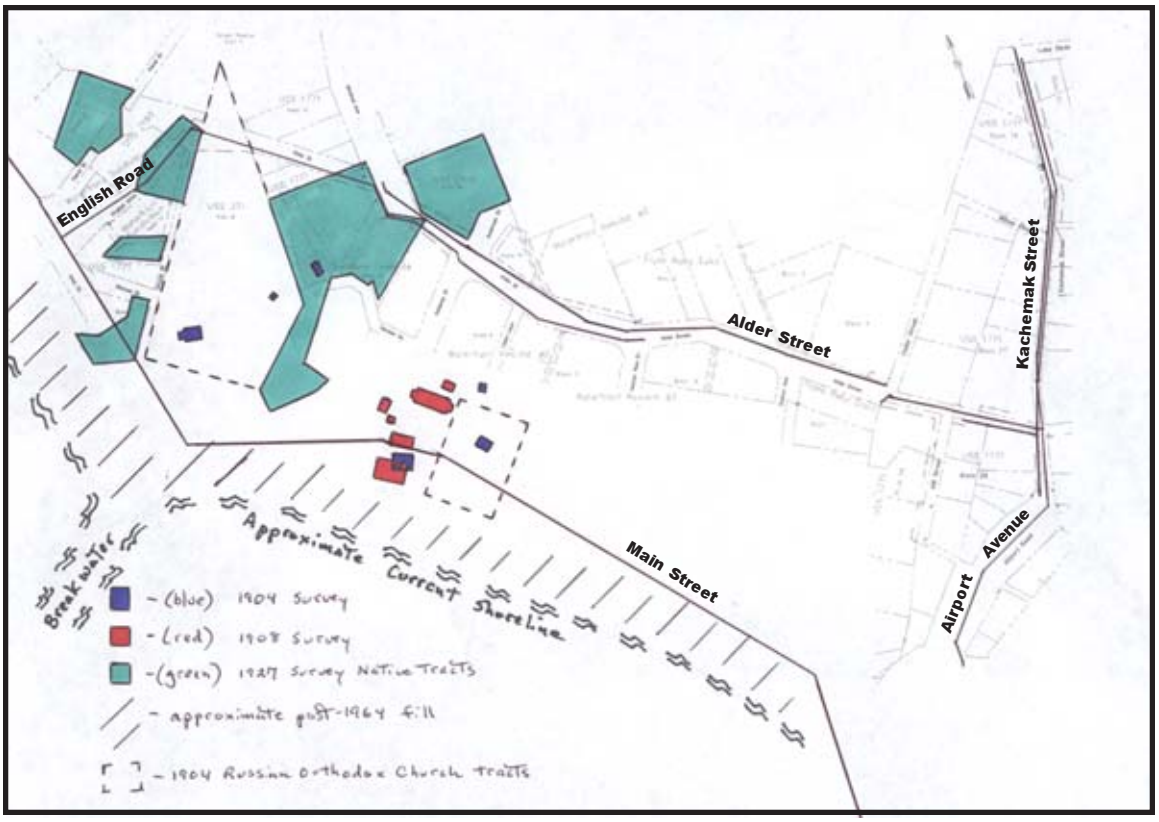


Figure 12. For the Archaeological Monitoring Plan (Mobley 2008) a map was prepared superimposing the 1904 Russian Orthodox Church buildings, 1908 territorial school buildings, and 1927 Native tracts on a current plat with delineations of the proposed sewer and water lines.

SHPO's letter left open the possibility of excluding some areas based on the details of the required archaeological monitoring plan (AMP), stating that "as part of the monitoring plan research your contracted archaeologist may be able to exclude certain areas from monitoring, provided that there is adequate information to do so."

CRW engaged Charles M. Mobley & Associates to prepare the AMP, and in early June I collected archival information available in Anchorage (less than what is presented in this report) and assembled a 19-page document that defined the APE, identified existing AHRS sites, discussed past land use in the APE, and characterized utility segments based on their supposed archaeological sensitivity (Mobley 2008). Key was the superimposition of the APE over features mapped in Seldovia's earliest cadastral surveys (Figure 12), and comparison of pre- and post-1964 earthquake aerial photographs showing the amount of intertidal fill done during urban renewal (Figures 13-14). From that I proposed a set of monitoring needs which eliminated about 45% of the project from archaeological monitoring.

The original AMP recommended archaeological monitoring for all of English Street, the northwest portion of Alder Street beginning at the east edge of Seldovia/Anderson Streets, work pits and service excavations along the short section of Kachemak Street from the Alder Street intersection to Airport Avenue, along Airport Avenue, and the service excavations along Main Street. The SHPO agreed with the recommendations, and that became the plan as the work began. The AMP also suggested that "once the archaeological monitor is onsite at Seldovia and has a chance to examine the topography, development pattern, and ground surface near the APE," (and consult with knowledgable local people), "there may be the

Aero-Metric Inc. 59COE1:3-4

Figure 13. A 1959 aerial photograph shows Seldovia before the 1964 earthquake and subsequent waterfront urban renewal. The large forested parcel at center is the “Cap” Fillmore homestead.

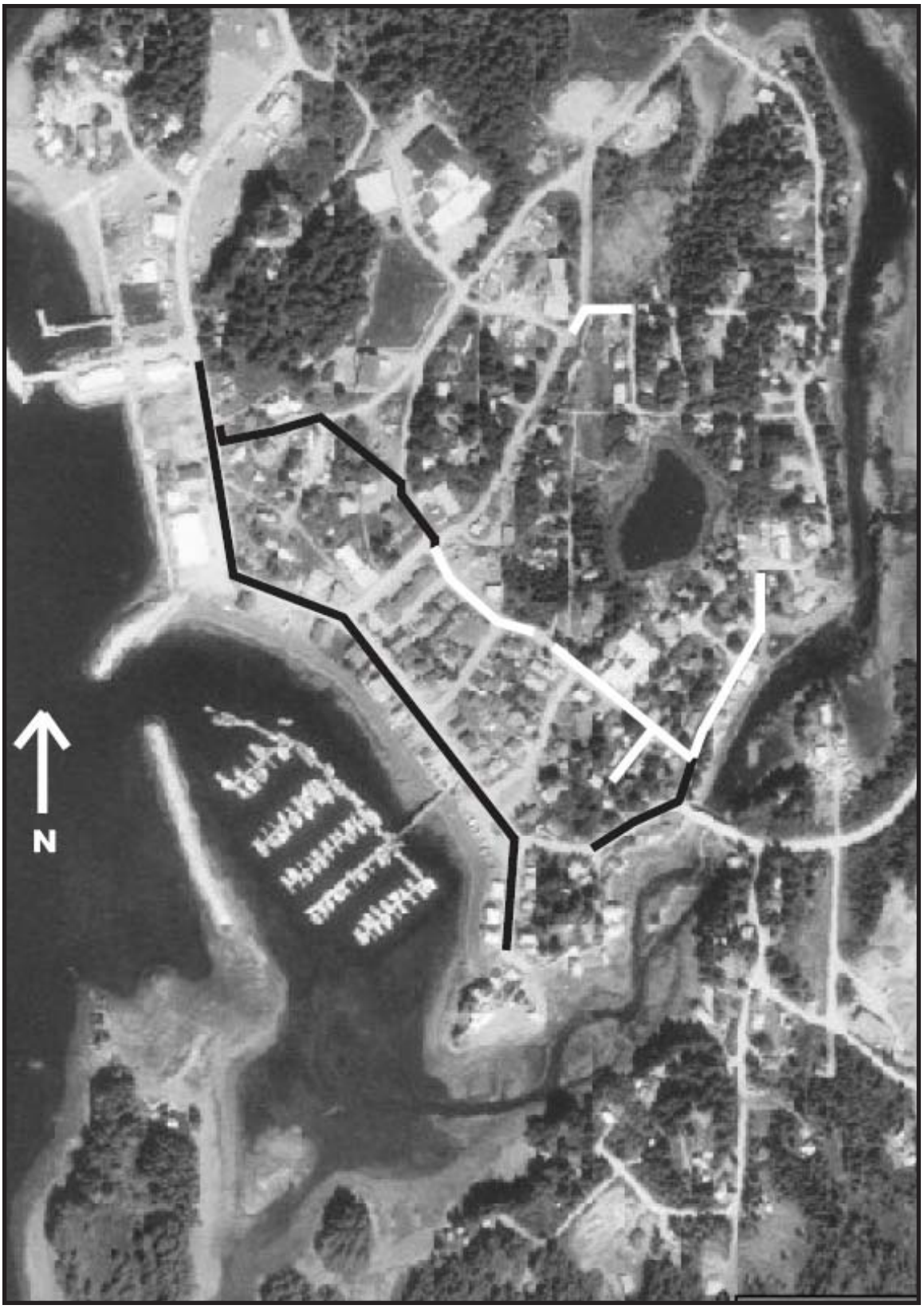


Figure 14. For the AMP a low-resolution 1996 aerial photograph from the Kenai Peninsula Borough webpage was superimposed with dark black lines for utility segments recommended for monitoring, and white lines for those segments not recommended for monitoring.

Figure 15. Jacquelyn Brown holds a metal toy race car retrieved from the trench in English Road.

opportunity -- in consultation with the SHPO and other parties -- to expand or reduce the amount of the APE recommended for monitoring" (Mobley 2008:16).

After my first monitoring trip to Seldovia, during which I witnessed excavations for four service installations on Main Street, walked the APE several times, and interviewed local people, I was able to recommend that additional portions of the project be struck from the archaeological monitoring effort. Main Street appeared to be completely deep fill from the post-1964 urban renewal project, and the Kachemak Street and Airport Avenue segments appeared to be alternately deep cuts and deep fill, so these sections were eliminated from the need for monitoring. Remaining on the monitoring list was English Road and the north portion of Alder Street -- essentially the area around the Russian Orthodox church that once contained the late 1800s Native village (Figure 12). These recommended modifications were submitted to CRW Engineering and DEC Village Safe Water on August 16, and the agency forwarded them to the SHPO for concurrence.

The modifications were approved, and archaeological monitoring proceeded. Work was behind schedule, and by the first week in September the crew had barely made it halfway up English Road from the starting point at Main Street. At that point significant midden deposits were uncovered beneath English Road, and a more controlled archaeological recovery kicked in (Figure 15). The volume of material in the midden and the continually improving insight into the natural and cultural stratigraphy along English Road and Alder Street changed the perspective on monitoring needs, lessening the perceived potential for comparable finds on Alder Street southeast of its intersection with English Road. As work proceeded along Alder Street immediately southeast of the English Road intersection, more prior disturbance was evident, artifacts (bottles mostly) were of more recent age (see Figure 27), and overall the artifact count

Figure 16. A dozen or two modern beer bottles, one of which is held here by Dale Beasley, were found during excavation.

Figure 17. Randy Bond holds a capped bottle over a century old still containing cod liver oil.

was sparse (compared to the English Road midden). The opportunity was taken to do some archaeological testing, ahead of the utility installation crew, at the northwest corner of Alder Street and Seldovia Street where the probability of historic archaeological deposits was considered to be the highest. Charles E. Holmes, who handled two different monitoring periods, did that testing. Results there were disappointing, and it appeared we were approaching the point of diminishing returns, so -- after consultation with the SHPO's compliance officer -- it was decided to strike the last (southeasternmost) segment of Alder Street that had been slated for monitoring in the AMP (Figure 14). That amounted to about 190' immediately northwest of the Seldovia Street intersection that wasn't monitored. As it turned out, the construction crew in our absence retrieved some items of mostly of recent vintage.

Methods and Schedule

The archaeological monitoring involved field observation, but archival research and oral history put those observations into a historical context and helped to refine the AMP. Monitoring was largely a matter of watching the construction crew excavate for the utility repairs, taking photographs, and collecting artifacts. Several of the crew were experienced bottle collectors, and several had decades of Seldovia residency to help interpret soils and artifacts. I provided a short archaeological briefing to the crew at the beginning of the project. Crew members were conscientious about recovering artifacts as they appeared in the trench or

Lindstedt Lane is bedrock only a foot or two below the surface. The only place I've seen them [utility excavation crews] *get down to beach sand is southwest of the tribal building.*
Walter McInnes

We used to have a Butler building here and when we dug the foundation for this building [Seldovia Tribal Association Inc.] *we found shells.* Crystal Collier

Main Street is mostly fill. The sewer line is 32' deep, but on the south end it's only about 20'. The water line at English and Alder is only 28" deep. Otherwise its peat. I've driven pilings 28' deep up there. There used to be a sawmill where I live on the slough. It's sawdust 20' deep. There used to be a gully draining the lake, but it got filled. Alder Street there past [south of] *Seldovia Street is filled over a wet place that was used as a dump. It used to be every Halloween kids would drag chunks of metal and junk out of there and make roadblocks, then the police would have to clean it up.* Steve Bond

Figure 18. Seldovian Doug Pierren, here holding a battered enamelware vessel and a leather climbing spur recovered from fill on Main Street, contributed oral history to the archaeological monitoring effort.

backdirt (Figures 15-17), and passersby had useful insights (Figures 18-19).

The construction schedule didn't always focus on segments slated for archaeological monitoring, so the work involved several trips to Seldovia from Anchorage. I monitored the sewer and water work from August 5 to 11, and returned again for the week of August 18-21. Charles E. Holmes conducted the monitoring during the week of August 26-30. I returned to Seldovia September 2 and monitored until September 13, then Holmes did another stint from September 17 to September 27. That completed the field monitoring, then I returned to Seldovia and analyzed artifacts from October 19 to October 27.

The first work involved excavation of four water services spaced along the east side of Main Street. This provided a firm characterization of the Main Street alignment as all in fill, and thus the segment was soon struck from the monitoring plan. Next the crew dug at

Figure 19. Seldovian Walter McInnes contributed information about local history in a taped interview.

I was born in Seldovia May 28, 1933….My father came from Norway…on a sailing ship. My mother was born in Kodiak and came to Seldovia when she was young….We had a house that was two stories over a basement, which in Seldovia at the time was a fairly large house. And we had a shop, and underneath the shop was a woodshed and a banya. And of course on the outer side was an outhouse, and we had a boardwalk. We had our own, right within our little compound, and we had a wire fence on the street side. So we had a nice yard. And we had two places where my dad put sawhorses in the ground, where we could saw logs for firewood. Us boys would saw wood and split wood, and pack wood. It was always important to pack wood for not only the house — for the cook stove and for the heat, but also for the banya. We had at that time a large banya which a lot of people, when they saw smoke from the banya, they'd come and visit….As we got older my parents would move from Seldovia across the bay [Seldovia Bay] *to Hoen Spit, and we had gardens over there. My mother grew a lot of vegetables, and we had two potato gardens….My mother went to school in Chemawa, Oregon, and learned how to preserve foods. And my dad was a fisherman and worked on the fish traps in Cook Inlet, so he would put up salt fish and smoked fish….My mother's goal for canning king salmon was 200 quart jars every summer….My dad bought a cow and a bull from somebody in Homer….In the fall of the year my dad had a big red dory with oars…and he'd back the skiff up to the beach and the cow would step in and he'd row across the bay with the cow, and bring it in to town, and let it off on the beach and then the cow would walk up to where the airport is now — where* [there were] *hayfields. At that time Bill Goyer had cows there and we'd put our cow in with his….*

At the time of the boardwalk, the beach – when the tide was out – was our playground. We didn't have a playground as people know it today. When we played baseball, if you batted the ball in the water, you were out. That was a strict rule, because then we had to get a skiff and get the ball and it would stop the game. We also played football on the beach….On the boardwalk itself was several places where people marked off with chalk for hopscotch….As a kid it was a real thrill when the steamship would come in. It would bring the freight in and take the canned salmon and salt fish and halibut out, fish meal and fish oil (I believe there was a separate ship for that)….Most of the town would go down to the dock when the ships came in because they were passenger/freight ships and they would see people who were traveling to western Alaska and visit….Along the boardwalk was a railing that was just right for sitting on, so the whole boardwalk was a meeting place….We had a lot of fun playing under the canneries….

[Before the earthquake] *Frank Nyman was the city engineer. I met him by chance when I lived across the bridge. It was pouring, pouring down rain – a terrible rainstorm. I looked down on the beach, below my dock, and here's two guys with a survey instrument and a rod, just soaking, soaking wet. I hollered down and said "What are you doing?" And he said "we're surveying tideland surveys." I said come on up and dry out, and my wife had just made cinnamon rolls. So he came in, and Charlie Tryck was his partner....They were just starting out – two guys. And all they owned was that instrument and rod, and they got this contract….He developed and designed a lot of the water system that's being replaced….Frank Nyman designed the dock through a subcontractor….*

Fred Elvsaas

Figure 20. When an 18"-thick historic midden was found beneath English Road, construction crew members helped recover artifacts using hand tools. The old hospital (SEL-335) is at upper right.

the intersection of English Road and Alder Street, in the process uncovering the underlying corduroy road and unearthing a pump and other elements of one of Seldovia's early water systems. Then the crew moved to the lower end of English Road at its intersection with Main Street and slowly laid pipe going up the middle of English Road, heading east. Water services to buildings were dug and installed along the way. Between Station 3+00 and Station 3+76 (the upper half of English Road) we encountered a historic midden deposit immediately under the road, prompting a work slow-down for one day and part of another while I and several of the crew shovel-skimmed the 18" thick layer of bottles and other artifacts (Figure 20). Eventually mechanical trenching resumed and the intersection of English Road and Alder Street was reached, and excavated again, and the crew turned and headed southeast down Alder Street. English Road and the section of Alder Street between English Road and Seldovia Street were considered the high potential areas requiring archaeological monitoring, and no monitoring or archaeological testing was done on Alder Street south of Seldovia Street.

Digital, color slide, and black-and-white photography were all used to document the effort. Artifacts were selectively retained, plotted, cataloged, analyzed, and turned over to CRW for transmittal to the land owner (the State of Alaska in the case of Main Street, the City of Seldovia in the case of English Road and Alder Street, and an individual landowner in the case of one water service). Since there were times when the archaeologist wasn't needed onsite (like when the crew was jackhammering through bedrock), additional effort was spent photographing Seldovia's historic buildings, thereby enlarging the context in which the monitoring results are presented (Appendix A).

The archival effort in Seldovia -- beyond that involved in Anchorage to prepare the AMP -- consisted of a visit to the city library and perusal of photographs at the offices of the Seldovia Village Tribe. Patricia Roppel also

Figure 21. Shown are all the bottles recovered from the main midden exposure and three numbered midden exposures in English Road.

graciously provided access to Bob DeArmond's photograph collection.

Oral history information was collected opportunistically from Seldovia residents as they walked by the construction zone (Figure 18) or during other meetings while I was in town, and anecdotal material was recorded in my notebook. In addition, I conducted formal audiotaped interviews with Seldovia residents Fred Elvsaas and Walter McInnes (Figure 19). In each case, taped contributors signed a release form so that the original audiotape could be filed with the University of Alaska-Fairbanks Oral History Archives at Rasmuson Library (H2008-21 is the assigned tape number for Elvsaas's interview, and H2008-22 is the number for the McInnes interview).

I spent a week in mid-October at Seldovia, washing and describing most of the artifacts. Because of the weight and volume of the bottles, metal artifacts, and other things (Figure 21), I wanted to leave material in Seldovia and forego shipping it to Anchorage as much as I could. The only material I took to Anchorage for further analysis was the ceramics, and the firearm-related artifacts. Then I wrote the report, consulting pertinent books and websites to help describe various artifact types and manufacturers.

Monitoring Results

The monitoring effort was successful in minimizing the loss of significant archaeological information during the 2008 water line installation. The original thought behind the AMP's recommendations for monitoring those street segments was that they were likely to contain remains reflecting the late 1880s-1930s Native houses that once surrounded the Russian Orthodox church (Mobley 2008:10). The results confirmed that expectation, with historic midden exposures found in three places along the lower half of English Road and underneath more than 76' of the utility alignment in the upper half of English Road. Also uncovered were remnants of a corduroy road and a water collection system (Figures 21-23). These intact features and the artifacts provide insights into the material life of early Seldovians. Artifacts were also recovered from disturbed fill, and from shallow and surface contexts indicating more recent deposition. While these items contain less significant information, they are also discussed here as additional bits contributing to an understanding of Seldovia history.

Corduroy Road

Excavations for water main repair at the intersection of English Road and Alder Street uncovered a pavement of logs representing the buried remains of a corduroy road surface (Figure 21). The logs were oriented more or less perpendicular to English Road and were obviously part of its alignment rather than Alder

Figure 21. Excavations at the intersection of English Road and Alder Street (here looking southeast down Alder Street) revealed a pavement of parallel logs -- the remains of a corduroy road built to support vehicles traveling over the soft muskeg. The white house at far upper right is SEL-344.

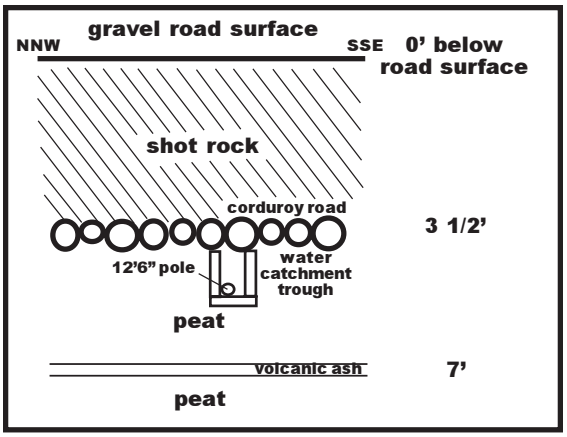


Figure 22. The shotrock road bed at the intersection of English Road and Alder Street was directly over the corduroy road, with the water catchment trough below.

Street. Their diameters ranged from 4" to 10" in diameter, and they had sawn ends. Shot-rock forming the modern roadbed lay immediately above the logs, placing the logs 3 1/2' below the present-day road surface (Figure 22). Immediately below the logs was a homogenous deposit of peat down to a depth of 7' below road surface. At that depth we noted a light orange-yellow volcanic ash measuring between 1/2" to 4" thick, below which the homogenous peat continued down to the bottom of the excavation. According to equipment operator Steve Bond, when preparing a new foundation nearby for the next location of SEL-344 (Figure 21) he drove wood pilings down to a depth of 28', indicating considerable depth to the peat in this area. A few bits of clam shell were found mixed among the corduroy road logs. According to an account by Jack English, English Road was one of Seldovia's earliest built streets (Students of Susan B. English 1980).

> *The first car brought to Seldovia was an old Dodge pickup. It was owned by Ed Danielson and brought here in the 1930s. He had to build the roads to drive it on. One of the roads is still existing today. It is the one that runs from Main Street up past the hospital and Jack English's office. He used the truck for hauling wood for building some houses.* Jack and Susan English interview, in Students of Susan B. English (1980)

Figure 23. Curtis Dickson holds a 12'6" peeled pole found inside a wooden water catchment conduit near the pump at English and Alder Streets.

Hand Pump and Water Collection System

Immediately beneath the corduroy road at the intersection of English Road and Alder Street was another feature consisting of a water conduit made of rough-cut 2"x12" planks (Figure 22) running more or less parallel to the road and perpendicular to the corduroy logs. It is a separate feature from the corduroy road. The trough had a bottom and two sides but we didn't observe a capping plank on top. A void was maintained, however, due to the overlying corduroy logs, and from inside the void we pulled out a long peeled and shaved spruce pole cracked in two places but still with all three pieces connected (Figure 23). The artifact is 12'6" long, and less than 2" wide at the butt. About 6' west, from the bucket of the machine,

Figure 24. A pump from an early Seldovia water catchment system was found below the corduroy road at the English and Alder intersection.

we recovered with the excavator a cast iron pump embossed "W & B DOUGLAS" company of Middletown, Connecticut (Figure 24). It must have been buried at about the same depth as the corduroy road.

Long-time Seldovian Fred Elvsaas told me of an early water catchment system at the top of English Road, consisting of channels which funneled water from the muskegs into a pipe serving the buildings along the boardwalk. It's possible that the plank trough, peeled pole, and pump are all part of the system he describes. The plank conduit was likely a primary channel, the pole may have been either a measuring stick to check the depth in a collection sump or possibly a tool to clear obstructions from the conduit, and the pump could very well have been installed over the sump or well -- if one in fact existed. A corroded metal strap (Figure 24) found with the pump was probably used to affix it to a horizontal wood platform or a vertical wood-stave pipe.

We had a well fairly close to Lake Susan, which was mostly used for washing and bathing. For good drinking water we'd go up to Fish Creek and get fresh water out of the creek. It had a much better taste….We had a small skiff and we'd put about six five-gallon cans in a skiff and row up with the tide. There was a pipe that the water came out of – gravity feed....There was a closet-like on our porch that we kept the water in the fresh water. The well water, from time to time the health department would come to Seldovia and they'd slap a sticker on all the wells and close the doors. It said the well was not fit for human consumption and not to break the seal, and soon as they left on the mail boat everybody took the seals and opened the door anyway because they had to have the water. They were hand-dug wells. The well we had was probably about 15' deep. About six to eight feet [around]. *It had a house over it, and there was a pulley for a rope so you could put a bucket down and lift it with a pulley….We had yokes…to go to the well….It was a great day when we got running water….Dad Richie, Mr. Richie, he had a well up toward the school house, and he dug it down in the rock and hit a spring. And he had water piped from his well down to his house and on down to Judge Chamber's house and store and along the boardwalk to Baltazar's Store, a clothing store, and on up to the Methodist Lutheran church….That was the first running water in Seldovia, and he put that in the 1930s, before the city got water in the '40s....The first flush toilets in Seldovia all drained right into the slough. Everybody that lived along the slough their toilets drained into the slough. About 1940, '41, the WPA – Works Progress Administration, under President Roosevelt – they put the first water system in. They hand-dug all the ditches.*

Fred Elvsaas

Figure 25. Artifacts found along the edge of Alder Street on the surface or near-surface included a doll, baking pan, window and bottle glass, ceramic shards, and a heavy aluminum drinking cup.

Buried Straw

In two places the trenching encountered a layer of straw deliberately placed beneath the shotrock road fill. The first discovery was 34" beneath English Road from Station 3+98 to Station 4+25 (a distance of 28'). The layer stretched across the entire five foot width of the trench and beyond to the north at least three more feet, because -- located that far away -- a 1" pipe ripped from the ground with the mechanical excavator brought straw up with it. There were a few artifacts with the straw (Bags 43 and 44), including a piece of motorcycle tire. The straw had been processed -- crimped and bailed -- and spread in 1 1/2" sections as if bedding for cattle, but there was no manure. It could have been oat or wheat straw. The same sort of straw feature was found by the crew at the intersection of Alder and Seldovia Streets. The straw's function is not known, though guesses included insulating pipe below, insulating corduroy road above from moisture or freezing below, and soaking up spilled diesel oil from the old tank farm nearby.

Artifacts in Fill and Surface Artifacts

Artifacts were found in several disturbed contexts: in the thick fill on Main Street where four water services were worked on early in the project, in the fill covering sewer, water, and fuel lines beneath English Road and the services off of English Road, and in the fill covering sewer and water lines under Alder Street (Figure 25). Surface artifacts were also recovered along both sides of Alder Street and along services off Alder Street. Some of the material was interesting, but most if not all of the artifacts were relatively recent. A collection of 27 bottles retrieved by workers from the excavations done on Alder Street between Stations 8+30 and 10+00, after the need for a monitor was removed from that segment, was dominated by amber beer bottles (Figure 26).

Soda cans and beer bottles found in the shotrock fill comprising English Road were relatively recent, and included Hire's root beer, Pepsi, Shasta strawberry, R.C. Cola, and Nesbitt's soda (Figures 16, 27). Recent artifacts were noted in the fill at the corner of Alder

Figure 26. Bottles retrieved by construction workers in the excavations on Alder Street between Station 8+30 and Station 10+00 consisted mostly of amber beer bottles, along with three flask type liquor bottles, several soda bottles, and an uncolored catsup bottle.

Street and English Road, including bottles, metal strapping, shoes, and what is probably a headlight bracket for a 1964 Ford Galaxy, according to crew members (Figure 28). Various other bits of utilitarian and domestic debris were found here and there, including a Crescent wrench lost by workmen the last time they excavated a service on main street, a leather climbing spur of the sort that Homer Electric Association linemen likely wore, and ceramic shards, fragments of enamelware, and bottle and window glass (Figure 29). Wood stave pipe of 6", 8", and 10" diameters was observed under English Road, as well as a composite sewer pipe, small diameter lead pipe, steel pipe in approximately 2" diameter, and copper pipe used for services in 1" diameter (Figure 30). No attempt was made to save removed pipes, though a 1" diameter wooden dowel with three compression scars on it -- a plug for a wood stave pipe -- was retained in the artifact collection. From the fill at approximately Station 0+80 in English Road we retrieved a toy race car of perhaps 1940s vintage, with a corroding metal body and rubber tires (Figure 15).

Midden Exposure 1

In three places historic midden deposits were exposed in a vertical sidewall of the utility trench (Figure 31). Midden Exposure 1 showed up in the water main trench in lower English Road

Figure 27. Soda cans were some of the more recent artifacts noted during the water line work.

Figure 28. At the corner of Alder Street and English Road recent artifacts were noted in the fill, including what is probably a headlight bracket for a 1964 Ford Galaxy, according to crew members.

Figure 29. Other artifacts noted in fill included (clockwise from upper left), leather climbing spur, enamelware vessel fragment, paint chips, bone, ceramics, plastic toy pistol grip, and a wrench lost by workmen the last time they excavated a service.

Figure 30. Wood-stave and metal pipe of various diameters was removed from beneath English Road.

by the old hospital (SEL-335), as well as the service trench for that building (Figure 32). In all three numbered vertical exposures plus the main horizontal exposure in English Road further east the deposit had the same composition, consisting of a black organic matrix streaked with gritty yellow-white mottled ash lens, with a maximum thickness of 18". Artifacts were mixed throughout. The ash in the midden was coal ash -- distinct in texture and color from the fine-grained orange volcanic ash lenses imbedded in peats deeper in the local natural stratigraphy. Most of the artifacts came from a deposit revealed in a 12-foot section of sidewall of the water main trench, with a few (Bag 33) from the service leading to SEL-335.

Midden Exposure 1 had artifacts of several different materials (Figure 33). A few small bones were recovered, including cranial parts and two incisors from a porcupine. Fragments of glass bottles and windows were found, as well as five white paste ceramic shards. Metal objects consisted of two small rectangular ferrous plates, a bent nail, and a small cross cut out of copper sheet. Three pieces of rotten lumber were noted, as well as eight fire-cracked rocks and a lump of coal.

The artifacts from Midden Exposure 1 reflected several different aspects of occupation. The bits of wood and window glass are indicative of structures, while the bottle glass, ceramics, and bones reflect food and beverage serving and consumption. The cross measures 1 3/8" tall by 7/8" wide, and is less than 1/32" thick, and is of note for not being a Russian Orthodox cross. The fire-cracked rock is a cultural product and reflects either cooking as per the traditional Dena'ina practice using hot stones, or the typical Alutiq steam bath -- probably the latter. Interviewing with Susan Springer in 1988, local Seldovia Native elder Nick Elxnit told of their steam bath or "banya" tradition used at a now-abandoned historic village up Seldovia Bay (Springer 1997:56-57), and Fred Elvsaas dis-

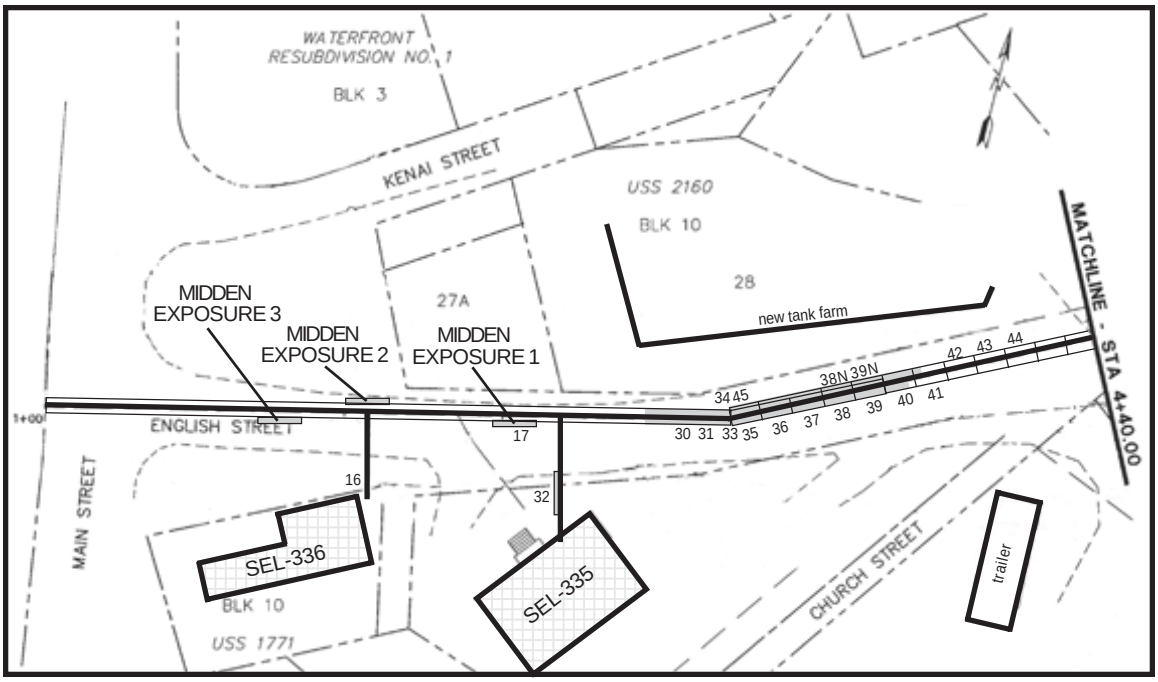


Figure 31. Midden Exposures 1-3 were located on the lower part of English Road, while the corduroy road, water catchment trough, and pump were located at the intersection of English Road and Alder Street, quite near the matchline at Station 4+40. Small numbers refer to Bag #s of collected artifacts. SEL-335 is the old hospital, and SEL-336 is the old 1928 Sears mail-order house. Church Street approximately follows along the northwest lot-line of the Russian Orthodox church property to include what's called "the Russian trailer park."

cussed with me his family's banya tradition while living in Seldovia.

Midden Exposure 2

Midden Exposure 2 appeared in the north wall of the water main trench across from the service to SEL-336, a small white house erected in 1928 as a mail-order kit from Sears (Appendix A) near the west end of English Road towards the harbor (Figure 31). Showing in the vertical cut for a length of about 12 feet beneath the shotrock road bed was an 8"-thick layer of organic soil lensed with coal ash. Artifacts picked out of the sidewall consisted of several bones (Figure 34), a small fragment of lumber, one ceramic shard of a brownware flower pot, and three fire-cracked rocks. Though having far fewer artifacts than Midden Exposure 1, Midden Exposure 2 reflected mostly the same sorts of activities, including the steam bath inferred from the fire-cracked rock.

Midden Exposure 3

Midden Exposure 3 showed in the south side of the trench in English Road for a length of about 12', just west of Midden Exposure 2 (Figure 31). It, too, consisted of dark organic soil with coal ash lenses, but at no more than 6" thick it was thinner than other exposures and only a few bits of wire and ceramic shards were detected in the matrix.

Main Midden Exposure

The main midden exposure was found as the upper half of the English Road segment was being trenched, and extended clear across the width of the trench from about Station 3+00 to Station 3+76 (Figure 31). Over the course of the next ten feet, from Station 3+76 to Station 3+86, disturbance from a prior pipe installation angled across the trench decreased the horizontal midden exposure to less than a sliver.

Figure 32. John Geagel points his shovel at the base of Midden Exposure 1, immediately below fill brought in to create English Road, with the old hospital (SEL-335) behind. View is south-southeast.

Mechanical excavation of the westernmost 20' of the main midden exposure was conducted using very shallow scrapes at about 2" increments, as I and a couple crew members retrieved artifacts exposed in the trench, bucket, and backfill. By the time we'd reached the alignment's staked point-of-intersection at Station 3+21, there was so much material coming out from what appeared to be a primary context that mechanical excavation was halted in favor of hand tools.

I requested and obtained from Project Manager Jeff Lindquist a temporary work slowdown of about 12 hours, while I and several construction crew members assigned to the task excavated by hand the historic midden remaining between Station 3+21 and Station 3+86 (Figure 20). In the procedure the mechanical excavator was used to peel off the shotrock road overburden within the trench alignment, and we shovel-scraped the midden layer below using flat shovels. I painted 10' increment marks along the trench margins, beginning at staked Station 3+21, and artifacts recovered were put in bags marked with numbers corresponding to those 10' provenience units. As many as six crew members were digging at one time (two per 10' unit), and in the excitement the machine operator strayed from the planned trench alignment and had to come back and widen it on the north side by as much as two feet, beginning at Station 3+21 and working eastward. So we undermined the north sidewall before he got there and provenienced the recovered material with a "N" added to the bag number for that 10' increment. We also provenienced separately, by appending a "b" to the bag number, a compacted collection of bottles and other artifacts within the unit corresponding to Bag 39 (Figure 31).

Other than the Bag 39b artifact concentration, there was no feature structure to the main midden exposure. The shotrock road surface was directly over the old ground surface, and it was the old ground surface and underlying soil

Figure 33. Midden Exposure 1 included (clockwise from upper left): two porcupine incisors, a lump of coal, several other small bones, window and bottle glass, ceramic shards, three pieces of wood, fire-cracked rocks, and four metal objects -- a nail, two small ferrous tablets, and a copper cross.

Figure 34. Midden Exposure 2, also in English Road, produced (clockwise from upper left): four bones, a piece of wood, one ceramic shard, and three fire-cracked rocks.

There's midden up by the church. There used to be barabaras by the church, where the trailer park is now. There's a little log cabin there, and upslope towards the church people have dug and found stuff. Michael Opheim

When we've worked in the slough, we get lots of bottles. Sometimes we find an old house foundation, or outhouse holes. Up in the trailer park by the church there must have been Native huts. I dug in there and found old bottles -- medicine bottles, and a flat iron. I used to have a trailer in the Russian trailer court. I dug out a place and put fill in there, and I found all kinds of stuff. Old shoes of all sizes, irons to sit on the stove, and lots of bottles. If we dig along Church Street for a new service, there'll be all kinds of stuff. Steve Bond

We dug the trailer court like crazy, about 15 years ago. We found everything. We found some dishes -- heavy duty restaurant type. Cobalt blue medicine bottles, like Vicks. They're called Emerson -- an upset stomach remedy. Clorox bottles -- the brown ones. Pop bottles. And quite a few pieces of enamelware. Lots of whiskey bottles. I found a beautiful thin light brown horse liniment bottle, I think -- it had a horseshoe on it. Doug Pierren

We found so many bottles when we were working on the new tank farm! There were pink ones and green ones, light blue ones and yellow ones. Jacquelyn Brown

that comprised the midden deposit. Its maximum thickness was 18", and lenses of coal ash drifted through it. Disturbed areas were encountered where small pipes had been buried, including fuel lines from the old tank farm that once sat on the hillside (at the present tank farm site). Because the thickness of the midden varied, as did the density of bottles and other artifacts within, it seems the ground surface over which the ash and artifacts had been strewn had been roughly undulating. This would also seem to be the case from historic photographs (see cover).

Because of the former tank farm location and oil leaks over the years, almost all the midden and its artifacts were oil-soaked. The product had coagulated and hardened into a tar adhering as dark brown lumps or smears to most of the bottles and many other artifacts. Cloth and rubber had absorbed the contamination so thoroughly that specimens of those materials were immediately discarded. So a few oily rags and at least six or eight rubber boot remnants didn't make it into the collections.

Artifacts

Most of the artifacts were recovered from the main middenl exposure in the upper portion of English Road; fewer were noted in the vertical exposures of Midden Exposure 1, 2, and 3. The items from the numbered exposures are described in the previous chapter, but included in those assemblages are unique things like the copper cross and most of the fire-cracked rocks. This chapter describes the artifacts from the main midden exposure in upper English Road, with generalizations and some photographs including specimens from the numbered exposures as well as surface and subsurface contexts along Alder Street. Most of the artifacts discussed here were collected and form part of the collection turned over to the City of Seldovia.

Industrial Items

From a 10' stretch lapping the Bag 38 and Bag 39 proveniences came a group of commercial items consisting of used welding rods, large heavy galvanized straps bent to have multiple curves -- like a two-unit conduit hanger, large nuts, and other rusty metal (Figure 35). The artifacts appeared to have been deposited not so much in the midden layer as in the lowest inches of the shotrock road bed, and they weren't mixed much with other sorts of artifacts. Discovery of the artifacts did not slow the mechanical excavation, and most specimens were pulled from the backdirt. They were photographed, noted, and left for backfilling.

Structural Items

Archival photographs illustrating this report (cover, Figures 7-8) and others reproduced by Springer (1997) show log cabins and frame buildings constructed in the vicinity of what became English Road, so artifacts of a structural nature were anticipated. Isolated nails and screws were noticed during the excavation but their information potential was considered below the threshold for saving as part of the permanent collection. No concentrations of nails were noted, nor did the isolated specimens appear to be burned. No square nails were observed.

Pieces of lumber were also noted in the excavations and left for eventual removal or reburial. The freshest pieces were those of the plank water trough feature beneath the corduroy road at the intersection of English Road and Alder Street, but other fresh-looking boards were found here and there in road fill. From the midden layer the only boards noted were small rotten bits of 1" lumber. Nothing resembling a building foundation was observed: no post holes, no burned logs, no concentrations of sawn boards.

Aside from the nails and screws, which weren't collected, only a few other artifacts that could be called structural items were saved. These included a hook-type latch for a door, a large staple, and a small pulley (Figure 36).

Another structural artifact type encountered were pipes of various sorts, including wa-

Figure 35. From a 10' section of upper English Road came a group of industrial shop items, including used welding rods, heavy metal conduit hangers, and square nuts.

ter and sewer pipes that were to be replaced. Most of these were ripped up with the mechanical excavator and discarded (Figure 30). Some were wood stave pipe and some were metal. Metals represented were cast iron, steel, lead, and copper. Most if not all the pipe found during construction had been installed in its find position; none of the pipes had been discarded in the midden layer.

Bits of wire and small diameter cable appeared in the road bed fill and occasionally in the midden. Most of it was copper wire or cable, some with remnants of insulating sheathing. The shotrock roadbed had short lengths of single-strand blasting wire in it, with colored plastic insulation. Other than this blasting wire, there were not more than a dozen pieces of wire noted during the excavation monitoring, and none of them were kept. Copper wire, as well as copper pipe, was salvaged by construction crew members for scrap.

Window glass was another structural artifact type noted during the construction but not collected. Shards were not common in either the midden strata or the overlying roadbed fill, but rather appeared as isolated examples in both. There was no concentration of window glass to suggest a building site or the place where window glass might have been discarded.

Domestic: Food Storage

Three food storage items were recovered: two canning jars and a canning jar lid liner. One uncolored pint canning jar is embossed with "Drey" in script and the words "IMPROVED EVER SEAL" (Figure 37). Drey was a well-known canning jar brand manufactured from about 1908 to 1925 by the Schram Automatic Sealer Company and secretly from 1925 to 1938 by the Ball brothers, according to historical research presented on the website www.fruitjar. org . The jar still has the remains of a wire closure.

Figure 36. Structural items collected from the English Road midden consisted of a hook-type door latch, a large staple, and a small pulley. Also pictured is a sliced metal object and a short length of ferrous chain. .

A second canning jar recovered is of much newer manufacture, consisting of an uncolored pint jar with a mixed-fruit still-life embossed on one side, a fill scale running down the other side, and the wording: "Ball, WIDE MOUTH, FILL HERE FOR FREEZING, MADE IN USA." Because the line between food storage containers and food serving containers isn't sharp, some containers discussed and figured as food serving items or miscellaneous domestic may have also or instead had a storage function.

The recovered canning lid liner is of white glass and is embossed "BOYD'S GENUINE PORCELAIN LINED CAP." According to Bill Lindsey's bottle identification webpages for Bureau of Land Management (now hosted by the Society for Historic Archaeology -- www.sha.org), Lewis Boyd first patented the liner in 1869, and it was produced by various glass manufacturers at least into the 1920s. The Seldovia specimen was broken in two pieces.

Figure 37. A Drey brand canning jar was recovered from the main midden exposure.

Figure 38. Ten bottles were sufficiently diagnostic or unique to be classified as soda bottles.

Domestic: Beverage Containers

Three sorts of beverage containers were identified in the bottle assemblage: soda bottles, beer bottles, and liquor bottles. Ten specimens were classed as soda bottles (Figure 38). One uncolored bottle had embossed horizontal and vertical ribbing and the legend "PAT'D JULY-20-1920, ORANGE CRUSH, BOTTLE, 6 FL OZS." This style bottle was in use from the patent date of 1920 until 1955, according to the website www.angelfire.com/tn/traderz/crush. Two 6 oz. Coca-Cola bottles -- an uncolored one and a clear green one -- were found; the green one had "ANCHORAGE ALASKA" embossed on its base. A bright green bottle retained enough of a painted label identifying the contents as "MELO-PAYA, A PAPAYA SODA, the TROPICAL DRINK that is different. 7 FL. OZS." A limited internet search suggests that the Melo-Paya Bottling Company operated in Des Moines, Iowa, with products bottled there and in Orlando, Florida, and St. Joseph (Missouri?), between 1938 and 1948. An uncolored bottle embossed "Welch's" once contained juice from the Welch's Grape Juice Company, which has bottled under that name (as opposed to "Dr. Welch's" since 1893 according to the company website. Other glass containers identified as probably soda or water bottles consisted of two green specimens, an aqua specimen, two uncolored specimens, and a clear green specimen (Figure 38).

Figure 39. Seven liquor bottles were recovered from the English Road midden.

Seven larger long-neck bottles are classified as liquor bottles (Figure 39). One specimen is ten-sided; the others are round. Three are uncolored, two are amber, one is aqua, and one is clear green. They are taller than the beer bottles, ranging from 28 to 30 cm.

Beer bottles from the English Road midden consist of 21 specimens including two short clear amber examples that are not that old (Figure 40). The remainder are mostly shouldered amber long-necks, about 24 cm tall.

Domestic: Food Preparation or Serving

Artifacts associated with food preparation or serving consisted of some table items of glassware and cutlery (Figure 41), and a number of ceramic shards. The glass and metal table specimens consist of three beverage serving glass bases, two identically patterned small glass desert bowls, a glass carafe and the glass lid to

Figure 40. One green bottle and 20 amber bottles from the English Road midden are classified as beer bottles.

Figure 41. Domestic food preparation or serving items included glass beverage and food serving containers, metal tins, a silver-plated dinner knife and cuprous spoon. The scissor fragment belongs to the Personal grooming category, and the round cuprous bell belongs to Personal miscellaneous.

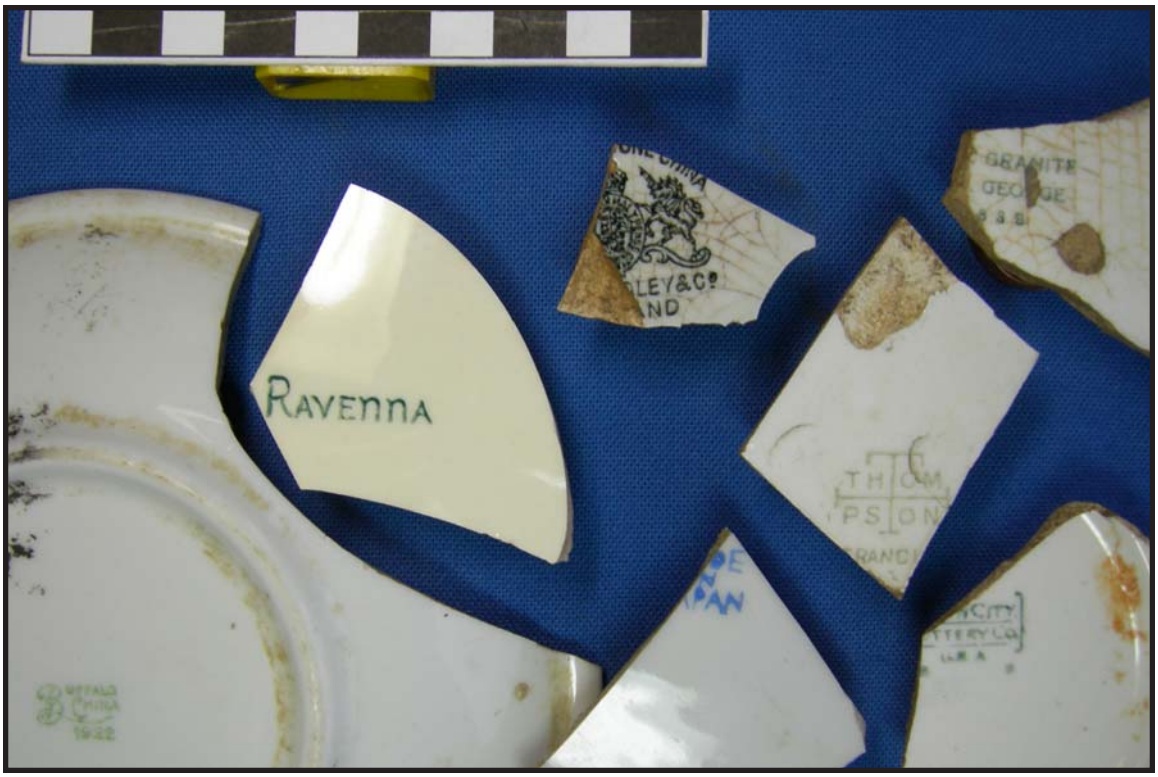


Figure 42. Seven ceramic shards displayed maker's marks. Clockwise from lower left are marks of the following companies: Buffalo Pottery, Homer Laughlin China, unidentified, C.C. Thompson Pottery, W.S. George Pottery, possibly Garden City Pottery, and an unidentified Japanese company

a largemouth jar, a silver-plated dinner knife, a cuprous spoon, a metal lid to a cannister, and a cylindrical cannister made of soldered copper.

Most ceramic items observed by me or construction workers during the excavations were recovered, making a total of 204 specimens in the collection, not counting pieces of ceramic dolls (Appendix B). Almost all ceramic items were small fragments of kitchen cooking, serving, and table wares (Figures 42-45). The assemblage was sorted according to three paste categories: coarse earthenware, white, and porcelain. The white paste category combines specimens that with further scrutiny could be subdivided into types like stoneware, graniteware, and china, so it is not surprising that it holds the largest number of specimens - 150. Coarse earthenware specimens numbered 20, and porcelain specimens numbered 34.

Maker's marks were present on seven ceramic specimens (Figure 42), all of which were white paste. One mark of the C.C. Thompson Pottery Co. of East Liverpool, Ohio, is dated to about 1916-1938 (Kovel 1986:214); the "FRANCE" on the mark likely indicates the pattern name. The mark of the Buffalo Pottery Company of Buffalo, New York, conveniently includes the date of 1922 (Kovel (1986:164) suggests a date of about 1930 for the mark). The mark "RAVENNA" refers to a design (not the pattern) manufactured by Homer Laughlin China Company of East Liverpool, Ohio, beginning in 1930-33, according to the website www. missing-piece.com. The website www.twisteddisher. com says "Homer Laughlin dishes have not only been sold to the public, but also were used as supermarket promotions, free items inside products like oats and detergent, and also have a strong history as restaurant ware." The specimen marked "GRANITE" and "GEORGE" was manufactured by the W.S. George Pottery Company of East Palestine, Ohio (and Canonsburg and Kittanning, Pennsylvania), which was in business from 1904 to

Figure 43. Several transfer printed shards were recovered. The brown-on-white is the "Sitka" pattern produced in England; the blue-on-white in the lower left is also of English manufacture. At bottom right is a shard of flow blue.

1960, according to the website www.wsgeorge.jdfiles.org. The "83B" refers to the shape, and the aforementioned website has a useful index of shapes and patterns, but it is far from complete and the shape number is not listed. I found, photographed, and left in place another W.S. George specimen marked 55B in the intertidal zone of Seldovia Slough where the old sawmill (no AHRS site number) used to be, but that shape number isn't listed either. In regard to the "MADE IN JAPAN" mark, the Kovels (1986:229) say the earliest they've seen that country identified on an imported ware (as required by the 1891 McKinley Tariff Act) is 1921. One partial maker's mark says "_N CITY POTTERY Co./U.S.A." and is possibly the product of the Garden City Pottery Company of San Jose, California -- in business from 1902 to 1979 (Pasquali 1999). Finally, one shard with a partial British Royal Arms symbol showing an oval shield, crown, and unicorn was found with the letters "_LEY & Co./_ND" and "_ONE CHINA"; but the maker's mark doesn't appear in Kovel's (1986) inventory because -- as they say -- "the Royal Arms mark was so popular it was used by dozens of factories and it is impossible to give an all-inclusive listing here."

Several transfer-printed shards were noted in the collection (Appendix B), including blue-on-white, but none were of the "blue willow" patterns often found in archaeological sites (Gaston 1994). The transfer print patterns were in green, blue, and brown (Figure 43). One small shard was identified by Daniel Thompson as flow blue, a blurry transfer print "introduced about 1835 and...popular in various forms throughout the nineteenth century (Majewski and O'Brien 1987:145). Another shard was identified by Thompson as the "SITKA" pattern (1885-?) manufactured by T. Hughes Pottery of Burslem, Staffordshire, England; the pattern was also recognized on shards from the historic Dena'ina village of Kijik (VanStone and Townsend 1970).

Figure 44. The porcelain sample included two of Japanese manufacture (upper left, lower right), one of Japanese or Chinese manufacture (upper right), and 11 of Chinese manufacture (all others shown).

Figure 45. The total sample of handpainted and decaled shards consisted of these samples, except for the 1922 Buffalo Pottery Company saucer (not shown), which has a single gray encircling line.

Notable is the relatively high frequency of Japanese and Chinese shards in the porcelain collection: 14 of 34 specimens (Figure 44). Chinese vessels are represented by five handpainted gray-on-gray shards (probably from tea or rice bowls), five blue-on-white shards, and a red and green polychrome shard. Specimens identified by Thompson as Japanese consisted of a red overprint cup fragment with a pattern of a woman in a kimono and traditional architecture, and a red/green/gold overprint fragment. One shard was of Oriental origin but couldn't be attributed specifically to Chinese or Japanese manufacture.

Handpainted vessels and those with decaled designs -- including some identified by archaeologist Daniel Thompson as "Decalcomania" -- were also present (Figure 45). Almost all had a floral theme.

The coarse earthenware shards are from thick vessels with brown, green, white, or cream glazes (Appendix B), attributable to crocks of various sizes. One had faint embossing that appeared to say "_ROTTINY CO_." Another specimen was a jar top, with a vent hole and made to friction-fit a vessel with a 6.5 cm mouth.

Vessel types represented in the ceramic collection include bowls, plates, saucers, and cups, as well as larger serving bowls and coarse earthenware crocks. One tea cup handle and three mug handle fragments were recovered, along with a piece of a porcelain tea cup so small it could be a child's toy. A unique ceramic item is a white-glazed white -paste knurled knob with the number "570" embossed inside it.

Domestic: Food Remains

Food remains found in the midden exposures consisted of marine shells and animal bones. The marine shells were all single halves or smaller fragments of bivalves, primarily *Saxidomus* sp., with a few cockles (Figure 46). The specimens were dispersed rather than concentrated in the midden, and they weren't quantified or collected beyond taking a temporary sample for photography.

Animal bones were also dispersed in the midden, though a small concentration appeared in the sidewall of Midden Exposure 1. Many were contaminated with fuel oil. The 134 bones collected fit into a box of about two cubic feet and were analyzed under contract by Kristin Scheidt, who tabulated them as Appendix C and described them in Appendix D. Birds and mammals -- including sea mammals -- were represented, but no fish bones were present in the sample (possibly because of the recovery circumstances). The bird species positively identified were Bald eagle (including one bone that showed cut marks), albatross, common loon, Gadwall, and common murre. It may be that none of these species were actually procured for food; Bald eagles, for example, were at one time hunted for the bounty the territorial government paid for their claws.

Most of the sample (102 specimens) consisted of mammal bones, and of the 44 identifiable to family 21 were of moose (Appendix D). Only one domestic animal bone was confirmed -- a cow ilium, though bones of what are probably a dog were also found. Several of the unidentified bones were of ungulates that could represent sheep or goats, but whether of wild or domestic species was not determined. Also recovered were the bones from at least two porcupines. Other mammals represented in the collection are black bear and lynx, and probably sea lion and harbor seal (Table 1). Because of the butchering marks on 21 of the bones, it can be said that at least moose, black bear, and porcupine were eaten.

Domestic: Medicinal

Assigned to this category were bottles that once contained over the counter products for self-medication, as well as three items of a more clinical nature. The latter consist of a glass medicine vial with a rubber cap to accommo-

Figure 46. The midden deposit produced a few, mostly fragmentary, cockles (lower left) and Saxidomus (remainder). These specimens were collected, photographed, and discarded.

date a syringe needle, the broken handle to a stainless steel scissors or forceps-like tool, and a glass bottle with a milliliter scale running in both directions -- up and down -- so it could be turned upside down and used for an intravenous feed (Figure 47). The bottle still has its metal cap, which reads "DEX 5% IN SALT," and the bottle base (made by Duroglas) is embossed

Genus/Species	MNI	Bone Count
cow	1	1
moose	2	21
black bear	1	2
lynx	1	1
porcupine	2	16
canid (probably dog)	2	1
Phocidae phoca (probably harbor seal)	1	1
Otariidae (probably sea lion)	1	1
albatross	1	2
bald eagle	1	4
common loon	1	2
common murre	1	1
Gadwall	1	2

Table 1. Identifiable bones represented 13 different animal species.

"ABBOTT LABORATORIES." These items may have been discarded from SEL-335, the old Seldovia hospital, when it was in operation during the 1940s and 1950s.

Also classed as medicine-related items are 27 bottles -- many in a small flask shape -- that likely once held medicinal products (Figure 48). Embossing reveals the contents of several specimens (Appendix E). One lovely large aqua bottle is embossed with a man carrying a huge fish over his shoulder, and the words "SCOTT'S EMULSION, COD LIVER OIL WITH LIME &SODA." A crimped metal cap still sealed the bottle, and it was about one-fifth full of product when found (I peeled the top back and emptied the contents for permanent storage). An uncolored squat screw-top cylinder bottle was embossed with "TRADE MARK VASELINE CHESEBROUGH NEW YORK." An aqua rectangular bottle was embossed on the narrow sides "Chas.HFletcher's" and "CASTORIA." An uncolored rectangular bottle with beveled

Figure 47. Possibly discards from the old Seldovia hospital (SEL-335) are these artifacts: a vial, bottle, and stainless steel shears or tool fragment.

Figure 48. A number of medicine bottles were found in the midden, including the large aqua cod liver oil bottle on the left embossed with a man holding a huge cod over his shoulder.

Figure 49. Domestic furnishings included two base fragments of uncolored oil lamp globes, a wick assembly and another wick holder, and a uncolored glass fragment for an overhead globe.

corners was embossed "MURINE EYE REMEDY Co. CHICAGO, U.S.A." An amber rectangular bottle with beveled corners was embossed "H. CLAY GLOVER CO." on one narrow side, "NEW YORK" on the other, and on a wide side was embossed "GLOVER'S IMPERIAL MANGE MEDICINE, 6 FL OZ." A clear green rectangular bottle has embossed on one wide side "OPTIMUS, STEWART & HOLMES DRUG CO, SEATTLE, WASH," indicating a remedy advertised for dyspepsia by a Seattle firm in business at least between 1899 and the late 1910s, according to internet references.

A number of uncolored same-size same-shape medicine bottles were recovered, embossed on the neck with either the oz. symbol and "iv" to indicate in Roman numerals a four ounce bottle, or simply with the number 4. A smaller size has the oz symbol and "ii" to indicate a two ounce capacity. Seven of these specimens have embossed on their base a P/C in a duo-segmented parallelogram, indicating manufacture by the Pacific Coast Glass Works and then Pacific Coast Glass Company, which used that symbol from 1919 to about 1930 (Whitten 2008). A number of other bottles are tentatively assigned to the Domestic - Drug category based on limited information or criteria -- primarily because they're small (Figure 48). Figure 48 also includes a LYSOL bottle (dark, lower left of center) and next to it what could be a fingernail polish bottle (uncolored, lower right of center). Embossing is illustrated in the manner of Wilson (1981:113-128) in Appendix E for whole bottles, and in Appendix F for bottle bases.

Domestic: Furnishings

Domestic furnishings represent part of the metal collection in the form of stove parts and a coathook. Glass and metal artifacts from early oil lamps was also recovered. The wick

Figure 50. Metal artifacts collected from the midden include cast iron stove parts, part of a sewing machine frame, a cast iron kettle and enamelware containers.

assembly from an oil lamp was found, and a wick holder was found elsewhere in the midden (Figure 49). Two almost identical base fragments of uncolored oil lamp globes were found, along with a fragment of an uncolored thin glass globe that is likely for a stationary overhead gas light.

Stove parts found in the midden exposures consisted of relatively small cast iron chunks about 10" x 10" size (Figure 50). Judging from the decorative embossing at least two stoves are represented in the collection (Appendix G). None of the pieces fit another. Also assigned to the domestic furnishing category is a simple twisted wire coathanger.

Domestic: Miscellaneous

Stone artifacts -- coal and fire-cracked rock -- are discussed here as miscellaneous domestic items, as are bottles of indeterminate function. The coal consists of two small pieces (Figure 51). Archival and oral history accounts both repeatedly mention Seldovia's reliance for domestic heating on coal acquired locally north of Kachemak Bay, as well as wood. Surprisingly little coal was found, but a lot of coal ash was uncovered -- that's what formed much of the midden matrix. The few coal specimens compared to the amount of coal ash would suggest that coal was handled frugally, and not typically lost or wasted.

Thirteen reddened fire-cracked rocks were found in the midden deposit (Figure 51, Table 2). Each has coarse uneven surfaces indicative of thermal fracture, and most also have some cortex. The fire-cracked rock is typical of prehistoric Kenai Peninsula sites, resulting from either the Dena'ina pattern of hot-rock

Figure 51. Stone artifacts recovered from the midden include two pieces of coal and 13 fire-cracked rocks.

cooking or the Eskimo tradition of banya, or steam bath. The historic Seldovia Native community had a banya tradition that lasted until about World War II, according to Fred Elvsaas. I would suggest the fire-cracked rocks found in the midden exposures along English Road reflect use of banyas by the local Native community.

Also assigned to the miscellaneous domestic category are bottles not easily fit into other bottle categories (Figure 52). Some are likely soda, beer, or liquor containers that might be identifiable to function by specialists more familiar with bottles than I. One small rectangular aqua bottle is embossed on its narrow sides with "THREE IN ONE" AND 3-IN-ONE OIL CO," a product invented in 1894 and still produced today; the Seldovia specimen was made for a cork stopper and thus predates the 1910 shift to screw-top caps (as determined from the

Bag	Location	Description	Class
23	Midden Exposure 3	small lump of coal, 3x2x1 cm	Domestic-heating
103	S between English/Winifred	small lump of coal, 4x2x0.5 cm	Domestic-heating
18	Midden Exposure 3	six small fire-cracked rocks: average 3x3x2; two larger fire-cracked rocks: 6x6x5 cm and 6x6x3 cm	Domestic-heating
26	Midden Exposure 2	three fire-cracked rocks: 6x4x3 cm, 5x5x2 cm, 5x5x1 cm	Domestic-heating
38	English see map	two cojoining fire-cracked rocks, 8x7x7 cm	Domestic-heating

Table 2. Stone artifacts collected during archaeological monitoring, consisting of coal and fire-cracked rocks.

Figure 52. Assigned to the miscellaneous domestic category were these bottles that weren't assuredly identifiable to other categories, though some are likely soda, beer, liquor, and condiment containers.

website www.3inone.com).

An iron for ironing clothes (Figure 53) was collected from the main midden area. It has no handle, but the top plate remains and is embossed "A.D. WILLIAMS/CHAGRIN FALLS O."

Also assigned to the miscellaneous domestic category are three chains. One is a 42" length of ferrous log chain of simple "O" links. The other is a 60" length of smaller ferrous chain of bent "8" links of a design (Figure 54) that Sears Roebuck and Company sold as "Safety Chain to be used on plugs, stoppers, closet pulls, etc." (Schroeder 1970:921). The two chains and a third short chunk of the Safety Chain type (Figure 36) were found in the backdirt of excavations at the east end of English Street.

Figure 53. A clothing iron manufactured in Ohio was recovered from the midden.

Figure 54. Three lengths of chain (the two pictured and another like the one at top) were recovered from the excavation backdirt

Figure 55. Most of the fabric noted in the midden under English Road was soaked in fuel oil and consequently discarded; saved were these three items.

Personal: Fabrics and Fasteners

Most of the few fabric items found in the exposed midden were rags soaked in fuel oil -- toxic and not subjected to collection or analysis. Three exceptions were made (Figure 55). Collected were: a length of soft coarse-woven fabric like saddle-blanket material, twice folded into a 21 cm x 14 cm rectangle; an object like an oval "boot" or cup of multiple sewn canvas layers, measuring 4 cm x 8 cm around and at least 11 cm long to a torn edge; and two sewn rags that weren't oil-soaked. The preacher/cobbler who had a shoe repair shop in the hospital during the 1960s also worked on saddles, according to Jerry Willard, and perhaps the coarse fabric derives from his discards. The sewn canvas item is probably a commercially made recoil pad to fit the butt of a rifle or shotgun.

Figure 56. Two identical porcelain buttons were found in the midden.

Recovered from the main midden area were two identical white four-hole porcelain Prosser buttons (Figure 56), patented in 1849 and eventually manufactured in England, France, and the United States primarily for underwear, work shirts, and plain garments (Sutton and Arkush 2001:211). Also collected was one cuprous metal fastener of the sort that might be used for bib overalls was found, on which was stamped "STA' ON" (see Figure 62).

Figure 57. Many pieces of shoe leather were recovered from the midden exposures on English Road.

Personal: Footwear

Many pieces of shoe leather were retrieved during the construction along English Road. Large fragments of perhaps eight or ten rubber boots were also uncovered, but they weren't collected, as the porous material had soaked up diesel oil from the contaminated ground and was toxic to handle. The leather specimens weren't oiled as badly.

The volume of leather artifacts wasn't anticipated. The specimens were washed in water and dried, resulting in brittle leather and considerable delamination of the heels and soles. Counts of relatively whole soles were used as a rough quantification by recovery unit (Appendix H), and a sense of the volume of material is provided in Figure 57. The footwear assemblage holds more information than that realized in the following generalizations.

Most of the shoes were leather only -- without incorporating rubber into the soles, for example, though there were a few exceptions and those specimens were tabulated along with the rest (Appendix H). Most of the shoes were broad and long and probably worn by men (Figure 58), though female footwear was suggested by a couple small heels, one small pointed-toe sole, and a latticed toe as if from a fancy sandal. One small heel was notable for having a thick copper plate affixed to it. Several soles were small enough to indicate a child's size.

On many specimens decorative perforations were common across the toe where it was sewn to the lacing assembly. Few lacing assemblies retained their eyelets, so it was not possible in most cases to determine whether they had eyelets or hooks, but some specimens definitely had hooks. Only one specimen had a long series of lacing holes -- 19 in this case -- of the sort found in ladies' boots of the late 1800s and early 1900s (Schroeder 1970:488-490). Several specimens had inner soles with a hole worn through at the toe. One heel had a

Figure 58. When reconstructed from the pieces found in the midden exposure, this boot style is little different from work boots worn today.

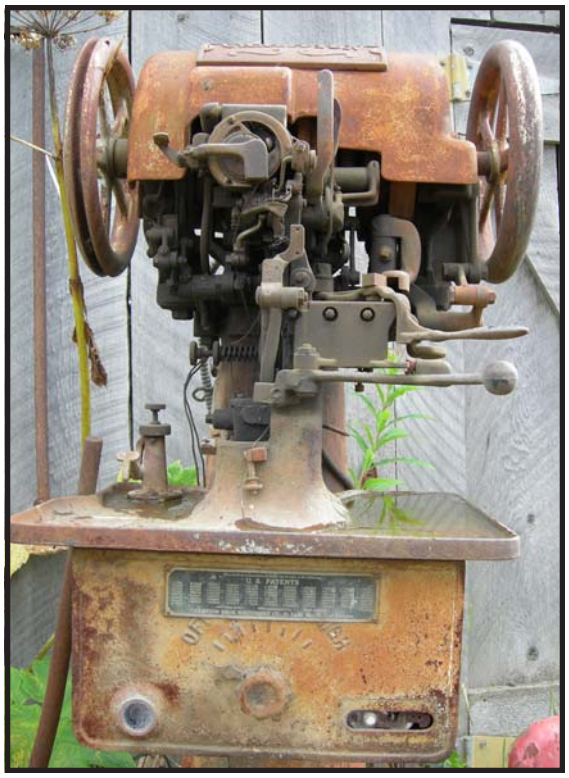


Figure 59. A shoe repair machine in Jerry Willard's yard collection, at the old hospital (SEL-335), is not associated with the shoe collection.

manufacturer's name -- the "Spring Step" brand. Altogether the collection represents at least two dozen shoes.

Though leather can preserve well in historic archaeological contexts, particularly an oil-saturated environment like this one, the collection seemed inordinately large for the volume of midden removed -- more than what might be expected in domestic refuse. Proximity to a shoe repair shop was suspected, encouraged by the presence of two worked leather scraps that were not from shoes, and by the presence in the immediately adjacent yard of SEL-335 -- the old hospital building owned by Jerry Willard -- of a shoe repair machine (Figure 59). Mr. Willard subsequently told me that there was indeed a shoe repair concern in the hospital at one time, though the machine was not from that particular shop (see side-bar). The exact years that the cobbler operated his shop there, and thus the date range of the shoes, was not determined, but it had to have been between when the hospital ceased functioning in that building

There was an Assembly of God preacher -- Crinklow was his name -- and he rented the hospital building before I got here in 1972. Downstairs in the back corner he put in a door with a jitterbug jackhammer -- he cut the concrete right down to the floor. But it's below ground level (I guess he thought God wasn't going to let it rain on that side of the building!). Then he brought in a professional shoe sole machine, sewing machine, buffing stuff, and ran it on a long shaft with pulleys. He did shoe repair and saddle repair. He had a small congregation of cannery workers and they couldn't necessarily afford to tithe, so he had the additional income. But pretty soon he packed up the machinery and left. The Assembly of God took the building back, then I bought it from them in 1978, I think. I had the concrete basement wall repaired where the door was. The preacher moved to Nikiski for awhile. The shoe sewing machine in my yard was owned by Chris Wheeler, and didn't have anything to do with the business in the hospital. I bought it from Chris. With a little WD-40 I got it running. Jerry Willard

(around 1960?) and 1978 -- when Mr. Willard purchased the building.

Personal: Grooming and Hygiene

Artifacts assigned to the grooming and hygiene category include white glass from cosmetic containers, two mirror fragments, two hair barrettes, and a lipstick applicator.

The lipstick applicator is of a cuprous metal, cylindrical, with an expanded base (Figure 60). At first it was mistaken for a firearm cartridge, but the bright red pigment inside and a small raised boss on the barrel of the item indicates it's true function.

The white glass collection is primarily from small jars, although one piece of white glass tile was recovered from disturbed contexts at the far west end of English Road, and several pieces of what may be a white glass light fixture were recovered from the main midden area. White glass is often called "milk glass" and is usually attributed to jars containing "cold cream" -- a skin softener. Because the jars are small and thick they are not so fragile, and seven specimens recovered at Seldovia are relatively complete (Figure 61). The jars are about six cm high and variously cylindrical, rectangular, square, barrel-shaped, and hexagonal with a round base. One square specimen with an indented panel on each side has embossed on one panel an elaborate curvilinear symbol inside a double circle and the words "CREME Luxor" below it -- a product of Armour and Company of Chicago. A contemporary product review by Wiley and Pierce (1914:177-178) described the product as "the usual type of 'vanishing' cream containing glycerin and soap...a good product still handicapped with extravagant claims such as 'rejuvenates," "healing," though former labels implying skin nourishment have been withdrawn." The barrel-shaped specimen is embossed with the words "Luxor COLD CREAM" -- another Armour and Company product, described by Wiley and Pierce (1914:178) as "a white petrolatum and wax product, of good quality, perfumed..." The complete cylindrical specimen has embossed on its base a "H" straddling an "A".

The two hair barrettes are both plastic

Figure 60. A lipstick (red) cartridge from the midden was initially mistaken for a firearm cartridge.

Figure 61. "Milk glass," or white glass, consisted of cold creme jars (top), and what may be parts of two ribbed light fixture globes (bottom).

commercially made items (Figure 62). The mirror fragments are from a thick silvered glass; several other fragments were also noted but only these two were collected (Figure 62).

Personal: Miscellaneous

Included in the miscellaneous personal category is the copper cross found in Midden Exposure 1, two fragments of a clay pipe, a Canadian penny, and eight glass beads. The brass side and back to a pocket watch is illustrated (Figure 62), but it was actually recovered by a construction worker from the water trench at about Station 5+00 on Alder Street, and is thus not from the midden as spatially defined here and may even be from fill. The small cross is cut from thin copper sheet less than 1 mm thick; a small strip of the same material was found in the Bag 35 area along with the two-pronged hair barrette. The copper cross is of note in that -- though the find spot under English Road is in the vicinity of the Russian Orthodox church -- it is not a Russian Orthodox cross.

Eight faceted opaque red glass beads were recovered from the main midden exposure: one from the Bag 35 area and seven from the Bag 39 area (Figure 31). All were tarred with coagulated fuel oil (Figure 62). Each had a 0.7 mm diameter hole and a distance of 4.2 mm from hole to hole. When viewed through the hole the beads had a pentagonal form, for a total of 22 facets counting the opposing two with holes. A quick perusal of some bead references (Bundy 1998; Ross 1990; Kidd and Kidd 1970) didn't turn up comparable specimens.

The Canadian copper penny has the familiar maple leaf emblem and a date of 1968.

The two clay pipe pieces consist of a stem fragment and a bowl fragment; though they don't co-join, they are likely from the same pipe (Figure 62). The pipe's heel, commonly the place where pipe makers imprinted their mark in the clay, is missing from either fragment. In-

Figure 62. Personal grooming and hygiene articles from the midden included two mirror fragments, two hair barettes, and eight red glass beads; also found in the midden were two clay pipe fragments, a copper cross, a suspender clip, a 1968 Canadian penny, and (from Alder Street) a pocket watch.

stead there are four impressions on the bowl and stem. On one side of the stem fragment, transected by the break, is the impression "_AND" in thick block letters, while on the opposite side is the truncated "W.W H_" (perhaps the second W is actually N) in an even blockier font. That opposite side also has been separately stamped "C 78." The bowl has a fancy "D" impressed on it (Figure 62). The D more or less matches the D of what are known as "T.D." pipes, made by McDougall of Glasgow, Scotland, according to Dixon (2005:114), so the "_AND" may be the end of the word "Scotland."

Activities: Hunting

That Seldovians hunted -- despite access to commercially processed foods -- is indicated by oral history and the archival record. The archaeological record also contains evidence in the form of faunal remains already discussed, as well as firearm cartridges, a bullet mold, and -- included here in lieu of a different artifact category -- a pair of binoculars.

At first the binoculars were thought perhaps to be the remains of a stereo-optican -- a late Victorian parlor luxury consisting of two lenses in a holder in which a stereo postcard could be inserted for stereo viewing. However, Robert King, an Alaskan archaeologist for the Bureau of Land Management and author of the recent book "Postcards from Alaska: Souvenir Pictures of the Last Frontier, 1890s-1940s," inspected a picture of the artifact and was able to say that the specimen is definitely not a stereo postcard viewer. Given its heavy duty brass frame and gear assembly, it is probably a pair of binoculars (Figure 63). The two clear glass round disks were actually found about six feet away from the metal parts, but I think they are from the same article.

Six cupreous firearm cartridges were recovered during the monitoring effort, all of which

Figure 63. Parts of what are thought to be binoculars were found in the main midden area.

were from midden under or along English Road. One live .22 long rifle cartridge was collected and placed in a collection bag, but it must have been inadvertently discarded during laboratory processing. Three cartridges were recovered from the main midden area, and three came from Midden Exposure 1. Maker's marks and calibers are not legible on some specimens. Midden Exposure 1 produced the case from a .32 centerfire marked "32 SPL" and a rimfire showing two opposed firing pin marks without case markings but having an outside diameter of 1.08 cm -- equal to a .44 caliber. In a historic site on the Kenai Peninsula McMahan and Reger (1997:25-26) found two such cartridges, matching in length (2.34 cm), material (copper rather than brass), and in one case a bulge resulting from expansion of the metal against the gun's receiver during firing, leading them to suggest that they could have been fired from a Winchester Model 66 between 1866 and 1880. Midden Exposure 1 also contained a Winchester Repeating Arms Company 30-30 marked "WRA CC 30 WCF." Another identical Winchester 30-30 case was found in the main midden, along with a Remington ("REM-UMC") case of un-

Figure 64. Cartridges recovered were from left to right: double-rimfire, .32 Special, two Winchester 30-30, unidentified, and a .50 caliber specimen.

Figure 65. A rusty bullet mold for a 9 mm bullet was found , along with a small round metal friction-fit tin of the sort often used for centerfire primers and percussion caps.

determined caliber and a large case of approximately .50 caliber (Figure 64).

A small cylindrical ferrous metal box measuring 4.0 cm in diameter and 1.4 cm deep, was found in an artifact concentration in the Bag 37 stretch of English Road (Figure 31). The container was empty and rusted through on one side, and too fragile to consider twisting open the two friction-fit halves. I suspect it was manufactured and sold as a container holding centerfire primers or percussion caps for a muzzle-loading firearm. Despite the availability of breach-loading firearms, muzzle-loading firearms and equipment were sold by Sears, Roebuck and Company and Montgomery Ward and Company at least to the very end of the 1800s (Schroeder 1970:399-400; Schroeder 1977:443).

The bullet mold is a hand-held contraption like a pliers with the bullet cavity formed where the bite of the pliers would be (Figure 67). The artifact is of ferrous material except for the two handles -- which had wood grips and pommels of a nonferrous metal. The artifact is rusted into an open position, and the bullet mold cavity is also rusted. The sprue-cutter that would have sliced off the the unwanted lead casting protruding from the pour hole is gone, but the hole with which it was attached is evident. It would appear that the mold would have produced a round-nosed 9 mm projectile, 2.6 cm long, with five bands cast around its base.

Figure 66. A ferrous metal object with a double barbed side profile may be part of a harpoon used in sea mammal hunting, or it could be part of a sliding latch system, or possibly a spanner wrench.

Figure 67. A 1960 Alaska license plate was found in the sod at the edge of Alder Street.

The last item to be classed as hunting-related is a ferrous metal object with a double barbed profile, like a harpoon (Figure 66). If it is a harpoon, it's base must be broken, since there is no line hole or other necessary means of attachment. It's possible to imagine the object as the catch mechanism to a sliding latch system, but again it must be a fragment because there is no hole or other means of attachment. Thirdly, it could be the end of a spanner wrench.

Activities: Transportation

A 1960 Alaska license plate (Figure 67) was recovered from the near-surface along Alder Road, outside of the historic midden area.

Activities: Music

Active and passive music experiences were documented in the artifacts from the midden. A badly deteriorating harmonica found in the midden consisted of the two brass reed elements and part of the wood between, but the ferrous metal parts were gone (Figure 68). One brass reed element was in two pieces, and most of the individual reeds on both elements were corroded away. There are 24 reed elements and the specimen's length is 2.8 cm x 15.3 cm -- indicating a long harmonica that would have had a two-octave range.

Figure 68. The midden beneath English Road also produced this harmonica.

The second music-related artifact is a collection of 55 friable vinyl fragments from a 33 1/3 record (judging from the rim curvature). The largest piece was 4cm x 6cm (Figure 69).

Figure 69. One small area of the main midden produced 55 pieces of a 33 1/3 vinyl record.

It would be nice if the label was discernible and the music of some ensemble like The Ballinger Boogie Bean Band could be identified, but that was not the case.

Activities: Tools

The wrench lost in the fill of a water service off Main Street has already been mentioned and illustrated (Figure 29), as have scissors fragments (Figure 41). A large 1" diameter cold chisel was also found in the midden (Figure 50).

Activities: Children's

Some children's toys found off the roadside along Alder Street have been mentioned and illustrated in the previous chapter (Figure 25). Another found not in the main midden but

Figure 70. Several toys were found in the midden excavation and in surface and near surface contexts at the corner of English Road and Alder Street.

in the excavations at the intersection of English Road and Alder Street was a multicolored opaque glass marble 1.7 cm in diameter; it is accompanied in the illustration (Figure 70) by a metal toy trailer found on the surface nearby.

The English Road midden excavations also produced children's toys. These included a small (7.4 cm x 1.6 cm) ceramic doll with a hole through the body where movable arms would have been inserted (Figure 70). The doll is female and has a bow centered on her head. On the back in block letters is stamped "JAPAN." A flesh-painted porcelain shard that looks like an egg fragment is probably part of a doll's head, while another porcelain shard represents the torso of a human figurine (Figure 71). A corroding ferrous toy race car, painted white and with a wire front axle featuring rubber tires, was recovered minus its back axle (Figure 15). A rubber tire to a slightly smaller toy vehicle was also found in the midden (Figure 70). A small (7.4 cm long) but complete toy ambulance of pot metal (Figure 70) was recovered, embossed on the bottom "AMBULANCE," "ECH 1/64," "No 269," and a word or name in unfamiliar characters probably relating to the manufacturer.

Miscellaneous

Two kinds of miscellaneous items recovered or noted and left for backfilling were

Figure 71. Fragments of a porcelain human figure and a doll's head came from the midden.

Figure 72. Several corroded batteries like these D cells were noted in the excavation backdirt, photographed, and discarded.

Figure 73. Pieces of scrap metal recovered from the excavations include a large chunk of lead sheet, a triangular scrap of sheet copper, and a thin strip of copper.

batteries and metal scrap. The remains of batteries included several rotting D cells were recovered from the main midden (Figure 72), and the carbon cores (15 cm x 2.2 cm) from two larger batteries were found in archaeological testing at the northwest corner of Seldovia and Alder Streets.

Three pieces of scrap metal came to light (Figure 73), besides the metal pipes that were scavenged by the construction crew, and all three were saved. A large chunk of folded lead sheet was recovered from the utility excavation to SEL-335 -- the old hospital. A triangular piece of sheet copper, perhaps a scrap of roof flashing, was recovered from the midden. And a small strip of copper of the same gauge as the copper cross (Figure 62) was also found in the midden.

Interpretation and Recommendations

The archaeological monitoring effort was successful in retrieving archaeological information that would otherwise have been destroyed, while enabling the construction effort to proceed. One work slowdown of little more than a day took place during which the mechanical excavator continued removing the deposits overlying (roadbed) and underlying (peat and mineral soils) the historic midden under English Road, while workers shoveled the 18" midden strata by hand. Given the volume and diversity of artifacts recovered, and the fact that no comparably intact midden deposit was noted elsewhere on English Road or Alder Street, the call was justified and CRW's management is to be commended for recognizing the significance of the recovery effort. As a consequence, a considerable number of artifacts was recovered. This chapter puts the information into better context and attempts to derive meaning from the archaeological data.

Limitations of the Data

Because the selection of excavation area was purely an engineering decision based on utility alignments, caution is warranted in extrapolating the data to historic Seldovia in general. Biases in the recovery methods must also be considered. At the beginning of the project, before the greater midden deposit had been revealed, every bit of glass and rust was of interest and collected (Figure 29). Later we were more selective in what was examined and kept for the permanent collection. Nails, window glass shards, and bottle glass shards weren't saved, for example. For these reasons one-to-one quantitative comparisons of the artifact collection with those from other sites could be misleading.

Distribution of Archaeological Deposits

The excavations for the four services on the south side of Main Street confirmed what I had been already told by local utility workers, which is that the utilities are buried in deep fill brought in from Cap's Hill and elsewhere to re-sculpt Seldovia's downtown shoreline, after the 1964 earthquake. No interesting archaeological deposits were noted in that fill, although cultural materials were mixed into it here and there.

The water line trench in the west end of English Road was dug mostly within previously disturbed utility trenches, and midden was exposed at three places in the sidewalls marked Exposure 1, Exposure 2, and Exposure 3 (Figure 31). There the midden was thin, discontinuous, and lacking in many artifacts except for Exposure 1 and the adjoining service trench for the old hospital (SEL-335) -- upslope from the other two exposures. It appears from aerial photographs and local sources that the far west end of English Road was once a space of residential buildings, sheds, and yards, at a time when instead the beginning of the road began on Main Street about 50' further north, where there is now a break in the curb for a driveway that accesses the new tank farm. After a short 80' length uphill that old English Road alignment then jogged south to intersect the present English Road alignment at a right angle.

Immediately upslope (east) the excavator ran into a bedrock promontory that had to be jackhammered, and the overlying soils were disturbed, so that no midden was exposed by the trench until about Station 3+00. From there to Station 3+76, or 76', the organic artifact-bearing layer was as much as 18" thick. Though no archaeological test pits were dug to confirm

it, the northern margin of the subsurface deposit between Stations 3+00 and 3+76 probably lies at the toe of slope rising immediately from the north side of the ditch on the north side of English Road. I'm reasoning that sheet midden formed by discarded debris from the Native homes would flow downhill, roughly north and west, stopping when it got to the rising terrain on the road's north side. Archaeological deposits on that slope, if present, would more likely derive from SEL-333 (the Gruber home on the hill) or the activities that deposited the historic bottles and other items found when the new fuel tank farm was installed north of English Road.

So the north margin of the Native village midden -- at least the boundary to any deposit likely retaining archaeological integrity -- may be at or very close to the archaeologically monitored trench in English Road. Alder Street is probably close to the east boundary of the historic midden, as indicated by the cover photograph showing no buildings there, the continued shortage of buildings in 2008, and the low density of subsurface artifacts and lack of a buried organic cultural layer revealed in the water line trench. To the south of the main midden exposure, towards the Russian Orthodox church in the Russian trailer park, the greater and probably oldest portion of the original Native village buildings once sat. This is indicated by locals' oral history comments and suggested by the area's surficial contours and features. Thus I would consider the range of artifacts found beneath English Road between Station 3+00 and 3+76 to be a sample indicative of the historic archaeological materials that might be found beneath the Russian trailer park.

Relative Artifact Frequencies

Because of the project's nature as a utility trench monitoring effort, the coarse and not always consistent artifact recovery protocols, and the discard of certain classes of items, the relative frequencies of various artifact types have less meaning. However, it is useful to summarize the artifact recovery; almost 600 artifacts were collected and classified in addition to the 134 bones (Table 3).

Age of Deposits

The main midden deposit found over the course of 76' beneath English Road must predate the deposition of the overlying shotrock roadfill. According to Seldovian Jack English (Students of Susan B. English 1980; see side-bar on page 26), English Road was built around the late 1930s. Therefore most of the midden contents should predate the early 1940s. The earliest deposition date for the midden was not ascertained, and no archaeological evidence was collected bearing on the 1880s founding date suggested for the Native village by archival sources. Because firearm cartridge manufacturers had shifted from copper to brass cases by about 1880 (McMahan and Reger 1997:26), the copper .44 caliber cartridge -- though it could have been saved and not discarded until much later -- may be the earliest manufactured item in the collection. Other artifacts with early and narrow manufacturing ranges include the cork-top 3-In-One Oil bottle (1905-1910), bottles manufactured by the Whitall Tatum Co. (1857-1901), sad iron manufactured by the A.C. Williams Co. (1865-1893), and a smoking pipe made by D. McDougall & Co. (1850-early 1900s). Manufacturing date ranges for the various marked and labeled artifacts for which such information could be determined suggest a very general range of late 1800s to 1930s for the majority of the collection (Table 4).

Transportation

The project revealed archaeological information pertinent to the understanding of Seldovia's transportation history primarily in regard to the construction technology of English

Artifact Class	Frequency Present	Frequency Collected
industrial items	>40	0
structural items	most not counted	6
Domestic: food storage		3
beverage containers		
soda bottles		10
beer bottles		21
liquor bottles		7
Domestic: food preparation & serving		
glass & metal tableware		12
ceramics		204
faunal remains		
shells	>100, most not counted	0
bones		134
medicinal		
bottles		27
glass		2
metal (shears?)		1
furnishings		
oil lamp parts		5
stove parts		11
miscellaneous		
fire-cracked rocks		13
coal		2
bottles		23
other		3
Alder road bottles	collected by crew in monitor's absence	27
Personal: fabrics and fasteners	>35, most not counted	5
footwear & other leather	rubber footwear (about 8) not counted	112
grooming & hygiene		
white glass		12
other		6
miscellaneous		12
Activities: hunting		
cartridge cases		6
other		4
transportation		2
music		2
tools		2
children's		8
Miscellaneous		7

Table 3. Because of the construction monitoring circumstances and inconsistencies in artifact collection, the relative frequencies of the various artifact types have less interpretative value.

Artifact	Manufacturer	Comments
Ceramics		
maker's mark	C.C. Thompson Pottery Co., East Liverpool, OH	manufactured about 1916-1938
maker's mark	Buffalo Pottery Co., Buffalo, NY	manufactured 1922
maker's mark	Homer Laughlin China Co., East Liverpool, OH	design manufactured 1930-33 until ?
maker's mark	W.S. George Pottery Co., East Palestine, OH	in business 1904-1960
maker's mark	Garden City Pottery Co. (?), San Jose, CA	in business 1902-1979
maker's mark	"Made in Japan"	1921-?
Sitka pattern	T. Hughes Pottery Co., England	pattern manufactured 1885-?
Prosser buttons		1849-today
Bottle Contents		
Orange Crush		1920-1955 (from www.angelfire.com)
Melo-Paya	Melo-Paya Bottling Co., three USA locations	1938-1948 (various websites)
Welch's	Welch's Grape Juice Company	1893-today (company website)
Scott's Emulsion	Alfred B. Scott & Samuel W. Browne, NY, NY	1890s-? (www.bottlebooks.com)
Vaseline - screw-top	Chesebrough, NY	1930s-?
Chas. HFletcher's - aqua	Centaur Co.,	1877-1995 (Griffinhagen et al. 1999:82)
Murine Eye Remedy	Murine Eye Remedy Co., Chicago, IL	1890s-? (www.bottlebooks.com)
Glover's Imperial Mange	H. Clay Glover Co., NY	
Optimus	Stewart & Holmes Drug Co., Seattle, WA	in business by 1900, at least until 1910s
Lysol	Lehn & Fink, Inc., New York, NY	1890-today (www.library.hbs.edu)
3-in-One Oil - cork top	3-In-One Oil Co.	1905-1910 (www.3inone.com)
Creme Luxor	Armour & Co., Chicago, IL	
Luxor Cold Cream	Armour & Co., Chicago, IL	1924-? (www.bottlebooks.com)
Bottle Manufacturing Marks (selected)		
Kerr Glass Mfg Co.,		manufactured 1904-today
NW	Northwestern Glass Co., Seattle, WA	1931-?
Duraglas - dia/oval/I	Owens Illinois Glass Co., Toledo, OH	1940-today
W.T. & Co.	Whitall Tatum Co., Millville, NJ	1857-1901
IPG Co.	Illinois Pacific Glass Co., San Francisco, CA	1902-1925
IPG - in triangle	Illinois Pacific Glass Co., Los Angeles, CA	1902-1930/32
AB - connected	American Bottle Co., various USA locations	1905-1929
circle in square	Owens Bottle Co., Toledo, OH	1903-1929
P.C.G.W.	Pacific Coast Glass Works, San Francisco, CA	1902-1925
PC in 2-seg. parallelogram	Pacific Coast Glass Works, San Francisco, CA	1919-1930
I - in diamond	Illinois Glas Co., Alton, IL	1915-1929
Firearm Cartridges		
.44 double rimfire		1866-1880
Metal		
iron	A.C. Williams Co., Chagrin Falls, OH	mfg. 1865-1893 (www.litemetals.com)
pump	W. & B. Douglas, Middletown, CN	in business 1839-1925+
vehicle headlight bracket	Ford Motor Co., Detroit	manufactured 1964
Alaska license plate	State of Alaska	manufactured1960
Footwear		
rubber heel	Spring Step	
Miscellaneous		
T.D. smoking pipe	D. McDougall & Co., Glasgow, Scotland	1850-early 1900s (Sudbury:2006:34-35
Drey canning jar	Schram Automatic Sealer Co.	1908-1925 (from www.fruitjar.org)
	Ball Bros.	1925-1938 "
Boyd's canning jar liner		1869-1920s (from www.sha.org)

Table 4. Ohio and California produced a large share of the traceable manufactured items in the Seldovia midden. Sources for ceramic comments are found in the text. Sources for bottle manufacturers' marks is the webpage myinsulators.com unless otherwise indicated. Cartridge date is from (McMahan and Reger 1997:25-26).

Road and Alder Street. Transportation-related artifacts -- a headlight bracket from a 1964 Ford Galaxy and a 1960 license plate, both from surface or near-surface contexts along Alder Street -- hold limited information other than to say that sheet midden there (if any) might be shallower and more recent.

Otherwise, the corduroy road uncovered at the corner of English Road and Alder Street, described as a feature under Monitoring Results, attests to the simple and expedient method taken

to provide vehicle footing across a muskeg. The 3 1/2' of shotrock fill dumped directly on the existing land surface to make English Road also indicates a practical approach to Seldovia's early road-building.

Utility Systems

The excavations revealed pipes relating to Seldovia's early fuel distribution system, water system, and sewer system. Of note is the cast metal pump and wood drain found at the intersection of English Road and Alder Street, which likely reflects a time when Seldovia got at least some of its water via draining the muskeg seeps further east, upslope, according to local elder Fred Elvsaas. A more sophisticated city water system was built about 1940, according to Elvsaas (see sidebar on page 27), so the archaeological feature must be earlier.

Buildings

No obvious remains of buildings were encountered as an intact archaeological feature, though bits of lumber and window glass were observed. Archival photographs suggest a haphazard pattern of cabins and sheds developed in the Native village over time, raising the question as to why no evidence of them was found beneath English Road. It's possible that the road follows the alignment of an earlier trail present at least by 1906 and discernible in photographs shot by Case and Draper at the same time as the report cover image was taken.

Health and Nutrition

In the realm of health and nutrition, the archaeological data bears on the subject of discard behavior and subsistence practices. Authors comment on Seldovia's early garbage disposal habits, which are characterized as one of simply dumping unwanted debris and sewage into the bay (Springer 1997:233; Madden 2007:23). Obviously that was not totally the case, or otherwise the artifact-bearing midden deposit that we encountered wouldn't have formed.

> *They threw their tin cans, liquor bottles, old shoes, and garbage on the beach and trusted a high tide to make all sanitary arrangements.* (Madden 2007:23)

Intertidal collection of shellfish is indicated by the butter clam and cockle shells, and the bone collection indicates exploitation of a number of bird and mammal species. Of note is the single cow bone compared to many of moose and even porcupine, attesting to how important subsistence practices were in providing Seldovian's with their meat.

The medicine bottles recovered from the excavation attest to early Seldovian's interest in self-care, even if some of the remedies had dubious medicinal value.

Availability of Commercial Goods

The number of soda, beer, and liquor bottles reflects the availability of commercially produced beverages, despite the anecdotes about how common it was to discard bottles into the bay. A broad range of ceramic, glass, and metal items manufactured in Europe, the United States, and even Japan and China were purchased and used by local Seldovians, reflecting the ease of freight delivery to local stores by regularly scheduled ships. The high proportion of Japanese and Chinese ceramics is puzzling, and may reflect secondary acquisition and use of items abandoned at the cannery on the other side of the mouth of Seldovia Slough, where Oriental cannery workers were once housed and employed.

Recommendations

Seldovia has a rich history beginning at least by the early 1880s, and as the village's

Some barabaras were there -- there were some by the slough....They lived here by the creek. People lived where the airport is now. My grandmother knew people that lived there.
Fred Elvsaas

Attempts could be made by the City of community groups (such as the Chamber of Commerce) to classify the boardwalk, Russian Church and other important landmarks as historic sites, so that they can be preserved for the benefit of future residents and visitors.
Pacific Rim Planners, Inc. 1980:7.14)

economy today shifts to one of more tourism and seasonal visitation, heritage matters will loom large as part of the place's attraction to others and to the general quality of residents' lives. One of the unfortunate aspects of the mid-1960s urban renewal project, when Seldovia's waterfront was mostly removed, is that it took away most of the town's historic district -- buildings and potential archaeological features both. An exception is the Native district around the Russian Orthodox church. Because Seldovia was historically a waterfront town rather than an upland town, it's likely that few historic archaeological deposits remain.

Consequently, those archaeological deposits that do remain take on even more importance in illuminating Seldovia's early history, highlighting the significance of the area that once held Native homes around the Russian Orthodox church, now including what's known as the Russian trailer court north of the church. The modest buildings there have been in place for decades, with little in the way of foundations to disrupt buried soils, so I as well as Seldovians like Steve and Randy Bond and Doug Pierren predict that significant archaeological deposits remain intact there. Archaeological considerations should be built into plans for development of that area in particular.

Another area of interest is the early cannery site across the mouth of Seldovia Slough, which escaped demolition during the urban renewal project and is said to retain archaeological manifestations of tidewater and upland buildings. I was told that a Chinese bunkhouse once stood at the site (no AHRS number) and that artifacts from those Chinese cannery workers can be found there. Because this site affords the last opportunity to archaeologically investigate Seldovia's cannery history, any plans for development of that area would benefit from archaeological consideration.

The Section 106 process under the 1966 National Historic Preservation Act may aid in that regard to a greater extent than it has in decades past. When planning was being done in the early 1970s for Seldovia's airport expansion, for example, the agency wrote a March 1, 1973 letter to the Alaska Division of Parks regarding cultural resources and received a note back from acting SHPO Karen Workman stating that "our records do not indicate any historic or archaeological sites directly on the airport project sketches," concluding that "we would appreciate hearing from you if you discover anything during construction" (Federal Aviation Administration 1973). Evidently that notification never took place, as I was told by locals, including elder Fred Elvsaas, of barabaras destroyed by the project construction. Similar stories surfaced in regard to the recent construction immediately adjacent to English Road of Seldovia's new fuel tank farm , a federal project subject to the provisions of Section 106 during which workers reportedly uncovered large numbers of bottles and other historic archaeological material. As the results of the 2008 sewer and water monitoring project illustrate, considerable archaeological information can be gleaned from such projects, demonstrating how attention to the archaeological manifestations of Seldovia's heritage can benefit Seldovians, Alaskans, and tourists for many years to come.

Bibliography

Alaska Department of Fish and Game

1978 **Alaska's Fisheries Atlas Volume I**. Alaska Department of Fish and Game, Juneau.

Betts, Floyd G.

1934 Field Notes of USS No. 2160, of the Indian Possessions within the Townsite of Seldovia. Document on file, Bureau of Land Management, Anchorage.

Boraas, A., and J. R. Klein

1992 Archaeology of the Point West of Halibut Cove, Kenai Peninsula, Alaska. **Anthropological Papers of the University of Alaska** 24(1-2).

Bundy, Barbara Elizabeth

1998 Glass Trade Beads from Reese Bay, Unlaska Island. M.A. Thesis, University of Arkansas, Fayetteville.

Chamberlain, John, Teresa Cochran, Roshni Easley, Linda Hawke-Gerrans, Reema Mahamood, Caren Wilhoit

2003 Environmental Assessment: Proposed Modification and Expansion of National Oceanic and Atmospheric Administration Kasitsna Bay Laboratory, Kachemak Bay, Alaska. Report prepared by SRI International as Project 11619 for National Oceanic Atmospheric Administration Mountain Administrative Support Center, Boulder, Colorado.

City of Seldovia and State of Alaska

1977 **Seldovia**. Pamphlet by City of Seldovia and State of Alaska Division of Economic Enterprise, Anchorage.

Dahlquist, Fred

1927 Surveyor's Notes for U.S. Survey 1770, Seldovia Townsite, Territory of Alaska. Document on file, Bureau of Land Management, Anchorage.

de Laguna, Frederica

1934 **The Archaeology of Cook Inlet.** 2nd Edition 1975. Alaska Historical Society, Anchorage. Document on file, Bureau of Land Management, Anchorage.

Dixon, Kelly J.
2005 **Boomtown Saloons: Archaeology and History in Virginia City.** University of Nevada Press, Reno.

Federal Aviation Administration
1973 Final EIS for the Seldovia Airport. Federal Aviation Administration, Anchorage.

Federova, Svetlana
1973 **The Russian Population in Alaska and California, Late 18th Century - 1867**. Ed. by R.A. Pierce and A.S. Donnelly. Limestone Press, Kingston, Ontario.

Gaston, Mary Frank
1994 **Blue Willow: An Identification and Value Guide**. Revised edition. Collector Books, Paducah, Kentucky.

Gould, Philip W.
1942 Chromite Deposits of Kenai Peninsula, Alaska. **U.S. Geological Society Bulletin** 931-G.

Griffenhagen, George B., Mary Bogard, and George Griffen Hagen
1999 **History of Drug Containers and Their Labels**. American Institute of the History of Pharmacy, Madison, Wisconsin.

Holmes, Charles E., Douglas R. Reger, Craig Mishler, Rolfe Buzzell, Douglas Gibson, and J. David McMahan
1985 Progress Report, Project F-021-2(15)/(A09812), Sterling Highway Archaeological Mitigation: Phase I Excavations at Four Sites on the Kenai Peninsula. **Alaska Division of Geological and Geophysical Surveys Public Data File** 85-04.

Kidd, Kenneth E., and Martha Ann Kidd
1970 A Classification System for Glass Beads for the Use of Field Archaeologists. **Occasional Papers in Archaeology and History** 1:46-90. Parks Canada, Ottawa.

King, Robert E.
2007 **Postcards from Alaska: Souvenir Pictures of the Last Frontier, 1890s - 1940's.** Greatland Graphics, Anchorage.

Klein, Janet R.
1996 **The Homer Spit: Coal, Gold, and Con Men**. Centennial Publications, Homer.

Kovel, Ralph and Terry
1986 **Kovels' New Dictionary of Marks: Pottery & Porcelain 1850 to the Present**. Crown Publishers, Inc., New York.

Lascy, Gilbert
1904 U.S. Surveyor's Notes for U.S. Survey 371 of the Russian Greek Church Mission Reserve, Seldovia, District of Alaska. Document on file, Bureau of Land Management, Anchorage.

MacDonald, Lewis
1949 Chronological History of Salmon Canneries in Southeastern Alaska. **Alaska Department of Fisheries Annual Report** 1:30-36.

McMahan, J. David and Douglas R. Reger
1997 Archaeological Survey of the Fort Kenay/Mission Street Improvements Project Site, Kenai, Alaska (Project No. 51088). **Alaska Office of History and Archaeology Report** 63.

Madden, Bette and Bob
2007 **Memoirs: Strange - Odd How Things Worked Out.** Self-published by Bob Madden, Clarkston, Michigan; on file at Seldovia Public Library, Seldovia.

Majewski, Teresita, and Michael J. O'Brien
1987 The Use and Misuse of Nineteenth-Century English and American Ceramics in Archaeological Analysis. **Advances in Archaeological Method and Theory** 11:97-209.

Mobley, Charles M.
2008 An Archaeological Monitoring Plan for the Seldovia Water & Sewer Improvements Project, Seldovia, Kenai Peninsula, Alaska. Document prepared for CRW Engineering, Anchorage, for submission to Alaska Department of Environmental Conservation Village Safe Water, Anchorage.

Mongin, Alfred, and Joseph P. Kreta
1979 Russian Orthodox Church Buildings and Sites in Alaska -- National Register of Historic Places Nomination Form. Document on file, Alaska Office of History and Archaeology, Anchorage.

Orth, Donald J.
1967 Dictionary of Alaska Place Names. **U.S. Geological Survey Paper** 567.

Pacific Rim Planners, Inc.
1980 Seldovia Comprehensive Plan. Report prepared by Pacific Rim Planners, Inc., for the City of Seldovia and Kenai Peninsula Borough.

Pasquali, Jim
1999 **Sanfords Guide to Garden City Pottery: A Hidden Treasure of Northern California.** Adelmore Press, Campbell, California.

Pedersen, Elsa
1983 **A Larger History of the Kenai Peninsula**. Adams Press, Chicago.
2001 **Kachemak Bay Years**. Hardscratch Press, Walnut Creek, California.

Petroff, Ivan
1884 Report on the Population, Industries, and Resources of Alaska. In: **Compendium of the Tenth Census (June 1, 1880), Part II**. U.S. Government Printing Office, Washington, D.C.

Plafker, George, Reuben Kachadorian, Edwin B. Eckel, and Lawrence R. Mayo
1969 Effects of the Earthquake of March 27, 1964, on Various Communities. **USGS Professional Paper** 542-G.

Reger, Douglas
1981 A Model for Culture History in Upper Cook Inlet, Alaska. Ph.D. dissertation, Department of Anthropology, Washington State University, Pullman. University Microfilms, Ann Arbor.
1996 Beluga Point. In: **American Beginnings: The Prehistory and Palaeoecology of Beringia**, ed. by F.H. West, pp. 433-436. University of Chicago Press, Chicago.
1998 Archaeology of the Northern Kenai Peninsula and Upper Cook Inlet. **Arctic Anthropology** 35(1):160-171.

Reger, Douglas, and Alan Boraas
1996 An Overview of the Radiocarbon Chronology in Cook Inlet Prehistory. In: **Adventures Through Time: Readings in the Anthropology of Cook Inlet Alaska**, pp. 157-171; ed. by N. Yaw Davis. Cook Inlet Historical Society, Anchorage.

Reger, Douglas, and Mark Pipkin
1996 Round Mountain Microblade Locality. In: **American Beginnings: The Prehistory and Palaeoecology of Beringia**, ed. by F.H. West, pp. 430-433. University of Chicago Press, Chicago.

Ricks, M.B.
1965 **Directory of Alaska Postoffices and Postmasters, 1867-1963**. Tongass Publishing Company, Ketchikan.

Ross, Lester A.
1990 Trade Beads from Hudson's Bay Company Fort Vancouver (1829-1860), Vancouver, Washington. **Beads: Journal of the Society of Bead Researchers** 2:29-69.

Schroeder, Jr., Joseph J. (editor)
1970 **Sears, Roebuck and Co. Consumers Guide, Fall, 1900 (Catalogue No. 110)**. DBI Books, Inc., Northfield, Illinois.
1977 **Montgomery Ward & Co. Fall & Winter 1894-95 Catalogue & Buyers Guide No. 56**. DBI Books, Inc., Northfield, Illinois.

Sharpe, Mae Annette Fox
1997 **My Seldovia - My Life**. Self-published document on file, Seldovia Public Library.

Springer, Susan Woodward
1997 **Seldovia, Alaska - An Historical Portrait of Life in Herring Bay.** Blue Willow, Inc., Littleton, Colorado.

Students of Susan B. English
1980 Some Seldovia History. Manuscript on file, Seldovia Public Library, Seldovia.

Sudbury, J. Byron
2006 **Historic Clay Tobacco Pipe Studies Volume 1**. Phytoloth Press, Ponca City, Oklahoma.

Sutton, Mark Q., and Brooke S. Arkush
2001 Archaeological Laboratory Methods: An Introduction. Kendall Hunt, Dubuque, Iowa.

VanStone, James and Joan B. Townsend
1970 Kijik:An Historic Tanaina Indian Settlement. **Fieldiana: Anthropology** 59. Field Museum of Natural History, Chicago.

Warner, J. Frank
1909 Surveyor's Notes for U.S. Survey 910 of the U.S. School Reserve at Seldovia, District of Alaska. Document on file, Bureau of Land Management, Anchorage.

Whitten, David
2008 Webpage: myinsulators.com/glass-factories/bottlemarks.

Wiley, Harvey W., and Anne Lewis Pierce
1914 **1001 Tests of Foods, Beverages and Toilet Accessories, Good and Otherwise.** Hearst's International Library Co., New York.

Wilson, Rex L.
1981 **Bottles of the Western Frontier.** University of Arizona Press, Tucson.

Workman, William B.
1992 Life and Death in a First Millenium A.D. Gulf of Alaska Culture: The Kachemak Tradition Ceremonial Comples. In: **Ancient Images, Ancient Thought: The Archaeology of Ideology**; ed. by S. Goldsmith, S. Garvin, S. Selin, and J. Smith, pp. 19-25. Proceedings of the Twenty-third Annual Chacmool Conference, Calgary.
1998 Kachemak Tradition. In: **Archaeology of Prehistoric Native America: An Encyclopedia**, ed. by G.E. Gibbon and K.M. Ames, pp. 405-406. Garland Publishing Inc., New York.

Appendix A: Seldovia's Old Buildings

Prior to this 2008 sewer and water project the only Seldovia properties listed in the Alaska Heritage Resource Survey or AHRS -- the statewide inventory of archaeological and historic architecture properties maintained by the Alaska Office of History and Archaeology, were the town of Seldovia itself (SEL-084) and the Russian Orthodox Church (SEL-023). One of the contributions made by Susan Woodward Springer in her book "Seldovia, Alaska - An Historical Portrait of Life in Herring Bay" is a list of old buildings in Seldovia, along with short descriptions of their history (Springer 1997:232). To provide additional context for the archaeological monitoring effort and assist in tracking Seldovia's historic buildings, AHRS numbers were obtained for those buildings on Springer's list that are still standing. This appendix presents the AHRS numbers along with photographs of each of those buildings, plus two others, along with excerpts from Springer's descriptions. The new inventory is not necessarily complete, and there are likely other old buildings in Seldovia that deserve to be added.

SEL-023. Most of the Russian Orthodox church was built by 1891; the front tower was added by 1906.

SEL-331 (Springer's #1). The narrow central block of the Seldovia Bible Chapel "was built in 1944 by Rev. George Tobleman and reputed to have the strongest concrete in town." The north (right) wing was built in the 1970s, the south (left wing) was added later.

SEL-332 (Springer's #4). "The log portion was built about 1915 by one of the Balishoff brothers from Kenai....Recent remodeling has revealed that the rest of the house was built over a two-year period from 1920 to 1921, for and first occupied by Ralph and Juanita Anderson."

SEL-333 (Springer's #5). The Gruber home "was originally the cook shack at the chrome mine on Chrome Bay in Port Chatham."

SEL-334 (Springer's #6). "This was the office of Jack English for many years. During Urban Renewal it was moved up from the waterfront...." In 2008 it had again been moved, to the corner of English Street and Alder Street.

SEL-335 (Springer's #7). Jerry Willard's home was "built in 1940 to serve as Seldovia's hospital,...it had patient wards, staff quarters, and an operating room."

SEL-336 (Springer's #8). The Winfree home was "a 1928 Sears mail order house...with the assembly instructions in Danish. However, with the numbers of Scandinavian fishermen living in Seldovia, translation was readily available. It was built for the late Winnie Zawistowski and her first husband."

SEL-337 (Springer's #9). "This was the 1930s home of fisherman Walter "Nig" Liponcott." It is located on the boardwalk, extending into Seldovia Slough.

SEL-338 (Springer's #10). "In the 1930s the original portion of this house belonged to Ed Feldahl, a Scandinavian bachelor and fisherman." Additions were made after 1964 with material salvaged from the urban renewal project. Now it is the Dancing Eagles Bed & Breakfast establishment.

SEL-339 (Springer's #11). "The second oldest house in town, this was built around 1917 and was the home of Emma and Simon Josefson. Traditionally, it was painted robin's egg blue." The house is located on the south side of Seldovia Slough.

SEL-340 (Springer's #12). This house was built in the early 1930s by Hilmer Olsen, "a tall Scandinavian who worked on sailing ships for years before settling in Seldovia to trap and fish.....subsequent residents have reported hearing the ghost of Hilmer rocking in his chair on the top floor."

SEL-341 (Springer's #14). "Scandinavian bachelor fisherman Ed Seaverson built this home sometime prior to 1938 and lived there."

SEL-342 (Springer's #17). The Backer home "was built in the 1930s for Scandinavian fisherman Jack Wormensen. Jack fished Bristol Bay and Cook Inlet, and crossed the latter in the winter to trap beaver, marten, and other furbearers."

SEL-343 (Springer's #18). The Suydum home "was built in the 1930s for marshal Andy Anderson. Andy's wife, Inga, was very short, and hence much in the house was scaled down to accommodate her.

SEL-344 (Springer's #2). The Buchman home "was built by Paul Petresun for Martha Jensen" at an unknown date.

SEL-345 (Springer's #19). "This home was built in the 1940s for Nordensen forbearer Grandmother Bessie Lloyd."

SEL-346. Though not on Springer's old building list, this small house on the boardwalk is typical of the small homes built and occupied in Seldovia during the early half of the twentieth century.

SEL-347. Another small building typical of the older houses in pre-1964 Seldovia is this one on the boardwalk over Seldovia Slough. SEL-337 is at right.

Appendix B: Ceramics and White Glass

Bag	Dark Paste	White Paste	Porcelain	White Glass
8		1 white glaze; no pattern; "GRANITE GEORGE 83B"		
9	1; green glaze	2 white glaze; no pattern (2 plates)		1 tile frag (1.23 cm thick)
10		2 white glaze; no pattern (1 plate)		
13		1 white glaze; green transfer print		
14		1 white glaze; no pattern	1 irredescent blue slip (bowl)	
16		1 white glaze; no pattern		
21		1 white glaze; no pattern (1 bowl) 1 white glaze; green overprint 1 pink glaze; purple handpainted 1 white glaze; gray handpainted		
27	1; brown glaze			
30		12 white glaze; no pattern (>1 bowl; >1 cup) 1 pink glaze; purple handpainted 1 white glaze; gold, polychrome floral transfer print	1 white 1 polychrome floral [European] (cup)	1 round jar "H" straddling "A" 1 round base jar with hexagonal sides 1 frag of rectangular jar 1 frag of round jar 1 frag ribbed lamp globe?
31			1 red & green polychrome [Oriental] (bowl)	
32		7 white glaze; no pattern 1 pink glaze; purple handpainted	1 white, gold rim 1 gray handpainted on gray glaze [Chinese]	
34		4 white glaze; no pattern (1 bowl) **"MAKERS MARK"**	3 white (1 bowl; 1 teacup or toy)	
35	1 cylindrical top to jar, vent hole, brown glaze, 6.4 cm dia., friction fit	14 white glaze; no pattern; one "BONE CHINA" "_LEY & CO" "_ND"	4 white 1 red overprint (cup) [Japanese] 1 flow blue 1 red & green polychrome [Chinese] 1 gray handpainted on gray glaze [Chinese] 2 Prosser buttons	
36		13 white glaze; no pattern (3 bowls) 5 floral polychrome on white glaze Decalcomania (1 plate) 2 polychrome on white glaze, gold rim (1 bowl) 1 blue on white glaze		1 frag ribbed lamp globe? fits to Bag 37
37		9 white glaze; no pattern (1 lg serving bowl; (2 sm bowls)	3 white (1 sm cup)	2 frags ribbed lamp globe?
38	1 brown & cream glaze (1 crock) 1 brown glaze, friction fit lid, 8 cm dia.	2 white glaze; no pattern	1 white (lid liner) "BOYD'S GENUINE PORCELAIN LINED CAP"; 2 1/2" dia.	1 jar frag
39		6 white glaze; no pattern (1 mug handle) "MADE IN JAPAN" 1 white glaze; no pattern (1 knurled knob) "570" inside cap 2 white glaze; gold rim (1 plate)	4 blue on white [Chinese] 1 red, green, & gold on white [Japanese]	1 rectangular jar 1 frag ribbed lamp globe?
39b				1 square jar "CREME LUXOR"
40			1 handpainted polychrome and gold on white (bowl) [European] 1 polychrome on white 1 blue on white (bowl) [Chinese] 1 tan glaze on white (doll skull frag)	1 jar "COLD CREAM"

Bag	Dark Paste	White Paste	Porcelain	White Glass
41		1 white glaze; no pattern		1 frag
43	2 cream glaze (lg crock) "_ROTTINY CO_"?			
44	3 cream & brown glaze	3 white glaze; no pattern 2 white glaze; green/red/brown berry pattern on border		
45		1 white glaze; no pattern		
46		1 white glaze; no pattern (sm bowl)		
48	3 cream & brown glaze	1 white glaze; no pattern (bowl)		
102	3; two with tan glaze `	11 white glaze; no pattern (1 cup; 1 plate) 2 white glaze; blue transfer print 5 white glaze; brown transfer print (1 cup; 1 bowl) 2 white glaze; polychrome (serving bowl)	4 white 1 green slip	
104		1 white glaze; no pattern 1 white glaze; polychrome "TH OM PS ON FRANCE" 1 white glaze; polychrome, gold rim (bowl) 1 white glaze; gray border circle (saucer) "Buffalo CHINA 1922"		
105		1 white glaze; floral polychrome, Decalcomania "RAVENNA"		
108		1 blue on white 1 gray on white		
109	2 white glaze	3 white glaze (1 mug handle); one is Decalomania 1 gold on white glaze (tea cup handle) 1 polychrome (roses) on white glaze (saucer) Decalcomania	1 doll frag	
111	1 white glaze 1 gray glaze	3 white glaze; no pattern	1 blue on white transfer print (cup/bowl) [English]	
112		13 white glaze; no pattern (1 mug handle) 2 blue on white glaze		

Appendix C: Faunal Analysis

One box of faunal remains, amounting to about two cubic feet of loosely packed specimens, was collected during the monitoring project at Seldovia (SEL-084). The remains reflect terrestrial, avian, and aquatic species, and were analyzed according to several criteria. First the element was determined, followed by the major class to which it belongs (i.e. bird or mammal). Once the side was determined, the bone was identified to the most exclusive taxonomic group possible (family, genus and/or species). The age of the bone was determined by epiphysial fusion in mammals and epiphyseal ossification in avian remains. Finally, butchering and burning was noted as well as any other striking information. The identification of the bones was done by visual comparison to modern known specimens in the Alaska Consortium of Zooarchaeologists (ACZ) collection. Some bones were not identifiable to species either due to morphological similarities among species or to morphological differences between known species and the Seldovia specimens. When this occurred, the bone was placed into a higher taxonomic group (usually genus) or simply left at the family level. A list of the analyzed bone specimens is included in this report as Appendix G: Faunal Identifications.

Bone Condition

The condition of the bones is fair. The cortical bone of most mammal specimens is exfoliating from taphonomic processes and occasionally only the spongy bone remains. One possible cause is water exposure. However, the bones were also exposed to chemicals in the ground, so the exfoliation could be from a combination of the two factors. Scrapes and scratches — some definitely from shovels or backhoes and some probably from such tools — were present on several specimens.

Bone Identifications

A total of 134 bones and bone fragments were collected during the monitoring project. The number of identifiable specimens present (NISP) is 58 (identified to the genus level), and 61 (identified to the family level). The bones represent mammal and bird remains. No fish remains were recovered, which -- given the coastal context -- suggests that their absence may be due to monitoring and collection procedures.

Birds

Thirty two (32) bones represent birds. Of the avian remains collected, 17 are identifiable to at least genus level. Unfortunately, five bones -- though relatively complete and identifiable, are not represented in the comparative collection. They include three elements -- a humerus, an ulna,

and a tibiotarsus, and may therefore represent up to three different species. However, they most likely represent one species -- possibly a type of cormorant.

The identified remains include Bald Eagle (*Haliaeetus leuccaphasus*), which accounts for four of the identified bones; two left ulnas that fit together into one complete ulna, one right ulna shaft fragment, and one proximal left humerus fragment that shows small cut mark striations just below (distal to) the pneumatic fossa. Albatross (identifiable to the genus level: *Diomede*) is represented by three bones: one complete right carpometacarpus, one complete left femur, and one complete left tarsometatarsus. The Carpometacarpus represents the only identifiable juvenile bird bone from the collected bone material. One complete right coracoid and one right humerus shaft fragment are from the common loon (*Gavia immer*). Gadwall (*Anas strepera*) is represented by two complete coracoids -- one left and one right. Finally, one right femur of the common murre (*Uria aalge*) was found.

Additionally, two juvenile bird bones were collected from the midden. The distal and proximal ends of bird long bones are cartilaginous prior to maturity, and later harden into bone. Therefore, the ends of juvenile remains lack most distinguishing features and are difficult to identify. These juvenile remains -- a right humerus and a right ulna representing medium to large sized birds -- are highly degraded at both ends and thus unidentifiable to any taxonomic level.

Mammals

A total of 102 mammal bones were collected from the midden. The number of identifiable species is 40, with a total of 44 -- or nearly half of the bones -- identifiable to the family level. Moose (*Alces alces*) accounts for the majority of the identifiable elements (21 bones). All major parts of the moose are represented -- hind- and forelimbs, pelvic and shoulder girdles, and skull fragments -- suggesting use of the entire animal rather than selection of valuable parts. Most of the unidentified large mammal remains are likely moose, too. Only one large mammal bone appears to be a different species (an ilium fragment attributable to Bovidae, or cow). The minimum number of individuals (MNI) for moose is two, as there are two distal right femurs. But the actual number of moose reflected in the collection is likely larger than two given how many individual bones there are, how many of those bones have been butchered, and how widely the specimens were distributed.

The second most common species is porcupine (*Erethizon dorsatum*). The 16 porcupine bones include long bones (humerus, tibia, metapodial, and radius) and skull fragments (flat bones, maxilla, mandible, and tooth fragments). The MNI for porcupines is two, as indicated by two right mandible fragments and two right maxilla.

Black bear (*Ursus americanus*) remains from the site are represented by two bones -- one right humerus and one right femur. Only one bone is attributable to lynx (Felis *lynx canadensis*) -- a right distal tibia fragment. There are two canid bones (one right calcaneus and one left femur that probably represent the remains of dog. The presence of canids is also suggested by one moose scapula that shows evidence of chewing.

Marine mammals -- consisting of two pinnepeds -- are present in the collection. One metatarsal represents the family *Otariidae* and is likely a sea lion. Another metatarsal matches *Phocidae phoca* and is probably harbor seal.

The mammal remains, and specifically the large mammal remains, contain considerable evidence of butchering. Twenty three (23) of the bones contain evidence of some sort of postmortem modification. Two instances appear to be the result of excavation, but the remainder are clearly

the result of butchering, as indicated by saw marks, cut marks or fresh postmortem breaks. It is mostly moose that have been altered, but one black bear bone (distal femur), one porcupine (radius), and two unidentified bones also show evidence of butchering. The modified moose bones are mostly long bones sawn on one or both ends, whereas the black bear and porcupine remains have cut mark striations present.

Summary

The faunal assemblage collected during the Seldovia monitoring project shows utilization of terrestrial fauna, avian, and aquatic resources. The high frequency of butchering marks on moose bones attests to the time and energy spent processing them, in keeping with their large size and traditionally valued food quality.

Acknowledgments

I would like to thank Dr. Diane Hanson for her help with the identification of several bones, and for allowing me access to the University of Alaska-Anchorage laboratory and the Alaska Consortium of Zooarchaeologists comparative collection.

Appendix D: Faunal Identifications

Bag	Class	Element	Side	Portion	Family	Genus	Species	Name	Age	Butchering and Other Notes
3	Mammal	Unknown	U							cortical bone gone; no evidence of chewing; epiphysis probably from a metapodial
3	Mammal	Unknown	U							all cortical bone gone, but no evidence of chewing
6	Mammal	Rib	U	distal	Cervidae	Alces	alces	Moose	A	sawn cut; sun bleached
7	Mammal	Rib	U		large mammal					cut medially; fragment
9	Mammal	Rib	U	proximal	large mammal				U	
16	Mammal	humerus	R	distal	Ursidae	Ursus	americanus	Black bear	U	muscle attachments very weak; fresh post-mortem break proximally
16	Mammal	Rib	U	fragment	large mammal				U	fragment
25	Mammal	Rib	U		large mammal					cut marks on concave interior surface
27	Mammal	vertebrae	A						J	centrum only
27	bird	Femur	L	complete	Diomede	Diomede		Albatross	A	
27	bird	humerus	R	complete				identifiable	A	identifiable, not in comparative collection
27	bird	vertebrae	A	complete					A	
29	Mammal	Unknown	U							fragment
30	Mammal	Femur	R	distal	Cervidae	Alces	alces	Moose	A	
32	Mammal	Femur	R	distal	Ursidae	Ursus	americanus	Black bear	J	cut mid shaft; broken and smashed
32	Mammal	Femur	R	distal	Cervidae	Alces	alces	Moose	A	sawn proximally
32	Mammal	Unknown	U							long bone fragment
34	Mammal	Tibia	L	proximal	Cervidae	Alces	alces	Moose	J	fresh post-mortem break distally
35	Mammal	scapula	R	distal	Cervidae	Alces	alces	Moose	A	broken (rough and jagged) medially, and possibly chewed around acromian hook
35	Mammal	Radius	R	distal	Cervidae	Alces	alces	Moose	A	sawn proximal end; broken distal end recent jagged and rough
35	Mammal	Unknown	U							fragment; broken fresh post-mortem on end, recent jagged break on the other end
36	Mammal	metatarsal	U		large mammal			Moose?	U	
36	Mammal	Unknown	U		large mammal				U	fragment
36	Mammal	Unknown	U		large mammal				U	fragment
36	Mammal	Unknown	U		large mammal				U	fragment
36	Mammal	Unknown	U							
36	bird	carpometacarpus	R	complete	Diomede	Diomede		Albatross	J	
36	bird	humerus	R	complete					J	similar in size to common loon
37	Mammal	Radius	L	complete	Cervidae	Alces	alces	Moose	A	with distal portion of fused ulna
37	Mammal	humerus	L	distal	Cervidae	Alces	alces	Moose	A	fresh post-mortem break proximally
37	Mammal	Tibia	R	distal	Cervidae	Alces	alces	Moose	A	broken proximally fresh post-mortem, maybe for marrow
37	Mammal	Vertebra	A		large mammal				A	spinus process only
37	bird	ulna	R	complete					J	similar in size to Snowy owl
38	Mammal	Tibia	R	distal	Felidae	Felis	canadensis	Lynx		both epiphyses are broken off recently
38	Mammal	Radius	R	proximal	Cervidae	Alces	alces	Moose	A	epiphysis is broken off (recent and jagged), distal portion broken fresh post-mortem
38	Mammal	innominate	L	complete	Cervidae	Alces	alces	Moose	A	ischium; sawn proximally and broken distally, burned spongy bone at distal end
38	Mammal	Unknown	U							fresh post-mortem breaks on either side of fragment
39	Mammal	scapula	L	distal	Cervidae	Alces	alces	Moose	A	broken medially
39	Mammal	innominate	L	complete	Cervidae	Alces	alces	Moose	A	ischium; broken on both ends
39	Mammal	skull	A		Cervidae	Alces	alces	Moose	A	odd shape
39	Mammal	mandible	L	medial portion only	Cervidae	Alces	alces	Moose	A	no teeth present, sawn at fusion and cut where tooth cavity begins
39	Mammal	Astragalus	R	complete	Cervidae	Alces	alces	Moose	A	saw mark through bone, but entire bone is present
39	Mammal	humerus	L	proximal	Erithizontidae	Erethizon	dorsatum	porcupine	J	proximal epiphysis only
39	Mammal	metapodial	U	distal	Erithizontidae	Erethizon	dorsatum	porcupine	J	1/2 epiphysis only
39	Mammal	skull	R		Erithizontidae	Erethizon	dorsatum	porcupine	A	includes right molars 1-3 and left molar 1 and 2
39	Mammal	incisor	U	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	
39	mammal	mandible	A	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	
39	Mammal	incisor	U	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	
39	Mammal	temporal	L	complete	Erithizontidae	Erethizon	dorsatum	porcupine		
39	Mammal	incisor	U	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	orange
39	Mammal	incisor	U	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	orange
39	Mammal	molar	U	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	med-small mammal
39	Mammal	molar	U	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	med-small mammal
39	Mammal	maxillae	A		Erithizontidae	Erethizon	dorsatum	porcupine	A	contains alveolar cavity but no teeth
39	Mammal	maxillae	U		Erithizontidae	Erethizon	dorsatum	porcupine	A	contains alveolar cavity but no teeth
39	Mammal	vertebrae	A	trans process	large mammal				A	lumbar
39	Mammal	rib	U	complete					A	med-small mammal
39	Mammal	Unknown	U							
39	Mammal	Unknown	U							
39	Mammal	Unknown	U							
39	Mammal	vertebrae	A							fragment; medium sized
39	Mammal	Unknown	U							fragment
39	Mammal	vertebrae	A		large mammal					both ends sawn cut; only spinus process and part of connection present

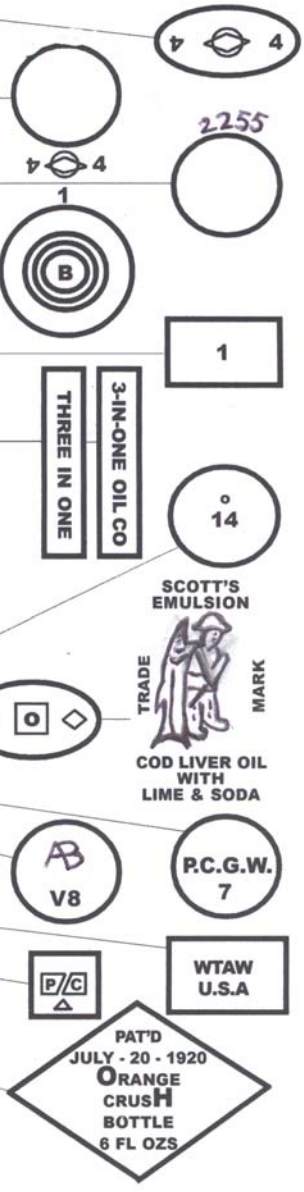
Bag	Class	Element	Side	Porti						
39	Mammal	Unknown	U							
39	Mammal	Unknown	U							fragment
39	Mammal	Unknown	U							fragment
39	Mammal	Unknown	U							fragment
39	Mammal	Unknown	U							fragment
39	Mammal	Unknown	U							fragment
39	Mammal	Unknown	U							fragment
40	Mammal	vertebrae	A		large mammal				A	
40	Mammal	Unknown	U							fragment
43	Mammal	Femur	L	distal	Cervidae	Alces	alces	Moose	A	shaft fragment
46	Mammal	Femur	L	proximal	Cervidae	Alces	alces	Moose	U	sawn cut distally, limited diagonal and vertical striations; degraded medially
46	Mammal	Radius	L	proximal	Cervidae	Alces	alces	Moose	A	small cut striations on anterior; broken distally
101	Mammal	Tibia	R	proximal	Cervidae	Alces	alces	Moose	J	sawn cut distally
101	Mammal	Rib	U	proximal	large mammal				A	degraded distally
101	Mammal	Unknown	U						U	burned fragment
101	Mammal	Unknown	U						U	burned fragment
101	Mammal	Unknown	U						U	burned fragment
102	Mammal	mandible	R	complete	Erithizontidae	Erethizon	dorsatum	porcupine	A	
102	Mammal	Tibia	L	complete	Erithizontidae	Erethizon	dorsatum	porcupine	J	shaft only, epiphyses both unfused
102	Mammal	Radius	R	complete	Erithizontidae	Erethizon	dorsatum	porcupine	J	cut striations (very small) just below head and above ulna attachment
102	Mammal	calcaneus	R	complete	Canis			prob. dog	A	prob dog
102	Mammal	Femur	L	distal	Canis			prob. Dog	J	distal epiphyses only
102	Mammal	metatarsal	R		Phocidae	phoca		Harbor seal?	J	
102	Mammal	Metatarsal	R		Otariidae			Sea lion?	J	
102	Mammal	rib	U	complete					A	med-small mammal
102	Mammal	rib	U	complete					A	med-small mammal
102	Mammal	rib	U	proximal					A	med-small mammal
102	Mammal	Humerus	R	distal					A	cut striations near break; fresh post-mortem break proximally
102	Mammal	Unknown	U		large mammal				A	sawn both directions into a very small strip
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	Mammal	Unknown	U							fragment
102	bird	tarsometatarsus	L	complete	Diomede	Diomede			A	albatross but smaller
102	bird	humerus	L	proximal		Haliaeetus	leucocephalus	bald eagle	A	cut mark striation along edge; broken and jagged distally
102	Bird	Ulna	R			Haliaeetus	leucocephalus	bald eagle	A	shaft fragment
102	bird	Ulna	L	complete		Haliaeetus	leucocephalus	bald eagle	A	fits together with other L ulna
102	bird	Ulna	L	complete		Haliaeetus	leucocephalus	bald eagle	A	fits together with other L ulna
102	bird	humerus	R	shaft		Gavia	immer	common loon	A	shaft fragment; possibly loon to fam level?
102	bird	coracoid	R	complete		Gavia	immer	Common loon	A	
102	bird	Femur	R	complete		Uria	aalge	common murre	A	
102	bird	coracoid	R	complete		Anas	strepera	Gadwall	A	ends are degraded off
102	bird	coracoid	L	complete		Anas	strepera	Gadwall	A	ends are degraded off
102	bird	humerus	L	complete				identifiable	A	distal end deteriorated
102	bird	ulna	L	complete				identifiable	A	
102	bird	ulna	R	complete				identifiable	A	
102	bird	tibiotarsus	L	distal				identifiable	A	
102	Bird	Unknown	U							fragment
102	Bird	Unknown	U							fragment
102	Bird	Unknown	U							fragment
102	bird	ulna	L	shaft					A	shaft fragment, all identifiable features are degraded off on both ends
102	Bird	Unknown	U							fragment
102	Bird	Unknown	U							fragment
102	Bird	Unknown	U							fragment
102	Bird	Unknown	U							fragment
102	Bird	Unknown	U							fragment
102	bird	Radius	R	proximal					A	unknown species but matches unknown left

Bag	Class	Element	Side	Porti						
102	bird	Radius	L	proximal					A	unknown species but matches unknown right
102	bird	sternum	A						A	small striations on hook plate; hook and plate front only, unable to ID
102	bird	sternum	A							
103	Mammal	Astragalus	R	complete	Cervidae	Alces	alces	Moose	A	
105	Mammal	Innominate	U		Bovidae	Bos		cow		ilium
38N	Mammal	skull fragment	A		large mammal				A	
38N	Mammal	rib	U	proximal	large mammal				A	broken distally
38N	Mammal	Tibia	L	complete					J	sawn distally but at epiphysis; proximal epiphyses absent

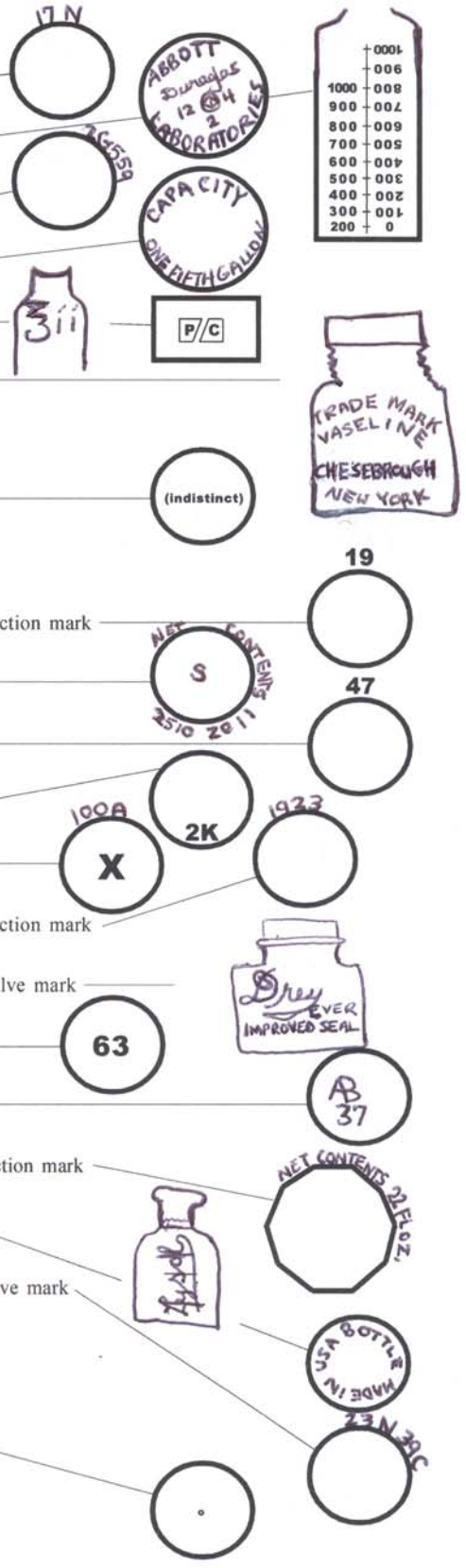
Appendix E: Bottles

Bottles are listed from English Road contexts; surface and subsurface bottles recovered from Alder Street -- most of which are recent and reveal a large percentage of modern beer bottles (Figure 36) -- are not included. Drawings are not to scale -- the larger ones are drawn that way simply to get all the embossing on. If the bottle had no embossing, it is not drawn.

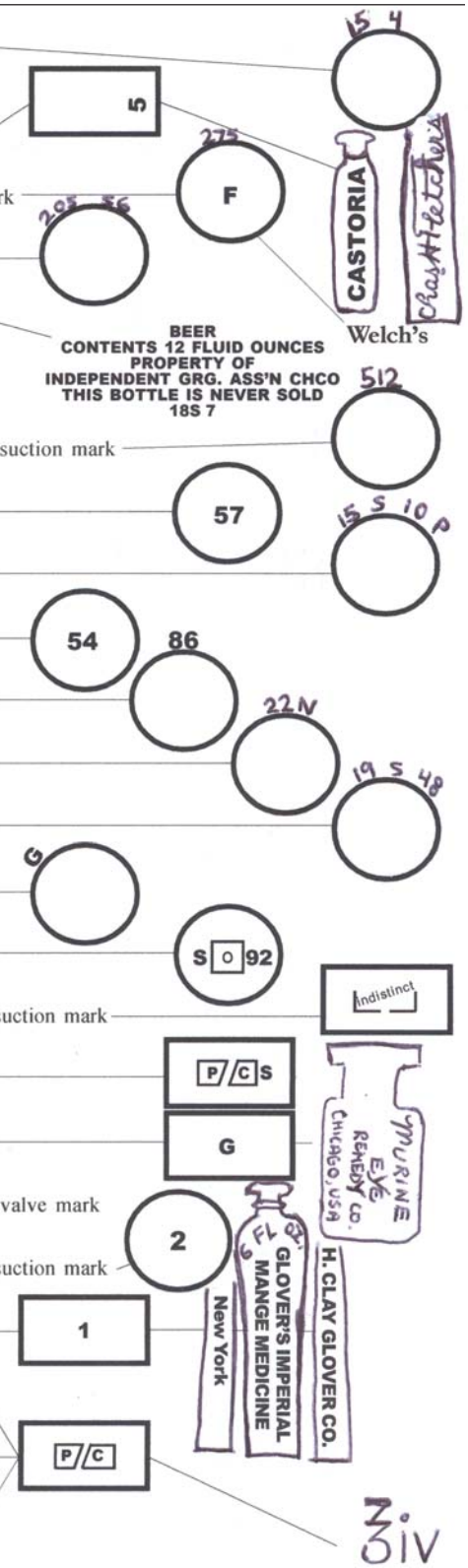
Bag	Thickness/Color	Shape	Diameter	Height	Manufacture	Embossing
16	uncolored	oval	2.5x5.0	10.4	post mold, screw top	
28	yellow tint traditional Coca-Cola bottle shape	round	8.8	19.5	cup mold, suction mark	
32 (2)	thick amber	round	6.5	24.5	post mold, suction mark	
	thick amber ferrous wire around rim	round	6.2	24.0	post mold, suction mark	
34 (6)	amber	rect.	7.8x5.2	20.7	post mold	
	aqua	rect.	3.8x2.0	9.8		
	uncolored beveled corners	rect.	6.6x3.5	17.2	post mold	
	uncolored large mouth	round	7.2	20.0	cup mold, valve mark	
	uncolored large mouth	round	4.5	9.6	post mold, suction mark	
	aqua cork cap w/ wire attachment	oval	7.5x5.3	23.8	post mold, suction mark	
35 (7)	aqua	round	6.5	24.0	post mold	
	aqua	found	6.3	broken	post mold, suction mark	
	amber beveled corners	rect.	3.0x2.1	6.3	post mold	
	uncolored screw top	square	5.3x5.3	15.9	post mold, suction mark	
	uncolored horizontal ribbing broken by 4 vertical sets of 3 ribs	round	5.4	19.5	cup mold	



Bag	Thickness/Color	Shape	Diameter	Height	Manufacture	Embossing
35 (cont.)	clear green	round	7.0	24.4	cup mold	
	dark green	round	7.3	19.5	post mold	
36 (5)	uncolored	round	9.2	26.3	cup mold	
		screw top "DEX 5% IN SALT"				
	amber	round	6.5	24.4	post mold	
	uncolored	round	7.8	27.8	post mold	
	uncolored	rect. convex/concave	4.25x2.5	11.5	cup mold	
	uncolored	round screw top	4.5	6.2	cup mold	
37 (10)	thick, aqua	round	6.0	20.0	cup mold	
	clear green	round	5.7	23.8	cup mold	
	uncolored	rect. convex/concave, fluted shoulder	4.0x2.4	11.7	cup mold	
	thick, aqua	round	6.4	24.1	post mold, suction mark	
	dark amber	round	6.4	23.8	cup mold	
	amber	round	6.4	24.1	post mold	
	uncolored	round	8.4	30.0	cup mold	
	amber	round	6.3	24.0	cup mold	
	amber	round	7.7	29.0	post mold, suction mark	
	uncolored	round canning jar with wire closure	8.5	12.5	post mold, valve mark	
38 (7)	amber	round	6.5	24.0	post mold	
	amber	round	6.4	>23.5	cup mold	
	pink tint	ten-sided	6.6	30.2	cup mold, suction mark	
	amber	round large mouth	4.8	10.0	cup mold	
	bright green	round	6.7	24.6	cup mold, valve mark	
	uncolored	rect. very beveled corners, screw top	2.4x1.7	7.5		
	uncolored	round ink bottle	4.9	5.8		

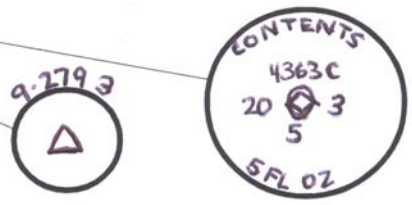


Bag	Thickness/Color	Shape	Diameter	Height	Manufacture	Embossing
38N (5)	aqua	round	8.6	30.1	cup mold	
	aqua	rect.	4.8x2.4	14.8	cup mold	
	uncolored	round	5.2	13.2	suction mark	
	amber	round	6.5	24.3	post mold	
	amber	round	6.5	24.0	post mold	
39 (15)	amber	round	6.5	24.0	cup mold	
	amber	round	6.4	24.2	post mold, suction mark	
	amber	round	6.4	24.0	cup mold	
	amber	round	6.4	24.2	post mold	
	amber	round	6.5	24.0	post mold	
	amber	round	7.6	29.3	post mold	
	clear green	round	7.7	29.4	post mold	
	aqua	round	6.4	24.3	post mold	
	green	round	6.7	24.7	post mold	
	uncolored	round cylindrical vial	2.7	12.5	cup mold	
	uncolored	rect. concave/convex	5.5x3.1	14.7	cup mold, suction mark	
	uncolored	rect. concave/convex	4.5x2.5	11.5	cup mold	
	uncolored	rect. concave/convex	3.6x2.5	10.0	cup mold	
	uncolored	round screw top	3.4	6.7	post mold, valve mark	
39b (10)	amber	round	6.5	24.0	cup mold, suction mark	
	amber	rect. beveled corners	6.0x4.3	17.5	cup mold	
	uncolored	rect. concave/convex	5.5x3.1	14.7	cup mold	
	uncolored	rect. concave/convex	5.5x3.1	14.7	cup mold	
	uncolored	rect. concave/convex	5.5x3.1	14.7	cup mold	



Bag	Thickness/Color	Shape	Diameter	Height	Manufacture	Embossing
39B (cont.)	uncolored	rect. concave/convex	5.3x3.1	14.2	cup mold, suction mark	LYRIC (also oz and cc scales on edge of corners)
	uncolored	round	4.6	13.3	cup mold, suction mark	34
	uncolored	rect. concave/convex	3.4x2.1	9.7	cup mold, suction mark	P/C
	amber	square wide mouth, beveled corners	2.3x2.3	6.8	suction mark	3
	amber	rect. wide mouth, beveled corners	3.0x2.0	6.2	cup mold	W.T.Co. 2 U.S.A.
40 (3)	uncolored	rect. convex/convex	8.3x4.5	23.6	post mold, suction mark	
	uncolored	rect. convex/convex	4.5x2.7	11.7	cup mold	N 2 OZ
	uncolored	rect. convex/concave	4.2x2.5	11.7	cup mold	3
41 (3)	clear green	round traditional Coca-Cola embossing (6 oz)	5.9	19.9	cup mold	4 5 ANCHORAGE ALASKA
	uncolored	round pebbled bands near base & at shoulder	6.0	23.6	cup mold	20 4 I 4532-G; SI NW I 652
	thin light amber	round pebbled base and body	6.3	16.0	cup mold	NOT TO BE REFILLED NO DEPOSIT NO RETURN
45 (2)	clear green	rect. convex/convex, wide mouth	5.7x2.5	17.4		D
	clear green	rect.	5.0x2.9	16.0	cup mold	662 OPTIMUS STEWART & HOLMES DRUG CO SEATTLE, WASH
46 (4)	yellow tint	round	7.0	24.5	post mold, suction mark	F
	clear green	round	7.7	28.6	cup mold	P.C.G.W.
	amber	round	6.5	24.0	cup mold	32
	amber	round	6.5	24.0	cup mold, suction mark	9M WF+S 49 X
47 (3)	amber	round	5.6	20.5	post mold	
	clear dark green	round	5.3	19.5	post mold	P/C 3
	uncolored	rect. concave/convex	4.4x2.5	11.5	cup mold, suction mark	50 NW12 652
48 (1)	amber	round pebbled base & body	6.3	16.0	cup mold	NO DEPOSIT NO RETURN NOT TO BE REFILLED
51 (2)	aqua	round	6.4	23.8	cup mold	23 3
	bright green	round	5.8	20.2	cup mold	3 9 8 (painted) MELO-PAYA A PAPAYA SODA TROPICAL DRINK that is different 7 FL. OZS
52	pink tint	round	6.0	22.5	cup mold	GRAPE PRODUCTS CO. WALKERS 4 GRAPE JUICE NORTHEAST PA

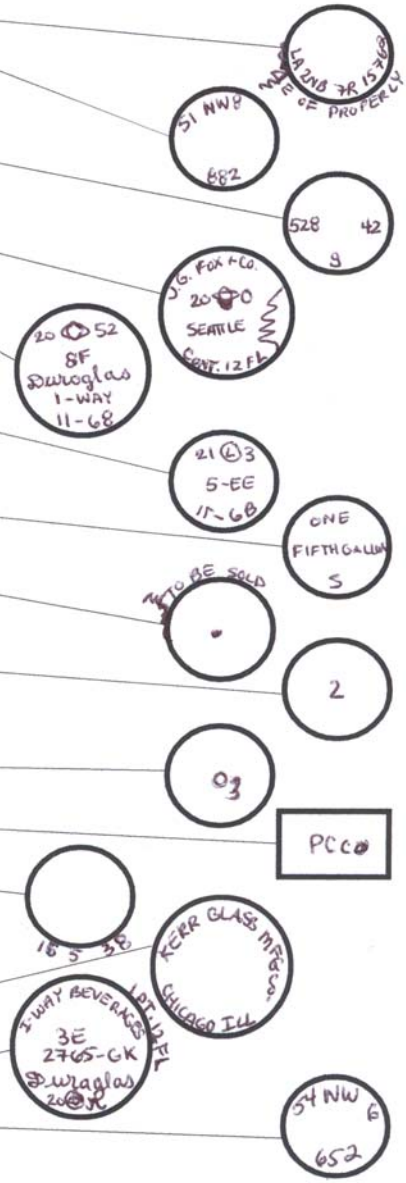
Bag	Thickness/Color	Shape	Diameter	Height	Manufacture	Embossing
54 (1)	uncolored	round pebbled body	5.8	20.0	cup mold	
57 (1)	clear green	round	5.7	20.2	cup mold	



Appendix F: Bottle Bases

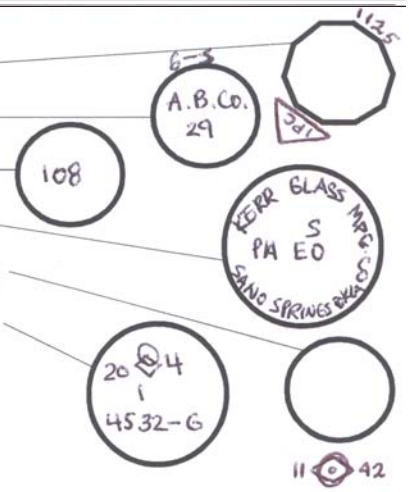
Bottle bases from all locations. Drawings are not to scale -- the larger ones are drawn that way simply to get all the embossing on. If the bottle had no embossing, it is not drawn. Jagged lines indicate breaks.

Bag	Thickness/Color	Shape	Size (cm)	Manufacture	Embossing
101 (2)	thin amber	round	6	pebbled base	
	thin amber	round	6	pebbled base & band, suction mark	
102 (2)	amber	round	6	cup mold, suction mark	
	thick uncolored pebbled body	round	6	cup mold	
30 (4)	thin amber	round	6	cup mold, pebbled base & band	
	thin amber	round	6	cup mold, pebbled base & band	
	clear green	round	7.7	cup mold, suction mark	
	clear green	round	6.5	cup mold	
32 (3)	uncolored	round	7	cup mold	
	clear amythst	round	5.7	cup mold, suction mark	
	clear green	round	7.6	post mold	
35 (6)	uncolored	round	6.6	post mold, suction mark	
	uncolored	rect.	5.4x3.2		
	clear green	round	6.3	post mold	
	amber	round	6	post mold, suction mark	
	clear green	round	7	post mold	
	uncolored	round	11	cup mold	
36 (3)	bright green	round	7.5	pebbled base	
	thin amber	round	6	pebbled base	



Bag	Thickness/Color	Shape	Size (cm)	Manufacture	Embossing
37 (11)	thick amber	round	6	cup mold	
	clear aqua	round	9.2	cup mold, suction mark	V
	clear green	round	6.2	post mold	
	clear aqua	rect.	6.0x3.0		W.T.Co. 2 USA
	uncolored	round	8.5	post mold, suction mark	9 P0
	clear green	round	6.5	post mold	
	thick uncolored	round	6.3	post mold	ONE FIFTH GALLON 5
	uncolored	round	7.8	post mold, valve mark	
	uncolored	round	9.8	cup mold	
	thick amber	round	7.4	post mold	
	thin amber	round	6	cup mold, pebbled base	
38 (4)	thick amber	round	6.4	machine post mold	44
	thick amber	round	6.4	cup mold, suction mark	2-400
	uncolored	rect.	5.5x3.0		
	amber	round	10	pebbled base	
38N (2)	thick uncolored	round	7.1	machine cup mold, valve mark	51 NW 12 652
	thin amber	round	6	pebbled base	87
39 (11)	thick amber	round	6.5	cup mold	AB 18
	thick amber	round	6.2	cup mold	E6
	thick amber	round	6.6	cup mold	27
	thick amber	round	6.5	cup mold, suction mark	
	thick amber	round	6.4	post mold	50 NW 12 652
	thin amber	round	6.4	pebbled base	
	uncolored	rect.	5.3x3.0	(indistinct)	
	uncolored	rect.	5.5x3.0	(indistinct)	19 X 2
	uncolored	round	5.8	cup mold, pebbled band	20 4 1 4532 G
	uncolored	round	6.5	post mold	33E-N-11
	thick green	round	6.3	post mold	D6
39N(2)	thick amber	round	6.5	cup mold	
	thick amber	round	6.5	cup mold	7
39b (1)	amber	round	4.4	post mold, suction mark	20

Bag	Thickness/Color	Shape	Size (cm)	Manufacture	Embossing
40 (1)	uncolored	ten-sided	5.2	machine post mold	
44 (1)	thick amber	round	6.8	machine cup mold	
45 (2)	thick amber	round	6.6	post mold	
	uncolored	round	9.8	cup mold, valve mark	
48 (2)	thick uncolored	round	5.8	machine cup mold (Coke)	
	uncolored	round	5.8	post mold, pebbled band	



Appendix G: Metal Artifacts

Bag	Location	Description	Class
22	see field book #1		
25	see field book #1		
30	English 3+05	fragments of gray enamelware pot	Domestic-Food preparation
"		cylindrical copper container 8.7 cm in dia. 3.8 cm (1.5") high w/ soldered copper bottom and soldered copper lid with 1.4 cm rim; center of lid has 1 mm pinhole with 1.8 cm dia. reinforcement ring soldered around it	?
31	English 3+13	ferrous wire latching hook 13.5 cm long w/ small ferrous staple rusted to eye end	Structural
32	Service for SEL-335	ferrous cold chisel 17.2 cm x 2.4 cm dia	Activities-Tools
"	(Willard's hospital)	ferrous curved half-round 7 cm long x 0.8 cm wide w/ jagged edges as if torch-cut	?
"		folded sheet of lead 1.5 mm thick, approx. 25 cm x 50 cm unfolded	?
34	English 3+21	cuprous link chain 54 cm long x 0.6 cm wide	?
35	English see map	crimped can frag. 9 cm high x 21 cm long	Domestic-metal cans
"		two small frags of white enamelware saucer - one rim frag indicates 17 cm dia	Domestic-foodserving-metal utensils
"		crushed gray enamelware cup with handle	"
"		two frags making complete ferrous wire bail for large pot; one end connected to ferrous eye once attached to pot with two rivets; length approx 50 cm, est. pot dia 30 cm	Domestic-food prep
"		two ferrous stove frags: one 14x9cm with "floral" pattern; one 14x11 cm with cross-hatched pattern	Domestic-heating
"		broken cast ferrous leg for treadle sewing machine (probably)	Activities-sewing
"		ferrous shovel 38 cm long x 12 cm wide scoop - probably for coal	Domestic-heating
36	English see map	cuprous cylindrical bell, stamped sheet metal, 5.5 cm dia., 2.0 cm high, w/ 3 mm hole perforating center	Personel
"		cast iron "sad iron"17x9.2 cm and 4 cm high, embossed "A.C. WILLIAMS/CHAGRIN FALLS O."	Domestic-clothing
37	English see map	ferrous wire 20 cm long bent in shallow U w/ hooks on end - probably for canning jar	Domestic-canning jars
"		gray enamelware cup w/ handle - 10.2 cm dia x 6 cm deep	Domestic-foodserving
"		ferrous wire coat-hook, 10 cm long, threaded	Domestic-furnishings
"		five cojoining frags cast iron pot, 16 cm deep, 25 cm dia, slanted sides, welded lug	Domestic-food prep
"		one-half wire bail - probably for above pot	Domestic-food prep
"		irregular ferrous plate, 18x16 cm - likely for above pot rather than stove due to thinness	?
"		oil lamp wick assembly w/ barrel, wick holder, & adjusting knob	Domestic-furnishings

38	English see map	cylindrical tinnedferrous friction-fit lid, 12 cm dia, 2.5 cm deep, 5 mm hold in center	?
“		ferrous wire ring 3.8 cm dia, 3 mm dia wire	?
“		stainless steel scissors half, broken (13.5 cm long), likely 18 cm when whole	Medical
“		three cast iron stove frags, two are tops w/ arc of circular lid-hole showing, one is a body frag with corrugation pattern	Domestic-heating
“		one ferrous plate, thinness suggests bottom of pot	Domestic-food prep
38N	Engish see map	rectangular cast iron bracket, 22.5x11 cm, w/ cast flanges w/ holes to swivel	Domestic-heating
39	Engish see map	cast iron frag of circular stovepipe damper	Domestic-heating
“		lead or zinc bar 9x3x0.7 cm with six wedge-shaped cuts in one edge	?
“		ferrous staple of 1.3 cm dia, 40 cm long & bent into U 13 cm wide & 16 cm deep	Structural-staple
“		cuprous grommet 2.3 cm dia	Structural-grommet
39b	English see map	ferrous pulley 3.8 cm (1.5”) dia, 1.4 cm wide	?
39N	English see map	silver-plated ferrous table knife handle	Domestic-food serving
40	English see map	white enamelware bowl 24 cm dia at top, 8 cm deep	Domestic-food serving
44	English see map	gray enamelware bowl frags approx 35 cm dia, 13 cm deep	Domestic-food serving
“		metal can frag painted w/ logo BF & says “A Product Of The Best Foods Inc.” and “To Open Turn” and “Perishable Keep at x to x ° F”	Domestic-metal cans
45		cast iron pot frag cojoins Bag 37 frags	Domestic-food prep
“		cast iron stove coals shaker (probably) 20 cm x 9.5 cm	Domestic-heating
46	English 4+25	can lid 7 cm dia, opposing sides churchkeyed	Domestic-metal cans
53	west end English SEL-335 (Willard’s hospital)	cast iron stove top frag w/ two arcs of holes (arc says 16.5 cm dia)	Domestic-heating
“		ferrous bracket w/ through bolt probably for closing door or damper or shaking ashes	Domestic-heating
101	NW corner Alder/Seldovia	ferrous spike, 1 cm square, 23 cm long	Structural
“		two spring fragments 3 & 3.7 cm dia	?
“		cast iron stove top cover 18.1 cm dia	Domestic-heating
102	Midden Exposure 3	scissors fragment 10.3 cm long	Personal-grooming
“		ferrous plate frag 7x5 cm - pot?	?
“		cuprous grommet 3.7 cm dia	Structural
103	S between Engish/Winifred	triangular scrap of sheet copper w/ nail holes 19 cm x 5.5 cm	Structural-roofing?

Table . Metal artifacts recovered from the excavations.

Appendix H: Leather Artifacts

Leather specimens are mostly shoe leather. Metric data for shoes/boots consists of sole width x sole length x height (measured from bottom of heel to top of ankle leather). Duplicate Bag #s reflect individual shoes from same provenience but bagged separately to keep pieces together to help future analysis.

Bag	Location	Description
19	Midden Exposure 3	almost whole adult male shoe in three pieces (Figure kz) has heel but missing sole, 9-hole; ?cm x 26cm x 12 cm
30	English Road 3+05	one adult male rubber & leather sole and leather toe, 8cm x 27cm
“		one adult male heel and ankle frag, ? cm x >16 cm, five-hole
“		one upper frag, 7-hole
30	English Road 3+05	one adult rubber sole frag, 7cm x >15cm
“		one adult lacing assembly, 7-hole with upper 3 hooks
32	SEL-335 service (Willard)	upper frag, 5-hole
32		delaminated (3 pieces) youth/female sole with toe, 6.5 cm x 21cm
“		sole frag, 8 cm x >11 cm
“		ankle scrap
34	English Road 3+21	three lacing assembly scraps
35	English Road see Fig. 31	one multi-laminated adult sole, 9cm x 24 cm
“		one youth/female sole, 6cm x 17cm
“		one small youth/female heel
“		one medium heel
“		one adult heel & partial sole, ?cm x >18cm
“		four frags of lacing assembly 10-eyelets
35	English Road see Fig. 31	whole adult shoe in several pieces, 8cm x 24cm
35	English Road see Fig. 31	youth-size sole, heel, toe, and partial ankle; 8cm x 21cm
“		lacing assembly with laces
“		toe
35	English Road see Fig. 31	lacing assembly 5-hole with two pairs of hooks
35	English Road see Fig. 31	adult toe and sole, 7cm x 26cm
“		adult toe and side frag
36	English Road see Fig. 31	child sole, heel, toe, and partial ankle 6cm x 18 cm, 10-hole
“		adult sole, toe, 6-hole lacing assembly with 3 hooks, 9cm x 25cm
“		4-hole lacing assembly
36	English Road see Fig. 31	adult male heel, sole, 8cm x 27cm
“		adult female sole, toe, lower ankle, 7cm x 22cm
“		adult heel, sole, toe, 8cm x 23cm
“		heel, sole frag, ?cm x >18cm
“		toe, sole frag, 7cm x >10cm
“		sole frag, ?cm x >20cm
“		heel, sole frag, ?cm x >10cm
“		heel
“		19 scraps of shoe leather from various parts of the shoe
37	English Road see Fig. 31	adult heel and sole frag, ?cm x 16cm
“		adult lacing assembly, 10-hole with four hooks
“		child lacing assembly, 6-hole
37	English Road see Fig. 31	adult heel, sole, toe, tongue, partial ankle, 9cm x 25cm

38	English Road see Fig. 31	lacing assembly frag, 5-hole
“		unmodified leather strip, 3.8cm x 23 cm
38N	English Road see Fig. 31	heel and ankle fragment
“		three laminae of heel
“		lacing assembly
39	English Road see Fig. 31	ankle frag with both halves of lacing assembly, 19-hole
“		sole, 7cm x 20 cm
“		heel (female?) with 6cm thick copper plate
“		15 scraps of shoe leather from various parts of the shoe
“		two matching rubber heels, “SPRING STEP”
“		sole fragment, pointed toe, 6cm x >13cm
“		lattice toe fragment as for sandal
“		scrap leather cut from 17cm x 25cm rectangle
39b	English Road see Fig. 31	deteriorating shoe heel with copper brads
39b	English Road see Fig. 31	pair of lacing assembly frags, 10-hole
“		four scraps of shoe leather from various parts of the shoe
“		small sole frag, ?cm x >13 cm
“		lacing assembly and upper for large boot, 5-hole
“		leather heel
39N	English Road see Fig. 31	five scraps of shoe leather from various parts of the shoe
40	English Road see Fig. 31	toe and partial sole, 7cm x 17cm
44	English Road see Fig. 31	two scraps of shoe leather from various parts of the shoe
45	English Road see Fig. 31	almost whole adult male shoe represented by heel and sole frag, toe and sole frag, sole frag, two lacing assemblies with ankle portion, 8cm x 24cm
48	English Road see Fig. 31	child’s sole, 5.5cm x 16cm
102	Midden Exposure 3	two sole frags, adult male, 8cm x >19 cm, 8cm x >13 cm